



Safety and Quality Investment in Livestock (SQIL) Project, Georgia MIDTERM PERFORMANCE EVALUATION REPORT

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SUBMITTED TO

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PROJECT

USDA Food for Progress, Safety and Quality Investments in Livestock (SQIL) Project, Georgia (2018-2023)
– Midterm Performance Evaluation Report

TASK & DELIVERABLE

Midterm Performance Evaluation Report

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List of Acronyms and Abbreviations

CRRC	Caucasus Research Resource Center – Georgia
FFPr	Food-for-Progress
FGD	Focus Group Discussions
GDP	Gross Domestic Product
GFA	Georgian Farmers’ Association
GoG	Government of Georgia
HACCP	Hazard Analysis and Critical Control Points
HoReCa	Hotel, Restaurant, and Café
ICT	Information and communication technologies
ISO	International Business Standard
KII	Key Informant Interviews
M&E	Monitoring and Evaluation
MCC	Milk Collection Center
MSU	Michigan State University
NFA	National Food Agency
MOE	Margin of Error
RDA	Rural Development Agency
SOQ	Seal of Quality
SPS	Sanitary and Phytosanitary Standards
SQIL	Safety and Quality Investment in Livestock
TOR	Terms of Reference
USDA	United States Department of Agriculture

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Executive Summary

Land O'Lakes Venture37 (Venture37) contracted IMPAQ International, LLC (IMPAQ) to implement the performance evaluation of the five-year Georgia Safety and Quality Investment in Livestock (SQIL) dairy and beef development project, funded by the United States Department of Agriculture (USDA). The evaluation consists of three components: baseline and gender analysis (2018–19), midterm (2021), and final (2023) evaluations. This midterm evaluation report measures progress made in achieving the intended outcomes from baseline by documenting the state of key dairy and beef value-chain actors that are SQIL project participants at midterm, establishing midterm values for key performance indicators, examining sustainability, and providing recommendations to help mid-course corrections for the SQIL project in Georgia.

The SQIL project focuses on using a private-sector approach to increase productivity and profit for the dairy and beef sector actors in Georgia. Project activities are focused on enhancing income and productivity at the farmer level, as well as removing bottlenecks along the dairy and beef value chains. On the supply side, Venture37 is building the capacity of local service providers and other relevant businesses by providing extension and training services to commercially oriented dairy and beef farmers on animal husbandry and food safety practices. There is also a focus on building the capacity of value-added dairy and beef businesses to optimize their supply chain, improve food safety practices, improve the quality of the mainstream products, and create niche products to increase business sales and profit. To strengthen processes along the supply chain, the focus is on improving the supply chain management systems focusing on cold storage, transportation and logistics, and infrastructure. By reducing losses, enhancing food safety, quality throughout the dairy, and beef supply chains, the project seeks to promote efficiency and business viability, while simultaneously increasing the marketing capacity of dairy and beef farmers and agri-businesses. To expand the market for dairy and beef goods, Venture37 is building up an existing dairy and beef association to develop and administer a dairy and beef Seal of Quality. Venture37 is also conducting an awareness campaign to build up demand for higher quality products domestically and working with the National Food Agency (NFA) to improve their food safety inspection services, thereby promoting compliance. As dairy and beef farmers and businesses improve their food safety compliance, the project aims to support them in accessing international markets.

During the midterm evaluation, the IMPAQ team conducted a performance evaluation to meet the evaluation objectives and answer the evaluation questions. Our mixed-methods approach frames the midterm evaluation through the lens of Georgia's dairy and beef market systems, considering how SQIL's interventions contributed to development of a sustainable dairy and beef market system driven by the private sector. Our inquiries at multiple levels of the value chain—dairy and beef farmers, milk collection centers, milk and beef processors, milk and beef retailers, input suppliers, government representatives, and other stakeholders—paint a broad picture of SQIL's relevance, impact, effectiveness, and efficiency, and examine the sustainability and gender equity of the project.

Methods

The IMPAQ team's midterm evaluation uses a mixed-methods approach to compare progress on key outcomes over time for project participants. We collected quantitative and qualitative data from a broad population of dairy and beef value-chain actors. Our non-experimental design administered a survey to collect quantitative data from dairy and beef farmers who were SQIL beneficiaries. We also collected a repeated cross-sectional quantitative survey with milk collection centers, milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input suppliers. Further, we used focus group

discussions to collect qualitative information from farmers and key dairy and beef businesses, and key informant interviews to collect qualitative information from other value-chain actors—government agencies and their staff, financial service providers, sectoral associations, input suppliers, research and educational institutions, and project staff. Since we can examine only trends or changes in outcomes without a comparison group, we are unable to attribute the findings *causally* to the SQL project. There could be non-project related factors, such as other projects or government programs in the region, that are correlated with but not causally connected to the observed outcomes—which we are unable to disentangle from the true impact of SQL. That said, we used qualitative methods, to the extent possible, to provide insights into the connections between SQL practices and desired outcomes.

Findings

Below we summarize key outcome indicators from both qualitative and quantitative data in the midterm performance evaluation. When we note increases or decreases, these are all in relation to baseline estimates unless otherwise stated. As used here, the word ‘significant’ denotes statistical significance. We also include noteworthy outcomes that are not statistically significant because of small sample sizes.

Dairy and Beef Farmers

- On average, farmers engaged in both dairy and beef (dairy/beef farmers) produced 5.5 liters of milk per cow per day. Dairy/beef farmers reported an average increase of 1.7 liters (significant at the 1% level) during peak lactation period. There was no significant difference in milk production by herd size or (summer and winter) season.
- The total daily value of milk sales increased by an average of \$2.50 per cow (significant at the 1% level) for dairy/beef farmers. Increases are significant at the 1% level for herd sizes of 10 or less and herd sizes between 10 and 20 (\$2.70 and \$3.10 per cow, respectively). Daily milk sales also increased during the winter season by \$3.60 (significant at the 1% level).
- Farmers engaging in beef fattening produced 113 kilograms of beef on average annually. There was no significant difference in annual beef production by herd size or season.
- Dairy/beef farmers sold an average of 14 kilograms less per cow (significant at the 10% level) at a decreased value per cow of \$1.00 per kilogram (significant at the 1% level). Farmers with herd sizes of 10 or fewer sold an average of 37 kilograms less per cow (significant at the 10% level) and herd sizes 10–20 sold 35 kilograms less per cow (significant at the 5% level). Farmers with herd sizes greater than 20 reported a decrease in sales price (\$0.80 per cow, significant at the 5% level). Farmers reported selling an average of 45 kilograms less per cow during the winter season (significant at the 1% level).
- There was an increase in the share (by 31 percentage points, significant at the 1% level) of dairy/beef farmers who had written or verbal agreements with buyers. Of those, eight percent had formal written agreements, compared to zero percent at baseline, and averaged 1.8 more annual informal written contracts or agreements (both significant at the 5% level).
- For those employed by dairy/beef farmers, both male and female permanent hires saw a decline in average total labor days (136 days and 179 days, respectively), and part-time seasonal males saw an average decline of 75 total labor days (all significant at the 1% level).
- Fewer dairy/beef farmers applied for a loan (by 13 percentage points, significant at the 10% level), but the amount borrowed increased by an average of \$15,712 (significant at the 1% level). Of the farmers that applied for a loan, more reported using the loan to build/maintain infrastructure for cattle (by 22 percentage points, significant at the 5% level), more used the loan to purchase cattle

(by 33 percentage points, significant at the 1% level). But fewer used the loan to pay off other debts (by 9 percentage points, significant at the 10% level), and fewer reported uses classified as “other” (by 30 percentage points, significant at the 1% level). The percent of farmers that started using new financial products in the past 12 months increased (from 1% to 4%, significant at the 1% level).

- 34% of dairy/beef farmers received training on farm business operation practices. Of those, the most common trainings received included feed flow planning (44%) and breeding and reproductive management plan (37%). The least common training was book-keeping and farm costing (15%). Non-profit organizations provided the major share (46%) of trainings to beef/dairy farmers. It should be noted that SQIL subcontracted other NGOs to implement some trainings, so some of the farmers’ responses of “NGOs” might actually be capturing the efforts of the SQIL project.
- 24% of dairy/beef farmers received training on improved cattle husbandry practices, with more than half receiving training on feed and nutrient supplementations (62%), safety and hygiene practices for housing (58%), and safety and hygiene practices while milking (54%). Animal tagging (18%) was the least training received. More than half of all trainings were provided by non-profit organizations.
- Less than half of dairy/beef farmers had heard of Agronavti (40%) or AgroFace (25%). Of those who had heard, 22% used Agronavti and 12% used AgroFace.
- Only 19% of dairy/beef farmers held a certification. Of those, more than half held the National Food Agency certification/registration.
- 55% of dairy/beef farmers reported impacts from COVID-19, with more than half reporting transportation of products being impacted. 80% reported that it was more difficult to access inputs, 86% that the price of inputs increased, and 94% that animal feed prices increased.

Milk Value Chain

- The average cost of a liter of milk did not differ significantly for MCCs and milk processors. However, during the summer the average cost increased for milk processors from \$0.27 to \$0.34 (significant at the 5% level).
- The largest amount of product that milk retailers procured was imeruli cheese, at 1,479 kilograms per month. There was a seasonal difference, with procurements averaging 863 kilograms more milk products during the winter than the summer months.
- On average, 58% of businesses had sales agreements with suppliers, with milk retailers reporting a 40 percentage point increase (significant at the 10% level). Of those who had agreements, the average number of verbal sales agreements was 50.
- On average, the most common safety practice used by milk farmers was keeping milk storage areas clean and hygienic (98%). Only 33% of (the three) MCCs reported that employees washed hands before handling milk (a 56 percentage point decline) and 67% of employees wore clean outer garments before handling milk (a 33 percentage point decline) (both significant at the 10% level).
- The most common milk/milk product quality check among businesses was checking the acidity of milk (97%), with milk processors reporting a 15 percentage point increase in acidity of milk checks (significant at the 5% level). Fat content dropped by 50 percentage points for MCCs (significant at

the 5% level), and quality checks characterized as “other” dropped from 17% to 3% (significant at the 1% level).

- On average, temperature instruments used on milk/milk products dropped (from 78% to 42%, (significant at the 1% level). Use of temperature and milk density instruments for MCCs dropped (by 67 percentage points, significant at the 5% level).
- On average, dairy businesses had 2,872 cubic meters of cold storage capacity installed (compared to just 22 cubic meters at baseline), including 104 cubic meters added in the past year. Overall, 8% of dairy businesses bought/rented cold storage capacity, a 17 percentage point decline from baseline (significant at the 5% level). Milk processors largely drove the downward trend with just 6% reporting that they bought/rented cold storage in the past year compared to 31% at baseline, a difference significant at the 1 percent level.
- On average, milk processors sold 64 metric tons less of processed liquid milk per month (significant at the 1% level); MCCs sold 55 metric tons less per month at an increased price of \$0.16 (both significant at the 5% level). MCCs sold 99 metric tons less during the summer at an increased price of \$0.19 (both significant at the 5% level), and 290 liters less during the winter (significant at the 10% level).
- On average, 45% of dairy business received business operation trainings, a 24 percentage point decline. Of those, the most common training received was milk testing training (80%), a 34 percentage point increase (significant at the 1% level). Non-governmental agencies administered the majority of training to milk processors, whereas Land O’Lakes Venture37 SQIL project administered all the training to MCCs.
- MCCs increased male permanent employees by 26 percentage points, but did not hire any seasonal employees at midline, regardless of gender. In general, milk processors decreased the number of permanent employees and increased the amount of seasonal employees, for both males and females.
- Fewer farmers applied for loans (by 20 percentage points, significant at the 1% level) and borrowed an average of \$59,164. Fewer milk processors used loans for buying equipment (by 40 percentage points, significant at the 5% level).
- All MCCs, 68% of milk processors, and 75% of milk retailers reported COVID-19 impacted their business. Two-thirds (67%) of milk retailers reported communication or visits from milk/milk product buyers were most impacted; 46% of milk processors and all MCCs reported transportation of products was most impacted.

Beef Value Chain

- On average, slaughterhouses procured 274 kilograms less beef per month at \$2.24 per kilogram; beef retailers procured 140 kilograms less beef at an increased price of \$1.10; and beef processors procured 4,578 kilograms more beef per month at an increased price of \$1.14 per kilogram.
- 95% of slaughterhouses and all beef processors used safety and quality practices for procured cattle. More slaughterhouses used visual evidence of disease (by 32 percentage points), more beef processors required documentation about pathogen control and chemical residues from slaughterhouses and/or cattle farmers (by 38 percentage points), and more beef retailers had a food safety manager on staff (by 26 percentage points). Food and safety certifications declined for slaughterhouses (by 17 percentage points); but more beef processors (by 20 percentage points) and more beef retailers (by 38 percentage points) held some sort of certification.

- 78% of slaughterhouses had cold rooms/freezers for storing beef (a 40 percentage point increase); 67% of beef processors had cold rooms/freezers for storing beef (a 52 percentage point increase).
- Slaughterhouses installed about 41 cubic meters more chilling storage capacity; beef processors installed 776 cubic meters more chilling storage capacity; and beef retailers installed 16.56 cubic meters more chilling storage capacity.
- 50% of slaughterhouses, 87% of beef processors, and 64% of beef retailers received trainings. Government agencies administered the majority of the trainings for all business. Almost two-thirds (60%) of beef processors had knowledge of Agronavti, more than slaughterhouses (48%) and beef retailers (29%). Of those with knowledge, one-third or fewer slaughterhouses (25%), beef processors (33%), or beef retailers (14%) used it.
- 23% of slaughterhouses, 33% of beef processors, and 25% of beef retailers had knowledge of AgroFace. Of those with knowledge, only 11% of slaughterhouses, 20% of beef processors, and 14% of beef retailers used it.
- On average there was a 68 percentage point increase in sales agreements with beef industry suppliers, and a 36 percentage point increase in sales agreements with buyers.
- Slaughterhouses increased permanent male employees by 9 percentage points and decreased seasonal male employees by 8 percentage points. Slaughterhouses did not hire any female employees. Beef processors increased seasonal female employees by 9 percentage points.
- 11% fewer beef farmers applied for loans, but the amount borrowed increased by \$37,842.
- Almost all (96%) of farmers kept records, with more than three-fourths reporting records on animal reception and financial and administration record keeping.
- 68% of beef business were impacted by COVID-19. Of those, the majority reported communication with or visits from beef product buyers was impacted.

Input Suppliers

- The percent of input providers that sold animal feed or fertilizers, pesticides, and veterinary drugs declined (by 67 and 78 percentage points, respectively, both significant at the 1% level). Most input providers (83%) sold veterinary and other services.
- Input providers sold an average of 765,000 kilograms of animal feed per month during the summer season, 775,000 kilograms animal feed per month during the winter season, and 1,925 kilograms fertilizers, pesticides, veterinary drugs per month during the winter. Total monthly revenue increased by an average of \$68,446. Monthly revenue for animal feed increased by \$363,140 on average, and the summer season saw an average increase of \$127,666.
- Buying inputs for resale declined (from 100% to 36%, significant at the 1% level), whereas renting inputs increased (from 3% to 43%, significant at the 1% level). About 71 of input providers reported importing inputs.
- Input providers installed a total of 139 cubic meters of dry storage capacity and purchased or rented 79 cubic meters of dry storage capacity. There was no change between baseline and midline on chilled storage capacity.
- Input providers had 18 formal written or verbal agreements with suppliers, and 24 with buyers.

- More input providers provided value-added services (by 44 percentage points, significant at the 1% level). More also provided feed/fodder support (by 37 percentage points) and more provided artificial insemination services (by 33 percentage points) (both significant at the 10% level).
- 60% of input providers had heard of Agronavti and 47% of AgroFace. Of those, 22% used Agronavti and 57% used AgroFace.
- 33% of input providers held an International Business Standard (ISO) 9001 food and safety certification; only 11% held an ISO 22000 certification. Two-thirds (67%) of input providers had an alternative food and safety certification that was unlisted in the survey.
- Input providers hired more seasonal male employees (by 8 percentage points, significant at the 1% level). Female employment did not change significantly.
- 73% of input providers reported that COVID-19 impacted their business. Of those, communication with or visits from input buyers was the most frequently (36%) cited as being impacted, aside from variables classified as “other.” About 82% reported no effect on access to raw product suppliers, 55% reported more difficulty in the ability to sell inputs to farmers or agricultural businesses, and 45% reported either no effect or a higher average price of inputs to farmers/agricultural businesses.

The qualitative data offers context for the quantitative results. We examine the performance of the project in six categories: relevance, effectiveness, efficiency, gender equality and equity, sustainability and impact (perceived). The following summarizes outcomes in those areas to highlight the main takeaways.

Relevance
▪ SQIL aligned with the US and Government of Georgia’s strategic goals and expectations for the dairy and beef sector. ▪ Major barriers to growth in the dairy and beef industry included lack of available pastureland, capital, government support, and knowledge on new methods, as well as challenges around inspecting and regulating farms, given the industry’s domination by small farms. ▪ Farmers were pleased with SQIL support, including training, local language educational materials, events, and co-financed grants.
Effectiveness
▪ Participants evaluated trainings positively, stating that they were timely, well-organized, and provided useful information. ▪ Participants found the educational materials, developed in local languages, to be useful and relevant to their needs. ▪ Many farmers found the co-financed grants to be very helpful for their business. However, farmers also noted challenges with the timeliness of delivery, selection, and appropriateness of the equipment, and issues meeting the 50-50 co-finance requirement. ▪ Although participation in events was limited due to COVID-19, those who participated in conferences, trade fairs, exhibitions, and meetings found them useful. ▪ Farmer knowledge and use of Agronavti varied, with some farmers finding the platform helpful while others were unaware that it was available as a resource.
Efficiency
▪ In general, stakeholders felt that the project activities (including trainings, grants, distribution of education materials, and events) were implemented in a timely manner. Some farmers did note challenges, including remote trainings being too long and long procurement and delivery times for equipment procured under the co-financed grants. ▪ The project allocated sufficient resources to allow for effective implementation.

▪ The project actively used information and feedback from implementation to adjust and adapt programming to address stakeholder needs more effectively. ▪ Stakeholders appreciated the project’s collaborative approach to assess needs and design activities based on those needs.
Perceived Impact ▪ Farmers noted changing hygiene and sanitation, feeding, and livestock handling practices, as well as business management practices after participating in project trainings. ▪ While stakeholders indicated that a quality certification process would be beneficial, barriers including farmer hesitance to invest in upgrades, lack of consumer awareness and understanding of quality certifications, and challenges with regulating and tracking certifications could make the roll-out of the GeoGap certification challenging. ▪ Although farmers secured grants, agricultural loans, and equipment from non-governmental organizations, government programs, microfinance institutions, or banks, there were still gaps between services offered and those needed by farmers. ▪ Association membership and perceptions of benefit varied, with some farmers finding association membership useful and others not seeing the value to their businesses. ▪ Although project participants did not cite specific examples, they noted that sharing information and knowledge with non-participants potentially contributed to spillover effects.
Sustainability ▪ Stakeholders were optimistic that the knowledge farmers gained through trainings and the educational materials produced by the project would contribute to sustainable changes and improved practices in the dairy and beef sector. ▪ The market-led approach showed promising signs for promoting sustainability of project initiatives. ▪ Challenges for sustainability included lack of consumer awareness around food safety and quality standards, issues with access to long-term financing, lack of business management skills, and shifting political interests that could affect sustainability of project initiatives.
Gender Equality and Equity ▪ While many respondents did not believe women faced additional challenges, those who did said that some women encounter challenges engaging in physically intensive work (e.g., operating heaving farm machinery) and time available given other household responsibilities. ▪ The program encouraged participation of women in trainings, co-finance grants, and connecting female participants with other female stakeholders in the value chain through events.

Recommendations

The recommendations to Venture37, based on lessons learned in the field and findings from the midterm data, fall into three parts:

Quick Wins

- **Make grants more accessible to farmers.** During focus groups, farmers reported that the current requirement that 50% of the grants had to be co-financed was too onerous. This co-financing level was a barrier to participation for many farmers, particularly given the financial constraints that many farmers were facing due to the COVID-19 pandemic. Given that the project urgently needs to increase the availability of equipment among project beneficiaries, we recommend making the co-financing obligation lower than 50%, with the exact allocation decided in consultation with project beneficiaries. This will encourage more farmers to apply for these grants and help mechanize them.
- **Reduce time taken for procurement of equipment.** At midterm, farmers noted that, in addition to the high requirements for co-financing the grants, there were delays in procurement of equipment. These delays dissuaded farmers from applying for grants or in some cases led to farmers choosing not to take part in the grant due to expected timelines. We recommend

revisiting the procurement process to figure out ways to expedite purchasing and delivery. Further we also recommend more clearly explaining to the grant recipients about project procurement procedures necessary for transparent purchase of in-kind rewards.

- **Tailor grants to make them better suited to farmers' needs.** During qualitative focus groups, it was also noted that there was often a mismatch between the equipment farmers needed and what they could purchase. In some instances, farmers noted that the equipment procured did not work with their existing equipment, which impacted their ability to fully utilize and benefit from the equipment. We recommend revisiting the equipment requirements and specifications, to ensure they align with farmers' needs and to get the grant recipients more actively involved in the development of specification and technical characteristics of the items to be purchased for them.
- **Increase frequency of grant cycle applications.** Farmers at midterm appreciated the in-kind grants as an important mechanism through which they could modernize and improve productivity. However, under the current system, farmers were able to apply for the grants only during certain waves, and if they missed a cycle they had to wait until the next cycle to apply. To increase the ability of all project beneficiaries to access the grants, we suggest increasing the flexibility of the grant mechanism to give farmers the option of applying more frequently and/or on an as-needed basis. This would help reduce the time lag for farmers and enable them to access urgently required equipment more readily.
- **Continue to promote technology uptake through the feed ratio software tool.** Farmers commented that the feed ratio program was a useful tool that contributed to improved productivity. Given the lack of arable pastureland, the program is a useful tool for helping farmers increase their productivity without having to increase their land. We recommend that the project continue promoting and expand distribution of this program to maximize its impact.

Medium-term Strategy

- **Work with the Government of Georgia and Georgian Farmers Association to address capacity issues to implement GeoGap Certification.** A key barrier facing the sustainability of the GeoGap certification is the ability to regulate and track certification processes, given that the industry is dominated by small farms that are often not registered. We recommend that the project work with both the Georgian Farmers Association and the Government of Georgia to streamline the tracking system and build the capacity of local extension workers to monitor and inspect small farms to ensure they are compliant with safety and quality standards.
- **Work with the Government of Georgia in mitigating the adverse impacts of COVID-19 of farmers and businesses.** As a result of the COVID-19 pandemic, farmers experienced a rise in input costs and supplies, transportation restrictions, decrease in demand due to a diminished tourism industry, and increased competition with cheaper imported goods—all of which negatively impacted farmers' sales and profitability. We recommend that SQIL leverage its expertise and Venture 37's lessons learned from working in other contexts, to work with the Government of Georgia to develop policies and/or programs to help mitigate the short- and long-term effects of the COVID-19 pandemic on the dairy and beef industry.

Long-Term Strategy

- **Work with government stakeholders to address increased need for veterinary services.** Stakeholders noted both the lack of access to veterinary services as well as a lack of understanding of the role and importance of veterinary care as a barrier to improving product quality as farmers

are not able to provide preventive or treatment care for cattle We recommend that the project work with government stakeholders and relevant local universities to increase the capacity of veterinary services within the country. In tandem, we recommend that the project continue to reiterate the importance of veterinary care through training, educational materials, and events.

Section 1. Introduction

Land O'Lakes Venture37 (Venture37) has contracted with IMPAQ International, LLC (IMPAQ) to implement the performance evaluation of the five-year Safety and Quality Investment in Livestock (SQIL) dairy and beef development project, funded by the United States Department of Agriculture (USDA). The evaluation consists of three components: baseline and gender analysis (2018–19), midterm (2021), and final (2023) evaluations. The purpose of this midterm evaluation report is to measure progress in achieving the intended outcomes from baseline to midterm, and to provide recommendations for mid-course corrections for the SQIL project.

In **Section 1**, we provide background on the dairy and beef value chains in Georgia, describe the Georgia Food-for-Progress (FFPr) project, and present an overview of the results framework and specific project activities. In **Section 2**, we describe the midterm evaluation methodology, midterm evaluation objectives, research questions, data sources, data collection tools, data analysis methods, field implementation, and study limitations. In **Sections 3, 4, and 5** we present the midterm quantitative and qualitative results. **Section 6** concludes the report with recommendations based on the key findings and conclusions of the midterm evaluation. The Indicator table for the project, with finalized midterm values, is presented in **Annex A**.

1.1 Project Background

Georgia, an emerging free market economy, has seen rapid growth in the last decade. From 2009 to 2019, its gross domestic product (GDP) grew by 6.1% on average in real terms.¹ Since 2012, the Government of Georgia (GoG) has implemented economic reforms and increased private sector initiatives in the agricultural sector that have led to improved productivity, increased productive capacity, and reductions in rural poverty. The share of agriculture in overall GDP has remained low, however, despite the sector employing almost 38% of Georgia's workforce as of 2019 and contributed only about 7.0% to Georgia's GDP.

Dairy and Beef Value Chains in Georgia

Within agriculture, although the dairy and beef sectors account for more than half of total agricultural output, their productivity has remained low, despite favorable ecological and climactic conditions.² Primary causes for this continued low growth have been absence of adequate farm infrastructure, weak supporting services, and harsh competition from international producers.³

Exhibit 1 depicts the dairy and beef value chains in Georgia at the farm-gate level, which include subsistence farmers, small- to medium-scale commercial farmers, and large-scale commercial farmers (50+). Subsistence farmers usually produce only for home or village consumption and have either non-existent or only weak links to intermediate actors in the value chain (milk collection centers, milk and beef processors, milk and beef retailers, slaughterhouses, input suppliers, and business development service providers). Medium-scale commercial farmers are typically linked to large-size processors; small commercial farmers are primarily linked to microprocessors. Large-scale farmers are usually linked to large- or medium-size processors. Both medium- and large-scale commercial farmers have varying levels of quality, with medium-scale farmers more often facing quality rejections.

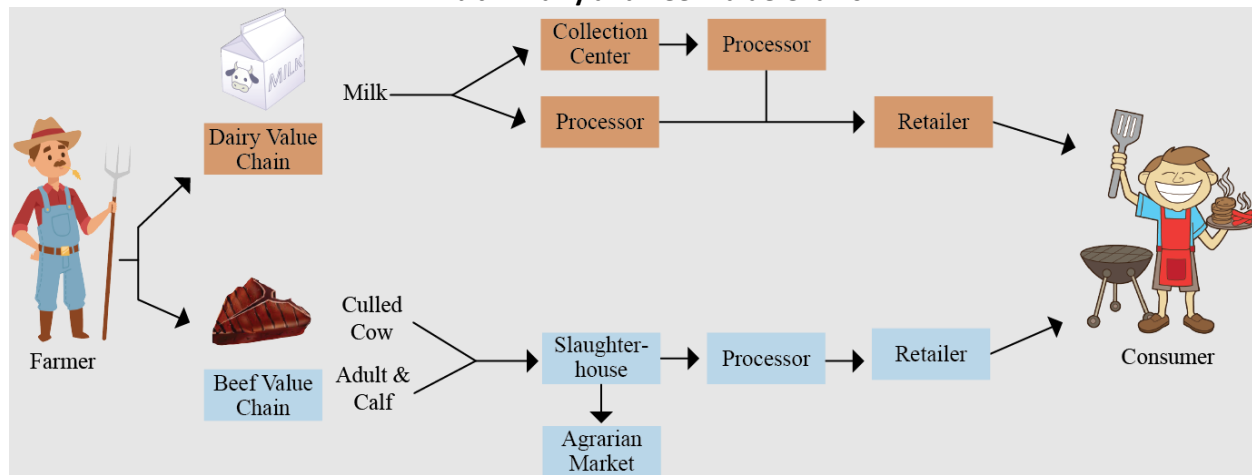
¹ World Bank Statistics. 2021

² Georgia Country Report, The Fund Georgian Center for Agribusiness Development. 2016.

³ Georgia Country Report, The Fund Georgian Center for Agribusiness Development. 2016.

Several critical issues affect each actor in the dairy and beef value chains. Common challenges include: (1) restricted access to finance and technical capacity, which limits the quality and quantity of services value chains provide to consumers; (2) high start-up costs and poor management systems; (3) inaccessible financing and risk management instruments; (4) fragmented cold chain and logistics infrastructure; (5) low consumer confidence in domestic products; and (6) food quality and food safety issues.⁴

Exhibit 1. Dairy and Beef Value Chains



Venture37 Georgia SQIL Intervention and Results Framework

With USDA funding, Venture37 leads an innovative, demand-driven FFPr Safety and Quality Investment in Livestock (SQIL) project to improve food safety and quality along Georgia’s dairy and beef value chains, to increase competitiveness and trade in both sectors. The Results Framework of the Venture37 Georgia SQIL is presented in **Annex B**. The nationwide project, which focuses on medium-scale commercial farmers and businesses, works to increase profits and productivity and expand trade in milk and beef products along Georgia’s East-West highway corridor. The implementation regions are shown in **Exhibit 2**.

The project’s theory of change focuses on using a private-sector approach to reach the goal of increasing productivity and profit for dairy and beef sector actors. Project activities enhance income and productivity at the farmer level, as well as remove bottlenecks along the dairy and beef value chains. On the supply side, Venture37 is building the capacity of local service providers and other relevant businesses in two ways. First, it provides extension and training services to commercially oriented dairy and beef farmers on animal husbandry and food safety practices. Second, it helps value-added dairy and beef businesses to optimize their supply chain, improve food safety practices, improve the quality of the mainstream products, and create niche products to support increased business sales and profit. To strengthen processes along the supply chain, the focus is on improving the supply chain management systems (such as cold storage, transportation and logistics, and infrastructure). By reducing losses and enhancing food safety and quality throughout the dairy and beef supply chains, Venture37 seeks to promote efficiency and business viability, while simultaneously increasing the marketing capacity of livestock farmers and agri-businesses.

SQIL is supporting the establishment of an industry-led Seal of Quality (SOQ), building government capacity to regulate food safety compliance, expanding the number of trained food safety professionals,

⁴ Agriculture for Development: World Development Report, 2008 and Innovations for Agricultural Value Chains Report, Meridian Institute. 2015.

and increasing consumer awareness of food safety standards—to help create necessary incentives to increase industry adherence to food safety standards. Simultaneously and through the end of the project, SQIL is training dairy and beef market systems actors in appropriate food safety practices and increasing their access to appropriate financial products to invest in safety, thereby enabling the industry to better understand and meet market demands. Together, these efforts are improving the quality of products produced, expanding market access for Georgian dairy and beef products.

In addition, SQIL will build capacity of extension services and input suppliers—to improve their services to livestock farmers and enhance the extension messages provided through the information and communication technology (ICT) platform, Agronavi. These interventions will increase farmers’ access to and demand for improved inputs and infrastructure and access to market information; and increase adoption of improved production techniques and technologies, resulting in higher yields for dairy cows and healthier, heavier cattle for slaughter. This incremental productivity, combined with improved linkages to dairy and beef value added businesses, will increase the quantity of dairy and beef products in the formal supply chain. This—combined with the increased access to markets of value-added businesses, and demand for differentiated, high-quality products—will result in expanded trade.

Exhibit 2. Map of Regions Targeted in the SQIL Project



To summarize: Through its private sector–driven market systems approach, Venture37 is performing six activities in three separate focus areas: capacity building (which includes technical assistance and training), market access, and access to finance. These activities are detailed in the contract scope of work, summarized in **Exhibit 3**, and presented in detail in **Annex C**. These activities are designed to help Venture37 reach its goals of increasing agricultural productivity and expanding the trade of agricultural products in the dairy and beef sectors.

Exhibit 3. SQIL Project Focus Areas and Activities

Activity Number	Activity	Sub-Activity
1	Expand Market Access: Facilitate Private and/or Public Partnerships	Establish a National Dairy and Beef Industry Association
		Develop the Seal of Quality (SOQ) Standards
		Conduct a National Level SOQ Awareness Campaign
		Launch a Business Innovation and Growth Center

Activity Number	Activity	Sub-Activity
2	Training: Sanitary and Phytosanitary Standards	Provide Food Safety Technical Assistance
		Build out ICT Tools to Disseminate Food Safety Training
		Build Capacity of the NFA to Enforce Standards
		Expand the network of Food Safety Professionals
3	Infrastructure: Post-Harvest Handling and Storage	Strengthen Supply Chain Management Systems
		Facilitate Upgrades of Supply Chain Infrastructure
4	Capacity Building: Extension Services	Expand Private Sector Input and Extension Models
		Use ICT to Disseminate Animal Husbandry and Farm Management Best Practices
5	Financial Services: Agricultural Lending	Provide Catalytic Capital for Business Growth
		Support Scale-Out of Livestock Insurance Products
6	Capacity Building: Policy and Regulatory Framework	Inform Food Safety Policy Development
		Advocate for Dairy and Beef Industry Growth

Activity 1. Expand Market Access

Activity 1 aims to strengthen and expand an existing association in Georgia to serve as a knowledge and marketing platform for the dairy and beef industries. In addition, the project supports the association to develop and embrace industry-led quality standards and certification processes to represent Georgian measures of excellence and international manufacturing best practices. The project will also launch a national multimedia campaign to raise domestic consumers' awareness for food safety, alert the agribusiness industry to the benefits of achieving higher food safety and quality standards, and hence expand their domestic market access. Venture37 also collaborates with a leading institution to build innovation platforms that will assist entrepreneurs and small/medium business to develop niche dairy and beef products for local and international markets. Participating businesses will be eligible for co-investment from the innovation fund, described in **Activity 5**.

Activity 2. Improve Sanitary and Phytosanitary Standards

Activity 2 aims to build the capacity of local firms to provide independent, objective food safety technical assistance to livestock business operators across the supply chain, leveraging the successful training model promoted by Michigan State University (MSU) across its global food safety training programs. The project also works with government institutions to disseminate public extension content and food safety information. In addition, Venture37 also supports the National Food Agency (NFA) over the project duration in strengthening its operational infrastructure and human resource capacity, including training all central and regional level inspectors, a total of 155 staff, on HACCP audit processes and principles. This was the first ever comprehensive training for NFA employees that focused on building employees capacity on HACCP. Finally, the project works to refine the food safety training curricula within Georgia's top universities offering food safety-oriented degree programs and to build the capacity of the laboratories to further support students and the industry in monitoring the safety and quality of food products.

Activity 3. Post-Harvest Handling and Storage

Activity 3 focuses on analyzing the cold storage, transportation, and logistics system across the targeted regions, and identify areas in the dairy and beef market systems needing management and infrastructural improvement. SQIL will leverage supply chain optimization with provision of both technical and financial support in improving the dairy and beef post-harvest handling of both raw materials and final products—

in an effort to reduce losses and improve management functionality of operators. Venture37 will forge linkages between selected firms and commercial banks offering loan products to facilitate lending for infrastructural improvements.

Activity 4. Improve Productivity

Activity 4 focuses on disseminating productivity improvement knowledge and market information, by providing incentives to entrepreneurial businesses to scale up different models for extension services, increased competitiveness, and input provision to dairy and beef farmers. In addition, the activity aims to integrate and embed training topics and tools that educate farmers on improved and more productive farm management practices with input providers and buyers. The curriculum draws on globally accepted best practices for dairy and beef production and will align with industry quality and animal welfare standards. Venture37 will also organize annual herd and carcass competitions to enable farmers to showcase their livestock and the results of their improved practices, and input providers to highlight the benefits gained from artificial insemination and improved feed formulation.

Activity 5. Improve Access to Financial Services

Activity 5 focuses on establishing a project innovation fund to increase product, service, and business model innovations for embedded extension services and improved food safety and quality within the dairy and beef market systems. Most investments are coupled with technical assistance from the project team and local firms, to support co-investors in refining and implementing their business growth plans. The project works also to promote linkages to commercial banks for continued financing. SQIL continued its efforts to provide continuous technical support to insurance providers and financial institutions, to further development of new livestock insurance and lending products appropriate for the sector, to scale them, and to improve linkages among insurance services providers.

Activity 6. Capacity Building to Inform Food Safety Policy Development

Activity 6 aims to mobilize policy experts to assess the GoG's food safety policies, and to provide technical assistance to GoG on policy and institutional reform that enables Georgia to meet international standards as they relate to minimum food safety and quality assurance. SQIL will work with industry associations to develop plans and benchmarks for proposed policy reforms impacting food safety and facilitate Georgian dairy and beef sectors' related associations' engagement with governmental working groups and civic forums to advocate for dairy and beef industry growth. Venture37 also engages dairy and beef farmer association members to facilitate their close ties and engagement in advocacy efforts.

1.2 External Factors

Coronavirus disease 2019 (COVID-19) is a contagious respiratory and vascular disease responsible for an ongoing pandemic. In early 2020, this worldwide health emergency resulted in a number of setbacks for the SQIL project, derailing project activities and potentially affecting beneficiary/participant outcomes.

According to the SQIL Semi-Annual Performance Report of April 2020 to September 2020, these effects include macroeconomic destabilization of the Georgian economy due to reduced domestic HoReCa demand for dairy and beef products, continuous devaluation of the national currency, increased interest rates, and reduced access to finance. The SQIL project made efforts to adapt to these circumstances as COVID-19 brought major changes in how the distribution and supply chains operate—as well as to availability and accessibility of dairy and beef inputs, commodities, and value-added dairy and beef products. Specific project challenges included reduced group trainings and technical assistance activities for both private and public participants, and postponement of activities that required international travel. Instead, other types of activities—such as utilization of IT tools through implementing internet-based

trainings; developing, publishing, and disseminating training materials; and one-on-one technical assistance interventions—were stepped up during the summer months of 2020.⁵

As part of this midterm evaluation, IMPAQ also examined the pandemic’s influence on project results and the key performance indicators outlined in the Performance Monitoring Plan.

⁵ SQL Semi-Annual Performance Report to USDA April 2020 to September 2020.

Section 2. Midterm Evaluation Methodology

IMPAQ conducted the baseline evaluation of the SQL project in 2019. This report details the findings from the midterm evaluation conducted in 2021. This section outlines the midterm evaluation’s data collection methodology and the sources and types of data collected. We include the evaluation’s Scope of Work in **Annex C** and IMPAQ’s Midterm Evaluation Inception Report in **Annex D**.

2.1 Evaluation Methodology Overview

The IMPAQ team conducted a performance evaluation to meet the midterm evaluation objectives and answer the final midterm evaluation questions. This approach frames the evaluation through the lens of Georgia’s dairy and beef market systems, considering how the SQL interventions contribute to development of sustainable private sector–driven dairy and beef market systems. IMPAQ used a formative approach to: (1) tie together its inquiries at each level of the value chain into a broad picture of SQL’s relevance, impact, effectiveness, and efficiency; and (2) examine the sustainability and gender equity of the project’s activities. We organized the midterm evaluation using a mixed-methods approach, comparing progress on key outcomes over time for project participants—testing hypotheses IMPAQ developed at baseline about the project’s relevance, impact, efficiency, and sustainability, with a special focus on gender equality and equity.

We collected quantitative and qualitative data from a broad population of dairy and beef value-chain actors. Our non-experimental design administered a quantitative survey to collect quantitative data from dairy and beef farmers who were beneficiaries of the SQL project. We also collected a repeated cross-sectional quantitative survey with milk collection centers (MCCs), milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input suppliers. Further, we used focus group discussions (FGDs) to collect qualitative information from farmers and key dairy and beef businesses, and key informant interviews (KIIs) to collect qualitative information from other value-chain actors (government agencies and their staffs, financial service providers, sectoral associations, input suppliers, research and educational institutions, and project staff). In addition, through case studies of non-participant market actors, we gathered information about spillover benefits of the Georgia SQL on non-participants. In the targeted regions, we selected non-participant dairy and beef farmers and examined if and how they adapted their practices due to project activities during the midterm evaluation period.

The midterm evaluation builds off the baseline evaluation results by providing longitudinal data and comprehensive documentation of the dairy and beef market systems, especially after incorporating the effects of the COVID-19 pandemic on project implementation and achievement. We identified lessons learned, with an emphasis on identifying key strategies, methodologies, and factors that contributed to and/or inhibited success—focusing on lessons that could be applied to the remaining program period.

2.1.1 Midterm Objectives and Questions

IMPAQ worked with Venture37 to implement the midterm evaluation of the SQL project to measure progress made in achieving the intended outcomes presented in the results framework.

The terms of reference (TOR) for the midterm evaluation details eight objectives:

- Assess the relevance of the project strategy and approach as well as the validity of assumptions made during project design;
- Measure progress from baseline, including the effectiveness and efficiency of interventions in achieving established targets;

- Assess how women and men have benefited differently from the project, and provide recommendations for mitigating any differences;
- Document lessons learned, challenges, and unanticipated effects, including the COVID-19 global pandemic;
- Identify enablers and constraints to progress (both internal and external factors) that have supported or limited project success;
- Assess sustainability efforts to date;
- Provide recommendations for necessary corrections to strengthen project performance, efficiency and sustainability; and
- Provide recommendations for areas of focus for the final evaluation, including reviewing and strengthening data collection systems and metrics in preparation for the final evaluation.

We present the evaluation questions in **Exhibit 4**. The focus of the midterm evaluation, as noted, is to test the hypotheses developed at baseline relating to the project’s relevance, impacts, effectiveness, efficiency, sustainability, and gender equality and equity considerations. Our non-experimental design compared key outcomes of project participants across time. We present evaluation questions, along with their data collection methods and data sources, in **Annex E**.

Exhibit 4. Evaluation Questions

EVALUATION CRITERIA	EVALUATION QUESTIONS
Relevance	To what extent do the results framework, assumptions, program design, and project activities meet the needs of the various project participants and local conditions in the targeted regions of Georgia?
	How well aligned are the project strategy and activities with the development goals, objectives, and strategies of the USDA, the U.S. Government, and the Georgian Government?
Impact	What impacts are the project activities having on the various project participants, both positive and negative, especially in relation to the expected results and strategic objectives, including those below?
	What impact has the project had on trade in the dairy and beef sector?
	How have the sales, profitability, and access to markets (including export markets) of participant dairy and beef sector businesses changed, including slaughterhouses, aggregators, wholesalers, retailers, input and service providers? Why?
	What macro-level changes have occurred throughout the project in Georgia’s dairy and beef sector, including sales and exports?
	What is the impact of the SOQ establishment on the dairy and beef sector?
	How has the project affected production and purchase of SOQ products?
	How has production of SOQ products affected sales and profitability of businesses in the dairy and beef sector?
	How did the creation of the SOQ program affect the ability of agricultural actors to meet quality standards?
	What impact has the project has on intermediate results, such as improved knowledge, practices and productivity. How have progress on these results impacted progress on trade?
	How has the project impacted participant farmer knowledge, uptake of improved practices, farm management, post-harvest handling, and the use of improved infrastructure? How has this impacted their productivity and ultimately trade?
	How has the project impacted participant businesses’ knowledge and uptake of improved food safety/quality practices and infrastructure? How has this impacted their sales and ultimately trade?

EVALUATION CRITERIA	EVALUATION QUESTIONS
	How has the project impacted access to financial services for dairy and beef sector business? How were any monies used? How did access to the finances impact their profitability?
	To what extent have non-participant farmers or businesses been affected by the project?
	What internal and external factors have influenced the ability of the project to meet expected results and targets? Specifically, how has the COVID-19 pandemic influenced the project's results?
Effectiveness	To what extent are the program targets and outcomes likely to be achieved by the end of the project?
	What adaptations and adjustments to activities have been made to improve the likelihood of achieving desired results and how can these be expanded or improved to increase program effectiveness?
	What key successes should be replicated or what key improvements should be made to the implementation to maximize the results?
Efficiency	Were the resources and activities provided by the program carried out in a timely manner and with effective use of resources?
	How well has the project been managed and monitoring and evaluation data been used to make programmatic decisions?
Sustainability	Which project activities and benefits are likely to be sustained or not sustained past the project lifespan, and why?
	How did the market-led approach with business development–service firms providing technical assistance affect the sustainability of those services?
	Will the SOQ be sustained after the project? Why or why not?
	How can the Activity further adapt to the COVID-19 pandemic to better ensure implementation efficiency and sustainability of project outcomes?
	How could activities be modified to improve their efficiency and effectiveness and ensure long-term sustainability of results achieved?

2.1.2 Data Sources

At midterm, IMPAQ started by conducting a document review of all relevant documents from Venture37. The documents included semi-annual performance reports submitted to USDA and special studies conducted by Venture37, among others. This review informed development of both the quantitative and qualitative instruments.

IMPAQ then collected quantitative data through a survey of dairy and beef farmers in July 2021. We complemented these quantitative farmer-level data with qualitative data collected from dairy and beef farmers in FGDs. We also collected a repeated cross-sectional quantitative survey with MCCs, milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input suppliers; and complemented this with FGDs with these businesses. Further, we used KIIs to collect qualitative information from other value-chain actors—government agencies and their staffs, financial service providers, sectoral associations, input suppliers, research and educational institutions, and project staff. The FGDs and KIIs helped contextualize stakeholder insights into the dairy sector. We tailored all quantitative and qualitative data collection instruments to each stakeholder's type of project involvement. In addition, through case studies of non-participant market actors, we gathered information about the spillover benefits of the Georgia SQIL on non-participants. We discussed with Venture37 any modifications needed in data collection instruments after baseline to account for changes in project implementation.

All data collection instruments and interviews were designed initially in English and subsequently translated to Georgian (or Azerbaijani/Armenian as needed). Data collection personnel used the most appropriate language for each respondent, by selecting the correct language within the tablet tool at the start of the survey.

2.1.3 Sampling and Data Collection

Quantitative Data Sources

The main data sources for the quantitative data collection include: (1) a farmer survey with dairy and beef farmers, and (2) a business survey with MCCs, milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input suppliers. Baseline data was collected with these stakeholders in early 2019; midterm data was collected in July 2021.

Based on the margin of error calculations conducted at baseline, 385 farmer households and 216 businesses were targeted in each data collection round. Accordingly, the midterm data collection for the farmer survey and business survey followed a stratified sampling approach, using beneficiary lists IMPAQ received from Venture37 at midterm.

For farmers, we stratified the sample using the geographical regions present in the sample and farm size—giving additional weight to farmers involved in direct project interventions (versus those involved more in online-based interventions).

For businesses, we followed a similar strategy—stratifying first using the geographical regions present in the sample and business type, and then giving additional weight to businesses involved in direct project interventions. Given the very low response rate of businesses at midterm from the original list of 430 businesses provided to IMPAQ by Venture37, however, we contacted all businesses directly to reach the target sample size of 216 businesses. Even so, we were able to survey only 159 businesses, for an overall response rate of 37%.

Exhibit 5 summarizes our proposed target numbers of respondents for the quantitative data collection and the actual sample sizes achieved.

Exhibit 5. Quantitative Data Sources

Stakeholder Type	Data Collection Method	Target Sample Size	Actual Sample Size
Dairy and Beef Farmers	Household Survey	385	385
MCCs, Milk Retailers, Milk Processors, Slaughterhouses, Beef Processors, Beef Retailers, and Input Providers	Business Survey	215	157

Qualitative Data Sources

Qualitative data collection for the baseline evaluation was conducted in early 2019. At midterm, we complemented the quantitative data with qualitative data collected from dairy and beef farmers, businesses, other value chain stakeholders, and project stakeholders in June–July 2021.

Project beneficiaries were purposively selected by SQIL to ensure representation of gender, location, and stakeholder type. As such, IMPAQ was not involved in sampling the qualitative data collection participants. Six FGDs were conducted with dairy and beef farmers and five with dairy and beef businesses—including milk processors, milk collection centers, milk retailers, beef processors, slaughterhouses, and beef retailers. The FGDs were conducted in the rural and peri-urban areas in the five project regions. The final FGD sample excluded farmers and businesses surveyed under the farmer or business survey for the

quantitative data collection. IMPAQ also conducted 29 KIIs with representatives from government agencies, financial service providers, sectoral associations, input suppliers, research institutions, education institutions, SQIL, and USDA. Venture37 provided the names and contact information for all these stakeholders.

In addition to FGDs and KIIs, as part of the midterm evaluation IMPAQ interviewed two non-participant farmers for a case study to explore how non-participant farmers learned about the adapted practices, if they implemented the new practices; and the results of their adaptations. We relied on referrals from farmers to identify potential non-participant farmers, from which list IMPAQ selected two non-participants to interview. The case study sought to identify the spillover effects of project activities, as well as provide insight into how those activities could amplify programming through formal and informal networks. **Exhibit 6** summarizes the total number of respondents for the qualitative data collection.

Exhibit 6. Qualitative Data Sources

Stakeholder	Data Collection Method	Target Sample Size
Dairy and Beef Farmers	Focus Group Discussions	6 (1 in each of the 5 regions, with the exception of Kakheti which will have 2; mixed female/male groups)
Dairy Value Chain Business Representatives: milk processors, milk collection centers, and milk retailers	Focus Group Discussions	3 (1 in Kakheti, 1i in Tbilisi, and 1 in Imereti; mixed female/male groups)
Beef Value Chain Business Representatives: beef processors, slaughterhouses, and beef retailers	Focus Group Discussions	2 (1 in East Georgia and 1 in West Georgia; mixed female/male groups)
Government Agencies and their staff	Key Informant Interviews	8
Financial Service Providers	Key Informant Interviews	2
Sectoral Associations	Key Informant Interviews	7
Input Suppliers	Key Informant Interviews	5
Research Institutions	Key Informant Interviews	2
Education Institutions	Key Informant Interviews	3
SQIL Project Staff	Key Informant Interviews	1
USDA	Key Informant Interviews	1
Non-Participants	Case Studies	2

2.1.4 Data Collection Instruments

As explained above, we developed different types of qualitative and quantitative instruments to address research questions for each stakeholder type's involvement in the project, and addressed overarching issues relating to the project and its activities in the dairy and beef sectors. IMPAQ used consistent methods and instruments for each type of project stakeholder across baseline and midterm evaluation data collection, to generate consistent data and insights over the life of the project. Please see **Annex F** for a list of all data collection instruments.

Key Informant Interviews

At midterm, IMPAQ conducted KIIs with representatives from government agencies, financial service providers, sectoral associations, input suppliers, research institutions, education institutions, SQIL, and USDA. The KIIs included questions about the respondents' background, current mandate or involvement in the dairy and/or beef value chains, perceptions of critical issues in the dairy and beef value chains, involvement in and perceptions of SQIL strategies and activities, effects of COVID-19 on the dairy and beef value chains, and specific issues relevant to each type of respondent.

KIIs with representatives from government agencies asked about changes observed in the dairy and beef sectors in the past two years; barriers to growth in the dairy and beef sectors; if and how SQIL engaged with the government to address these barriers, as well as whether those efforts are likely to be sustained after the project; and external factors that affected the dairy and beef sectors, including the impact of COVID-19. We asked financial services providers if and how SQIL helped them develop new products or strategies for providing services to dairy and beef value chain stakeholders.

KIIs with sectoral associations and input suppliers focused on if and how SQIL facilitated access to trainings, networks, and financial services. KIIs with research institutions assessed whether the project helped address key evidence gaps needed to promote and improve conditions within the dairy and beef value chains. KIIs with educational institutions assessed whether the technical assistance helped improve and better align curricula and trainings to address the needs within the dairy and beef value chains. KIIs conducted with the SQIL Chief of Party and USDA covered questions related to the effectiveness, efficiency, and timeliness of activities; plans for sustainability of activities and outcomes; challenges encountered during implementation; and best practices and lessons learned to date. The KII with USDA also included questions about SQIL alignment with USDA’s overall strategy. Due to COVID-19 restrictions, all KIIs were conducted remotely over Zoom, Teams, Skype, or phone, depending on internet access.

Focus Group Discussions

IMPAQ conducted FGDs with a sub-sample of male and female dairy and beef farmers in each of the five targeted regions, to provide context to findings from the household survey. During the FGDs with farmers we asked about their experiences with the SQIL project—including changes to farming practices, access to new market information or financial services, and engagement in associations as a result of their project participation. We identified any issues related to female participation in project activities and discussed the effect of COVID-19 on women’s businesses.

IMPAQ also conducted FGDs with a sub-sample of dairy and beef value chain businesses, where we asked about their experience with SQIL—including changes made to their business processes and/or access to new market information or financial services as a result of their project participation. We also identified any issues related to female participation in project activities and discussed the effect of COVID-19 on their businesses. As with the KIIs, all FGDs were conducted remotely using Zoom, Teams, Skype, or phone, depending on internet access.

Midterm Evaluation Key Informant Interview Themes

- Experience engaging with SQIL and perceptions of efficiency, effectiveness, and timeliness of technical assistance and support
- Current role in the dairy value chain
- Best practices and lessons learned so far
- Effects of COVID-19 on project implementation and beneficiaries
- Perceptions of critical issues in the dairy value chain
- Perceptions of internal and external factors influencing project activities
- Likelihood of project targets and outcomes being met by the end of the project
- Sustainability of project activities
- Perceptions of the extent to which activities have efficiently used resources

Midterm Evaluation Focus Group Discussion Themes

- Changes in farming and business practices, access to market information, access to financial services, and participation in associations as a result of project participation
- Experience with GeoGap Certification process
- Differences in participation and benefit of women and men in project activities
- Effect of COVID-19 on dairy and beef value chains
- Perceived internal and external factors influencing project activities

Farmer Surveys

We administered a farmer survey to male and female dairy and beef farmers to collect data on livelihood strategies, access to financial services, dairy and beef husbandry practices, food safety practices, procurement of inputs, dairy and beef sales, assets (land, machinery, facilities, and cattle rearing infrastructure), and consumption of milk and meat. This information enabled us to conduct a detailed profit analysis. The farm household survey also included questions on socio-economic characteristics, enabling nuanced analysis of gender dynamics over the life of the project.

Business Surveys

We collected quantitative data from key businesses (milk collection centers, milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input providers). Each business survey included a component to collect basic business information, employment, business practices, food safety practices (if applicable), infrastructure (if applicable), procurement of farm produce (milk, live animals, meat etc.), types of products offered, sales, input costs, investments, employment, capitalizing, fixed assets, and marketing activities.

Any changes to the data collection protocols since baseline underwent a cultural sensitivity review once translated, to ensure questions were asked appropriately. All surveys were conducted in Georgian (or Azerbaijani/Armenian as needed) by our local partner, Caucuses Research Resource Center – Georgia (CRRC). In conducting the interviews, IMPAQ team members followed the Federal Policy for the Protection of Human Subjects, received consent from participants, and complied with the ethical standards expected for this type of social research. The team informed respondents of the purpose of the research, as well as their right to confidentiality; and sought the consent of each participant to take part in the evaluation and to include their names in a list of respondents in the version of the evaluation report with such information. IMPAQ also consulted with Venture37 about other applicable procedures to ensure the evaluation abided by standard local and international ethical review and approval processes.

2.1.5 Data Analysis

We analyzed qualitative and quantitative data separately, and then integrated the findings to provide a comprehensive response to the research questions.

Quantitative Data Analysis.

At midterm, we analyzed quantitative data from farmers and other dairy market actors—using descriptive statistics such as counts, tabulated proportions, and means. We also looked for common trends and patterns in the data. To the extent possible, we disaggregated these descriptive statistics to reveal differences across project stakeholders based on factors such as gender, ethnicity, scale of operation, and location. To support the quantitative analysis, we used qualitative methods to provide insights into correlations between different practices being used and desired outcomes such as quality and sales. Finally, we calculated midterm indicator values of key performance indicators, and disaggregated them as required in the Performance Monitoring Plan.

Qualitative Data Analysis

Our qualitative data analysis identified and substantiated critical themes and issues that emerged during quantitative data collection. To analyze the qualitative data efficiently, impartially, and consistently, we used a structured summary form of the KIIs and that identified key themes and mapped them to the evaluation questions. We synthesized emerging qualitative results using pattern analysis methods that identified themes in responses. Where relevant, we differentiated results by value-chain stakeholder type, as well as by respondents' gender, scale of operations, and location.

Integrating Qualitative and Quantitative Data

The evaluation team triangulated the qualitative and quantitative analyses to address the evaluation questions, comparing key findings across both types of data. To overcome any data deficiencies, the team analyzed each type of data separately, as described above, and then identified whether and how the two sets of findings coincide. Where discrepancies existed, we considered plausible reasons. The team also used qualitative data, whenever possible, to provide contextual information to help interpret the quantitative results. The process of examining the qualitative and quantitative findings in relation to one another figured centrally in the development of comprehensive lessons learned and recommendations—even though the concurrent collection of quantitative and qualitative data limited the extent to which the quantitative findings could be contextualized.

We also incorporated a gender-sensitive lens—identifying critical gender concerns during evaluation design, data collection, and analysis—to ensure gender was an integral part of the evaluation.⁶ We examined how SQL project activities affected household-level roles in decision-making about dairy and beef activities, and about control over production and revenue from sales. We also explored the perspectives of women and men about the dairy and beef markets and related value chains, and the constraints and opportunities faced specifically by women.

2.2 Field Implementation

IMPAQ's local data collection team organized and implemented field data collection operations under the overall supervision of the IMPAQ home office, further supported by the IMPAQ local expert. Following approval of the final inception report and data collection instruments by Venture37, IMPAQ: (1) transmitted the final, approved instruments and protocols to the data collection team for translating into Georgian, Azerbaijani, and Armenian and programming into tablets using Kobo software; and (2) conducted initial testing of all the programmed instruments before they were fielded. Due to travel restrictions due to COVID-19, IMPAQ's home office staff did not travel to Georgia for enumerator training but joined the enumerator training remotely to ensure quality control.

The pilot testing of the quantitative instruments for both the farmer and business surveys took place in person with supervisors prior to enumerator training. Based on the findings of the pilot testing, the survey instruments were modified. This was followed by enumerator training, which took place remotely via Zoom and consisted of sessions designed to introduce the enumerator team to the evaluation framework and implementation context, followed by section-by-section review of the data collection instruments and practical application using tablets. The pilot testing and subsequent data collection included all safety protocols for COVID-19 including: (1) ensuring all participants wore masks at all times; (2) maintaining a six-foot distance among participants at all times, inside and outside the training room; and (3) ensuring adequate handwashing stations and/or hand sanitizer at the training venue and during data collection.

All qualitative data was collected remotely via Zoom or other online platforms in June–July 2021. The quantitative data was collected conducted in person in July 2021. The IMPAQ team provided overall oversight for all data collection and data quality control activities to ensure a consistent technical approach and coordination among different activities.

⁶ These include: (1) ensuring that evaluation questions asked specifically about gender inclusiveness, if appropriate; (2) disaggregating all data by gender, analyzing for gender differences, and reporting on the findings; and (3) keeping survey and interview work sensitive to women's schedules and availability to participate.

2.3 Data Collection Challenges

Below we discuss the challenges encountered during data collection that might have affected the number of respondents the team reached, and/or the outcomes reflected in the data the team collected.

Response rates of businesses

One of the main challenges faced during the quantitative data collection for the business survey was low response rate among businesses, as noted, with only a 37% response rate, despite more than five attempts to contact each business in the original list of 430 businesses. We hypothesize that the COVID-19 pandemic was one of the causes of low response rates; in other cases, businesses had simply closed. As a result of this low overall response rate, sample sizes for some of the individual business types were extremely low (see **Exhibit 7**), preventing any definitive conclusions to be drawn from the findings for these businesses. The initial target number of businesses was 217. At the end of the data collection, we had surveyed 157 businesses, meeting 72% of the original target.

Exhibit 7. Total Number of Businesses Targeted and Final Sample, by Business Type

Business Type	Initial Target Sample	Final Sample
Milk Collection Center	18	3
Milk Processor	63	56
Milk Retailer	15	12
Slaughterhouse	42	42
Beef Processor	25	15
Beef Retailer	24	14
Input Provider	30	15
Total N	217	157
Total Percent	100%	72%

Capturing the diverse set of businesses

An additional challenge was that many businesses blurred the lines between the identified business types. Because we created a survey tailored to each business type, some questions might have been irrelevant to a respondent while other, relevant questions were left out of a given instrument type. Further, capturing the diverse set of businesses was another challenge. To mitigate this challenge, we focused our attention on ensuring we collected the most vital information from each business, instead of trying to capture all the business-related production information from each village.

Small sample size for FGDs

As noted above, sampling for the qualitative data collection was conducted by Venture37. Specifically, Venture37 provided us with a list of 103 potential FGD participants, between seven and 10 participants per FGD. We contacted all potential FGD participants; due to various reasons, however, only 57 individuals (38 males and 19 females) were available and agreed to participate in the FGDs. Venture37 was not able to provide a list of backup contacts, so we ended up with only three to eight participants per FGD. Given the small sample size and the purposive sample selection process conducted by Venture 37, the FGD participants might not be representative of all program beneficiaries.

Beneficiary lack of awareness of SQIL project and role

A key tenet of SQIL is the market-led approach, in which business development firms provide training and technical assistance to the farmers, as opposed to the project providing those services directly. While this may prove to be an effective sustainability strategy, it presented challenges during data collection.

Because farmers and dairy and beef businesses received training and support through SQIL partners, project beneficiaries selected to participate in the FGDs were not always aware of SQIL, Venture37, or the project's role in developing and delivering trainings. As such, respondents could not always provide SQIL-specific feedback, and sometimes confused the SQIL project with other donor-funded projects.

Limited data from the non-participant case study

As noted above, we interviewed two non-participant farmers to explore potential spillover effects through a case-study approach. To identify the non-participant farmers, we asked FGD respondents if they knew of any farmers who did not participate in the project but may have benefited indirectly. Only one farmer, from Samtskhe Javakheti, was able to provide us with a list of farmers who might have indirectly benefited from the project.

Section 3. Quantitative Findings from Farmer Survey

In this chapter, IMPAQ presents the main quantitative findings from dairy and beef farmers. The main objectives of the midterm quantitative data collection from dairy and beef farmers was to document the state of access to financial services, dairy and beef husbandry practices, food safety practices, procurement of inputs, dairy and beef sales, assets (land, machinery, facilities, and cattle rearing infrastructure), and meat and milk production.

By providing midterm values for key dairy and beef production performance indicators—production volumes and values, sales volume and value, and farmer practices—midterm quantitative findings from the survey yield key insights into the project relevance, impact, effectiveness, efficiency, and sustainability, as outlined in **Exhibit 4**. This analysis provides recommendations and serves as a collaborative learning and adaptation tool for project management. These midterm findings will also be instrumental in measuring change across the life of the project.

Section 3.1 presents a sample overview, with information on dairy and beef farmers. **Section 3.2** characterizes dairy and beef farmers and their herds. **Section 3.3** explores farmer practices in and expenditures on grazing, forage, feed, supplements, housing, and water allocation. We also examine animal health practices, breeding methods, safety and hygiene practices. **Section 3.4** examines milk production and sales. **Section 3.5** examines beef production and sales. **Section 3.6** examines sales agreements with buyers and overall labor use. **Section 3.7** discusses business management, including group membership and credit practices. All values reported throughout the chapter are for the 12 months prior to the survey conducted in July 2021 and are expressed in USD at the following exchange rate: 1 USD = 3.125 GEL.

3.1 Overview of Sample

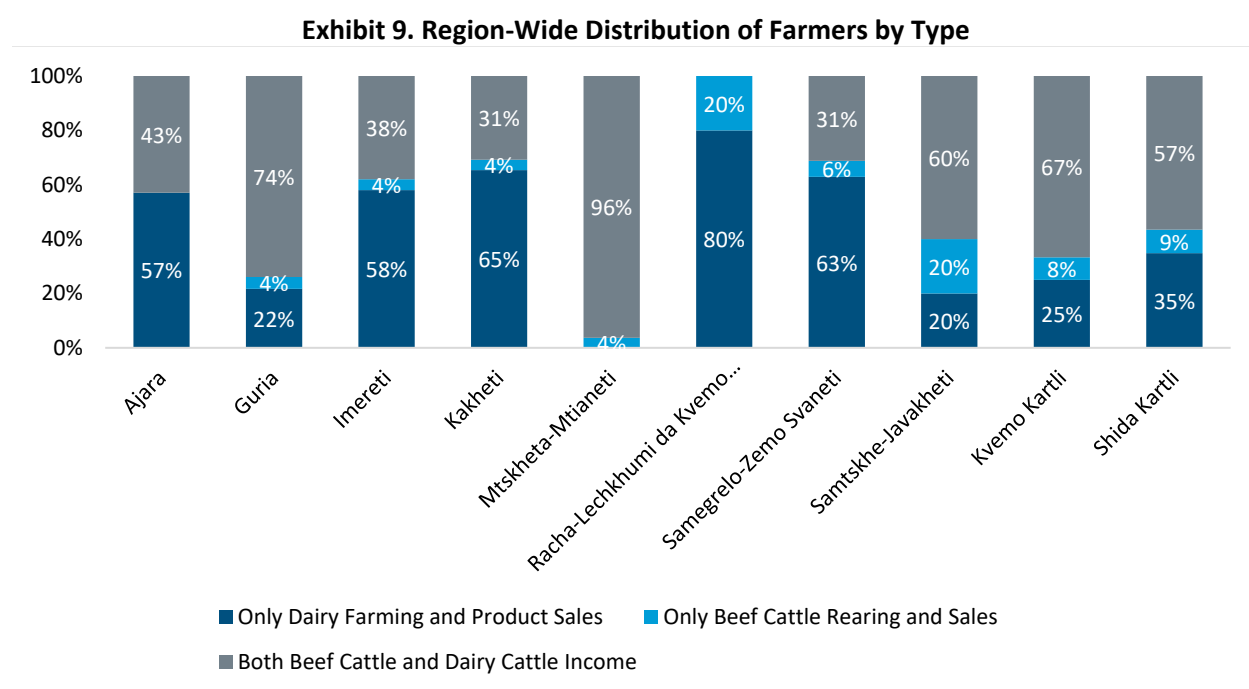
3.1.1 Socio-Demographic Characteristics

As demonstrated by **Exhibit 8**, both the baseline and midterm sample included a total of 385 dairy and beef farmers. At midterm, nearly half (48%) of all farmers surveyed were engaged in dairy farming alone; a slightly lower proportion (45%) practiced both dairy and beef farming. This represents a slight shift from baseline, where proportionately more farmers were engaged in both dairy and beef farming (50%) than dairy farming alone (42%). This comparison suggests that farmers previously engaged in both sectors began to pivot away from the beef industry in favor of focusing solely on dairy.

Exhibit 8. Distribution of Sample

Farmer Type	Baseline		Midterm	
	Number of Farmers	% of Farmers	Number of Farmers	% of Farmers
Farmers engaged <i>only</i> in dairy farming and sales	162	42%	186	48%
Farmers engaged <i>only</i> in beef cattle rearing and sales	31	8%	26	7%
Farmers engaged in <i>both</i> dairy farming and cattle rearing and sales	192	50%	173	45%
All Dairy and Beef Farmers	385	100%	385	100%

Exhibit 9 outlines the regional distribution of the sample at midterm and highlights the variety of farmer types in each region. Half of the regions surveyed contained primarily dairy farmers, with more than half of all farmers reporting they engaged in dairy farming alone (57% in Ajara, 58% in Imereti, 65% in Kakheti, 80% in Racha-Lechkhumi da Kvemo Svaneti, and 63% in Samegrelo-Zemo Svaneti). In the remaining five regions, more than half of all farmers surveyed were involved in both beef and dairy production. In two of the regions, Guria and Mtskheta-Mtianeti, the share of farmers who reported participating in both beef and dairy farming represents a substantial majority (74% and 96%, respectively). This reflects both the dual purpose of herds (male calves for beef and females for dairy production) as well as the fact that those farmers might be in the early stages of specializing in beef production. The few farmers involved solely in beef production and sales were concentrated mainly in Racha-Lechkhumi da Kvemo Svaneti and Samtskhe-Javakheti, where 20% of farmers in each were solely beef farmers.



N = 7 for Ajara, 23 for Guria, 50 for Imereti, 26 for Kakheti, 27 for Mtskheta-Mtianeti, 5 for Racha-Lechkhumi da Kvemo Svaneti, 170 for Samegrelo-Zemo Svaneti, 30 for Samtskhe-Javakheti, 24 for Kvemo Kartli, 23 for Shida Kartli.

3.1.2 Socio-Demographic Characteristics by Region

Exhibit 10 presents information by region on the family structure, education, and ethnicity of adults in the midterm study sample. We only present midterm estimates since the baseline sample is from a much smaller pool of regions. At midterm, about 18% of households, on average, had a female head of household. However, this average value obscures substantial regional variations. In Racha-Lechkhumi da Kvemo Svaneti, 40% of all households surveyed had a female household head. In contrast, no households in Ajara reported one. The age of the household head shows only slight variation, ranging from 45 to 55 years. The sample was ethnically homogenous, with Georgians making up 97% of the total population. Samtskhe-Javakheti was the most diverse region, with Armenians making up 20% of the population (**Exhibit 11**).

Exhibit 10. Family Structure by Region

Region	% of households with a female head of household	Average age of household head (in years)	Number of Households
Ajara	0%	55.1	7
Guria	4%	50.6	23
Imereti	20%	46.9	50
Kakheti	8%	49.0	26
Mtskheta-Mtianeti	19%	52.0	27
Racha-Lechkhumi da Kvemo Svaneti	40%	50.0	5
Samegrelo-Zemo Svaneti	25%	50.1	170
Samtskhe-Javakheti	17%	47.4	30
Kvemo Kartli	8%	50.5	24
Shida Kartli	4%	44.5	23
Overall	18%	49.4	385

Exhibit 11. Ethnicity by Region

Region	% Armenian	% Azerbaijani	% Georgian	Number of Households
Ajara	0%	0%	100%	7
Guria	0%	0%	100%	23
Imereti	0%	0%	100%	50
Kakheti	0%	8%	92%	26
Mtskheta-Mtianeti	0%	0%	100%	27
Racha-Lechkhumi da Kvemo Svaneti	0%	0%	100%	5
Samegrelo-Zemo Svaneti	0%	0%	100%	170
Samtskhe-Javakheti	20%	0%	80%	30
Kvemo Kartli	0%	4%	96%	24
Shida Kartli	0%	4%	96%	23
Overall	2%	1%	97%	385

Exhibit 12. Household Assets by Region

Region	Average agricultural land owned (in hectares)	Average grazing land owned (in hectares)	Number of Households
Ajara	3.86 ha	3.75 ha	7
Guria	5.69 ha	7.09 ha	23
Imereti	4.03 ha	2.76 ha	49
Kakheti	7.73 ha	10.48 ha	24
Mtskheta-Mtianeti	4.18 ha	13.47 ha	26
Racha-Lechkhumi da Kvemo Svaneti	4.32 ha	2.00 ha	4
Samegrelo-Zemo Svaneti	2.71 ha	1.05 ha	170
Samtskhe-Javakheti	7.94 ha	9.50 ha	29
Kvemo Kartli	9.21 ha	3.67 ha	21
Shida Kartli	11.05 ha	9.00 ha	23
Overall	4.80 ha	4.17 ha	376

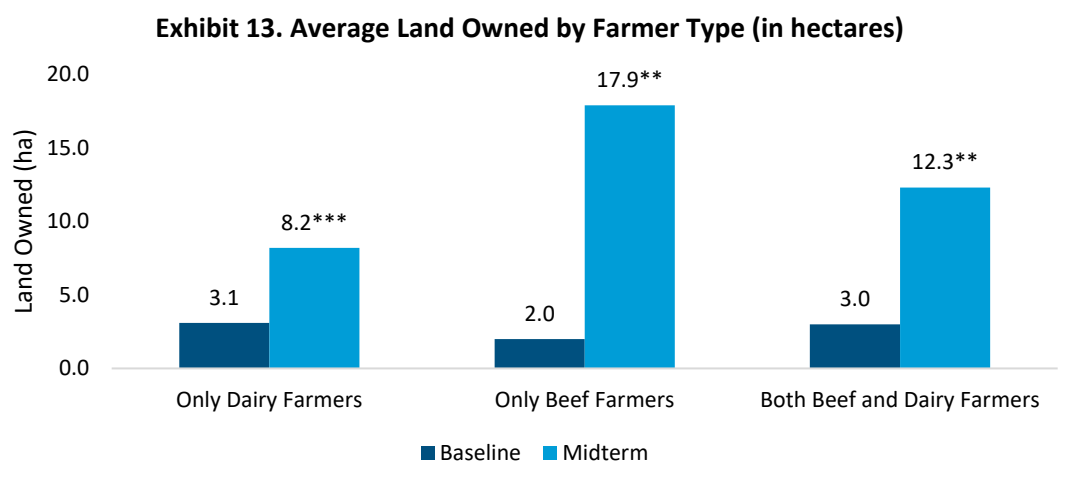
Midterm values for agricultural and grazing land owned were trimmed at 100 acres or greater to reduce the skew on the calculated averages. Grazing land is not included in average agricultural land owned.

Farmers across the entire sample owned roughly equal quantities of agricultural and grazing land (4.80 and 4.17 hectares, respectively) at midterm. As demonstrated by **Exhibit 12**, however, regional disparities existed in both the overall quantity of land owned and the distribution of land for agricultural versus grazing. Farmers in Shida owned the most land overall, reporting an average of 20.05 hectares of

combined agricultural and grazing land—of which close to 45% was dedicated to grazing. In comparison, farmers in Samegrelo-Zemo Svaneti owned an average of just 3.76 hectares of land for both purposes, and reported the lowest share of land dedicated to grazing (at 28%). With an average of 13.47 hectares of grazing land, farmers in Mtskheta-Mthaneti reported the largest quantity of land used for grazing, both in absolute terms and as a share of all land used for grazing or agricultural purposes (76%). As highlighted in **Exhibit 9** above, 96% of farmers surveyed in Mtskheta-Mthaneti produced both dairy and beef, whereas many of the other districts contained either primarily or exclusively dairy farmers or a more equal mix of farmer types. Beef cattle were more commonly grass-fed than dairy cattle, and farmers who produced both dairy and beef tended to have slightly larger herds than dairy-only farmers (see **Exhibit 14**), which may explain the need for more grazing land in this region.

3.2 Characterization of Dairy and Beef Farmers and their Herds

As evidenced by **Exhibit 13**, the total amount of land owned by each farmer increased, on average, between baseline and midterm across all farmer types. The largest increases in farm size were among beef-only farmers, with average land ownership among this group increasing from 2.0 hectares at baseline to 17.9 hectares at midterm (statistically significant at the 5% level). Average land ownership increased among all farmer types, however, with dairy-only farmers reporting a 5.1 hectares increase and dairy/beef farmers reporting an increase of 9.3 hectares. The larger farm sizes among farmers engaged in beef production (either solely or in conjunction with dairy farming) were likely because beef cattle are commonly grass-fed, while dairy cows are usually given a diet of hay, grain, and silage as supplements to grazing.⁷



* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

N = 162 for baseline dairy farmers, 182 for midterm dairy farmers, 31 for baseline beef farmers, 25 for midterm beef farmers, 192 for baseline both beef and dairy farmers, 169 for midterm both beef and dairy farmers.

Midterm values for land size owned were trimmed at 207 acres or greater to reduce the skew on the calculated averages.

As demonstrated by **Exhibit 14**, most farmers in the midterm sample were medium to large-scale producers who owned between 35 and 46 cattle. For all farmer types, the average herd size increased between baseline and midterm. The largest increase in herd size was among farmers engaged in only beef production, where the average farmer expanded their herd from 14 to 46 animals (statistically significant at the 1% level). Among beef farmers, the average herd contained nine bulls, 10 cows, seven heifers, four male calves, and three female calves. Interestingly, at both baseline and midterm, beef farmers reported

⁷ This information was obtained from farmer FGDs conducted at baseline.

owning a large number of bulls relative to the needs of the herd—nine bulls for a herd size of 46 cattle, when the rule of thumb is typically one bull for 25–30 cattle). Dairy-only farmers owned 35 cattle on average, representing an increase of 21 cattle from baseline (statistically significant at the 1% level). Roughly half of these cattle were adult dairy cows. At baseline, dairy-only farmers owned on average only one bull; but at midterm, the average dairy-only farmer owned two to three bulls. Among dairy/beef farmers, the average herd size increased from about 20 cattle at baseline to 40 cattle at midterm (statistically significant at the 1% level). The number of bulls also more than doubled during this time, from two per herd to almost five, which again exceeds the typical need given the herd size. At baseline, the percentage of heifers and female calves owned by all farmer types was low. Worryingly, the average proportion of heifers and calves in the herd (which represents future production potential) declined between baseline and midterm for all farmers except those engaged in dairy-only farming.

Exhibit 14. Average Total Herd Size of Dairy and Beef Farmers by Type of Cow

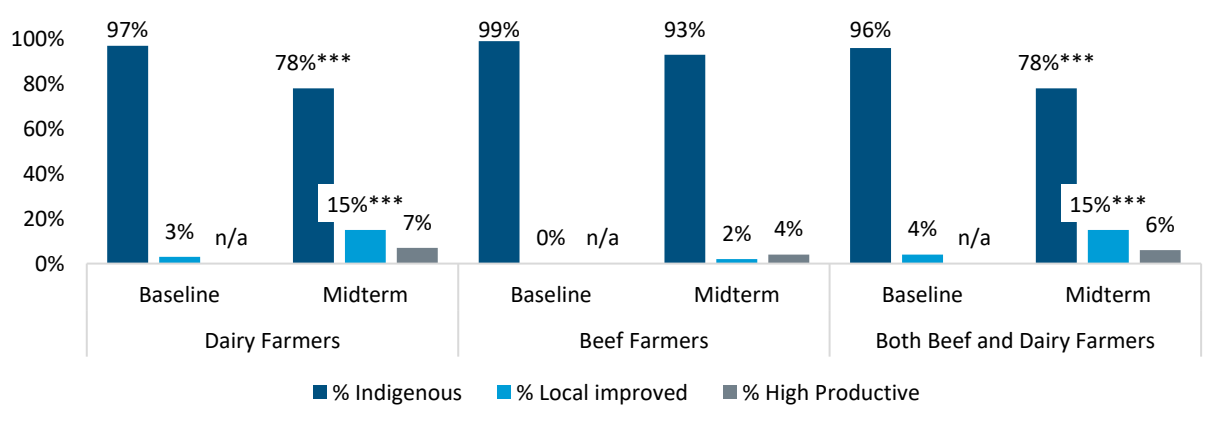
Type of Cow	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Bulls	0.8	2.5***	2.6	9.1***	1.9	4.7***
Cows	8.1	13.4***	5.4	9.5*	11.0	14.8
Heifers	2.1	6.4***	3.7	6.8*	3.3	7.2***
Male Calves	1.3	3.3***	0.8	4.2***	1.7	4.9***
Female Calves	1.7	4.1***	1.1	3.3**	1.9	4.2***
Total Herd Size	14.0	34.6***	13.6	45.6***	19.9	40.1***
N	162	186	31	26	192	173

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their herd size.

At both baseline and midterm, indigenous breeds of cattle were by far the most popular among farmers of all types (**Exhibit 15**). Notably, however, although 78% of midterm dairy-only and beef and dairy farmers reported owning indigenous breeds of cattle, this represents a 19 percentage point decline from baseline. Simultaneously, the share of these farmers who reported owning local improved breeds of cattle increased by between 11 and 12 percentage points (statistically significant at the 1% level). This suggests that farmers engaged in the dairy industry were shifting to higher quality cattle, with the potential to improve productivity and increase the caliber of the products produced. At midterm, a very small proportion of farmers of any type (between 4% and 7%) reported owning high productivity breeds of cattle.

Exhibit 15. Average Herd Composition by Farmer Type



* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Showing the total number of farmers who reported their breed types. $N = 162$ for baseline dairy farmers, 186 for midterm dairy farmers, 31 for baseline beef farmers, 26 for midterm beef farmers, 192 for baseline both beef and dairy farmers, 173 for midterm both beef and dairy farmers.

Note: High Productive breeds were not an option at baseline.

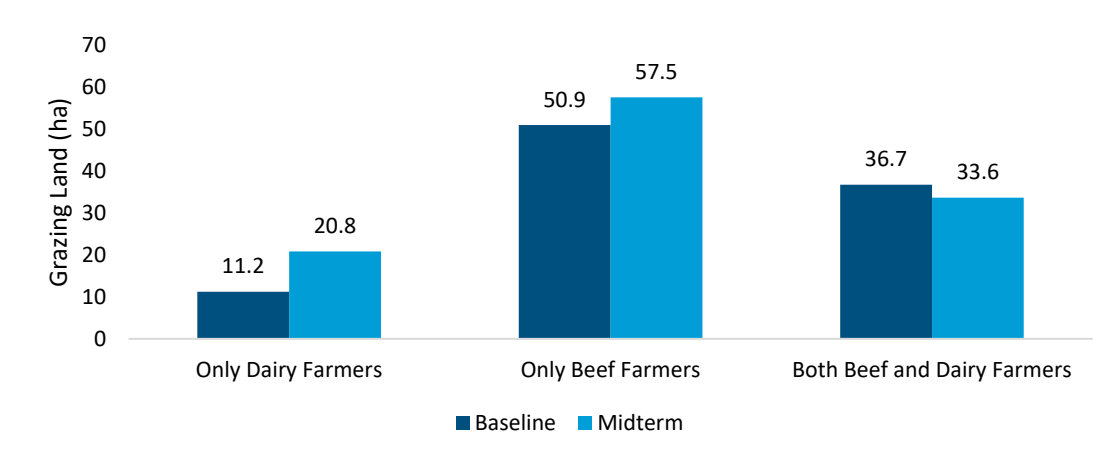
3.3 Farmer Practices in Dairy and Beef Production

Among beef and dairy farmers, SQIL promoted improved cattle rearing and farm management practices such as grazing on one's own land, balanced feeding, improved cattle housing infrastructure, better preventative veterinary care, and improved hygiene standards for products. These activities are described in greater detail in Section 1.1. The intermediate results of these efforts are described in the subsections below.

3.3.1 Grazing Practices

The vast majority of farmers surveyed at midterm (94%) grazed their cattle in some form. As seen in **Exhibit 16**, the average land area used for grazing cattle increased for all farmer types between baseline and midterm. Among dairy-only farmers, the average land area used for grazing increased from 11.2 hectares at baseline to 20.8 hectares at midterm, the largest increase of any farmer type (but not statistically significant). At midterm, beef-only farmers used almost three times more land for grazing cattle than dairy-only farmers (57.5 hectares versus 20.8 hectares, respectively). This is consistent with the baseline data and not unusual, since beef cattle are usually fed grass, while dairy cattle are fed fodder and silage.

Exhibit 16. Average Hectares of Land for Grazing Cattle



* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

$N = 162$ for baseline dairy farmers, 186 for midterm dairy-only farmers, 30 for baseline beef-only farmers, 26 for midterm beef-only farmers, 190 for baseline dairy/beef farmers, 164 for midterm dairy/beef farmers.

As described above, grazing cattle is a common practice for farmers of all types, with close to the entire sample reporting at both baseline and midterm that they grazed their cattle. Among those farmers who reported grazing their cattle, the majority practiced grazing in the common areas of the village (as seen in **Exhibit 17**). The share of dairy-only farmers who reported using village common areas for grazing decreased from 94% at baseline to 84% at midterm (statistically significant at the 1% level)—shifting from using communal lands to grazing their cattle on land they own, rent, or share.⁸ Over the same period, the

⁸ Shared land is different from common areas of the village. It includes land shared between a couple of farmers.

proportion of dairy-only farmers reporting grazing on these more private lands increased by 25 percentage points (statistically significant at the 1% level). A similar but less dramatic shift occurred among dairy/beef farmers. While the majority of these farmers (84%) still reported grazing their cattle in village common areas at midterm, this represents a six percentage point decline from baseline (statistically significant at the 10% level). This decline represents a positive shift, as farmers are moving towards indoor, commercial cattle farming. Simultaneously, the share of dairy/beef farmers who reported grazing cattle on land they own, rent, or share increased from 15% at baseline to 24% at midterm (statistically significant at the 5% level). An opposite trend occurred among beef-only farmers—with the share who reported grazing on common lands increasing from 64% at baseline to 88% at midterm, while the proportion of farmers who reported grazing on owned, rented, or shared land fell from 36% to 13% (both statistically significant at the 10% level).

Exhibit 17. Type of Grazing System, by Farmer Type

Type of Grazing System	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Grazing in own/rented/shared land	9%	34%***	36%	13%*	15%	24%**
Grazing in common areas of the village	94%	84%***	64%	88%*	90%	84%*
Rotational Grazing	0%	2%	0%	0%	3%	1%
Paddock Grazing	0%	3%**	0%	4%	1%	1%
Transhumance	5%	8%	21%	0%**	22%	12%***
Others	0%	1%	0%	0%	0%	1%
N	154	174	28	24	186	162

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported the type of grazing system used by them. Multiple responses were allowed and hence columns will not add to 100%.

In total, 25% of farmers owned land for grazing (95 farmers out of 385), representing an increase from the 13% of farmers who owned grazing land at baseline. Rate of land ownership was highest among dairy/beef farmers, with 31% reporting owning grazing land at midterm. Land ownership was lowest among beef-only farmers, with only two out of a total of 26 farmers reporting that they owned any grazing land (8%). Use of key farming practices on grazing land varied greatly depending on farmer type (**Exhibit 18**). Among dairy-only farmers who owned grazing land, 49% reported using weed control practices, an increase of 16 percentage points over baseline. Among beef-only farmers and dairy/beef farmers, however, the share of land owners who practiced weed control declined between survey rounds. For beef-only farmers, this result was dramatic (from 100% to 0%), but not statistically significant as the sample size was extremely small ($N=2$). The decrease is statistically significant (at the 5% level) for dairy/beef farmers, among whom the share of farmers using weed control practices declined from 36% at baseline to 17% at midterm. At midterm, the share of dairy-only farmers who reported restricting animal herd size to align with the carrying capacity of grazing land was just 18%, representing a substantial decline from the 58% of farmers reporting the same at baseline (statistically significant at the 1% level). This drop is worrying, as maintaining carrying capacity is critical to avoid over-grazing, which can increase weeds and decrease pasture growth and animal productivity. Finally, the share who reported harvesting hay from their grazing lands on time increased between survey rounds among dairy-only farmers, as well as dairy/beef farmers. For dairy/beef farmers, the increase (from 33% at baseline to 69% at midterm, statistically significant at the 1% level).

Exhibit 18. Type of Farming Practices on Grazing Land, by Farmer Type

Farming Practices on Grazing Land	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Weed control practices	33%	49%	100%	0%	36%	17%**
Fertilizer use (other than cattle dung)	0%	18%	0%	0%	14%	15%
Rotate between grass and legumes	8%	31%	0%	50%	17%	26%
Harvesting of hay on time	8%	38%	100%	100%	33%	69%***
Restrict animal herd size to pasture carrying capacity	58%	18%***	50%	100%	33%	24%
Pasture rest periods	0%	28%	0%	0%	0%	9%*
Use electric fence	n/a	3%	n/a	50%	n/a	6%
Others	8%	0%*	0%	0%	8%	2%
N	12	39	2	2	36	54

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported the farming practices on their own grazing land. Multiple responses were allowed and hence columns will not add to 100%.

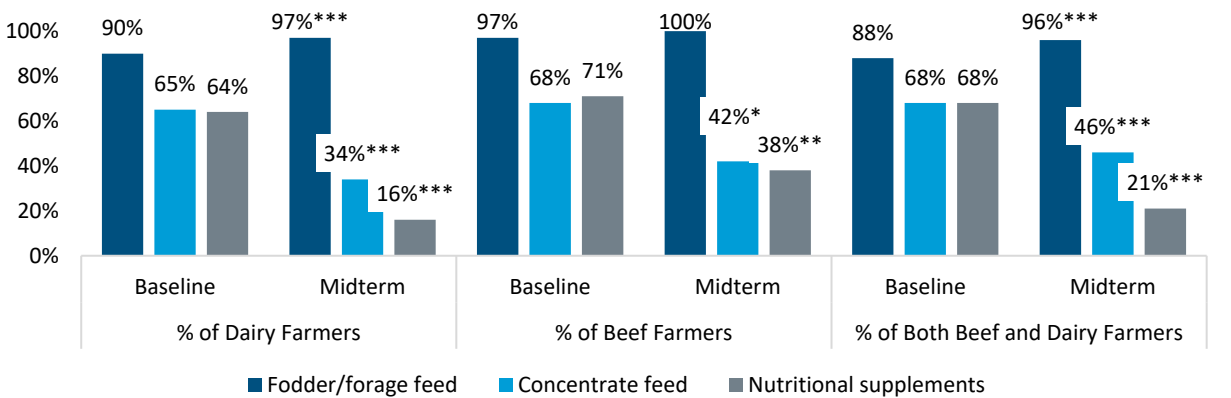
3.3.2 Feed, Forage, and Supplementation

SQIL actively promotes the necessity of balancing feed rations for cattle. SQIL developed the Dairy Feed ration balancer program (Rac-ioli) in the local language and conducted several face-to-face and online trainings and mentoring on using this program. SQIL also developed a tutorial video, which is uploaded in the Agronavti platform.

Overall Use and Expenditure

Nearly all farmers reported giving their cattle fodder or forage feed at midterm (**Exhibit 19**). Feeding cattle fodder or forage was common at baseline as well, but the share of farmers engaging in this practice increased slightly between survey rounds for all farmer types (statistically significant at the 1% level for dairy-only and dairy/beef farmers). Simultaneously, the share of farmers of all types who reported feeding cattle concentrate feed or nutritional supplements declined substantially from baseline to midterm. The largest declines were among dairy-only farmers, with the share using feed or supplements dropping by 31 percentage points and 48 percentage points, respectively (both statistically significant at the 1% level). Dairy-only farmers were also less likely than beef-only farmers to use either concentrate feed or nutritional supplements at both baseline and midterm (34% and 16% of dairy-only farmers were using feed and supplements at midterm as compared to 42% and 38% for beef-only farmers).

Exhibit 19. Use of Forage, Feed, and Supplements



* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

N = 154 for dairy farmers, 28 for beef farmers, 186 for dairy/beef farmers. Multiple responses were allowed and hence will not add to 100%.

While virtually all farmers gave their cattle forage (97%), the types of forage varied (**Exhibit 20**). At midterm, the majority of farmers supplemented their cows with fresh-cut forage (77%, 79%, and 69% of dairy-only, beef-only, and dairy/beef farmers, respectively). Among dairy-only and beef-only farmers, the share who reported feeding their cattle fresh-cut forage increased between baseline and midterm by 10 and 29 percentage points, respectively (both statistically significant at the 90% level or above). The trend was reversed among dairy/beef farmers, for whom the share of farmers reporting feeding fresh-cut forage decreased by 11 percentage points (statistically significant at the 5% level). Use of meadow hay, although common at both baseline and midterm, declined between survey rounds across all farmer types (to 59% of dairy-only farmers, significant at the 10% level; 50% of beef-only farmers, not significant); and 59% of dairy/beef farmers, statistically significant at the 1% level) at midterm. Use of silage, barley straw, and wheat straw increased across all farmer types, although these forms of forage were still used less frequently than either fresh-cut forage or meadow hay.

Exhibit 20. Types of Forage Used

Types of Forage	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of farmers who report giving their cattle forage	90%	97%***	97%	100%	88%	96%***
Types of Forage Farmers Gave to Cattle						
Fresh cut forage	67%	77%*	50%	79%**	80%	69%**
Meadow hay	70%	59%*	60%	50%	80%	59%***
Alfalfa hay	35%	26%*	53%	25%**	25%	32%
Silage	2%	21%***	0%	13%**	1%	20%***
Barley straw	15%	35%***	27%	33%	24%	39%***
Wheat straw	19%	35%***	30%	38%	25%	31%
Conserved forage	0%	2%	0%	0%	1%	8%***
Fresh crop residues	18%	20%	7%	4%	31%	9%***
Stored crop residues	51%	35%***	33%	17%	48%	25%***
Others	9%	2%***	10%	4%	18%	4%***
N	146	172	30	24	169	163

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported the type of forage used by them. Multiple responses were allowed and hence columns will not add to 100%

With respect to using improved fodder and forage management practices at midterm (**Exhibit 21**), 41% of farmers grew drought tolerant and flood resistant seed varieties, while 44% of farmers practiced soil-related fertility and conservation. The largest area of land was dedicated to pest and disease management for fodder (around 4.35 hectares).

Exhibit 21. Types of Improved Fodder and Forage Management Practices Used

Types of Improved Management Practices	All Farmers	Land dedicated to the practice (ha)
None	26%	-
Grew drought tolerant and flood resistant seed varieties	41%	2.41 ha
Pest and disease management for fodder	24%	4.35 ha
Soil-related fertility and conservation	44%	3.93 ha
Irrigation	22%	2.07 ha
Climate adaptation/climate risk management	23%	1.19 ha
Other	2%	0.02 ha
N	100	98

Note: N reflects the number of farmers who reported the type of improved management practices used by them. Multiple responses were allowed and hence columns will not add to 100%.

Far fewer farmers reported giving their cattle concentrate feed compared to forage (**Exhibit 22**). Among farmers who used feed, maize bran and wheat bran were used most frequently at both baseline and midterm. For dairy-only farmers, the use of maize bran increased (from 55% at baseline to 79% at midterm, statistically significant at the 1% level), while the use of wheat bran decreased (from 86% at baseline to 77% at midterm, not statistically significant). Among beef-only and dairy/beef farmers, use of maize bran remained about the same; use of wheat bran decreased (statistically significant at the 5% and 1% levels, respectively). Barley/oats/rye and corn grain were also quite popular at midterm, with between

50% and 67% of farmers who used feed reporting they had used these types of grain (more than at baseline, but not by statistically significant amounts).

Exhibit 22. Types of Feed Concentrate Used

Types of Feed	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of Farmers Who Report Giving Their Cattle Feed Concentrate	65%	34%***	68%	42%*	68%	46%***
Types of Feed Farmers Give to Cattle						
Molasses	0%	10%**	0%	0%	0%	5%***
Maize bran	55%	79%***	62%	60%	76%	77%
Wheat bran	86%	77%	86%	50%**	86%	62%***
Beer residues	3%	10%	0%	0%	2%	5%
Ration/industrial feed/Concentrated supplement feed	1%	34%***	0%	30%***	4%	23%***
Barley/oats/rye	n/a	61%	n/a	50%	n/a	67%
Corn grain	n/a	66%	n/a	50%	n/a	59%
Others	17%	2%***	5%	0%	13%	3%***
N	106	61	21	10	130	79

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported the type of feed concentrate used by them. Multiple responses were allowed and hence columns will not add to 100%

At midterm, slightly more than half (56%) of all farmers reported implementing improved practices for farm management (**Exhibit 23**). Beef/dairy farmers applied these practices more frequently than either of the other farmer types (at close to 70%). The most common practices implemented by farmers across the entire sample included calculation of feed price per head of cattle (76%), balanced feeding (72%), and breed improvement (61%). Over half of all farmers also practiced keeping records of animal feed flow (59%), animal nutrition or balancing the selection of feed ingredients based on chemical composition (52%), and artificial insemination (51%).

Exhibit 23. Midterm Knowledge of Improved Practices for Farm Management, by Farmer Type

Improved Practices	Dairy-Only Farmers	Beef-only Farmers	Both Dairy and Beef Farmers
Percent farmers implementing Improved Practices for Farm Management	54%	46%	68%
If Yes, What Types of Improved Practices?			
Animal performance monitoring	49%	25%	51%
Animal nutrition and ration balancing selection of feed ingredients based on chemical composition	56%	42%	58%
Balanced feeding (fodder/forage + concentrate feed + Nutritional supplements)	69%	67%	79%
Calculation of feed price per head of animal	82%	67%	79%
Record keeping on animal feed flow (ingredients, additives, etc.)	55%	67%	56%
Improved awareness for Georgian legislative framework (Assuring fulfillment of food safety regulations such as farm registration, obligation of notification to government, etc.)	40%	50%	46%
Breed improvement /controlled breeding (with only selected bulls, controlled calving pattern, etc.)	59%	58%	65%
Artificial insemination/embryo transplant	56%	42%	56%
Bookkeeping and farm cost accounting (cash flow planning)	40%	33%	53%
Other farm management practice	2%	0%	0%
N	100	12	117

Note: N reflects the number of dairy farmers who reported using improved practices for farm management.

3.3.3 Housing and Water

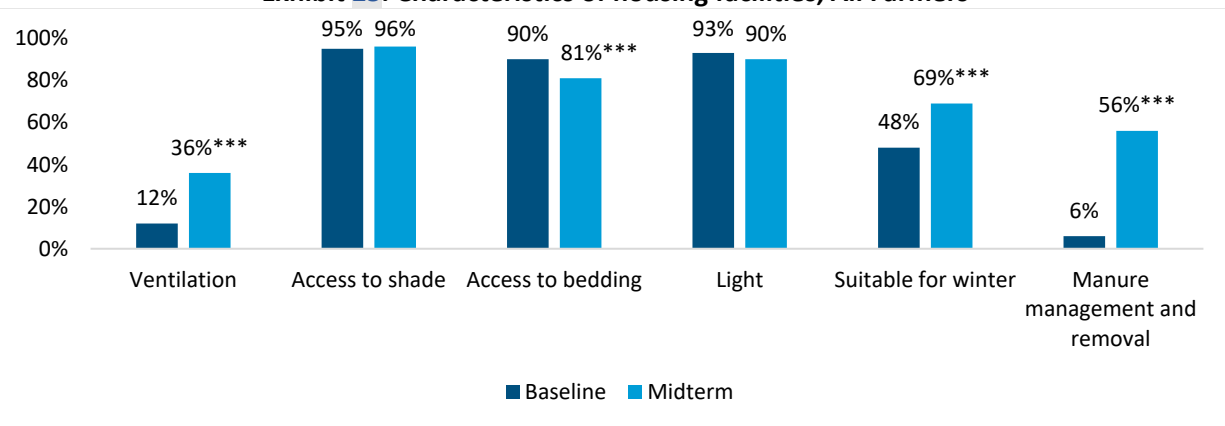
Slatted sheds, which allow for quick and effective removal of animal waste, were the most commonly used housing facilities for cattle overall among farmers across both survey rounds (**Exhibit 24**). Although the share of farmers who used slatted sheds was approximately the same at both baseline and midterm (93% and 92%, respectively), the average size of each shed increased from 85 cubic meters (m³) to 245 m³ (statistically significant at the 1% level). This is consistent with the increase in average herd size increased from 17 cattle at baseline to 40 cattle at midterm (**Exhibit 14** above). The average recommended area per cow is generally 4 m², suggesting that the size of the average slatted shed was more than sufficient at both baseline and midterm. About 65% of farmers also had much smaller (49 m²) separate areas devoted to calf housing. This was an increase from baseline, when only 40% of farmers reported separate calf housing and the average size of these shelters was just 26 m² (both statistically significant at the 1% level). Farmers in FGDs at baseline viewed proper housing as critical to ensuring the safety and quality of their production. The share of farmers who reported that their sheds were suitable for the winter months increased from close to 50% at baseline to almost 70% at midterm (statistically significant at the 1% level) (**Exhibit 25**). This is an encouraging sign, as slatted sheds are traditionally used to house animals during the colder months of the year. Across all farmers, access to shade, to bedding, and to light were mostly adequate at both baseline and midterm (although the share of farmers who reported access to bedding declined from 90% to 81% over the period, statistically significant at the 1% level). Although the proportion of farmers with adequate ventilation in housing for their herd increased by 24 percentage points between baseline and midterm (statistically significant at the 1% level), it remained low, with only about a third of midterm farmers engaging in the practice at midterm. Adequate manure management and removal increased substantially and significantly (at the 1% level) between survey rounds (from just 6% of farmers at baseline to 56% at midterm).

Exhibit 24. Types of Cattle Housing

Type of housing	Percentage Used		Size	
	Baseline	Midterm	Baseline	Midterm
Slatted shed	93%	92%	85 m ²	245 m ² ***
Calf housing	40%	65%***	26 m ²	49 m ² ***
Cattle handling area	26%	47%***	567 m ²	1,519 m ²
Cow cubicles	19%	34%***	126 m ²	171 m ²
Shed	4%	14%***	667 m ²	381 m ²
Others	1%	0%	102 m ²	n/a
N	384	384	2 - 353	0 – 351

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported having housing for cattle. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 25. Characteristics of housing facilities, All Farmers

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

N = 154 for dairy farmers, 28 for beef farmers, 186 for dairy/beef farmers. Multiple responses were allowed and hence will not add to 100%.

Only about one-third (34%) of farmers had access to a continuous water supply for their cattle at midterm, although this is a statistically significant increase (at the 1% level) of 17 percentage points from baseline (see **Exhibit 26**). Between baseline and midterm, the share of farmers bringing cattle to a water source declined (from 60% to 50%, statistically significant at the 1% level). At the same time, 52% of midterm farmers manually brought water to their cattle in their housing or handling facilities, an increase of 21 percentage points from baseline (statistically significant at the 1% level). At baseline, nearly a quarter of all farmers (24%) had to pay for water. By midterm, however, only 2% of farmers reported the same (statistically significant at the 1% level). Given that access to water for cattle has a significant bearing on milk yields, this slight increase in continuous access to water coupled with significant reductions in the share of farmers paying for access to water is encouraging. Even so, that the share of farmers with continuous water access remained low indicates an important constraint to be addressed.

Exhibit 26. Types of Water Access

Type of Water Access	All Farmers	
	Baseline	Midterm
Brought cattle to a water source	60%	50%***
Provided access to water in housing/handling facilities	31%	52%***

Continuous flow of water	17%	34%***
Percent who Pay for Access to Water	24%	2%***
N	384 ¹	385

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported the type of water provided to cattle.

¹ One farmer did not know or refused to answer the relevant question.

3.3.4 Animal Health Practices

Although roughly a quarter of all farmers reported health problems among their herds at baseline and midterm (not shown), among subgroups there were differences over time (**Exhibit 27**). Only 11% of dairy-only farmers reported health problems among their herd at midterm—a statistically significant decline (at the 5% level) from the 20% of dairy-only farmers reporting the same at baseline. The trend was reversed for beef-only farmers, for whom the share reporting health issues with their cattle increased (from 23% at baseline to 27%, not statistically significant). The most common ailments reported at midterm were mastitis (23%), conjunctivitis (17%), lumpy skin disease (16%), and bloat (15%). About 39% of farmers reported other issues with their herds, such as pasteurellosis, pulpy kidney, fever, gastric diseases, birthing related issues, dermatitis, poison, paralysis, emphysema carbuncles, rash, stomatitis, sunstroke, electric shock, and viruses. There were slight variations in disease occurrence among farmer types. Dairy-only farmers reported mastitis and conjunctivitis at higher rates than either of the other two farmer types (35% and 30% for dairy-only farmers, versus 17% and 17% for beef-only farmers and 18% and 4% for dairy/beef farmers, with only the difference for conjunctivitis among dairy-only farmers statistically significant, at the 5% level). Anaplasmosis was not commonly reported at either baseline or midterm, but among dairy-only farmers, the rate of anaplasmosis increased from 0% to 10% at midterm (statistically significant at the 10% level). At baseline, around 10% of all farmers reported experiencing brucellosis within their herds. At midterm, the incidence of brucellosis had dropped to just 2% across the entire sample (not shown), with the largest decline observed among dairy/beef farmers (from 10% to 0%, statistically significant at the 5% level).

Exhibit 27. Animal Health Issues

Types of Animal Health Issues	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of farmers who report having cattle with health problems	20%	11%**	23%	27%	30%	27%
If Yes, Type of Health Issue Faced						
Mastitis	26%	35%	0%	17%	20%	18%
Conjunctivitis	4%	30%**	0%	17%	10%	4%
Anaplasmosis	0%	10%*	0%	0%	0%	4%
Lumpy skin disease	n/a	5%	n/a	17%	n/a	27%
Wounds and tetanus	4%	10%	0%	0%	4%	7%
Anthrax	4%	0%	0%	0%	0%	0%
Foot and mouth disease	0%	10%*	0%	0%	4%	7%
Brucellosis	11%	5%	0%	0%	10%	0%**
Ketosis	n/a	0%	n/a	0%	n/a	2%
Acidosis	n/a	0%	n/a	0%	n/a	0%
Bloat	n/a	20%	n/a	0%	n/a	24%
Others	48%	35%	33%	50%	46%	31%
N ¹	27	20	3	6	50	45

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported health issues among their cattle. Since multiple responses were allowed, columns will not add to 100%.

¹Although 96 baseline farmers reported health-related issues, 16 of them, reported not knowing what the health issue was.

Exhibit 28. Animal Health Control Measures

Health Testing	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of farmers who report having used health control measures	99%	99%	94%	100%	98%	99%
If Yes, Types of Health Testing Conducted						
Vaccination	98%	96%	90%	96%	97%	96%
Deworming	88%	83%	97%	69%***	93%	91%
Mastitis control	26%	68%***	14%	35%*	44%	69%***
Hoofs trimming	n/a	32%	n/a	27%	n/a	39%
Brucellosis control	n/a	63%	n/a	46%	n/a	72%
Collaboration with state veterinarians	n/a	74%	n/a	69%	n/a	79%
Raising employee awareness on animal health related issues	n/a	44%	n/a	12%	n/a	48%
Keeping animal health records	n/a	39%	n/a	46%	n/a	39%
Farm hygiene	n/a	65%	n/a	54%	n/a	80%
N	160	185	29	26	189	172

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported testing their cattle for animal health issues. Multiple responses were allowed and hence columns will not add to 100%.

1 USD = 3.125 GEL

Use of animal health control measures was almost universal at both baseline and midterm (**Exhibit 28**). The most common forms vaccination (96% of the midterm sample), deworming (averaging 81%) and collaboration with state veterinarians (averaging 74%) (sample averages not shown). More than half of all farmers surveyed also reported implementing farm hygiene (averaging 66%), brucellosis control (averaging 60%), and mastitis control (averaging 57%). The share of farmers practicing mastitis control, in particular, increased between baseline and midterm for all farmer types, which might reflect increases in mastitis incidence as farmers were now more aware of symptoms. Mastitis control was one of the most common training subjects SQIL conducted among beef and dairy farmers, so this increase in mastitis control practices likely corresponds to those training efforts. Among dairy-only farmers, for example, the share of farmers practicing mastitis control increased (from 26% at baseline to 68% at midterm, statistically significant at the 1% level). The dairy-only farmers reporting an issue with mastitis also increased by 9 percentage points during this period (**Exhibit 27** above). Although this result is not statistically significant, it might imply that farmers increased their use of mastitis control techniques in response to increases in the rate of infection amongst their cattle. Since mastitis is primarily a concern for dairy cows, this plausibly explains the lower rates of mastitis infection reported among beef-only farmers (17% versus 35% for dairy-only farmers) as well as lower rates of mastitis control (35% versus 68% for dairy-only farmers). Mastitis impacts milk yields and quality through increased bacterial cell counts, so although it is encouraging that farmers participating in the dairy sector increased their use of mastitis control mechanisms, rising instances of mastitis are probably still cause for concern.

The share of farmers with knowledge of animal health practices was also quite high, at 80% (see **Exhibit 29**). Dairy/beef farmers were most aware of animal health practices (87%), while beef-only farmers' awareness of animal health practices was at a slightly lower rate (73%). The most commonly known animal health practices included collaboration with state veterinarians (83%), farm hygiene (75%), and mastitis control (70%).

Exhibit 29. Midterm Knowledge and Awareness of Animal Health Practices, by Farmer Type

Animal Health Practices	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent of farmers aware of Animal Health Practices	81%	73%	87%
If Yes, What Types of Animal Health Practices?			
Observing biosecurity on farm (farm isolation, control of imported animals, raising employee's awareness on animal health issues.)	47%	47%	56%
Keeping animal health records	53%	58%	55%
Farm hygiene (permanent cleaning, disinfection, etc.)	81%	63%	80%
Vaccinations initiated by farm (except State funded vaccination)	54%	47%	59%
Mastitis control	84%	47%	79%
Hoofs trimming	50%	32%	65%
Collaboration with state veterinarians	79%	89%	83%
Brucellosis control	73%	53%	79%
Tuberculosis control	58%	47%	64%
Deworming and/or external parasites treatment	54%	37%	52%
N	151	19	151

Note: N reflects the number of dairy farmers who reported using animal health practices.

Almost all farmers in the midterm sample reported familiarity with animal welfare practices (97%) (**Exhibit 30**). This included both providing sufficient space for the animals (85%) and providing constant access to sufficient feed and water (90%). Very few (1%) of farmers reported knowledge of any other animal welfare practices. There was little difference among farmer types when it came to ensuring the welfare of animals.

Exhibit 30. Midterm Knowledge of Animal Welfare Practices, by Farmer Type

Animal Welfare Practices	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent farmers implementing Animal Welfare Practices	96%	100%	96%
If Yes, What Types of Animal Welfare Practices?			
Providing sufficient space required per head of animal	86%	85%	83%
Constant access to sufficient feed and water	90%	85%	96%
Other animal welfare related practice	0%	0%	3%
N	179	26	166

Note: N reflects the number of dairy farmers who reported using animal welfare practices.

At 79%, the share of farmers who report knowledge of proper usage of veterinary medicinal products was also quite high at midterm (sample averages not shown). Dairy-only farmers were aware of proper usage of veterinary products at a lower rate than the other two farmer types, at just 69% (as compared to 85% and 84% for beef-only and dairy/beef farmers, respectively). On-farm storage of veterinary medicines was the most commonly known practice, with 61% of the sampling reporting familiarity with the best-practice of keeping veterinary medicines nearby. Over half of the sample also reported knowing to limit the usage of antibiotics (58%) and knowing to keep records of the veterinary products used (55%). Only 35% of the sample, on the other hand, reported familiarity with handling residues in milk. Dairy/beef farmers (**Exhibit 31**) were substantially more likely to be knowledgeable in the limited usage of antibiotics than either of the other farmer types, with 70% of dairy/beef farmers reporting awareness of the practice (as compared to 59% and 45% for dairy-only and beef-only farmers, respectively, not statistically significant).

Exhibit 31. Midterm Knowledge of Proper Usage of Veterinary Medicinal Products, by Farmer Type

Proper Usage of Veterinary Medicinal Products	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent farmers implementing Proper Usage of Veterinary Medicinal Products	69%	85%	84%
If Yes, What Types of Proper Usage of Veterinary Medicinal Products?			
Record keeping of used Veterinary Medicinal Products	57%	55%	54%
Limited usage of antibiotics	59%	45%	70%
Handling residues in milk	31%	27%	45%
On-farm storage of veterinary medicines	58%	59%	67%
N	128	22	145

Note: N reflects the number of dairy farmers who reported on their usage of veterinary medicinal products.

3.3.5 Safety and Hygiene Practices for Milking

All farmers with dairy cattle (dairy-only and dairy/beef farmers) surveyed at midterm reported using hygiene practices while milking cattle (see **Exhibit 32**). At midterm, the main types of hygiene practices included removing manure from the udder and teats of the animal (98%) and ensuring the milking area weeds clean (90%). Most farmers (83%) also observed general good hygiene in the milking space. Other common practices included using bedding management (65%), using gloves while milking (62%), properly washing and sanitizing milk tanks and machines (53%), washing teats with an udder wash sanitizing solution (50%), and drying teats with paper towels (50%). Almost all these proportions are statistically significant increases (at the 1% level) from baseline. The largest increases were in the share of farmers practicing using gloves while milking (30 percentage point increase) and those dipping teats with an effective product immediately after unit removal (25 percentage point increase) (both statistically

significant at the 1% level). Increased use of specific hygiene practices is a positive indication that farmers became more cognizant about safety and quality issues.

Exhibit 32. Hygiene Practices while Milking for Dairy Cattle

Hygiene Practices	Total Dairy Farmers		% of Total	
	Baseline	Midterm	Baseline	Midterm
Number of farmers using hygiene practices	354	359	99.7%	100%
If Yes, What Types of Hygiene Practices?				
Remove manure from udder and teats	319	352	90%	98%***
Use gloves while milking	113	223	32%	62%***
Ensure milking area is clean	304	323	86%	90%
Wash teats with an udder wash sanitizing solution	96	180	27%	50%***
Dry teats with paper towels	138	180	39%	50%***
Dip teats with an effective product immediately after unit removal	78	169	22%	47%***
Proper washing and sanitizing of milk tanks/machine/pipes etc.	n/a	190	n/a	53%
Observing general hygiene in milking space	n/a	298	n/a	83%
Post-harvest handling and storage of the milk - temperature control	n/a	147	n/a	41%
Use of bedding management	n/a	233	n/a	65%
Others	18	0	5%	0%

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of dairy farmers who reported using safety and hygiene practices. Multiple responses were allowed and hence columns will not add to 100%.

At midterm, only 33% of all dairy farmers reported implementing safety checks before selling milk (**Exhibit 33**). This is a statistically significant 12 percentage point increase from baseline (at the 1% level), but still represents a relatively small fraction of total dairy farmers. The most common types of quality control checks at midterm included checking the fat content of the milk (85%), water content of the milk (66%), and acidity of the milk (63%). Although the share of dairy farmers implementing safety checks generally increased, the share of farmers conducting each of the specific checks highlighted in the exhibit decreased (with the exception of checking for antibiotic residue). The proportion of farmers who checked the acidity of their milk, for example, declined from 77% at baseline to 63% at midterm (statistically significant at the 5% level).

Exhibit 33. Safety Checks before Selling Milk

Safety Checks	All Dairy Farmers	
	Baseline	Midterm
Percent farmers implementing safety checks before selling milk	21%	33%***
If Yes, What Types of Safety Checks?		
Check fat content	92%	85%
Check acidity of milk	77%	63%**
Check water content of milk	67%	66%
Check bacterial count and somatic cell count	56%	45%
Check for antibiotic residue	19%	30%*
Check for other	0%	3%
N	73	119

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of dairy farmers who reported using quality checks before selling milk.

¹1 USD = 3.125 GEL

3.4 Milk Production and Sales

3.4.1 Production

The most important indicator of dairy herd productivity is daily milk yield per cow. In **Exhibit 34**, we present the total daily dairy production per cow in liters. On average, dairy farmers showed an increase of 0.1 liters/cow daily dairy production from baseline (not statistically significant). Dairy-only farmers showed an increase of 1.1 liters during the winter season (statistically significant at the 5% level) and 2.4 liters (statistically significant at the 1% level) during the lactation peak season. Dairy/beef farmers reported an increase of 1.7 liters (statistically significant at the 1% level) during the peak lactation period. Yield size in the summer season did not show a significant change from baseline to midterm.

Exhibit 34. Total Daily Dairy Production per Cow (in Liters)

Variable	Dairy-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Overall average	5.1 L	5.6 L	5.1 L	5.5 L	5.1 L	5.2 L
N	161	186	191	173	352	382
Herd Size						
Up to 10 reproductive cows	4.9 L	4.0 L	6.3 L	5.2 L	5.5 L	4.0 L
N	87	41	63	18	150	64
Between 10 – 20 cows	5.3 L	5.3 L	4.8 L	4.9 L	5.0 L	4.8 L
N	54	48	69	48	123	103
More than 20 cows	5.7 L	6.5 L	4.3 L	6.1 L	4.6 L	6 L
N	20	97	59	107	79	215
Season						
Summer	6.7 L	6.5 L	6.6 L	6.3 L	6.6 L	6.2 L
N	161	186	191	173	352	382
Winter	3.6 L	4.7 L**	3.2 L	3.9 L	3.4 L	4.1 L**
N	161	186	191	173	352	382
Lactation Peak	8.9 L	11.3 L***	9.3 L	11.0 L***	9.1 L	11.1 L***
N	161	186	191	173	352	358

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their production level in each category.

Average daily yield per cow differed by breed type at midterm (**Exhibit 35**). On average, high productive breeds produced 20.5 liters, local improved or cross breeds produced an average of 10.3 liters, and local breeds produced an average of 7.6 liters of milk per cow per day. Across all breeds, the peak lactation period produced the highest quantity of milk, and the winter season produced the lowest quantity of milk.

Exhibit 35. Midterm Total Daily Dairy Production per Cow by Breed (in Liters)

Breed of Cow	Daily milk production per cow (liters)					
	Peak Lactation Period	Summer Season	Winter Season	Annual Mean	Annual Production	N
Local breeds	9.8L	9.1L	6.2L	7.6L	2,369L	300
Local improved (cross breed)	12.9L	12.1L	8.5L	10.3L	3,193L	79
High productive breed	25.6L	22.7L	18.3L	20.5L	6,347L	33

Note: Annual production levels calculated assuming 10 months (= 305 days) of lactation.

3.4.2 Volume of Sales

Exhibit 36 shows total daily dairy sales per cow in liters. At baseline, average sales per day per cow in the summer were about 5.8 liters, with winter sales about half as much, at 2.8 liters. Surprisingly, there was no variation between seasons in the production percentage that goes towards sales. One would expect that low production levels in winter would make farmers more likely to keep a higher fraction of the milk for their own consumption. However, we found only a marginal gap, with 87% of production sold in summer and 82% of production sold in winter. Overall, there was no significant difference between baseline and midterm for the overall average in total daily dairy sales for dairy-only farmers and dairy/beef farmers. This holds true when disaggregated by herd size. However, dairy-only farmers saw an increase of 1.2 liters (statistically significant at the 5% level) per cow per day for dairy sales, during the winter season.

Exhibit 36. Total Daily Dairy Sales (in Liters Per Cow)

Variable	Dairy-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Overall average	4.4 L (87%)	5.0 L (88%)	4.5 L (88%)	4.6 L (84%)	4.5 L (87%)	4.6 L (88%)
N	162	186	192	173	354	385
Herd Size						
Up to 10 reproductive cows	4.1 L (84%)	3.1 L (87%)	5.5 L (87%)	4.5 L (86%)	4.7 L (86%)	3.2 L (80%)
N	88	41	64	18	152	64
Between 10 – 20 cows	4.6 L (87%)	4.5 L (85%)	4.0 L (84%)	3.9 L (80%)	4.3 L (85%)	3.9 L (83%)
N	54	48	69	48	123	103
More than 20 cows	5.4 L (95%)	6.0 L (92%)	3.9 L (92%)	4.9 L (81%)	4.3 L (93%)	5.4 L (90%)
N	20	97	59	107	79	218
Season						
Summer	5.9 L (88%)	5.8 L (89%)	5.8 L (88%)	5.4 L (86%)	5.8 L (88%)	5.4 L (90%)
N	162	186	192	173	354	385
Winter	3.0 L (84%)	4.2 L** (88%)	2.7 L (84%)	3.4 L (86%)	2.8 L (84%)	3.6 L** (98%)
N	162	186	192	173	354	385

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their volume of sales in each category. Sales as a percentage of production levels are below in parentheses.

3.4.3 Value of Sales

We report the total daily value of liquid milk sales per cow in **Exhibit 37** with sales price per liter of liquid milk reported by the farmers in parenthesis in each cell. Overall, dairy farmers reported an average increase of milk sales of \$3.2/cow (statistically significant at the 1% level). Dairy-only farmers reported an average increase of \$3.9/cow, and dairy/beef farmers reported an average of \$2.5/cow. Dairy-only farmers saw an increase of \$3.4 with a herd size of 10 or less, \$3.6 with a herd size of 10–20, and \$3.4 with a herd size greater than 20 (all statistically significant at the 1% level). Dairy/beef farmers showed an increase of \$2.7 (statistically significant at the 1% level) with a herd size of 10 or less, and \$3.1 with a herd size between 10 and 20 cows (both statistically significant at the 1% level), but no statistically significant

difference with herd sizes greater than 20. Dairy-only farmers showed an increase in daily value of milk sales for the summer, winter, and lactation peak seasons (\$2.6, \$4.8, and \$11, respectively, all statistically significant at the 1% level). Dairy/beef farmers saw an increase of \$3.6 (statistically significant at the 1% level) in the winter season.

Exhibit 37. Total Daily Value of Milk Sales (in USD per cow)

Variable	Dairy-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Overall average	\$3.7 (\$0.59)	\$7.6*** (\$0.42)	\$4.5 (\$1.23)	\$7.0*** (\$0.66)	\$4.1 (\$0.95)	\$7.3*** (\$0.56)
N	162	186	192	173	354	385
Herd Size						
Up to 10 reproductive cows	\$3.5 (\$0.65)	\$6.9*** (\$0.56)	\$4.2 (\$0.84)	\$6.9*** (\$0.56)	\$3.8 (\$0.73)	\$6.9*** (\$0.56)
N	88	41	64	18	152	64
Between 10 – 20 cows	\$3.7 (\$0.31)	\$7.3*** (\$0.49)***	\$4.3 (\$1.20)	\$7.4*** (\$0.49)*	\$4.0 (\$0.84)	\$7.4*** (\$0.49)
N	54	48	69	48	123	103
More than 20 cows	\$4.6 (\$0.72)	\$8.0*** (\$0.39)**	\$5.1 (\$1.72)	\$6.8 (\$0.71)	\$5.0 (\$1.44)	\$7.4*** (\$0.58)
N	20	97	59	107	79	218
Season						
Summer	\$5.2 (\$0.67)	\$7.8*** (\$0.39)	\$6.4 (\$1.09)	\$7.4 (\$0.62)	\$5.8 (\$0.91)	\$7.6*** (\$0.53)
N	162	186	192	173	354	385
Winter	\$2.3 (\$0.51)	\$7.1*** (\$0.45)	\$2.7 (\$1.39)	\$6.3*** (\$0.77)	\$2.5 (\$1.00)	\$6.7*** (\$0.62)
N	162	186	192	173	354	385
Lactation Peak	\$23.1	\$34.1***	\$22.9	\$26.4	\$23.0	\$30.4***
N	158	170	185	158	343	328

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their value of sales in each category. We report the sales price per liter of milk in parenthesis. Sales price per liter of milk is arrived at by dividing total daily volume of sales by total daily value of sales.
1 USD = 3.125 GEL

3.5 Beef Production and Sales

3.5.1 Production

The most important indicator of beef herd productivity is annual beef production level per animal. In this section production is defined as the number of cattle sold by a beef farmer multiplied by the average liveweight of the cattle at time of sale. In **Exhibit 38**, we present the average annual beef production in kilograms. Average annual beef production increased from 111kg to 113kg, overall. Farmers with 10 or fewer cattle showed a decrease in annual beef production by 26kg from baseline to midterm (statistically significant at the 10% level). Beef-only farmers with 10–20 cattle showed a decrease in annual beef production from 120kg to 76kg (statistically significant at the 0.10% level), with an average decline of 44kg (statistically significant at the 10% level). Beef-only farmers saw an increase of 105kg to 183kg annual beef production during the winter season (statistically significant at the 5% level).

Exhibit 38. Annual Beef Production (in kilograms per cow)

Variable	Beef-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Overall average	104 kg	128 kg	112 kg	110 kg	111 kg	113 kg
N	28	18	163	99	191	117
Herd Size						
Up to 10 reproductive cows	90 kg	63 kg	104 kg	76 kg	101 kg	75 kg*
N	16	2	54	12	70	14
Between 10–20 cows	120 kg	76 kg*	106 kg	88 kg	108 kg	86 kg*
N	9	5	60	21	69	26
More than 20 cows	136 kg	164 kg	127 kg	124 kg	128 kg	129 kg
N	3	11	49	66	52	77
Season						
Summer	104 kg	74 kg	98 kg	119 kg	99 kg	112 kg
N	28	18	163	99	191	117
Winter	105 kg	183 kg**	125 kg	102 kg	122 kg	114 kg
N	28	18	163	99	191	117

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their production in each category. Exhibit 46 production is based on total beef cattle they had, which could exceed five. Exhibit 47 is based on detailed answers to questions about five living beef cattle chosen by the respondent.

Breed type varied in the average weight per animal at the time of sale at midterm (**Exhibit 39**). High productive breeds weighed the most, averaging 401 kilograms per animal. Consequently, they fetched the highest price, at \$875 per animal. Local breeds averaged 203 kg, with an average price of \$448 per animal at time of sale. Local improved breeds averaged 240 kg, with an average price of \$488 per animal at time of sale.

Exhibit 39. Midterm Annual Beef Production and Price at Selling by Breed (in kilograms per cow)

Breed of Cow	Average Weight per Cow at Time of Selling	Average Price per Cow at Time of Selling ¹	N
Local breeds	203 kg	\$448	163
Local improved	240 kg	\$488	24
High productive breed	401 kg	\$875	13

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: Exhibit 47 is based on detailed answers to questions about five living beef cattle chosen by the respondent. Exhibit 46 production is based on total beef cattle they had, which could exceed five.

¹1 USD = 3.125 GEL

3.5.2 Volume of Sales

Exhibit 40 shows the annual volume of beef sales by herd size and season. Overall, both dairy/beef farmers showed a decrease in volume of beef sales from baseline to midterm. Farmers with 10 or fewer cattle reported a decline in annual volume of beef sales of 37 kilograms (statistically significant at the 10% level) per animal, with a mean decrease from 93 to 59 kilograms (statistically significant at the 1% level). Farmers with 10–20 cows reported a decrease of annual volume of beef sales from 93 kilograms to 58 kilograms (statistically significant at the 5% level), with a mean decline of 33 kilograms (statistically significant at the 1% level). Beef-only farmers reported an increase in annual volume of beef sales during the winter from 89 kilograms to 175 kilograms (statistically significant at the 5% level). But dairy/beef farmers reported a decline in annual volume of beef sales in the winter of 45 kilograms (statistically

significant at the 1% level), with the overall mean in the winter months decreasing from 106 kilograms to 81 kilograms (statistically significant at the 10% level).

Exhibit 40. Annual Volume of Beef Sales (in kilograms per cow)

Variable	Beef-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Overall average	96 kg (92%)	122 kg (95%)	101 kg (91%)	87 kg* (79%)	100 kg (91%)	92 kg (82%)
N	28	18	163	99	191	117
Herd Size						
Up to 10 reproductive cows	83 kg (92%)	58 kg (92%)	96 kg (82%)	59 kg* (77%)	93 kg (92%)	59 kg*** (79%)
N	16	2	54	12	70	14
Between 10–20 cows	105 kg (87%)	76 kg (100%)	93 kg (88%)	58 kg** (66%)	94 kg (88%)	61 kg*** (71%)
N	9	5	60	21	69	26
More than 20 cows	136 kg (100%)	154 kg (94%)	117 kg (92%)	101 kg (82%)	118 kg (92%)	109 kg (84%)
N	3	11	49	66	52	77
Season						
Summer	102 kg (99%)	69 kg (93%)	93 kg (94%)	110 kg (92%)	94 kg (95%)	103 kg (92%)
N	28	18	163	99	191	117
Winter	89 kg (85%)	175 kg** (96%)	109 kg (87%)	64 kg*** (63%)	106 kg (87%)	81 kg* (71%)
N	28	18	163	99	191	117

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their volume of sales in each category. Sales as a percentage of production levels are in parentheses.

3.5.3 Value of Sales

In this section, we present total value of beef sales in USD per kilograms and disaggregate sales by region, herd size, farmer type, and season. We calculate sales price per kilogram by dividing the average annual volume of beef sales by the average annual value of beef sales. **Exhibit 41** shows the annual value of beef sales per cow by herd size and season. On average, dairy/beef farmers reported a decrease of \$1 (statistically significant at the 1% level) in annual value of beef sales/cow, with an overall mean decrease of \$0.80 (statistically significant at the 1% level). Farmers with 20 or more cattle reported a decline of annual value of beef sales per animal from \$3.5 to \$2.7, with an overall mean decline of \$0.80 (both statistically significant at the 5% level). Beef-only farmers saw an increase in sale price/cow of \$0.90 (statistically significant at the 10% level) during the summer season.

Exhibit 41. Annual Value of Beef Sales per Cow (in USD per kilogram)

Variable	Beef-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Overall average	\$3.5	\$3.5	\$3.8	\$2.8***	\$3.8	\$3.0***
N	25	18	139	73	164	91
Herd Size						

Variable	Beef-Only Farmers		Both Dairy and Beef Farmers		Total / Mean	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Up to 10 reproductive cows	\$3.2	\$3.8	\$3.6	\$3.7	\$3.5	\$3.7
N	14	2	44	9	58	11
Between 10 – 20 cows	\$4.1	\$4.5	\$4.3	\$3.2	\$4.3	\$3.6
N	8	5	49	10	57	15
More than 20 cows	\$3.3	\$3.0	\$3.5	\$2.7**	\$3.5	\$2.7**
N	3	11	46	54	49	65
Season						
Summer	\$2.9	\$3.8*	\$3.2	\$2.9	\$3.2	\$3.1
N	18	13	73	62	91	75
Winter	\$3.3	\$3.6	\$3.2	\$3.0	\$3.2	\$3.2
N	18	17	95	41	113	58

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported their value of sales in each category.

1 USD = 3.125 GEL

3.6 Sales Agreements and Overall Labor Use

3.6.1 Sales Agreements

We collected data on the extent of formalization between buyers and sellers in dairy and beef value chains by asking farmers if they had any formal contracts or agreements with their buyers. Formal contracts and/or agreements were defined as having written arrangements with MCCs, milk processors, or other buyers, wherein farmers sold exclusively to these buyers; informal agreements included only verbal arrangements. Dairy-only farmers reported an increase of 19 percentage points (statistically significant at the 1% level) in written or verbal agreements with buyers from baseline to midterm, and beef-only farmers reported an increase of 24 percentage points (statistically significant at the 10% level) in written/verbal agreements (**Exhibit 42**). Dairy/beef farmers reported an increase from 30% to 61% (statistically significant at the 1% level), with formal written agreements increasing from zero to eight% (statistically significant at the 5% level). While not statistically significant from baseline to midterm, the majority of formal agreements for dairy/beef farmers remained verbal (97%), and thus not legally binding. On average this farmer type had an increase in annual formal contracts and agreements at midterm from 2.3 to 4.1 (statistically significant at the 5% level). Dairy-only farmers experienced the largest number of annual formal contracts and agreements (with an increase from 1.3 to 14.7, statistically significant at the 5% level). Beef-only farmers did not show a statistically significant difference between baseline and midterm for type of agreement or average annual number of informal verbal contracts or agreements.

Exhibit 42. Formal Contracts/Agreements with Buyers

Formal Contracts	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of farmers who reported having written or verbal contracts/agreements with buyers	33%	52%***	26%	50%*	30%	61%***
N	162	186	31	26	192	173
If Yes, Types of Agreements						
Informal Verbal Agreement	98%	94%	100%	100%	100%	97%
Formal Written Agreement	4%	8%	0%	0%	0%	8%**
N	54	96	8	13	58	106
If Yes, Number of Agreements						
Average Annual Number of Informal Verbal Contracts/ Agreements	1.3	14.7**	5.0	13.6	2.3	4.1**
N	42	90	1	13	49	103
Average Annual Number of Informal Written Contracts/ Agreements	1.5	1.5	n/a	n/a	n/a	2.0
N	2	8	0	0	0	9

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N reflects the number of farmers who reported if they did or did not have formal or informal contracts with buyers. Multiple responses were allowed and hence columns will not add to 100%.

3.6.2 Overall Labor Use

All labor days reported in this section are *conditional* on having hired a particular type of labor. On average, (unpaid) family labor, male and female, worked 239 days and 219 days, respectively, on the farm in 2018, with little variation in family labor use by farmer type (not shown). **Exhibit 43** presents the average annual labor days by *hired* employee type for each type of farmer. Permanent hired laborers are full-time wage employees who are not part of the family and have no cattle ownership rights. Males permanently employed by dairy-only farmers showed a decline of 177 average total labor days (significant at the 1% level), and males permanently employed by beef-only farmers showed a decline of 191 average total labor days between baseline and midterm. Females permanently employed by dairy-only farmers saw an average decline of only five days, but an average increase of 177 days if they were employed by beef-only farmers (neither statistically significant). Both male and female permanent hired laborers employed by dairy/beef farmers had an average decrease in days worked (136 and 179 days, respectively, from baseline to midterm, both statistically significant at the 1% level). Male part-time hired workers during the summer showed a decrease of 122 (statistically significant at the 5% level), 162 (at the 1% level), and 75 (at the 1% level) average days worked for dairy-only farmers, beef-only farmers, and dairy/beef farmers, respectively. Female part-time hired workers during the winter at dairy-only farms showed a decrease in days worked from 90 days to 1 day (statistically significant at the 1% level), which could well be attributable to the COVID-19 pandemic.

On average, dairy-only farmers hired more than beef-only farmers. This is not unexpected, since dairy cattle is more labor intensive—especially for women, since they do most of the milking. For instance, dairy farmers hired female permanent labor for an average of 265 days a year at baseline, while beef farmers hired no permanent hired females at baseline. At midterm, beef-only farmers had increased their average hiring of female permanent labor from 0 days to 177 days in a year, but this is not statistically significant, plausibly because of very small samples.

Exhibit 43. Average Total Labor Days

Employee Type		Mean Total Labor Days					
		Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
		Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Permanent Hired Labor	Male	365	188***	365	174*	326	190***
	Female	265	260	0	177	364	185***
Part-time hired labor/ seasonal summer	Male	160	38**	193	31***	90	15***
Part-time/ seasonal winter	Male	30	9	0	28	24	26
Part-time/ seasonal summer	Female	120	54	0	42	75	46
Part-time/ seasonal winter	Female	90	1***	0	38	19	20
N		162	186	31	26	192	173

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: N is the number of farmers who reported the number of employees hired in each category.

3.7 Business Management

3.7.1 Credit

As shown in **Exhibit 44**, the share of dairy/beef farmers who applied for loans decreased by 13 percentage points (statistically significant at the 10% level), and the% of dairy-only farmers who applied for loans by 24 percentage points (statistically significant at the 1% level) from baseline to midterm. There was no significant difference over the period for beef-only farmers. While the% of farmers who applied for loans decreased, however, the amount borrowed increased. Dairy-only farmers, which had the largest decrease in loan applications, had the largest increase in amount borrowed, at \$8,657 (statistically significant at the 10% level). For dairy/beef farmers, amount borrowed increased by \$15,712 (statistically significant at the 1% level). The primary purposes for obtaining loans for dairy-only farmers were building/maintaining infrastructure for cattle (increased by 40 percentage points); purchasing/maintain new equipment (increased by 21 percentage points); and purchasing cattle (increased by 33 percentage points) (all statistically significant at the 1% level). In contrast, the primary purpose of dairy-only farmers obtaining a loan for paying off other debts or for other uses (such as family needs, home renovation, the purchase of a household appliance, or healthcare) decreased by 39 percentage points and 25 percentage points, respectively (both statistically significant at the 1% level). Interestingly, while the purpose of obtaining a loan for purchasing feed/veterinary care increased by 25 percentage points (statistically significant at the 10% level) for dairy-only farmers, it decreased by 50 percentage points (statistically significant at the 10% level) for beef-only farmers. For dairy/beef farmers, the primary purpose for obtaining a loan to build/maintain infrastructure increased by 22 percentage points (statistically significant at the 5% level); purchase cattle increased by 33 percentage points (statistically significant at the 10% level); paying off other debts or other uses decreased by 9 percentage points and 30 percentage points, respectively (both statistically significant at the 1% level). Lastly, for dairy/beef farmers the% of farmers who started using new financial products in the past 12 months increased (by 3 percentage points, statistically significant at the 10% level). There was no significant difference between baseline and midterm percentages for dairy-only and beef-only farmers who started using new financial products. The most common types of new financial product were livestock and crop insurance (not shown).

Exhibit 44. Uses of Loans

Variable	Dairy-Only Farmers		Beef-Only Farmers		Both Dairy and Beef Farmers	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Loans						
Percent of farmers who applied for loans	54%	30%***	55%	54%	51%	38%*
N	162	185	29	26	192	172
Amount borrowed	\$5,985	\$14,642*	\$5,343	\$8,498	\$5,509	\$21,221***
N	73	23	13	7	90	41
If Yes, Primary Purposes of Obtaining Loans						
Build/maintain infrastructure for cattle	18%	58%***	42%	43%	27%	49%**
Purchase/maintain new equipment	5%	26%***	17%	29%	6%	5%
Purchase feed/veterinary care or other such inputs	17%	42%**	50%	0%**	17%	24%
Purchase cattle	17%	50%***	33%	43%	11%	44%***
Purchase different livestock (other than cattle)	5%	4%	0%	0%	6%	2%
Paying off other debts	25%	0%***	8%	0%	11%	2%*
Others	43%	4%***	8%	0%	45%	15%***
N	76	24	12	7	88	41
New Financial Products						
Percent of farmers who started using new financial products in the past 12 months	4%	4%	3%	8%	1%	4%*
N	161	186	31	26	191	173

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Note: The first N shown is the number of farmers who report having obtained a loan; the second N shown is the number of farmers who used any new financial products in the past 12 months. Multiple responses were allowed and hence columns will not add to 100%. 1 USD = 3.125 GEL

3.7.2 Information and Training

Exhibit 45 shows the% of farmers that received training on farm business operation practices, the type of training received, and the entity that administered the training at midterm. Overall, 35% of dairy-only farmers, 38% of beef-only farmers, and 34% of dairy/beef farmers received training. Compared to beef-only farmers and dairy/beef farmers, the% of dairy-only farmers receiving training was higher on all training types except for “other” training types. However, the number of reporting beef farmers (10) was smaller than the number of dairy farmers (65). In general, non-profit organizations, government agencies, and Land O’ Lakes Venture 37/SQIL provided the majority of trainings for all farmer types.

Exhibit 45. Midterm Farmers Received Training on Farm Business Operation Practices

Improved Practices	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent farmers that received training on farm business operation practices	35%	38%	34%
If Yes, What Types of Training Received on Farm Business Operation Practices?			

Improved Practices	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Grazing plan	49%	10%	27%
Animal performance monitoring	52%	10%	31%
Feed flow planning	66%	40%	44%
Internal and external parasites management planning	57%	20%	27%
Breeding/reproductive management plan	54%	0%	37%
Milk and live animals marketing plan (sales plan)	57%	20%	31%
Book keeping and farm costing (cash flow planning)	26%	10%	15%
N	65	10	59
If Yes, Who Provided the Trainings on Farm Business Operation Practices?			
Government agencies	26%	44%	25%
Non-profit organization	59%	44%	46%
Cooperative/farmer association	7%	0%	7%
Input suppliers	2%	0%	0%
Buyers	2%	0%	0%
Other private organization	2%	0%	0%
Land O' Lakes Venture 37/SQIL project	24%	33%	29%
N	58	9	56

Note: N is the number of farmers who report receiving training on farm business operation practices. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 46 shows the% of farmers who received training on improved cattle husbandry, type of training received, and which entity provided the training at midterm. Overall, 24% of both dairy-only and beef-only farmers received training on improved cattle husbandry practices, with 46% of dairy-only farmers receiving training and 8% of beef-only farmers receiving training. More than half of dairy-only farmers received training on feed and nutrient supplementations (74%), vaccinations (69%), deworming (68%), safety and hygiene practices while milking (53%), and safety and hygiene practices while housing (56%). For the only two beef-only farmer respondents, the types of training primarily received included vaccinations, deworming, and safety and hygiene practices while milking. The most common types of training (more than half) received by dairy/beef farmers included feed and nutrient supplementations (62%), safety and hygiene practices while milking (54%), and safety and hygiene practices for housing (58%). For dairy-only and dairy/beef farmers, non-profit organizations supplied the most trainings (56% and 52%), followed by government agencies (35% and 27%) and Land O' Lakes Venture 37/SQIL (14% and 25%).

Exhibit 46. Received Training on Improved Cattle Husbandry Practices

Improved Practices	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent farmers that received training on improved cattle husbandry practices	46%	8%	24%
If Yes, What Types of Training Received on Improved Cattle Husbandry Practices?			

Improved Practices	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Feed and nutrient supplementations	74%	0%	62%
Vaccinations	69%	100%	42%
Deworming	68%	100%	36%
Mastitis control	50%	0%	28%
Other veterinary care and disease prevention	43%	0%	22%
Animal tagging	38%	0%	18%
Breeding techniques	44%	0%	32%
Safety and hygiene practices while milking	53%	50%	54%
Safety and hygiene practices for housing	56%	0%	58%
N	90	2	50
If Yes, Who Provided the Trainings on Improved Cattle Husbandry Practices?			
Government agencies	35%	0%	27%
Non-profit organization	56%	100%	52%
Cooperative/farmer association	4%	0%	5%
Input suppliers	1%	0%	0%
Other private organization	4%	0%	0%
Land O' Lakes Venture 37/SQIL project	14%	0%	25%
N	81	2	44

Note: N is the number of farmers who report receiving training on improved cattle husbandry practices. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 47 shows the% of farmers who had heard of the mobile application Agronavti and the web page AgroFace, and if so, the% who used them. About a third (35%) of dairy-only farmers, 23% of beef-only farmers, and 40% of dairy/beef farmers had heard of Agronavti. Of those who had heard of it, 22% of dairy-only, 50% of beef-only, and 22% of dairy/beef farmers used it. There was less knowledge of Agroface across all farmer types. Only 19% of dairy-only, 15% of beef-only, and 25% of dairy/beef farmers had heard of Agroface. Of those who had, 20% of dairy-only, 50% of beef-only, and 12% of dairy/beef farmers used it.

Exhibit 47. Usage of Agronavti and AgroFace

Variable	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Agronavti			
Percent farmers who have heard of Agronavti	35%	23%	40%
N	184	26	172
If Farmer has Heard of Agronavti...			
Percent of farmers who use Agronavti	22%	50%	22%
N	65	6	69
AgroFace			
Percent farmers who have heard of AgroFace	19%	15%	25%
N	185	26	172
If Farmer has Heard of AgroFace...			
Percent farmers who use AgroFace	20%	50%	12%
N	35	4	43

Note: N is the number of farmers who report having heard of or using either Agronavti or AgroFace.

Exhibit 48 shows the% of farmers who held a certification and the type of certification at midterm. Less than a quarter (21%) of dairy-only farmers held a certification. Of those, most dairy-only farmers held a NFA certification/registration (79%). Of beef-only farmers, 19% held a certification, with 40% holding a NFA certification/registration and 20% holding a ISO9001 certification. Of the 19% of dairy/beef farmers

who held a certification, the majority (64%) held a NFA certification/registration. Some farmers also reported “other” certifications—including certifications around hygiene and security practices, farm administration and management, and food safety.

Exhibit 48. Certifications Held

Variable	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent of farmers who hold any certification	21%	19%	19%
If Yes, Which Certifications?			
ISO 9001	10%	20%	3%
National Food Agency (NFA) certification/registration	79%	40%	64%
Bio/Organic Certification	8%	0%	3%
Georgian Milk Seal	3%	0%	0%
Other	18%	80%	33%
N	39	5	33

Note: N is the number of farmers who report having holding certifications. Multiple responses were allowed and hence columns will not add to 100%.

3.8 COVID-19

At midterm, 55% of dairy/beef farmers had experienced impacts from COVID-19 (**Exhibit 49**), compared to 38% each of dairy-only farmers and beef-only farmers. For dairy-only and dairy/beef farmers, the business aspects most impacted were access to feed supplies (52% and 32%), transportation of products (52% and 55%), communication or visits from dairy or beef business input vendors (25% and 19%), and communication or visits from dairy or beef buyers (23% and 45%). For beef-only farmers, the business aspects most impacted were communication or visits from dairy or beef buyers (30%). All farmer types reported that COVID-19 made access to inputs more difficult, and increased input and animal feed prices.

Exhibit 49. Impacts of COVID-19

Variable	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Percent farmers who experienced any impacts from COVID-19	38%	38%	55%
If Yes, What Aspects of the Business Were Impacted?			
Farm infrastructure	4%	0%	3%
Access to feed supplies	52%	10%	32%
Transportation of products	52%	10%	55%
Animal Health / Access to veterinary services	17%	0%	5%
Communication or visits from dairy or beef business input vendors	25%	10%	19%
Communication or visits from dairy or beef buyers	23%	30%	45%
Communication or visits from Venture37 project staff	1%	0%	0%
Access to formal credit and/or financial service	4%	0%	3%
Other	9%	40%	13%
N	69	10	94
If Yes, How Did COVID-19 Affect Input Access?			
More difficult to access inputs	79%	60%	80%
Same/no effect	20%	40%	19%
Easier to access inputs	1%	0%	1%
N	70	10	94
If Yes, How Did COVID-19 Affect Input Prices?			

Variable	Dairy-Only Farmers	Beef-Only Farmers	Both Dairy and Beef Farmers
Price of inputs has increased	79%	100%	86%
Same/no effect	17%	0%	13%
Price of inputs has decreased	4%	0%	1%
N	70	10	94
If Yes, How Did COVID-19 Affect Animal Feed Prices?			
Animal feed prices increased	91%	100%	94%
Same/no effect	7%	0%	6%
Animal feed prices decreased	1%	0%	0%
N	70	10	94

Note: N is the number of farmers who report experiencing impacts from COVID-19. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 50 shows the effects of COVID-19 on dairy production. Of all dairy farmers, 19% reported that production per day decreased and 81% reported that production per day was unchanged; 67% reported that it was more difficult to sell milk; 32% reported their ability to sell milk was the same; 28% reported that the price of milk had decreased; 61% reported the price was the same; 11% reported that the sale price had increased. The average change in milk production was -87.6L and the average change in milk price was -\$0.42.

Exhibit 50. Effects of COVID-19 on Dairy Production

Variable	Dairy Farmers
Impact of COVID-19 on Dairy Production	
Production per day decreased	19%
Production per day remained the same/no effect	81%
Production per day increased	0%
N	159
If Dairy Production was Impacted by COVID-19, By How Many Liters Did Production Change Per Day?	
Average change in dairy production (L)	-87.6L
N	30
Impact of COVID-19 on Ability to Sell Milk	
More difficult to sell	67%
Same/no effect	32%
Easier to sell	1%
N	161
Impact of COVID-19 on Price of Milk	
Average sale price is lower	28%
Average sale price is the same/no effect	61%
Average sale price is higher	11%
N	158
If Price of Milk was Impacted by COVID-19, How Has The Average Price of Milk Changed?	
Average change in milk price (USD)	-\$0.42
N	61

Note: N is the number of dairy farmers who report experiencing impacts from COVID-19.

Exhibit 51 shows the impacts of COVID-19 on beef production. Of all beef farmers, 24% reported that production per day went down, 77% reported beef was more difficult to sell, and 47% reported the average sale price was lower. The average change in beef production was -115.4kg and the average change in beef price was -\$0.52.

Exhibit 51. Effects of COVID-19 on Beef Production

Variable	Beef Farmers
Impact of COVID-19 on Beef Production	
Production per day decreased	24%
Production per day remained the same/no effect	74%
Production per day increased	2%
N	87
If Beef Production was Impacted by COVID-19, By How Many Kilograms Did Production Change Per Day?	
Average change in beef production (kg)	-115.4kg
N	16
Impact of COVID-19 on Ability to Sell Beef	
More difficult to sell	77%
Same/no effect	23%
N	91
Impact of COVID-19 on Price of Beef	
Average sale price is lower	47%
Average sale price is the same/no effect	38%
Average sale price is higher	15%
N	93
If Price of Beef was Impacted by COVID-19, How Has The Average Price of Beef Changed?	
Average change in beef price (USD)	-\$0.52
N	57

Note: N is the number of beef farmers who report experiencing impacts from COVID-19.

Section 4. Quantitative Findings from Business Survey

In this chapter, we present our main quantitative findings from key businesses in the dairy and beef value chains at midterm. As described in detail in Section 1.1, Venture37 is working to remove bottlenecks in the dairy and beef supply chains by improving storage and transportation practices. On the supply side, they are building capacity of local service providers through extension and training services and by helping value-added businesses optimize their supply chains, improve food safety practices, and improving the quality and diversity of their products. Additionally, Venture37 is using Agronavti, a new ICT platform to help improve input providers' services to farmers.

Our evaluation sample include MCCs, milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input providers. Our principal objective was to document the state of key dairy and beef actors at midterm, examining demographics, socioeconomic status, finances, practices, and technologies. For each business, we also collected data on procurement volumes and costs; product safety and quality practices; food safety regulations; value-added services including storage, processing, and packaging; volume and value of sales; trainings; labor use; and business management practices, including credit.

As elaborated in **Section 2**, we faced significant issues locating businesses for the survey. This was most pronounced among businesses in the milk value chain, including MCCs, processors, and retailers. Because of small sample sizes, all findings in this section should be interpreted with caution. All midterm values reported throughout this section are for the 12 months prior to the midterm survey conducted in July 2021.

4.1 Overview of Sample

4.1.1 Distribution of Sample

Exhibit 52 shows 196 key businesses surveyed at baseline and 157 businesses surveyed at midterm across the dairy and beef value chains. At midterm, out of the 157 businesses, about 45% were milk value chain actors. Of these, 2% were MCCs, 36% were milk processors, and 8% were milk retailers. Beef value chain actors made up 45% of the sample, with slaughterhouses the majority (27%). We also surveyed approximately 15 input providers (10% of the sample).

Exhibit 52. Distribution of Sample by Business Type

Business Type	Baseline Number of Businesses	Baseline% of Businesses	Midterm Number of Businesses	Midterm% of Businesses
Milk Collection Centers	9	5%	3	2%
Milk Processors	26	13%	56	36%
Milk Retailers	6	3%	12	8%
Slaughterhouses	17	9%	42	27%
Beef Processors	19	10%	15	10%
Beef Retailers	82	42%	14	9%
Input Providers	37	19%	15	10%
All Businesses	196	100%	157	100%

Exhibit 53 provides a breakdown of the sample by business size at midterm. We defined small businesses as those with five or fewer employees. For this analysis, medium businesses were those with 6 to 25 employees; large businesses had 26 or more employees. All the MCCs surveyed were small businesses; 63% of the milk processors were small, with 32% medium sized. Milk retailers were primarily small or medium (75% and 17%, respectively). Among slaughterhouses surveyed, the majority were medium businesses (57%). Almost half of beef processors (47%) employed under 25 employees; the majority of beef retailers (79%) employed fewer than 5 employees. Most input providers (60%) had fewer than 25 employees.

Exhibit 53. Midterm Distribution of Sample by Business Size (%)

Business Type	Small Businesses (under 5 employees)	Medium Businesses (under 25 employees)	Large Businesses (26+ employees)	N
Milk Collection Centers	100%	0%	0%	3
Milk Processors	63%	32%	5%	56
Milk Retailers	75%	17%	8%	12
Slaughterhouses	41%	57%	2%	42
Beef Processors	40%	47%	13%	15
Beef Retailers	79%	14%	7%	14
Input Providers	33%	60%	7%	15
N	86	62	9	157

Note: Not all businesses reported their number of employees.

Exhibit 54 outlines the regional distribution of the sample. Overall, the largest share of businesses were surveyed in Samegrelo-Zemo Svaneti (20%). There was a fair amount of variation across regions for the different business types in the milk value chain. The largest shares of surveyed milk value chains were in Samegrelo-Zemo Svaneti (31%) and Samtskhe-Javakheti (23%), with MCCs surveyed only from those 2 regions (67% and 33%, respectively). The majority of milk processors were sampled from these two regions. Milk retailers, on the other hand, were primarily sampled from Imereti. In two regions, Adjara and Racha-Lechkhumi/Kvemo Svaneti, no milk value chain business was surveyed. The largest shares of beef value chains were sampled in Imereti, Kakheti, and Tbilisi (each at 20%), with the smallest share surveyed in Rach-Lechkhumi/Kvemo Svaneti (1%). About 21% of Slaughterhouses were surveyed in Imereti; 36% of beef retailers were surveyed in each of Imereti and Kakheti, and 47% of beef processors were surveyed in Tbilisi. Input suppliers were surveyed only in Tbilisi (67%), Samtskhe-Javakheti (20%), and Kakheti (13%).

Exhibit 54. Distribution of Sample by Region (%)

Business Type	Adjara	Guria	Imereti	Kakheti	Mtskheta -Mtianeti	Racha- Lechkhumi /Kvemo Svaneti	Samegrelo -Zemo Svaneti	Samtskhe -Javakheti	Tbilisi	Kvemo Kartli	Shida Kartli
Milk Collection Center	0%	0%	0%	0%	0%	0%	67%	33%	0%	0%	0%
Milk Processor	0%	4%	7%	7%	4%	0%	33%	27%	2%	9%	5%
Milk Retailer	0%	0%	42%	25%	0%	0%	0%	0%	17%	0%	17%
Milk Industry Average	0%	3%	13%	10%	3%	0%	31%	23%	4%	7%	7%
Slaughterhouse	2%	7.1%	21%	17%	5%	2%	19%	2%	5%	5%	14%
Beef Processor	7%	0%	7%	7%	7%	0%	7%	20%	47%	0%	0%
Beef Retailer	7%	0%	36%	36%	0%	0%	7%	0%	14%	0%	0%
Beef Industry Average	3%	4%	20%	20%	3%	1%	13%	6%	20%	3%	9%

Business Type	Adjara	Guria	Imereti	Kakheti	Mtskheta-Mtianeti	Racha-Lechkhumi / Kvemo Svaneti	Samegrelo-Zemo Svaneti	Samtskhe-Javakheti	Tbilisi	Kvemo Kartli	Shida Kartli
Input Suppliers	0%	0%	0%	13%	0%	0%	0%	20%	67%	0%	0%
Total Businesses	2%	3%	15%	14%	3%	<1%	20%	15%	15%	5%	7%

4.1.2 Business Characteristics

We present midterm characteristics for businesses in the milk value chain, the beef value chain, and input providers in **Exhibits 55, 56, and 57**. On average, MCCs had been in operation for about three years (see **Exhibit 55**). Milk processors had been in business an average of 8 years (91 months) and milk retailers 9 years on average (104 months). Of milk processors 39% had a female owner, while 33% each of MCCs and milk retailers were owned by women. Average owner ages of MCCs, milk processors, and milk retailers were relatively consistent given the variety in business operational age. Most owners were middle-aged, ranging from 41 to 44 years old across all three business types.

Exhibit 55. Business Characteristics - Milk Value Chain

Variable	Milk Collection Center	Milk Processor	Milk Retailer
Average life of business (in months)	36	91	104
% of businesses with female owner	33%	39%	33%
Average age of owner (in years)	41	43	44
N	3	56	12

Slaughterhouses had been in operation for 7 years (85 months), on average (see **Exhibit 56**). Beef processors averaged 10 years (115 months) in operation, while beef retailers had been in operation an average of 10 years (118 months). Female ownership of businesses in the beef value chain was low. On average, only 13-14% of those businesses were owned by women, and no beef retailers. The average age of owners among slaughterhouses, beef processors, and beef retailers was remarkably consistent given the different years of operation for the businesses, at middle-age (48–50 years) across all three business types.

Exhibit 56. Business Characteristics Beef Value Chain

Variable	Slaughterhouse	Beef Processor	Beef Retailer
Average life of business (in months)	85	115	118
% of businesses with female owner	14.3%	13.3%	0%
Average age of owner (in years)	50	50	48
N	42	15	14

For input providers (**Exhibit 57**), the average life of a business was 11 years (126 months). About 33% of input provider businesses were woman-owned. The average age for input providers was 51.

Exhibit 57. Business Characteristics Input Providers

Variable	Input Provider
Average life of business (in months)	126
% of businesses with female owner	33%
Average age of owner (in years)	51
N	15

4.2 Milk Value Chain

4.2.1 Types of Milk and Milk Products Procured

At midterm, all MCCs in the sample procured only one type of milk—cow milk. Milk processors procured mostly cow milk (97%), the remainder (3%) was buffalo milk, goat milk, and reconstituted milk powder combined. Milk retailers procured only milk products, mainly imeruli cheese (67%), matsoni (25%), sulgini cheese (25%), nadugi (17%), processed liquid milk (17%), and butter (8%). A third of retailers also procured miscellaneous other milk products. Both MCCs and milk processors dealt with a large number of suppliers for cow milk, the main product they procured. MCCs on average received milk from 26 suppliers. Milk processors received product from an average of 63 suppliers.

4.2.2 Volume and Cost of Milk Procurement

In **Exhibit 58** and **Exhibit 59** we report the monthly procurement and cost of milk.

Volume of Milk Procurement

The average monthly procurement of raw milk was about 38 metric tons at midterm, compared to 53 metric tons at baseline (not statistically significant). **Exhibit 58** shows the breakdown of milk procurement by business type. On average, MCCs procured just 1 metric ton of milk per month compared to 113 at baseline. However, because of the extremely small sample size of MCCs (9 at baseline and 3 at midterm) these findings are not statistically significant and should be interpreted with caution. Average monthly procurement by milk processors for cow milk was about 41 metric tons at midterm. The number was lower at baseline (32 metric tons), but the difference is not statistically significant. Average monthly procurement varied widely by season. Monthly procurement for winter was higher for both MCCs and milk processors in the summer (2 and 46 metric tons, respectively, at midterm) than in the winter (<1 and 36 metric tons).

Exhibit 58. Monthly Raw Milk Procurement (in Metric Tons)

Variable	Milk Collection Center		Milk Processor	
	Baseline	Midterm	Baseline	Midterm
Milk Type				
Cow Milk	113 MT (108,911 L)	1 MT (940 L)	32 MT (30,613 L)	41 MT (39,650 L)
Goat Milk	n/a	n/a	2 MT (1,800 L)	<1 MT (100 L)
Reconstituted Milk Powder	n/a	n/a	0.1 MT (67 L)	5 MT (5,000 L)
Season				
Summer	187 MT (180,256 L)	2 MT (1,527 L)	37 MT (35,445 L)	46 MT (44,717 L)
Winter	39 MT (37,567 L)	<1 MT (353 L)	24 MT (23,515 L)	36 MT (34,524 L)
N	9	3	26	32

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Note: N reflects the number of businesses who reported their volume of milk procurement in each category. Volume is reported in Metric Tons (MT) and liters in parenthesis. MT of Milk from liter conversion used 1035 kg/m^3 . MCCs were only asked about cow milk.

Cost of Milk Procurement

The average cost of a liter of milk for MCCs was about \$0.38 at midterm, up slightly from \$0.36 at baseline (**Exhibit 59**). The average price of milk for MCCs in the winter was lower at midterm (\$0.36/L) compared to baseline (\$1.03/L) (a difference that is significant at the 1% level, but for a very small sample). For milk processors, the average price of cow milk at midterm was similar to MCCs at \$0.37/L. At baseline milk processors reported procurement prices of \$0.34/L (not a statistically significant difference). The price for goat milk was higher than for cow milk at \$0.64/L, but lower than the reported price of goat milk at baseline (\$0.95/L). Overall, the average price to procure milk was higher in the winter (\$0.41/L) compared to the summer (\$0.34/L). The summer prices were higher (\$0.34) at midterm (statistically significant at the 5% level) than baseline (\$0.27/L), while the winter price was not statistically significantly different from baseline (\$0.49/L).

Exhibit 59. Cost of Monthly Raw Milk Procurement per Liter (in USD)

Variable	Milk Collection Center		Milk Processor	
	Baseline	Midterm	Baseline	Midterm
Milk Type				
Cow Milk	\$0.36	\$0.38	\$0.34	\$0.37
Goat Milk	n/a	n/a	\$0.95	\$0.64
Season				
Summer	\$0.58	\$0.41	\$0.27	\$0.34**
Winter	\$1.03	\$0.36***	\$0.49	\$0.41
N	9	3	26	32

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

1 USD = 3.125 GEL

Note: N reflects the number of businesses who reported their cost of procurement in each category. MCCs were only asked about cow milk.

4.2.3 Volume and Cost of Milk Products Procurement

Milk retailers procured different types of milk products (**Exhibit 60**). The average monthly procurement of milk products was about 1,652 kilograms per month at midterm compared to 604 kilograms at baseline. Imeruli cheese was the largest milk product procured at baseline (550 kilograms) and at midterm (1,479 kilograms), with sulgini cheese following at 325 and 1,000 kilograms, respectively. Nadugi increased from 40 kilograms to 700 kilograms between baseline to midterm, and matsoni declined from 45 kilograms to 43 kilograms. Butter was the smallest (9 kilograms) procured milk product. None of the baseline to midterm differences are statistically significant. The winter season saw a larger amount (2,138 kilograms) of monthly milk product procurement compared to the summer season (1,415 kilograms). However, both the summer and winter seasons saw an increase in monthly milk product procurement from baseline (741 kg and 1,604 kg).

Exhibit 60. Monthly Milk Products Procurement (in Kilograms)

Variable	Milk Retailers			
	Baseline	N	Midterm	N
Milk Type				
Nadugi	40 kg	2	700 kg	2
Matsoni	45 kg	3	43 kg	2
Imeruli cheese	550 kg	3	1,479 kg	6
Sulgini cheese	325 kg	3	1,000 kg	2
Butter	n/a	0	9 kg	1
Season				
Summer	674 kg	5	1,415 kg	9
Winter	534 kg	5	2,138 kg	9

*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N reflects the number of businesses who reported their volume of procurement in each category.

The most expensive milk products at midterm were sulgini cheese (\$0.89 per kilogram), and imeruli cheese (\$0.83 per kilogram) (**Exhibit 61**). Prices for all four milk products declined from baseline to midterm; however, only the price drop for imeruli is statistically significant (at the 5% level). Average monthly procurement for milk products did not vary by season, but both the summer and winter seasons saw a price decline by an average of \$0.43 per kilogram during the summer months and \$0.47 per kilogram during the winter months.

Exhibit 61. Monthly Milk Products Procurement per Kilogram (in USD)

Variable	Milk Retailers	
	Baseline	Midterm
Milk Type		
Nadugi	\$0.56	\$0.21
Matsoni	\$0.38	\$0.21
Imeruli cheese	\$2.11	\$0.83**
Sulgini cheese	\$1.73	\$0.89
Season		
Summer	\$1.01	\$0.58
Winter	\$1.05	\$0.58
N	6	8

*p < 0.10; ** p < 0.05; *** p < 0.01

1 USD = 3.125 GEL

Note: N reflects the number of businesses who reported their cost of procurement in each category.

4.2.4 Sales Agreements with Suppliers and Services Provided

We collected data on the extent of formalization between buyers and sellers in dairy and beef value chains by asking businesses if they had formal contracts and/or agreements with their buyers (see **Exhibit 62**). On average at midterm, 58% of businesses had formal contracts and agreements with their suppliers. MCCs had the largest percentage (100%), followed by milk retailers at 67% (an increase of 47%, statistically significant at the 10% level), and milk processors (54%). Verbal sales agreements were more common than formal agreements. The average number of verbal sales agreements was about 35 agreements per business, whereas the average number of formal written agreements was one per business.

Exhibit 62. Milk Suppliers and Sales Agreements by Business Type

Sales Agreements	Milk Collection Centers		Milk Processors		Milk Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Number of Suppliers	51	26	77	63	1	13	34	49
Percent of businesses who report having sales agreements with suppliers	56%	100%	42%	54%	20%	67%*	43%	58%
N	9	3	26	54	5	12	0	41
If Yes, Number of Sales Agreements								
Number of Verbal Sales Agreements	n/a	28	n/a	62	n/a	16	n/a	50
Number of Formal Written Sales Agreements	n/a	0	n/a	2	n/a	1	n/a	1
N	0	3	0	30	0	8	0	41

*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N reflects the number of businesses who reported having sales agreements with suppliers.

4.2.5 Hygiene and Quality Practices for Procured Products

Safety and Hygiene Practices

Error! Reference source not found. shows the top three most common hygiene practices at midterm for milk and milk products: keep milk storage areas clean and hygienic (98%), employees wash hands before handling milk (93%), and employees wear clean outer garments before handling milk (93%). Overall, milk products stored at below 4 degrees Celsius declined (from 80% to 64%), with an 11 percentage point decline for milk processors, specifically. About 80% of milk retailers reported maintaining appropriate humidity in storage areas at midterm, and milk processors reported an increase of 16 percentage points since baseline for the same variable. While employees washing hands before handling work and employees wearing clean outer garments before handling milk were among the top reported practices overall, MCCs saw statistically significant declines in each (at the 10% level) of 56 and 33 percentage points, respectively. Additional variables reported by MCCs showed large declines from baseline—for example, cleaning milk collection containers with water and soap dropped 67 percentage points; but the sample size for MCCs dropped from 9 to 3, requiring the findings to be interpreted with particular caution.

Exhibit 63. Milk/Milk Products Hygiene Practices by Business Type (%)

Safety Practices	Milk Collection Centers		Milk Processors		Milk Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Employees wash hands before handling milk	89%	33%*	96%	97%	n/a	n/a	94%	93%
Employees wear clean outer garments before handling milk	100%	67%*	84%	95%	n/a	n/a	88%	93%
Purified water is used for cleaning milk collection containers	67%	33%	88%	92%	n/a	n/a	82%	88%
Cleaning milk collection containers with water and soap	100%	33%	84%	85%	n/a	n/a	88%	81%
Sanitizing milk collection containers with disinfectants after cleaning with water and soap	89%	33%	88%	95%	n/a	n/a	88%	91%
Milk storage areas are kept clean and hygienic	100%	67%*	100%	100%	n/a	n/a	100%	98%
Milk/milk products are stored at below 4 degrees Celsius	88%	100%	77%	66%	33%	40%	80%	64%
Appropriate humidity is maintained in storage area	50%	50%	50%	66%	n/a	80%	50%	67%
N	9	3	25	30	6	5	34	42

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Note: N reflects the number of businesses who reported their milk and milk product safety practices. Multiple responses were allowed and hence columns will not add to 100%.

Quality Checks

Exhibit 64 shows quality checks different types of businesses used on milk and milk products. The most common quality checks at midterm were acidity of milk (97%), water content (94%), and fat content (94%). However, fat content declined from baseline by 6 percentage point overall, and by 50 percentage points for MCCs (statistically significant at the 5% level). All milk processors checked the quality of milk acidity, an increase of 15 percentage points from baseline (statistically significant at the 5% level). Further, milk processors reported 20 percentage points more bacterial count and somatic cell count checks, and 10 percentage points more antibiotic residue checks (neither statistically significant). Quality checks listed as “others” declined by 14 percentage (statistically significant at the 10% level). As for the safety and

hygiene practices section, MCCs sample sizes were small (dropping from 9 to 2), requiring particular caution in interpretation.

Exhibit 64. Milk/Milk Products Quality Checks, by Business Type (%)

Quality Checks	Milk Collection Centers		Milk Processors		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Fat content	100%	50%**	100%	97%	100%	94%
Acidity of milk	89%	50%	85%	100%**	86%	97%
Water content	100%	100%	85%	93%	90%	94%
Bacterial count and somatic cell count	56%	0%	60%	80%	59%	75%
Antibiotic Residue	67%	0%	60%	70%	62%	66%
Others	22%	0%	15%	3%	17%	3%*
N	9	2	20	30	29	32

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Note: N reflects the number of businesses who reported their milk and milk product quality checks. Multiple responses were allowed and hence columns will not add to 100%.

Instruments Used

We report the instruments used by MCCs and milk processors to conduct quality checks in **Exhibit 65**. The most common instruments used for milk and milk products at midterm were taste, smell, and visual observation (88%). While temperature was the second most common instrument at baseline, temperature dropped from 78% to 42% (statistically significant at the 1% level) overall, 38 percentage points (statistically significant at the 1% level) for milk processors, and 67 percentage points (statistically significant at the 5% level) for MCCs. Use of milk density also dropped by 11 percentage points overall, and by 67 percentage points for MCCs (statistically significant at the 5% level). Clot-on boiling test declined by 16 percentage points overall, by 11 percentage points for milk processors, and by 56 percentage points for MCCs (none statistically significant). Except for portable or stationary lactosan, and taste, smell, and visual observation, no MCCs reported using any other instruments.

Exhibit 65. Milk/Milk Products Instruments Used, by Business Type (%)

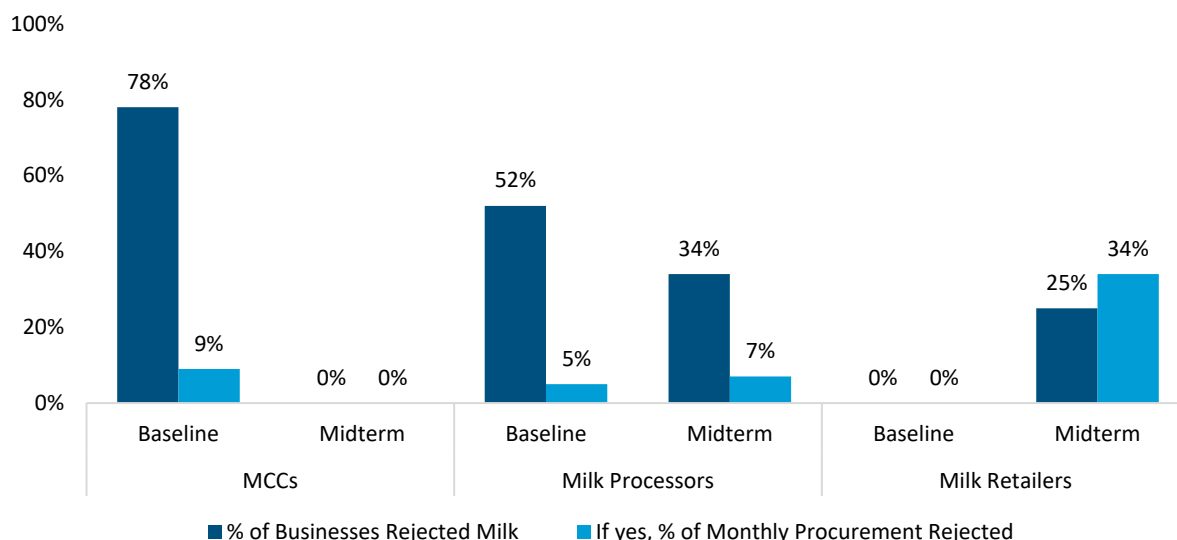
Instruments Used	Milk Collection Centers		Milk Processors		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Taste, Smell, and Visual Observation	89%	100%	78%	87%	81%	88%
Temperature	67%	0%**	83%	45%***	78%	42%***
Milk Density (use of lactometer)	67%	0%**	74%	66%	72%	61%
Clot-on Boiling Test	56%	0%	48%	37%	50%	34%
Gerber tests for Fat	11%	0%	30%	40%	25%	37%
pH tests level of acidity (lactic acid in mill)	44%	0%	48%	55%	47%	51%
Portable or stationary lactosan	n/a	33%	n/a	3%	n/a	5%
N	9	3	23	38	29	41

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Note: N reflects the number of businesses who reported milk and milk product instruments used. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 66 presents the milk/milk products rejection rates by business type. No MCCs rejected any portion of the milk procured by them, while about one-third of all milk processors (34%) rejected milk/milk products procured (an 18-percentage point decline from baseline), and 25% of milk retailers rejected milk/milk products procured (a 25 percentage point increase from baseline). Among those who rejected, about seven% of monthly raw milk procurement was rejected by milk processors at midterm, but 34% of milk/milk products procurement was rejected by milk retailers at midterm (an increase from zero at baseline, the only non-trivial reported increase from baseline).

Exhibit 66. Milk/Milk Products Rejection (%)



*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N = MCCs: 9 at baseline and 3 at midterm; Milk Processors: 25 at baseline and 56 at midterm; Milk Retailers: 6 at baseline and 12 at midterm.

4.2.6 Storage

8% of businesses purchased or rented cold storage (see **Exhibit 67**), a 17-percentage point decline from baseline (statistically significant at the 5% level). At midterm, only 6% (statistically significantly down at the 1% level from a baseline of 31%) of milk processors and no MCCs bought or rented cold storage capacity. But 17% of milk retailers purchased or rented cold storage at midterm, up from zero at baseline. Milk processors and milk collection centers installed the largest amount of cold storage for milk (at 2,977 m³ and 1,681 m³, respectively). Milk retailers remained relatively consistent in amount of both cold and dry storage capacity purchased or rented. Only six percent of milk processors and eight percent of milk retailers bought or rented dry storage capacity at midterm.

Exhibit 67. Storage Practices, by Business Type

Storage	Milk Collection Centers		Milk Processors		Milk Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Cold Storage								
Total installed cold storage capacity for milk	5 m ³	1,681	27 m ³	2,977	35 m ³	n/a	22 m3	2,872 m3
% businesses who bought/ rented cold storage capacity	22%	0%	31%	6%***	0%	17%	25%	8%**
Amount of cold storage capacity purchased or rented	n/a	0 m ³	n/a	3 m ³	n/a	558 m3	n/a	104m3
N	9	3	26	51	6	12	29	37
Dry Storage								
Total installed dry storage capacity	n/a	7 m ³	n/a	110 m ³	n/a	560 m ³	n/a	214 m ³
% businesses who bought/ rented dry storage capacity	n/a	0%	n/a	6%	n/a	8%	n/a	6%
Amount of dry storage capacity purchased or rented	n/a	0 m ³	n/a	15 m ³	n/a	500 m ³	n/a	102 m ³
N	0	3	0	51	0	12	29	37

*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N reflects the number of businesses who reported their storage practices. Multiple responses were allowed and hence columns will not add to 100%.

4.2.7 Volume and Value of Milk Sales

In **Exhibit 68** and **Exhibit 69** we report the monthly volume and value of milk, both raw and processed, respectively. Note that the sample sizes for the volume and value of sales are quite low.

Volume of Milk Sales

The average monthly volume of milk sales by milk type is reported in **Exhibit 68**. MCCs reported that the average amount of cow milk sales declined by 55 metric tons (statistically significant at the 5% level); milk processors reported a decline of 64 metric tons for processed liquid milk (statistically significant at the 1% level). Both MCC and milk processors experienced similar downward trends during both the summer and winter months. Milk processors saw an average decline of almost 60 metric tons annually. MCCs experienced the largest decline (99 metric tons) in monthly milk sales during the summer season (statistically significant at the 5% level), but a decline of less than one metric ton during the winter season (statistically significant at the 1% level).

Exhibit 68. Monthly Volume of Milk Sales (in Metric Tons)

Variable	Milk Collection Centers		Milk Processors	
	Baseline	Midterm	Baseline	Midterm
Milk Type				
Cow Milk	56 MT (56,264 L)	1 MT** (853 L)	n/a	n/a
Processed Liquid Milk	n/a	n/a	69 MT (66,200 L)	5MT* (7,063 L)
N	5	3	2	4
Season				
Summer	100 MT (100,000L)	1 MT** (1,417 L)	67 MT (66,500 L)	8 MT (8,000 L)
Winter	13 MT (12,528 L)	<1 MT* (290 L)	66 MT (65,900 L)	6 MT (6,125 L)
N	5	3	2	4

*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N reflects the number of businesses who reported their volume of sales in each category. Volume is reported in Metric Tons (MT) and liters in parenthesis. MT of Milk from liter conversion used 1035 kg/m³.

Value of Milk Sales

The monthly price of milk sales reported by milk processors remained relatively stable (see **Exhibit 69**). Milk processors reported a slight decline in processed liquid milk price, at \$0.02 per liter. Milk processors reported a marginal increase of \$0.01 during the summer and \$0.06 decline during the winter. MCCs, on the other hand, reported an increase of \$0.16 per liter (statistically significant at the 5% level) in raw cow milk prices; an average of \$0.19 per liter increase during the summer season (both statistically significant at the 5% level); and an average of \$0.12 increase during the winter season (not statistically significant).

Exhibit 69. Monthly Prices of Milk Sales per Liter (in USD)

Variable	Milk Collection Centers		Milk Processors	
	Baseline	Midterm	Baseline	Midterm
Milk Type				
Raw Cow Milk	\$0.37	\$0.53**	n/a	n/a
N	5	3	0	0
Processed Liquid Milk	n/a	n/a	\$0.71	\$0.69
N	0	0	2	4

Season				
Summer	\$0.30	\$0.49**	\$0.67	\$0.68
Winter	\$0.45	\$0.57	\$0.76	\$0.70
N	5	3	2	4

*p < 0.10; ** p < 0.05; *** p < 0.01

1 USD = 3.125 GEL

Note: N reflects the number of businesses who reported their value of sales in each category. Value per liter was calculated by dividing the total value of monthly sales by the total volume of monthly sales.

4.2.8 Volume and Value of Milk Products Sales

We report the volume of milk product sales in **Exhibit 70**. The average volume of monthly milk product sales is 4,176 kilograms. Milk processors account for the major portion of this. Milk processors sold mostly yogurt and matsoni. The highest monthly sales at midterm included yogurt at 9,013 kilograms and matsoni at 8,150 kilograms. However, sales for matsoni declined by 57% from baseline. The decline in monthly milk sales showed similar trends for both summer and winter months, with summer sales declining by almost 82% and winter sales declining by 86%. In general, milk retailers had less extreme changes in milk product sales. Compared to baseline, Matsoni sales declined by an average of 205 kilograms, Sulgini sales increased by 111 kilograms, and nadugi sales increased by 127 kilograms. The summer and winter seasons both showed a decline in milk product sales for milk retailers, but not to the extreme as milk processors.

The average monthly value of milk products at midterm was \$2.66 per kilogram (not shown). Sulgini cheese and butter were the most expensive at \$4.39 (statistically significant at the 1% level) and \$4.91 (not statistically significant) (**Exhibit 71**). However, the price of sulgini cheese declined by almost \$3.70 (statistically significant at the 1% level) from baseline. Matsoni was priced the lowest for milk retailers at midterm, a declined from baseline of \$2.56 (statistically significant at the 5% level). Overall, milk product sales did not vary by season, but both increased by an average of \$0.81 (statistically significant at the 5% level) from baseline.

Exhibit 70. Monthly Milk Products Sales (in Kilograms/Liters)

Variable	Milk Processors				Milk Retailers			
	Baseline	N	Midterm	N	Baseline	N	Midterm	N
Milk Type								
Cottage Cheese	130,000	1	2,656***	4	75	1	n/a	0
Matsoni	19,127	7	8,150	5	305	3	100	3
Imeruli Cheese	n/a	0	3,692	21	n/a	0	533.75	8
Sulgini Cheese	n/a	0	1,433	36	572	3	683.333	3
Nadugi	997	8	237	6	68	2	195	2
Sour Cream	130,000	1	751***	7	90	1	n/a	0
Yogurt	n/a	0	9,013	2	n/a	0	0	0
Butter	n/a	0	122	12	n/a	0	9	1
Season								
Summer	30,541	24	5,548	50	904	6	764	9
Winter	29,995	24	4,240	50	904	6	687	9

*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N reflects the number of businesses who reported their volume of sales in each category.

Exhibit 71. Monthly Value of Milk Product Sales per Kilogram (in USD)

Variable	Milk Processors		Milk Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Milk Type						
Cottage Cheese	\$2.47	\$2.24	\$3.19	n/a	\$2.40	\$2.24
Matsoni	\$0.67	\$0.74	\$3.07	\$0.51**	\$1.39	\$0.67
Imeruli Cheese	n/a	\$3.09	\$9.25	\$3.49	\$9.25	\$3.19
Sulgini Cheese	n/a	\$4.39**	\$8.08	\$4.45	\$8.08	\$4.39***
Nadugi	\$1.64	\$2.24	\$1.14	\$1.44	\$1.47	\$2.04
Sour Cream	\$1.71	\$2.80	\$3.14	n/a	\$2.66	\$2.80
Yogurt	n/a	\$1.44	n/a	n/a	n/a	\$1.44
Butter	n/a	\$4.91	n/a	n/a	n/a	\$4.91
Season						
Summer	\$2.89	\$3.62	\$2.05	\$2.54	\$2.63	\$3.45**
Winter	\$3.35	\$4.03	\$2.35	\$3.20	\$3.12	\$3.92**
N	24	50	6	9	31	59

*p < 0.10; ** p < 0.05; *** p < 0.01

1 USD = 3.125 GEL

Note: N reflects the number of businesses who reported their value of sales in each category.

4.2.9 Sales Agreements with Buyers

All MCCs and 85% of milk processors had sales agreements with their buyers at midterm (**Exhibit 72**). The number of sales agreements overall declined by an average of 483 from baseline, with milk processors who had agreements reporting 967 fewer sales agreements at midterm than at baseline (statistically significant at the 1% level).

Exhibit 72. Sales Agreements with Buyers

Sales Agreements	Milk Collection Centers		Milk Processors		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of businesses who report having sales agreements with buyers	50%	100%	50%	85%	50%	86%
If yes, number of sales agreements:						
Number of Sales Agreements	30	11	1000	33***	515	32
N	1	3	1	54	2	57

*p < 0.10; ** p < 0.05; *** p < 0.01

Note: N reflects the number of businesses who reported the number of sales agreements with their buyers.

4.2.10 Training

Slightly less than half of all businesses (45%) reported having received some business operations training at midterm (**Exhibit 73**). One-third of MCCs received training, a decline of 45 percentage points compared to baseline (not statistically significant, given that only one MCC reported); and 38% of milk processors did so, a 27 percentage point decline (statistically significant at the 5%). The most training received at midterm was milk testing (80%, a statistically significant increase at the 1% level from baseline), food and

safety training (54%), and business operations/management (49%) (neither difference statistically significant). Milk processors most often received these trainings from non-governmental agencies, whereas MCCs typically received training from Land O’ Lakes Venture37 SQL (Exhibit 74).

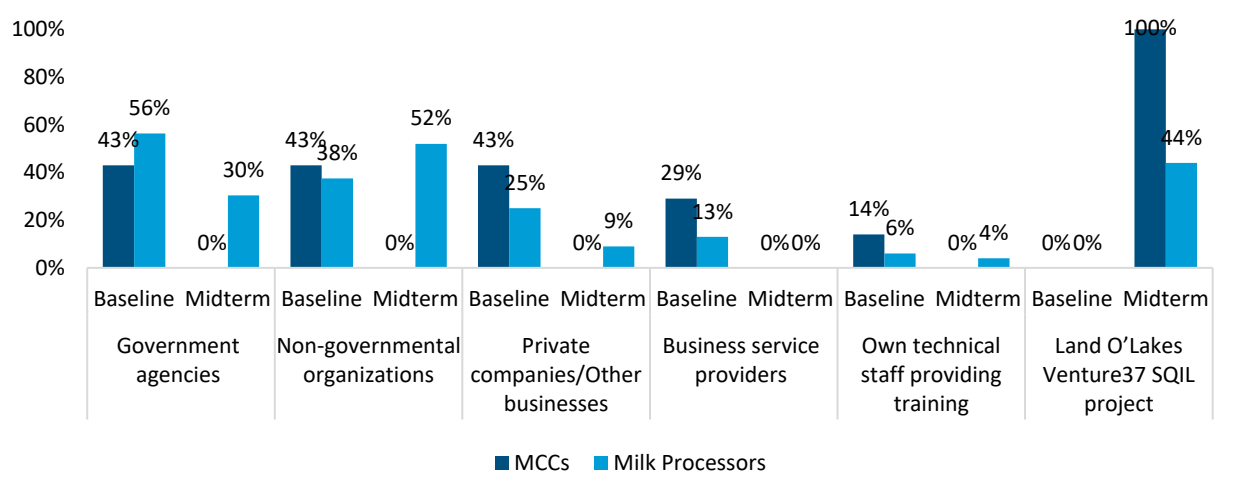
Exhibit 73. Types of Business Operation Trainings

Types of Training	Milk Collection Centers		Milk Processors		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of farmers who received business operation training	78%	33%	65%	38%**	69%	45%
If Yes, Types of Training Received						
Business operations/management	57%	100%	41%	26%	46%	49%
Milk handling, processing & storage	57%	0%	47%	35%	50%	31%
Food Safety Training	86%	100%	65%	61%	71%	54%
Milk testing training	71%	100%	35%	83%***	46%	80%***
Bookkeeping	n/a	0%	n/a	17%	n/a	20%
Other	14%	0%	12%	0%*	13%	9%
N	9	1	17	23	35	71

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Note: N is the number of businesses who are report having received business operations training. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 74. Training Providers



* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

N = 6 for Milk Collection Centers, 15 for Milk Processors.

More than half of MCCs (67%), milk processors (70%), and milk retailers (58%) had heard of Agronavti at midterm (Exhibit 75). Of those, 50% of MCCs, 31% of milk processors, and 57% of milk retailers used it. Roughly one-third of businesses had heard of AgroFace. Of those, less than a third of milk processors (28%), and no MCCs or milk retailers used it.

Exhibit 75. Business Usage of Agronavti and AgroFace

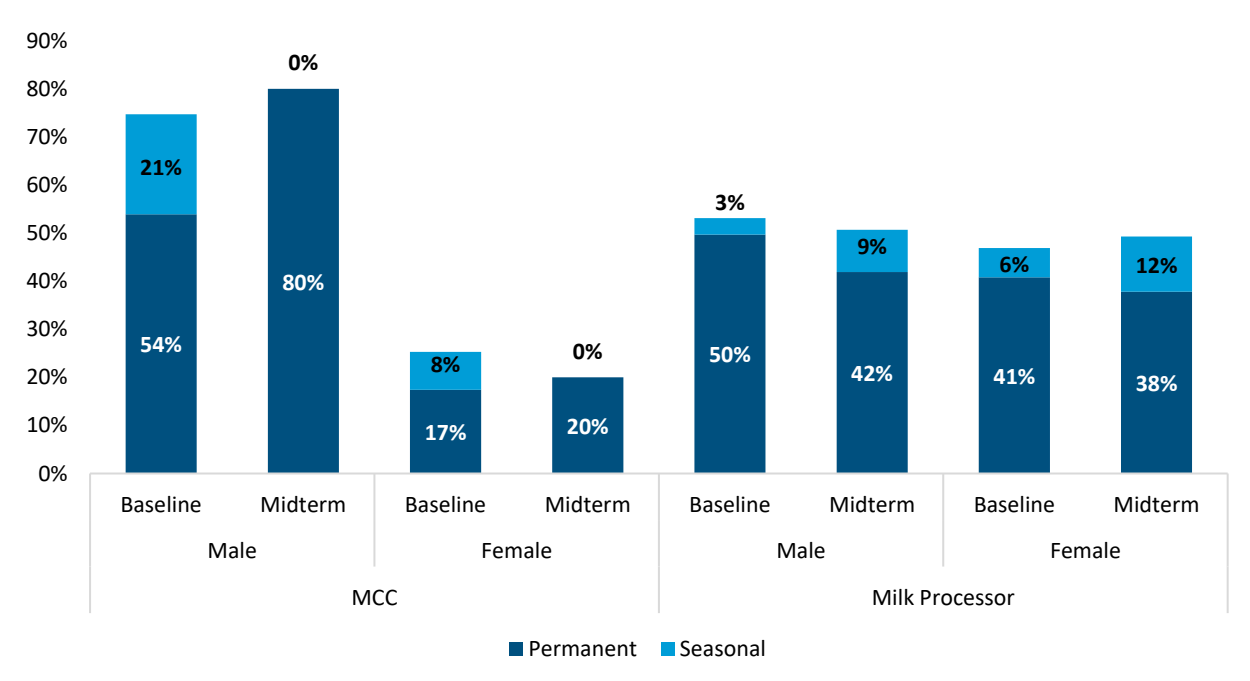
Variable	Milk Collection Centers	Milk Processors	Milk Retailers
Agronavti			
Percent businesses who have heard of Agronavti	67%	70%	58%
N	3	56	12
If Business has Heard of Agronavti...			
Percent of businesses who use Agronavti	50%	31%	57%
N	2	39	7
AgroFace			
Percent businesses who have heard of AgroFace	33%	32%	33%
N	3	56	12
If Business has Heard of AgroFace...			
Percent businesses who use AgroFace	0%	28%	0%
N	1	18	4

Note: N is the number of businesses who report having heard of or using either Agronavti or AgroFace.

4.2.11 Overall Labor Use

All MCC hired employees were permanent at midterm (**Exhibit 76**). Of those, most were male (80%). On average, 80% of the milk processor employees were permanent, with a much smaller gender gap than for MCCs. While there was a decline in permanent hires for milk processors, there was a six percentage point increase in both seasonal male and seasonal female hires.

Exhibit 76. Types of Labor Employed by Business Type and Gender (%)



N = MCCs: 9 at baseline and 3 at midterm; Milk Processors 22 at baseline and 35 at midterm
1 USD = 3.125 GEL

4.2.12 Business Management

Credit

The percent of milk businesses that applied for loans declined by 24 percentage points from baseline to midterm (statistically significant at the 1% level), and the average amount borrowed dropped by \$106,169 (not statistically significant) (**Exhibit 77**). The percent of MCCs and milk processors that applied for loans dropped from 11% to 0 (not statistically significant) and from 64% to 26% (statistically significant at the 1% level), respectively. The most common uses of borrowing for milk processors included business expansion (75%), an increase of 22 percentage points from baseline (not statistically significant), and buying equipment for the business (33%), a 40 percentage point decline from baseline (statistically significant at the 5% level). MCCs used their loans exclusively for business expansion, but since only one business reported, this information means little.

Exhibit 77. Uses of Loans

Loans	Milk Collection Centers		Milk Processors		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of businesses who applied for loans	11%	0%	64%	26%***	44%	20%***
N	9	3	25	55	39	70
Amount borrowed	\$16,000	n/a	\$176,000	\$59,164	\$165,333	\$59,164
If Yes, Loans Used For...						
Buying equipment for business	0%	n/a	73%	33%**	69%	33%*
Managing short-term cash shortage	0%	n/a	1%	2%	6%	8%
Managing any unplanned shock to business	0%	n/a	13%	17%	13%	17%
Business expansion	100%	n/a	53%	75%	56%	75%
N	1	0	15	12	16	12

*p < 0.10; ** p < 0.05; *** p < 0.01

1 USD = 3.125 GEL

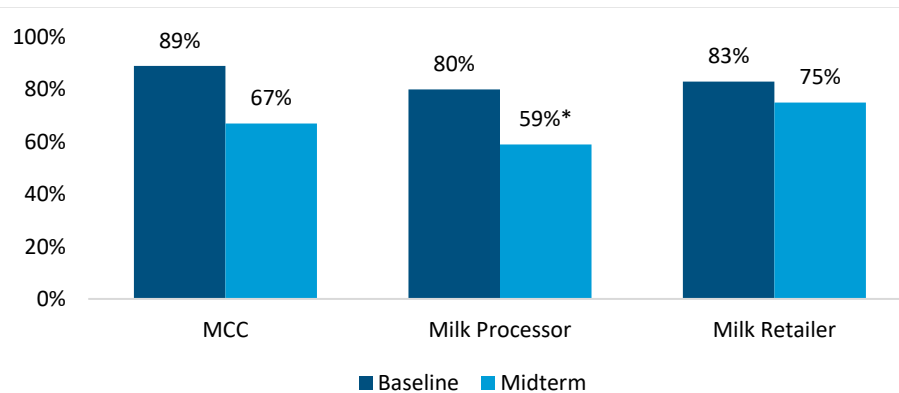
Note: N is the number of businesspersons who report having obtained a loan. Multiple responses were allowed and hence columns will not add to 100%.

Recordkeeping

Exhibit 78 shows the percent of businesses that kept records. On average, 67% of businesses kept records at midterm, a 17 percentage point decline from baseline. While all businesses showed a downward trend, only the milk processors showed a statistically significant decline (at the 5% level).

Exhibit 79 shows the type of records kept by businesses at midterm. All types of businesses reported record keeping on milk reception (100% of MCCs, 91% of milk processors, and 56% of milk retailers) and financial administrative records (50% of MCCs, 97% of milk processors, and 67% of milk retailers). Aside from the types of records mentioned previously, the most common records that milk processors kept were records on milk processing (91%), laboratory analysis during processing (76%), and temperature control of materials and end products (73%). Only MCCs reported keeping initial tests of milk (50%), and only milk retailers reported having records on product selling (89%). Note that the sample size for both MCCs and milk retailers are low (two and nine, respectively).

Exhibit 78. Recordkeeping



*p < 0.10; ** p < 0.05; *** p < 0.01

N = MCCs: 9 at baseline and 3 at midterm; Milk Processors: 25 at baseline and 56 at midterm; Milk Retailers: 6 at baseline and 12 at midline.

Exhibit 79. Types of Records Kept at Midterm

Types of Records	MCCs	Milk Processors	Milk Retailers
Milk reception (origin, quantity)	100%	91%	56%
Initial tests of milk	50%	n/a	n/a
Financial administrative recording (income, expenses, profit, employment, etc.)	50%	97%	67%
Records on milk processing	n/a	91%	n/a
Laboratory analysis during processing	n/a	76%	n/a
Temperature control of materials and end products	n/a	73%	n/a
Records on product selling	n/a	n/a	89%
N	2	33	9

Note: N is the number of businesspersons who report having kept records. Multiple responses were allowed and hence columns will not add to 100%.

COVID-19 Impacts

We show impacts of COVID-19 on the milk value chain in **Exhibit 80**, with 70% of businesses overall reporting having been impacted by COVID-19 (100% of MCCs, 75% of milk retailers and 68% of milk processors). Communication or visits from milk/milk product buyers impacted milk retailers the most impacted (67%), whereas transportation of products impacted MCCs and milk processors the most (100% and 46%, respectively).

Exhibit 80. COVID-19 Impact

Types of Records	MCCs	Milk Processors	Milk Retailers	Overall
Businesses impacted by COVID-19	100%	68%	75%	70%
If yes, how so?				
Transportation of products	100%	46%	44%	49%
Access to inputs	0%	32%	44%	33%
Communication or visits from milk suppliers	33%	22%	44%	27%
Communication or visits from milk/milk product buyers	0%	43%	67%	45%
Communication or visits from Venture37 project staff	0%	3%	0%	2%
Access to formal credit and/or financial service	0%	5%	11%	6%
Other	0%	30%	11%	25%
N	3	37	9	49

Note: N is the number of businesspersons who report having been impacted by COVID-19. Multiple responses were allowed and hence columns will not add to 100%.

4.3 Beef Value Chain

In this section we examine different businesses in the beef value chain, including slaughterhouses, beef processors, and beef retailers. We detail procurement types, volume and value, safety and quality practices, value-added services, and sales and distribution for each type of business. Given the small sample size of some business types, outcomes should be interpreted with caution.

4.3.1 Slaughterhouses

4.3.1.1 Types of Cattle Procured by Slaughterhouses

At midterm, among the 17 slaughterhouses surveyed, 15 responded to questions about cattle procurement. Of these, most (80%) reported procuring Caucasian Brown cattle. 13% procured cross-bred cattle, another 7% procured either Brown Swiss or Simmental, and 2% reported other types.⁹

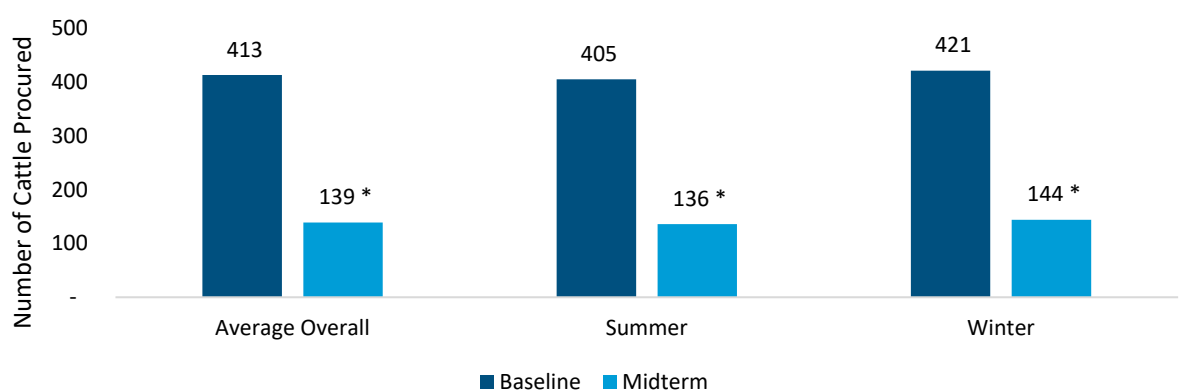
4.3.1.2 Volume and Value of Procurement by Slaughterhouses

Exhibit 81 and **Exhibit 82** show the monthly volume and value of live cattle procurement.

On average, slaughterhouses reported a decrease of 274 cattle (statistically significant at the 20% level) in cattle procurement from baseline to midterm (**Exhibit 81**). This trend was relatively consistent during the summer and winter seasons (decreases of 269 cattle and 277 cattle, respectively, both statistically significant at the 10% level). The average procurement volume at midterm for local breeds was 129 cattle, for local improved breeds 62 cattle, and for high productive breeds 20 cattle.

⁹ Multiple responses were allowed and hence responses will not add to 100%.

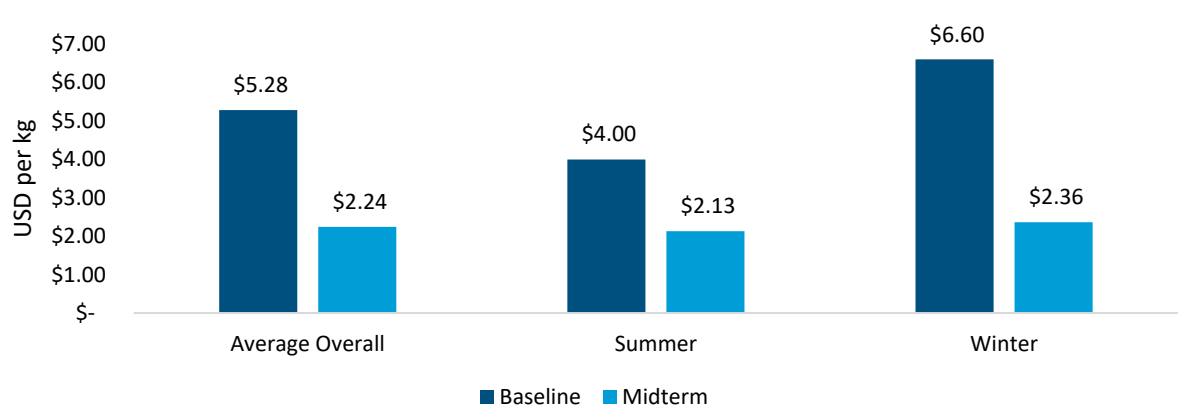
Exhibit 81. Monthly Volume of Cattle Procurement by Slaughterhouses (Number of Live Cattle)



Note: N = 33 midterm slaughterhouses, and 16 baseline slaughterhouses who reporting their volume of procurement in each category.

The monthly value of cattle per kilogram is shown in **Exhibit 82**. The winter season saw a larger decline than the summer season (\$4.24 compared to \$1.82, respectively), with an overall average decline of \$3.04 from baseline to midterm (none statistically significant). The monthly value of cattle procurement per kilogram at midterm for local breeds was \$2.22, for local improved breeds \$2.20, and for high productive breeds was \$3.04 (not shown).

Exhibit 82. Monthly Value of Cattle Procurement by Slaughterhouses (in USD¹ per kilogram)



Note: N = 23 midterm slaughterhouses, and 13 baseline slaughterhouses who reporting their volume of procurement in each category.

¹1 USD = 3.125 GEL

4.3.1.3 Safety and Quality Practices for Procured Cattle

Virtually all slaughterhouses surveyed at midterm (95%) reported the implementation of safety and quality practices for cattle they procured at baseline (**Exhibit 83**). The 3 most cited safety practices¹⁰ were health checks (98%), visual evidence of disease (85%), personnel hygiene and health condition observation (85%), and regulation-prescribed post-mortem inspection on slaughtering line (73%). Only visual evidence of disease showed a statistically significant increase from baseline (from 53% to 85%, statistically significant at the 1% level). **Exhibit 84** shows that 83% of slaughterhouses reported having food and safety certifications at midterm, with the most popular being HACCP (89%) and the NFA

¹⁰They could select more than one option.

certification (71%), and the ISO 22000 being the least held certification (11%). The only statistically significant increase was in the percent of slaughterhouses reporting NFA certification (from 41% at baseline to 71% at midterm, significant at the 5% level).

Exhibit 83. Safety and Quality Practices Used for Procured Cattle by Slaughterhouses at Midterm

Variable	Slaughterhouses	
	Baseline	Midterm
Percent of slaughterhouses who used safety and quality practices for procured cattle	100%	95%
If yes, safety and quality practices used:		
Health checks – veterinarian certificate	88%	98%
Health body condition score	47%	43%
Visual evidence of disease	53%	85%***
Level of backfat	29%	28%
Blood analysis – antibiotic and hormone residue	24%	28%
Blood analysis – tick borne disease	12%	15%
Drinking water periodic lab control	n/a	55%
Personnel hygiene and health condition observation	n/a	85%
Control of packaging materials	n/a	20%
Control of used chemicals	n/a	40%
Surfaces swab test	n/a	35%
Regulation-prescribed post-mortem inspection on slaughtering line	n/a	73%
Other	0%	3%
N	17	40

Note: N reflects the number of slaughterhouses who reported their safety practices. Multiple responses were allowed and hence columns will not add to 100%

Exhibit 84. Food and Safety Certifications by Slaughterhouses at Midterm

Variable	Slaughterhouses	
	Baseline	Midterm
Percent of slaughterhouses with certifications	100%	83%
If yes, certifications held:		
ISO 9001	6%	20%
ISO 22000	n/a	11%
National Food Agency (NFA) certification	41%	71%**
HACCP	94%	86%
Bio Certification	n/a	6%
N	17	35

Note: N reflects the number of slaughterhouses who reported their certifications. Multiple responses were allowed and hence columns will not add to 100%

About two-thirds (64%) of slaughterhouses reported implementing the HACCP system at midterm (**Exhibit 85**). Of those that did not implement the system, 67% reported being unaware that it was required for their business, 33% reported lack of financial resources, and 80% reported they planned on implementing the system in the future.

Exhibit 85. HACCP Implementation by Slaughterhouses at Midterm

Variable	Slaughterhouses
	Midterm
Percent of slaughterhouses who report implementing the HACCP system	64%

Variable	Slaughterhouses
	Midterm
N	11
If slaughterhouse does not implement HACCP system, why not?	
Newly opened business	0%
Lack of awareness that it is obligatory for my business	67%
Lack of financial resources	33%
Lack of human resources	0%
Other	0%
N	3
Plans to implement HACCP in the future:	
Percent of slaughterhouses who intend to implement HACCP in the future	80%
N	10

Note: N reflects the number of slaughterhouses who reported their HACCP implementation. Multiple responses were allowed and hence columns will not add to 100%

Exhibit 86 shows the daily food and safety regulations applied by slaughterhouses at midterm. The four most reported food and safety regulations were maintaining running water available in their working area (93%), pest control and disinfection in place (93%), territory and area are maintained in accordance with regulations (90%), and maintenance of ventilation (86%). The least reported food and safety regulations was used new or improved marketing approaches, or other tools and sales management practices (14%).

Exhibit 86. Food and Safety Regulations Applied Daily by Slaughterhouses

Variable	Slaughterhouses
	Midterm
Percent of slaughterhouses who applied food and safety regulations	71%
If yes, certifications held:	
Maintain running water available in working area	93%
Maintenance of ventilation	86%
Territory and area are maintained in accordance with regulations	90%
Pest control and disinfection in place	93%
Labelling- Reference number / code (animal identification code or code assigned by the business operator at slaughterhouse)	74%
Labelling- Slaughterhouse Approval Number/code	69%
Labelling- Approval Number/code of business operator engaged in carcass cutting	48%
Labelling – indication of places of the Animal’s birth, breeding, fattening and slaughter, if different	33%
Lab test on carcass (BSE)	31%
Using new or improved marketing approach, tools /sales management practice, etc.	14%
Ensuring employees safety and observing of risk management related to COVID-19	71%
N	42

Note: N reflects the number of slaughterhouses who reported the food and safety regulations which they applied daily in the past 12 months. Multiple responses were allowed and hence columns will not add to 100%

4.3.1.4 Storage for Slaughterhouses

Most slaughterhouses (88%) stored slaughtered beef appropriately (below 7 degrees Celsius) at both baseline and midterm (**Exhibit 87**). More than half (56%) also maintained appropriate humidity in the storage area. The majority of slaughterhouses (78%) reported having cold rooms and freezers, a 40

percentage point increase from baseline (statistically significant at the 1% level). Average beef chilling capacity was about 61 m³ at midterm, a statistically significant increase from baseline at the 5% level) (**Exhibit 88**).

Exhibit 87. Storage Practices by Slaughterhouses

Storage	Slaughterhouses	
	Baseline	Midterm
Types of Cold Storage Practices		
Beef stored below 7 degrees Celsius	88%	88%
Maintain appropriate humidity	38%	56%
Business has cold rooms and freezers	38%	78%***
N	16	41

Note: N reflects the number of businesses who reported their storage practices. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 88. Storage Volume

Storage	Slaughterhouses	
	Baseline	Midterm
Chilled Storage		
Total installed beef chilling storage capacity (in m ³)	19.97 m ³	61.38 m ³ **
Amount of cold storage capacity purchased or rented (in m ³)	n/a	6.89 m ³
N	15	39
Dry Storage		
Total installed dry storage capacity (in m ³)	n/a	61.63 m ³
Amount of dry storage capacity purchased or rented (in m ³)	n/a	6.97 m ³
N	0	38

Note: N reflects the number of businesses who reported chilled storage or dry storage.

4.3.1.5 Training for Slaughterhouses

About half of slaughterhouses (50%) received business operations training at midterm (**Exhibit 89**). Three types of cold storage practices—product processing, product transportation, and product inspection—were all significantly different (at the 10% level) from baseline (product processing declined by 37%, product transportation increased by 33%, and product inspection increased by 31%). Notably, product inspections by slaughterhouse veterinarians was a key component of the SQIL training. Government stakeholders noted that the slaughterhouse hygiene guidelines developed and trainings conducted as part of the project were effective in increasing knowledge and awareness of safe slaughterhouse practices and compliance requirements both among Government staff and business sector representatives. Trainings were most often conducted by government agencies, followed by non-governmental agencies, and Venture 37 Land O’ Lakes (**Exhibit 90**).

Exhibit 89. Trainings Received by Slaughterhouses

Storage	Slaughterhouses	
	Baseline	Midterm
Percentage of businesses receiving training	59%	50%
N	17	42
Types of Cold Storage Practices		
Product cleaning	70%	76%
Product processing	80%	43%*
Product transportation	10%	43%*
Product storage	50%	62%

Storage	Slaughterhouses	
	Baseline	Midterm
Product packaging	40%	24%
Product grading	70%	48%
Product inspection	40%	71%*
Product fattening	10%	14%
Other	20%	5%
N	10	21

Note: N reflects the number of businesses who reported their types on trainings. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 90. Organizations Which Provided Trainings to Slaughterhouses

Organizations	Slaughterhouses	
	Baseline	Midterm
Government agencies	60%	74%
Non-governmental organizations	30%	53%
Business service providers	10%	0%
Venture 37/Land O' Lakes	n/a	26%
Other (Specified Donor Organizations)	10%	5%
N	10	19

Note: N is the number of slaughterhouses who reported the organizations from whom they received training.

At midterm, 48% of slaughterhouses had heard of Agronavti; of those, 25% used itAgronavti (**Exhibit 91**); 23% had knowledge of Agroface, and of those, 11% used it. **Exhibit 92** shows the innovations applied by slaughterhouses, with 29% reporting using at least one innovation. Of those, the most frequently used (58%) was deboning. Preservation and aging was the least used innovation (8%), and no slaughterhouse automated any process.

Exhibit 91. Slaughterhouse Usage of Agronavti and AgroFace

Variable	Slaughterhouses
	Midterm
Agronavti	
Percent of slaughterhouses who have heard of Agronavti	48%
N	42
If Slaughterhouse has Heard of Agronavti...	
Percent of slaughterhouses who use Agronavti	25%
N	20
AgroFace	
Percent of slaughterhouses who have heard of AgroFace	23%
N	40
If Slaughterhouse has Heard of AgroFace...	
Percent of slaughterhouses who use AgroFace	11%
N	9

Note: N is the number of slaughterhouses who report having heard of or using either Agronavti or AgroFace.

Exhibit 92. Slaughterhouse Innovations Applied at Midterm

Innovations	Slaughterhouses
	Midterm
Percent of slaughterhouses who applied any innovations	29%
If yes, innovations applied:	

Innovations	Slaughterhouses
	Midterm
Carcass cutting/grading	33%
Freezing	25%
Deboning	58%
Preservation/aging	8%
Packaging	17%
Automation of the process	0%
Using modern stunning methods in line with animal welfare standards (bolt gun, electronic, etc.)	17%
Processing of animal by-products	25%
N	12

Note: N reflects the number of businesses who reported the types of innovations they applied in the last 12 months. Multiple responses were allowed and hence columns will not add to 100%.

4.3.1.6 Sales and Distribution for Slaughterhouses

Exhibit 93 and **Exhibit 94** show the monthly volume and value of beef sales of slaughterhouses.

On average, the monthly volume of beef sales declined by about 400 kilograms from baseline to midterm (**Exhibit 93**). While the summer season saw a decline of 1,275 kilograms, the winter season saw an increase of 472 kilograms. The decline came mostly from whole/half/quarter carcass, while cuts of carcass saw an increase from baseline to midterm. None of these changes is statistically significant.

With respect to value of beef sales (**Exhibit 94**), slaughterhouses reported an increase in the average monthly value of beef sales from \$3.92 to \$4.50 per kilogram (statistically significant at the 10% level), and an increase from \$3.92 to \$4.50 per kilogram during the summer season (statistically significant at the 5% level).

Exhibit 93. Monthly Volume of Beef Sales by Slaughterhouses (in Kilograms)

Variable	Whole/Half/Quarter Carcass		Cuts of Carcass		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Average overall	2,077 kg	1,565 kg	260 kg	369 kg	2,336 kg	1,935 kg
N	17	42	17	42	17	42
Season						
Summer	2,229 kg	1,075 kg	312 kg	191 kg	2,541 kg	1,266 kg
N	17	42	17	42	17	42
Winter	1,925 kg	2,056 kg	207 kg	548 kg	2,132 kg	2,604 kg
N	17	42	17	42	17	42

Note: N reflects the number of slaughterhouses who reported their volume of sales in each category.

Exhibit 94. Monthly Value of Beef Sales by Slaughterhouses (in USD per kilogram)

Variable ¹	Whole/Half/Quarter Carcass		Cuts of Carcass		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Average overall	\$3.89	\$4.51*	\$4.51	\$4.19	\$3.92	\$4.50*
N	12	19	3	5	12	20
Season						
Summer	\$3.65	\$4.32*	\$4.19	4.16	\$3.65	\$4.50**
N	12	19	3	5	12	20
Winter	\$4.14	4.70	\$4.83	\$4.22	\$4.19	\$4.68
N	12	19	3	5	12	20

Note: N reflects the number of slaughterhouses who reported their value of sales in each category.

¹1 USD = 3.125 GEL

The net value of beef sold declined by an average \$2157 for whole, half, and quarter carcass (**Exhibit 95**), but the cuts of carcass increased by an average of \$647. The winter season's net value of beef sold increased by \$1,630 for cuts of carcass, whereas the summer season saw a decrease of \$4,291 for whole, half, and quarter carcass, and \$335 for cuts of carcass. None of these differences are statistically significant.

Exhibit 95. Net value of beef sold

Variable ¹	Whole/Half/Quarter Carcass		Cuts of Carcass		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Average overall	\$8,594	\$6,437	\$1,069	\$1,716	\$9,663	\$8,153
N	17	42	17	42	17	42
Season						
Summer	\$8,944	\$4,653	\$1,251	\$916	\$10,195	\$5,569
N	17	42	17	42	17	42
Winter	\$8,244	\$8,220	\$886	\$2,516	\$9,131	\$10,736
N	17	42	17	42	17	42

Note: N reflects the number of slaughterhouses who reported their value of sales in each category.

¹1 USD = 3.125 GEL

With respect to slaughtering services, 2,209 cattle were slaughtered in the last 12 months and the price of slaughtering services per calf was \$35.38 (**Exhibit 96**). About \$40,000 worth of revenue was gained from only cattle slaughtering services within the past 12 months, with 161 farmers approaching the slaughterhouse with cattle slaughtering services in the last 12 months.

Exhibit 96. Slaughtering Services

Variable	Slaughterhouses
	Midterm
Number of Cattle Slaughtered	
Number of cattle slaughtered in the last 12 months	2,209 cattle
N	41
Price of Slaughtering	
Price of slaughtering service per calf (USD) ¹	\$35.38
N	39
Revenue from Cattle Slaughtering Services	
Revenue from only cattle slaughtering services in last 12 months (USD) ¹	\$40,013.06
N	31
Number of Cattle Slaughtering Services	
Number of farmers/individuals who approached the slaughterhouse with cattle slaughtering services in the last 12 months	161 farmers
N	41

Note: N reflects the number of slaughterhouses who reported each category.

¹1 USD = 3.125 GEL

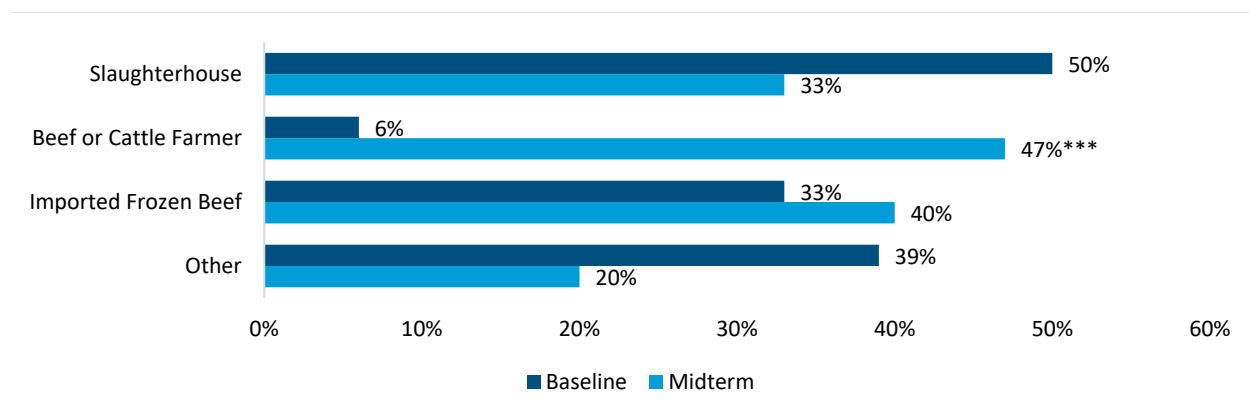
4.3.2 Beef Processors

4.3.2.1 Types of Beef Procured by Beef Processors – Grade/Cuts

At midterm, one-third of beef processors relied on slaughterhouses to obtain raw beef, representing a decline from half of all farmers at baseline (see **Exhibit 97**). At midterm, procuring raw meat directly from beef or cattle farmers was much more common, increasing by 41 percentage points (from just 6% of

farmers at baseline to nearly half of all farmers at midterm, statistically significant at the 1% level). Importing frozen beef was also slightly more common at midterm (with 40% of midterm beef processors reporting they procured their product from overseas as compared to just 33% at baseline, not statistically significant). Among the beef processors surveyed at midterm, 27% reported they procured whole carcass, 13% quarter carcass, and 27% cuts of carcass. Only 7% procured half carcass.

Exhibit 97. Sources of Procurement by Beef Processors (%)



Note: N = 15 midterm beef processors, and 18 baseline beef processors who reported their sources of procurement

4.3.2.2 Volume and Value of Procured Beef by Beef Processors

Exhibit 98 and **Exhibit 99** show the monthly volume and value of beef procurement by beef processors, respectively. In general, monthly beef procurement for whole, half, and quarter carcasses declined (by 3,831 kilograms per month), whereas cuts of carcasses increased (by 8,299 kilograms per month). While not statistically significant, the summer season had a larger increase overall (6,420 kilograms compared to 2,735 kilograms during the winter months).

For all types of raw beef, the cost beef producers paid per kilogram increased by \$1.14 from baseline to midterm (statistically significant at the 99% level) (**Exhibit 99**). There was also an increase in the total monthly value during both the summer and winter seasons (\$1.19 and \$1.15, respectively, both statistically significant at the 1% level). These values were not statistically different when comparing whole, half, and quarter carcasses to cuts of carcasses.

Exhibit 98. Monthly Volume of Beef Procurement by Beef Processors (in Kilograms)

Variable	Whole/Half/Quarter Carcass		Cuts of Carcass		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Average overall	4,330 kg	499 kg	2,937 kg	11,236 kg	7,386 kg	11,964 kg
N	19	15	19	15	19	15
Season						
Summer	5,988 kg	419 kg	2,534 kg	14,402 kg	8,628 kg	15,048 kg
N	19	15	19	15	19	15
Winter	2,673 kg	579 kg	3,340 kg	8,069 kg	6,144 kg	8,879 kg
N	19	15	19	15	19	15

Note: N reflects the number of beef processors who reported their volume of procurement.

Exhibit 99. Monthly Value of Beef Procurement by Beef Processors (in USD per kilogram)

Variable	Whole/Half/Quarter Carcass		Cuts of Carcass		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Average overall	\$3.15	\$3.97	\$3.28	\$3.63	\$3.05	\$4.19***

Variable	Whole/Half/Quarter Carcass		Cuts of Carcass		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
N	12	5	6	3	18	13
Season						
Summer	\$3.00	\$3.97	\$3.14	\$3.63	\$2.96	\$4.15***
N	11	5	5	3	17	13
Winter	\$3.18	\$3.97	\$3.28	\$3.63	\$3.07	\$4.22***
N	12	5	6	3	18	13

Note: N reflects the number of beef processors who reported their value of procurement.

¹¹ 1 USD = 3.125 GEL

4.3.2.3 Safety and Quality Practices of Procured Beef by Beef Processors

All beef processors surveyed reported implementing beef processing safety and quality practices at both baseline and midterm. As shown in **Exhibit 100**, sanitizing hands before handling raw meat (100%), using gloves for contact with raw meat (93%), rotating sanitizing chemicals regularly (93%), and using chemical sanitizers for tools contacting meat (93%) were the four most cited practices at midterm.¹¹ Use of sterilizer pots for heat sterilization of hand tools had become a more common practice by midterm, with 42% of beef processors reporting doing so (a statistically significant 31 percentage point increase from baseline at the 10% level). At midterm, 80% of all beef processors also reported requiring documentation about pathogen control and chemical residues from slaughterhouses and/or cattle farmers (representing an increase from just 42% at baseline, statistically significant at the 5% level). Conducting audits of slaughterhouses was the least cited safety and quality practice (27%), although it did increase (by 16 percentage points, not statistically significant) from baseline.

Exhibit 100. Safety and Quality Practices by Beef Processors

Variable	Beef Processors	
	Baseline	Midterm
Percent of beef processors who used safety and quality practices for procured cattle	100%	100%
If yes, safety and quality practices used:		
Sanitize hands before handling raw meat	90%	100%
Use gloves for contact with raw meat	90%	93%
Rotate sanitizing chemicals regularly	90%	93%
Use chemical sanitizers for hand tools which make contact with meat	74%	93%
Use sterilizer pots for heat sterilization of hand tools	42%	73%*
Require documentation about pathogen control and chemical residues from slaughterhouses and/or cattle farmers	42%	80%**
Written policies and procedures for product recall	16%	40%
Conduct audits of slaughterhouses	11%	27%
Food safety manager on staff	47%	33%
Other	0%	0%
N	19	15

Note: N reflects the number of beef processors who reported their safety practices. Multiple responses were allowed and hence columns will not add to 100%

¹¹ They could choose more than one option

At midterm, about 73% of beef processors held food and safety certifications (**Exhibit 101**), with the majority using HACCP (75%) and NFA certification (58%) for safety and quality practices. At midterm, 67% of beef processors reported implementing HACCP systems; of those that did not, 50% cited a newly opened business as their reason for not implementing a HACCP system.

Exhibit 101. Food and Safety Certifications by Beef Processors

Variable	Beef Processors	
	Baseline	Midterm
Percent of beef processors with certifications	53%	73%
if yes, certifications held:		
ISO 9001	20%	17%
ISO 22000	n/a	17%
National Food Agency (NFA) certification	60%	58%
HACCP	60%	75%
Bio Certification	n/a	8%
N	10	12

Note: N reflects the number of beef processors who reported their certifications. Multiple responses were allowed and hence columns will not add to 100%

4.3.2.4 Storage for Beef Processors

From baseline to midterm, beef processors that use a cold room/freezer for storing processed beef increased (from 15% to 67%, statistically significant at the 1% level) (**Exhibit 102**). Large proportions of beef processors also reported using shock freezers (67%) and chill room/refrigerators (60%) for storage. While all beef processors stored their beef appropriately (below 7 degrees Celsius) at baseline, 87% reported using the same practice at midterm. However, 60% of beef processors maintained the appropriate humidity in the storage area, an increase of 42 percentage points compared to baseline (the only statistically significant difference, at the 5% level, in the exhibit). Average beef chilling capacity increased from 10 m³ to 56 m³ from baseline to midterm (not statistically significant) (**Exhibit 103**). At midterm, the average dry storage capacity was 36 m³; and 31 m³ of dry storage was purchased or rented.

Exhibit 102. Storage Practices by Beef Processors

Storage Practices	Beef Processors	
	Baseline	Midterm
Chill room/ Refrigerators	54%	60%
Cold room/ freezers	15%	67%***
Shock freezer	62%	67%
Other	8%	7%
N	13	15
Types of Cold Storage Practices		
Products stored below 7 degrees Celsius	100%	87%
Maintain appropriate humidity	18%	60%**
Observation of product transportation regulations	n/a	40%
N	11	15

Note: N reflects the number of businesses who reported their storage practices. Multiple responses were allowed and hence columns will not add to 100%.

Exhibit 103. Beef Chilling Capacity in Meters Cubed for Beef Processors

Storage	Beef Processors	
	Baseline	Midterm
Chilled Storage		
Total installed chilled storage capacity (in m ³)	10 m ³	56 m ³
Amount of chilled storage capacity purchased or rented (in m ³)	n/a	75 m ³
N	11	13
Dry Storage		
Total installed dry storage capacity (in m ³)	n/a	36 m ³
Amount of dry storage capacity purchased or rented (in m ³)	n/a	31 m ³
N	0	14

Note: N reflects the number of businesses who reported chilled storage or dry storage.

4.3.2.5 Training for Beef Processors

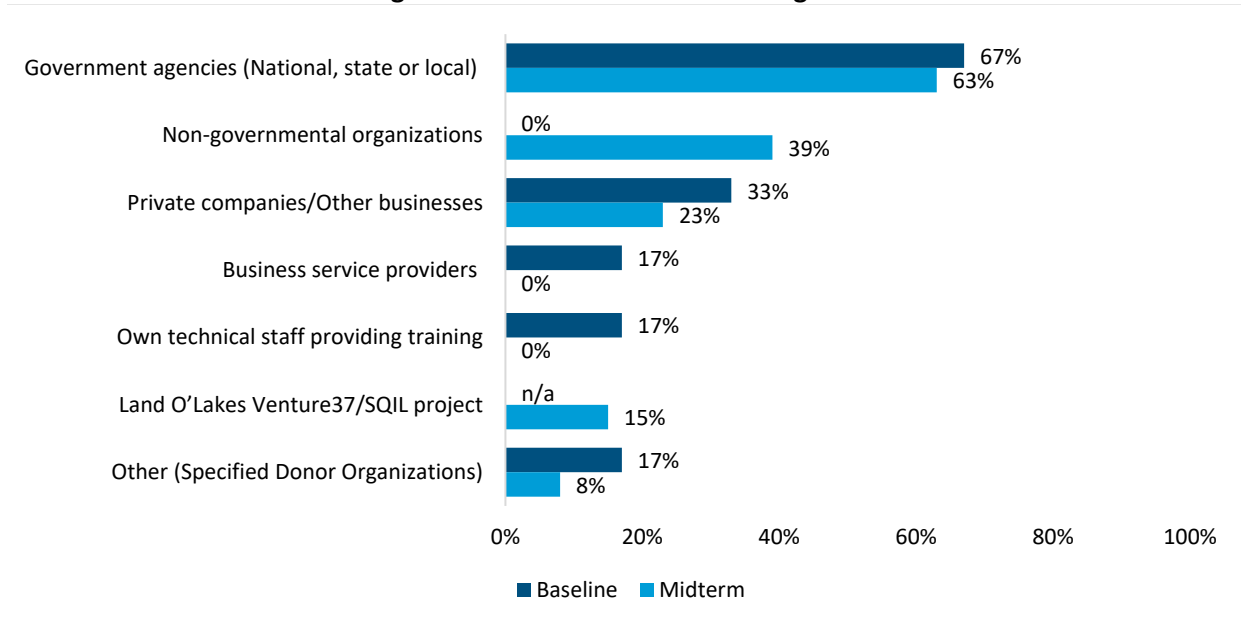
On average, 87% of beef processors received training in the 12 months studied, an increase of 50 percentage points compared to baseline (statistically significant at the 1% level) (**Exhibit 104**). Principal trainings included product cleaning, product cutting, product packaging, and product making. All types of trainings declined, with the exception of training in product preservation and freezing, which increased by 33 percentage points (not statistically significant). Trainings on product cutting declined by 48 percentage points (statistically significant at the 5% level) and product making sausages, patty, or other beef products declined by 40 percentage points (statistically significant at the 10% level). Government organizations, non-governmental organizations, and private sector sources were the main training providers (**Exhibit 105**).

Exhibit 104. Trainings Received by Beef Processors

Trainings	Beef Processors	
	Baseline	Midterm
Percent of respondents who responded	37%	87%***
Trainings Received		
Product cleaning	71%	54%
Product cutting	71%	23%**
Product deboning	29%	23%
Product grading	43%	31%
Product packaging	71%	54%
Product making sausages, patty, other beef products	71%	31%*
Product preservation and freezing	29%	62%
Product storage	43%	39%
Product transportation	29%	15%
Product inspection	43%	15%
Other	14%	15%
N	7	13

Note: N reflects the number of businesses who reported their training practices. Multiple responses were allowed and hence columns will not add to 100%

Exhibit 105. Organizations that Provided Trainings to Beef Processors



Note: N = 13 midterm beef processors, and 13 baseline beef processors who reported the organizations from whom they received training.

60% of beef processors reported having knowledge of Agronavti at midterm, and 33% reported having knowledge of Agroface (**Exhibit 106**). Of those, 33% reported actually using Agronavti, and 20% reported using Agroface, respectively. Three-quarters (73%) of beef processors reported applying innovations, the most frequent being packaging innovations (64%) (**Exhibit 107**). Between five and six new products, on average, were developed by beef processors in the last 12 months.

Exhibit 106. Beef Processor Usage of Agronavti and AgroFace

Variable	Beef Processors
	Midterm
Agronavti	
Percent of beef processors who have heard of Agronavti	60%
N	15
If Beef Processor has Heard of Agronavti...	
Percent of beef processors who use Agronavti	33%
N	9
AgroFace	
Percent of beef processors who have heard of AgroFace	33%
N	15
If Beef Processor has Heard of AgroFace...	
Percent of beef processors who use AgroFace	20%
N	5

Note: N is the number of beef processors who report having heard of or using either Agronavti or AgroFace.

Exhibit 107. Beef Processors Innovations Applied

Innovations	Beef Processors
	Midterm
Percent of beef processors who applied innovations	73%
If yes, innovations applied:	

Innovations	Beef Processors
	Midterm
Automatization of processes	36%
Innovative processing technologies	36%
Packaging	64%
Label printing machine installment	46%
New product development	46%
Branding of products	36%
N	11
If selected "New product development":	
Number of new products developed in the last year	5.6 products
N	5

Note: N reflects the number of beef processors who reported the types of innovations they applied in the last 12 months. Multiple responses were allowed and hence columns will not add to 100%.

4.3.2.6 Sales and Distribution for Beef Processors

In **Exhibit 108** the volume beef/beef products sales by product type at midterm. The most common type of beef product sold by beef processors were sausage (7,863 kilograms), beef patties/kebabs (806 kilograms), and canned stew meat (750 kilograms). The largest monthly value of sales came from sausage (\$24,259), smoked beef products (\$3,280), and marinated products (\$3,200) (**Exhibit 109**). The product with the least amount of sales per month was for came from liver and heart products (10 kilograms, at \$22).

Exhibit 108. Monthly Volume of Sales for Beef Processors by Product Type at Midterm (in kilograms)

Variable	Beef Processors	
	Midterm	N
Cuts of beef/steak	430 kg	4
Liver and heart	10 kg	2
Sausage	7863 kg	3
Mincemeat/ ground beef	422 kg	5
Khinkali/ dumplings	148 kg	9
Abkhazura/ Kupati	229 kg	7
Khashi products	100 kg	1
Beef patty/ Kebab	806 kg	8
Stuffed cabbage-roll/ Dolma	501 kg	7
Pancake stuffed with meat	458 kg	6
Marinated products	500 kg	1
Smoked beef products	513 kg	2
Canned stew meat	750 kg	1
Other	100 kg	1

Note: N reflects the number of beef processors who reported their monthly volume of sales for each of the product types.

Exhibit 109. Monthly Value of Sales for Beef Processors by Product Type (in USD)¹

Variable	Beef Processors	
	Midterm	N
Cuts of beef/steak	\$2,954	4
Liver and heart	\$22	2
Sausage	\$24,259	3
Mincemeat/ ground beef	\$1,126	5
Khinkali/ dumplings	\$315	9
Abkhazura/ Kupati	\$1,001	7

Variable	Beef Processors	
	Midterm	N
Khashi products	\$384	1
Beef patty/ Kebab	\$1,638	8
Stuffed cabbage-roll/ Dolma	\$946	7
Pancake stuffed with meat	\$1,119	6
Marinated products	\$3,200	1
Smoked beef products	\$3,280	2
Canned stew meat	\$288	1
Other	\$800	1

Note: N reflects the number of beef processors who reported their monthly volume of sales for each of the product types.

¹1 USD = 3.125 GEL

The average monthly volume of beef sales increased by 1,916 kilograms between survey rounds, remaining consistent across both the summer and winter seasons (**Exhibit 110**). The increase was mostly driven by larger firms, who increased their beef sales by an average of 2,967 kilograms between baseline and midterm. In contrast, small firms saw their sales decline by an average of 85 kilograms in the same time period. Average sales value per kilogram of beef also increased between survey rounds, with beef processors reporting an average increase of \$9.71 per kilogram, with the highest increase in sales value observed in the summer season at \$9.61 per kilogram (both statistically significant at the 5% level) (**Exhibit 111**). Despite experiencing reductions in sales volume, small firms reported an increase in sales value of \$5.26 per kilogram (not statistically significant). Small and medium firms reported a similar average sales value per kilogram (\$10.58 and \$11.74, respectively). Large firms reported a much larger average sales value (\$29.32 per kilogram), representing a substantial (\$29.32) increase from baseline (statistically significant at the 5% level). Note that the sample sizes are too small for reliable conclusions to be drawn.

Exhibit 110. Monthly Volume of Beef Sales by Beef Processors (in Kilograms)

Variable	Beef Processors	
	Baseline	Midterm
Average overall	1,338 kg	3,254 kg
N	14	14
Season		
Summer	1,368 kg	3,277 kg
N	14	14
Winter	1,308 kg	3,231
N	14	14
Firm Size		
Small	549 kg	464 kg
N	11	6
Medium	n/a	4,763 kg
N	0	6
Large	4,232 kg	7,099
N	3	2

Note: N reflects the number of beef processors who reported their volume of sales in each category.

Exhibit 111. Monthly Value of Beef Sales by Beef Processors (in USD per kilogram)

Variable ¹	Beef Processors	
	Baseline	Midterm
Average overall	\$5.62	\$15.33**
N	10	12
Season		

Variable ¹	Beef Processors	
	Baseline	Midterm
Summer	\$5.32	\$15.11**
N	10	12
Winter	\$5.93	\$15.54
N	10	12
Firm Size		
Small	\$5.32	\$10.58
N	8	5
Medium	n/a	\$11.74
N	0	5
Large	\$6.84	\$36.16**
N	2	2

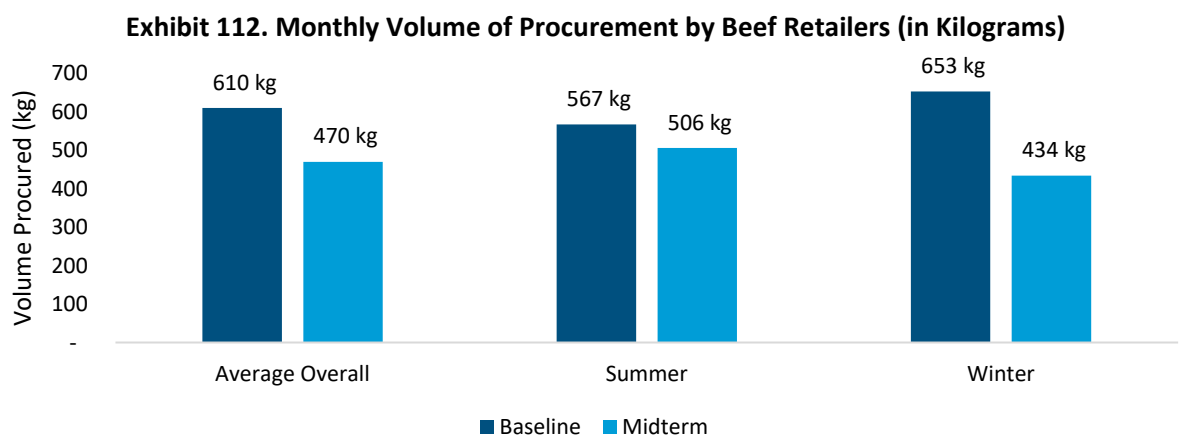
Note: N reflects the number of beef processors who reported their value of sales in each category.

¹1 USD = 3.125 GEL

4.3.3 Beef Retailers

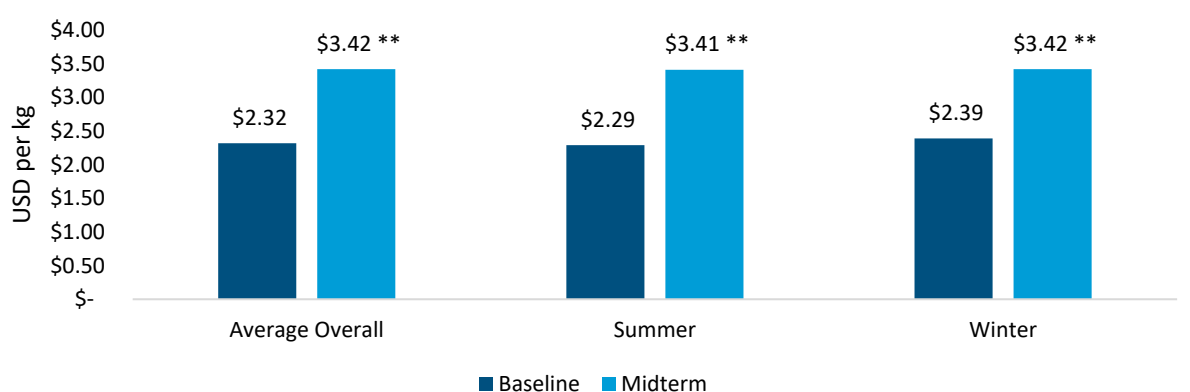
4.3.3.1 Volume and Value of Procured Beef Products by Beef Retailers

Exhibit 112 and **Exhibit 113** show the monthly volume and value of the procured beef by beef retailers, respectively, by season. Beef retailers reported they procured 470 kilograms of beef on average (a 23 percentage point decrease from baseline, at an increased value of \$1.105 per unit. There was a marginal decrease of procured beef products during the summer season (61 kilograms), with an increase in price of \$1.12 per kilogram. The winter season indicated a larger decline in procured beef products (219 kilograms), at an increase of \$1.03 per kilogram (all price increases were statistically significant at the 5% level).



Note: N = 8 midterm beef retailers, and 72 baseline beef retailers who reported their volume of procurement.

Exhibit 113. Monthly Value of Procurement by Beef Retailers (in USD¹ per kilogram)



Note: N = 8 midterm beef retailers, and 70 baseline beef retailers who reported their volume of procurement. Note: N reflects the number of businesses who reported their value of procurement.

¹ USD = 3.125 GEL

4.3.3.2 Safety and Quality Practices of Procured Beef Products by Beef Retailers

As shown in **Exhibit 114**, sanitizing hands before handling raw meat (100%), rotating sanitizing chemicals regularly (85%), and using gloves for contact with raw meat (92%), were the three most cited safety practices by beef retailers at midterm.¹² However, the only statistically significant increases were for written policies and procedures for product recalled (by 19 percentage points, at the 1% level) and having a food safety manager on staff (by 26 percentage points, at the 5% level). All quality check practices declined from baseline. Checking 'use-by/best-before date' declined only marginally. But checking 'sell-by' date decreased by 24 percentage points (statistically significant at the 5% level). **Exhibit 115** shows that 50% of beef retailers held some form of food and safety certification at midterm (an increase of 38 percentage points from baseline, statistically significant at the 1% level). The most common included the NFA certificate (75%) and the HACCP (50%); 22% of beef retailers reported implementing the HACCP system and 63% planned to implement it in the future (**Exhibit 116**). The most frequently cited reasons for not implementing the HACCP system were newly opening a business and lack of awareness that it was mandatory.

Exhibit 114. Safety and Quality Practices by Beef Retailers

Variable	Beef Retailers	
	Baseline	Midterm
Safety Practices		
Sanitize hands before handling raw meat	90%	100%
Use gloves for contact with raw meat	71%	92%
Rotating sanitizing chemicals regularly	72%	85%
Use chemical sanitizers for hand tools which make contact with meat	53%	54%
Use sterilizer pots for heat sterilization of hand tools	17%	15%
Require documentation about pathogen control and chemical residues from slaughterhouses and/or cattle farmers	20%	31%
Written policies and procedures for product recall	4%	23%***

¹² The could choose more than one option.

Variable	Beef Retailers	
	Baseline	Midterm
Conduct audits of slaughterhouses	10%	23%
Food safety manager on staff	13%	39%**
N	79	13
Quality Checks		
Checking 'sell-by' date	93%	69%**
Checking 'use-by/best before date'	80%	77%
Other	4%	0%
N	71	13

Note: N reflects the number of beef retailers who reported their safety practices and quality checks. Multiple responses were allowed and hence columns will not add to 100%

Exhibit 115. Food and Safety Certifications by Beef Retailers

Variable	Beef Retailers	
	Baseline	Midterm
Percent of beef retailers with certifications	12%	50%***
if yes, certifications held:		
ISO 9001	n/a	0%
ISO 22000	n/a	0%
National Food Agency (NFA) certification	n/a	75%
HACCP	24%	50%
Bio Certification	n/a	0%
N	41	8

Note: N reflects the number of beef retailers who reported their certifications. Multiple responses were allowed and hence columns will not add to 100%

Exhibit 116. HACCP Implementation by Beef Retailers

Exhibit 116: HACCP Implementation by Beef Retailers	
Variable	Beef Retailers
	Midterm
Percent of beef retailers who report implementing the HACCP system	22%
N	9
If beef retailer does not implement HACCP system, why not?	
Newly opened business	33%
Lack of awareness that it is obligatory for my business	33%
Lack of financial resources	0%
Lack of human resources	0%
Other	33%
N	3
Plans to implement HACCP in the future:	
Percent of beef retailers who intend to implement HACCP in the future	63%
N	8

Note: N reflects the number of beef retailers who reported their HACCP implementation. Multiple responses were allowed and hence columns will not add to 100%

4.3.3.3 Storage for Beef Retailers

As shown in **Exhibit 117**, the percentage of beef retailers that bought new cold storage capacity increased from 17% to 36% (not statistically significant) between baseline and midterm, with all beef retailers storing beef below seven degrees Celsius at midterm. Conversely, 23% compared to 52% at baseline maintained appropriate humidity in the storage area (statistically significant at the 10% level).

Exhibit 117. Storage Practices by Beef Retailers

Storage Practices	Beef Retailers	
	Baseline	Midterm
Bought new cold storage capacity	17%	36%
Types of Cold Storage Practices		
Products stored below 7 degrees Celsius	96%	100%
Maintain appropriate humidity	52%	23%*
N	81	13

Note: N reflects the number of businesses who reported their storage practices.

*1 USD = 3.125 GEL

Compared to baseline, beef retailers installed a total of 16.6 cubic meters more chilled storage capacity at midterm (statistically significant at the 1% level), and about 15 cubic meters of chilled storage capacity was purchased or rented at midterm (**Exhibit 118**). Total installed dry storage capacity was only one cubic meter at midterm, and less than 1 cubic meter was purchased or rented.

Exhibit 118. Cold and Dry Storage Space in Meters Cubed by Beef Retailers

Storage	Beef Retailers	
	Baseline	Midterm
Chilled Storage		
Total installed chilled storage capacity (in m ³)	3.5 m ³	20.1 m ³ ***
Amount of chilled storage capacity purchased or rented (in m ³)	n/a	15.4 m ³
N	69	14
Dry Storage		
Total installed dry storage capacity (in m ³)	n/a	1 m ³
Amount of dry storage capacity purchased or rented (in m ³)	n/a	<1 m ³
N	0	13

Note: N reflects the number of businesses who reported chilled storage or dry storage.

4.3.3.4 Training for Beef Retailers

The following three exhibits show beef retailer trainings and use of Agronavti and AgroFace. Note that only a very small proportion of beef retailers responded to these questions. The % of respondents that received trainings increased by 57 percentage points from baseline to midterm (statistically significant at the 1% level) (**Exhibit 119**). Of the types of trainings among all those who received training, the most common at midterm was food safety and handling (100%), an increase of 50 percentage points from baseline (statistically significant at the 5% level). Beef and beef products freezing training declined by 17 percentage points, and business operations and management training increased by 11 percentage points (neither statistically significant). Government agencies most commonly gave trainings (67%) at both baseline and midterm. Non-governmental organizations were the second most common, with a marginal increase of 5 percentage points from baseline. While input suppliers reported administering 17% of trainings at baseline, that value declined to zero at midterm, while agencies classified as “other” increased from zero to 11%. About 29% of beef retailers had knowledge of Agronavti, and only 14% had knowledge of the webpage, AgroFace. Of those who had knowledge, 25% used Agronavti, and only 2% reported used AgroFace, respectively.

Exhibit 119. Trainings Received by Beef Retailers

Trainings	Beef Retailers	
	Baseline	Midterm
Percent of respondents who received trainings	7%	64%***

Trainings	Beef Retailers	
	Baseline	Midterm
Types of Trainings		
Business operations/management training	0%	11%
Beef/beef products freezing training	50%	33%
Food safety and handling training	50%	100%**
N	6	9

Note: N reflects the number of businesses who reported their training practices. Multiple responses were allowed and hence columns will not add to 100%

Exhibit 120. Organization Which Provided Trainings to Beef Retailers

Organizations	Beef Retailers	
	Baseline	Midterm
Government agencies (National, state or local)	67%	67%
Non-governmental organizations	17%	22%
Private companies/Other businesses	0%	0%
Input suppliers	17%	0%
Business service providers	0%	0%
Own technical staff providing training	0%	0%
Land O'Lakes Venture37/SQIL project	n/a	0%
Other (Specified Donor Organizations)	0%	11%
N	6	9

Note: N is the number of beef retailers who reported the organizations from whom they received training.

Exhibit 121. Beef Retailer Usage of Agronavti and AgroFace

Variable	Beef Retailers
	Midterm
Agronavti	
Percent of beef retailers who have heard of Agronavti	29%
N	14
If Beef Retailer has Heard of Agronavti...	
Percent of beef retailers who use Agronavti	25%
N	4
AgroFace	
Percent of beef retailers who have heard of AgroFace	14%
N	14
If Beef Retailer has Heard of AgroFace...	
Percent of beef retailers who use AgroFace	0%
N	2

Note: N is the number of beef retailers who report having heard of or using either Agronavti or AgroFace.

4.3.3.5 Sales and Distribution for Beef Retailers

Exhibit 122 and **Exhibit 123** show the monthly volume and value of beef sales by beef retailers, by season. On average, beef retailers sold 1,048 kilograms more per month at midterm at an increased rate of \$0.60 (statistically significant at the 10% level). Compared to baseline, beef retailers sold more beef during both the summer and winter seasons at midterm than at baseline. While beef retailers sold more beef during the winter months (by 1,234 kilograms) at an increased price of \$0.54 (statistically significant at the 10% level), the summer season saw a larger increase in price at \$0.67 (statistically significant at the 5% level).

Exhibit 122. Monthly Volume of Beef Sales by Beef Retailers (in Kilograms)

Variable	Beef Retailers	
	Baseline	Midterm
Average overall	1,147 kg	2,195 kg
N	78	11
Season		
Summer	1,125 kg	1,986 kg
N	77	11
Winter	1,171 kg	2,405 kg
N	78	11

Note: N reflects the number of beef retailers who reported their volume of sales.

Exhibit 123. Monthly Value of Beef Sales by Beef Retailers (in USD per kilogram)

Variable ¹	Beef Retailers	
	Baseline	Midterm
Average overall	\$5.08	\$5.68*
N	75	10
Season		
Summer	\$4.87	\$5.54**
N	74	10
Winter	\$5.28	\$5.82*
N	75	10

Note: N reflects the number of beef retailers who reported their value of sales in each category.

¹1 USD = 3.125 GEL

We present beef/beef product sales by beef retailers disaggregated by product type in **Exhibit 124** and **Exhibit 125**. Cuts of beef were by far the most common type of products sold by beef retailers (2,567 kilograms) at \$18,946 monthly value. While mincemeat/ground beef (103 kilograms) was the third most product sold, and only marginally compared to beef patty/kebab at 100 kilograms, it had the second highest monthly value of sales (\$1,323). Aside from product classified as other, Afkhazura / Kupati had the least amount of monthly volume and value of sales (10 kilograms and \$109). Overall, beef retailers sold an average of 1,048 kilograms more per month, with an average increase of 0.60 per kilogram (statistically significant at the 10% level) (see **Exhibit 122** and **Exhibit 123**). Beef retailers reported an increase in volume and value of sales during both the summer and winter seasons (861 kilograms with an average increase of \$0.67 per kilogram, and 1,234 kilograms with an average increase of \$0.54 per kilogram, respectively).

Exhibit 124. Monthly Volume of Sales for Beef Retailers by Product Type (in kilograms)

Variable	Beef Retailers	
	Midterm	N
Beef patty / Kebab	100 kg	1
Cuts of beef	2567 kg	9
Canned stew meat	n/a	0
Gelatin	n/a	0
Smoked products	n/a	0
Marinated products	n/a	0
Sausage	n/a	0
Khashi products	50 kg	3
Khinkali / dumplings	50 kg	1
Stuffed cabbage-roll / Dolma	35 kg	1
Mincemeat / Ground beef	103 kg	3

Variable	Beef Retailers	
	Midterm	N
Afkhazura / Kupati	10 kg	1
Pancake stuffed with meat	150 kg	1
Heart and liver	77 kg	3
Other	10 kg	1

Note: N reflects the number of beef retailers who reported their monthly volume of sales for each of the product types.

Exhibit 125. Monthly Value of Sales for Beef Retailers by Product Type (in USD)¹

Variable	Beef Retailers	
	Midterm	N
Beef patty / Kebab	\$512	1
Cuts of beef	\$18,946	9
Canned stew meat	n/a	0
Gelatin	n/a	0
Smoked products	n/a	0
Marinated products	n/a	0
Sausage	n/a	0
Khashi products	\$195	3
Khinkali / dumplings	\$182	1
Stuffed cabbage-roll / Dolma	\$224	1
Mincemeat / Ground beef	\$1,323	3
Afkhazura / Kupati	\$109	1
Pancake stuffed with meat	\$576	1
Heart and liver	\$326	3
Other	\$38	1

Note: N reflects the number of beef retailers who reported their monthly value of sales for each of the product types.

¹1 USD = 3.125 GEL

4.3.4 Sales Agreements

We collected data on the extent of formalization between buyers and sellers in beef value chains by asking businesses if they had any formal contracts or agreements with their buyers (**Exhibit 126**). Formal contracts or agreements were defined as written or verbal formal arrangements with beef farmers or other suppliers wherein suppliers sold exclusively to slaughterhouses, beef processors, and beef retailers. On average, 79% of businesses, an increase of 68 percentage points over baseline (statistically significant at the 1% level), had formal contracts or agreements with suppliers. Beef processors had the largest percentage (93%, a statistically significant increase over baseline at the 1% level), followed by beef retailers (73%, a statistically significant increase at the 1% level), and slaughterhouses (68%, a statistically significant increase at the 5% level). The average number of sales agreements increased by almost 34.5 per business (statistically significant at the 1% level), with beef retailers holding the most (55.7) agreements at midterm. A very small% of businesses reported providing their suppliers with any support services, preventing reliable conclusions from those estimates.

Exhibit 126. Sales Agreements with Suppliers

Sales Agreements	Slaughterhouses		Beef Processors		Beef Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of businesses who report having sales agreements with suppliers	24%	68%**	32%	93%***	4%	73%***	11%	79%***

Sales Agreements	Slaughterhouses		Beef Processors		Beef Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
If Yes, Number of Sales Agreements:								
Number of Sales Agreements	35	43.8	5.6	4.9	0.04	55.7	1.51	36***
N	3	32	5	15	82	11	90	58

Note: N reflects the number of businesses who reported having sales agreements with suppliers.

More than two-thirds of slaughterhouses (68%) and 80% of beef processors had sales agreements with their buyers (**Exhibit 127**) (both statistically significant increases from baseline at the 5% level). The number of sales agreements overall increased by about 80; there was an increase of about 96 sales agreements for slaughterhouses; and about 50 for beef processors (with none of the three increases statistically significant).

Exhibit 127. Sales Agreements with Buyers

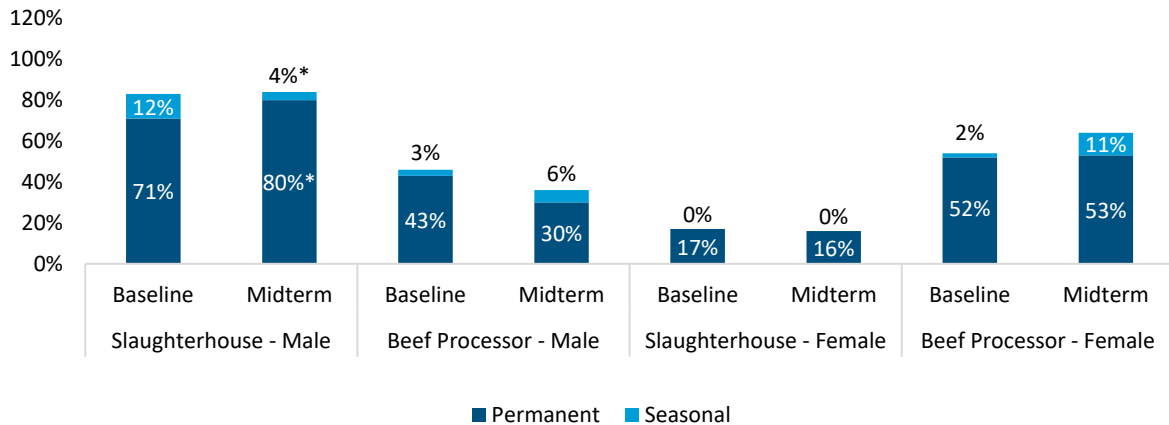
Sales Agreements	Slaughterhouses		Beef Processors		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of businesses who report having sales agreements with buyers	33%	68%**	39%	80%**	36%	72%***
If Yes, Number of Sales Agreements:						
Number of Sales Agreements	11	107.6	13.5	63.2	11.8	92.3
N	4	19	2	10	6	29

Note: N reflects the number of businesses who reported the number of sales agreements with buyers.

4.3.5 Overall Labor Use

As shown in **Exhibit 128**, slaughterhouses increased permanent male employees by 9 percentage points from baseline to midterm (statistically significant at the 10% level) and decreased seasonal male employees by 8 percentage points (not statistically significant). There was little change for the relatively small shares of female hires. The opposite trend was reported by beef processors, for whom permanent male employees decreased by 13 percentage points, seasonal male employees increased by three percentage points, permanent female employees increased by only one percentage point, and seasonal female employees increased by 9 percentage points. Data for beef retailers was once collected once, at midterm, when there were roughly equal male and female permanent employees (not shown).

Exhibit 128. Types of Labor Hired by Business Type and Gender (%)



N = 16 for baseline slaughterhouses, N = 40 for midterm slaughterhouses, N = 13 for baseline beef processors, and N = 15 for midterm beef processors.

4.3.6 Business Management

Credit

There was an 11 percentage point decline overall in businesses applying for credit at midterm over baseline (**Exhibit 129**); however, the amount borrowed increased by \$37,842. Specifically, beef retailers borrowed about 42% more and slaughterhouse almost 14% more compared to baseline. Buying equipment for business and managing short-term cash shortages were the most cited purpose for obtaining loans at midterm (46% and 36%, respectively). The purpose of obtaining loans varied by business (with 50% of slaughterhouses reporting managing short-term cash shortages, 75% of beef processors reporting buying equipment for business, and 100% beef retailers reporting business expansion (an 81 percentage point increase from baseline, statistically significant at the 10% level, but with only one beef retailer reporting) as their primary purpose for loans.

Exhibit 129. Uses of Loans

Variable	Slaughterhouses		Beef Processors		Beef Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Percent of farmers who applied for loans (%)	35%	20%	28%	33%	32%	15%	32%	21%
Amount borrowed (in USD) ¹	\$123,800	\$143,333	\$404,060	n/a	\$11,120	\$19,000	\$87,729	\$125,571
If Yes, Primary Purposes of Obtaining Loans								
Buying equipment for business	33%	33%	20%	75%	31%	0%	30%	46%
Managing short-term cash shortage	17%	50%	20%	25%	35%	0%	30%	36%
Managing unplanned shocks	0%	17%	0%	0%	31%	0%	22%	9%

Variable	Slaughterhouses		Beef Processors		Beef Retailers		Total	
	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm	Baseline	Midterm
Business expansion	33%	33%	60%	0%	19%	100%*	27%	27%
Other	50%	17%	0%	0%	0%	0%	8%	9%
N	6	6	5	4	26	1	37	11

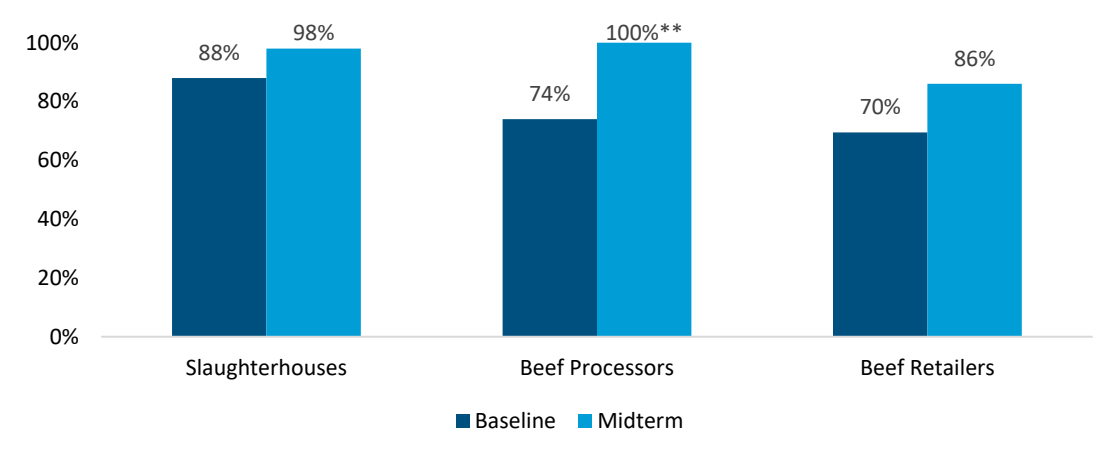
Note: N is the number of businesses who report having obtained a loan. Multiple responses were allowed and hence columns will not add to 100%.

*1 USD = 3.125 GEL

Recordkeeping

There was a statistically significant increase in the percentage of beef processors keeping records from baseline to midterm (at the 5% level), but no statistically significant change for slaughterhouses and beef retailers (**Exhibit 130**). **Exhibit 131** shows record keeping practices for beef value chain businesses, with 96% of all businesses report keeping some form of records at midterm. The most frequently kept records included records on animal reception (86%) and financial and administration record keeping (85%). Aside from the two types of record keeping mentioned above, the types of records kept varied by business; 88% of slaughterhouses kept records on animal health condition, 87% of beef processors reported keeping records on beef processing, and 50% of beef retailers reported keeping records on product selling.

Exhibit 130. % of Beef Businesses Keeping Records



N = Slaughterhouses: 17 at baseline and 42 at midterm; Beef Processors: 19 at baseline and 15 at midterm; Beef Retailers: 82 at baseline and 14 at midline.

Exhibit 131. Types of Records Kept by Beef Businesses at Midterm

Variable	Slaughterhouses	Beef Processors	Beef Retailers	Total
Percent of farmers who kept any records	98%	100%	86%	96%
If Yes, types of records kept:				
Records on animal reception (origin, quantity, provider, weight, age, tagging, etc.)	93%	87%	64%	86%
Records on animal health condition	88%	n/a	n/a	52%

Variable	Slaughterhouses	Beef Processors	Beef Retailers	Total
Records regarding slaughter (cold dress weight)	76%	n/a	n/a	45%
Record on carcass selling (selling, direction)	57%	n/a	n/a	34%
Record on beef processing	n/a	87%	n/a	18%
Record on lab analysis	n/a	73%	n/a	18%
Record on product selling	n/a	n/a	50%	10%
Financial and administration record keeping	83%	100%	71%	85%
Temperature control of cold storage area	67%	80%	n/a	56%
Other	2%	0%	0%	1%
N	42	15	14	71

Note: N is the number of businesses who report on the types of records they kept. Multiple responses were allowed and hence columns will not add to 100%.

COVID-19 Impacts

More than half of all beef businesses reported being impacted by COVID-19 (**Exhibit 132**). Of those, 63% reported that communication or visits from beef product buyers were impacted; 52% reported communication or visits from cattle suppliers were impacted. Eight% of businesses overall, the least reported impact, reported access to formal credit and/or financial service being impacted by COVID-19. No business reported communication or visits from Venture37 project staff being impacted by COVID-19.

Exhibit 132. Impacts of COVID-19 on Beef Businesses

Variable	Slaughterhouses	Beef Processors	Beef Retailers	Total
Businesses impacted by COVID-19	69%	80%	50%	68%
If yes, how so?				
Transportation of products	35%	17%	29%	29%
Access to inputs	17%	33%	0%	19%
Communication or visits from cattle suppliers	59%	50%	29%	52%
Communication or visits from beef product buyers	66%	50%	71%	63%
Communication or visits from Venture37 project staff	0%	0%	0%	0%
Access to formal credit and/or financial service	10%	8%	0%	8%
Other	14%	25%	14%	17%
N	29	12	7	48

Note: N is the number of businesses who report on the impacts of COVID-19 on their business. Multiple responses were allowed and hence columns will not add to 100%.

4.4 Input Providers

In this section, we examine a broad category of businesses called input providers, who provide beef and dairy farmers with the wide range of inputs (from fodder to medicines to machinery) required to operate

a successful farm. While categorized as a single group, they are far from homogeneous. As an important caveat, when disaggregated by region or other characteristic, the sample sizes become very small. Thus, statistics should be interpreted with caution.

4.4.1 Types of Input Sold

Exhibit 133 shows the percentage of providers that supply specific inputs. The percentage of providers that supplied animal feed and fertilizers, pesticides, and veterinary drugs declined from baseline to midterm (from 84% to 17% and 95% to 17%, respectively, both statistically significant at the 1% level). Around 83% of input providers provided veterinary and other services at midterm.

Exhibit 133. Percentage of Businesses Selling Inputs (%)

Variable	Input Providers	
	Baseline	Midterm
Input Type		
Animal feed (fodder, forage, concentrate feed, feed additive)	84%	17%***
Durable equipment and machinery	14%	17%
Fertilizers, pesticides, veterinary drugs	95%	17%***
Post-harvest storage and processing machinery	n/a	8%
Veterinary and other services	n/a	83%
Other	5%	25%
N	37	12

Note: N represents the number of input providers who provided inputs in each category.

4.4.2 Volume and Value of Sales

Exhibit 134 shows the average volume of inputs sold by providers per month, but only two input providers at midterm responded to this question, requiring caution in interpreting the results. The average volume of animal feed sold increased from 734 kg to 765,000 kg in the summer season and 784 kg to 775,00 kg in the winter season (both statistically significant at the 1% level). The average volume sold for fertilizers, pesticides, and veterinary drugs in the winter season increased from 494 kg to 1,925 kg (statistically significant at the 5% level).

Exhibit 134. Average Monthly Volume of Sales by Season

Variable	Input Providers	
	Baseline	Midterm
Summer		
Animal feed (fodder, forage, concentrate feed, feed additive) (kg)	734 kg	765,000 kg***
N	18	2
Durable equipment and machinery (#)	0 units	2,508 units
N	3	2
Fertilizers, pesticides, veterinary drugs (kg)	939 kg	1,925 kg
N	17	2
Winter		
Animal feed (fodder, forage, concentrate feed, feed additive) (kg)	784 kg	775,000 kg***
N	18	2
Durable equipment and machinery (#)	1 unit	2,508 units
N	3	2

Variable	Input Providers	
	Baseline	Midterm
Fertilizers, pesticides, veterinary drugs (kg)	494 kg	1,925 kg**
N	17	2

Note: N reflects only those input providers who reported the volume of inputs sold and varies by input. Outliers were removed by replacing all values greater than 1000 with the median for that category.

We present the average monthly revenue for the input providers in **Exhibit 135**. The average total monthly revenue for all input providers increased from \$5,733 to \$74,179 (statistically significant at the 10% level). The average monthly revenue for animal feed increased from \$6,460 to \$369,600 (statistically significant at the 1% level);. The summer season saw an average monthly revenue increase from \$6,996 to \$134,662 (statistically significant at the 10% level).

Exhibit 135. Average Monthly Revenue by Season (in USD)¹

Variable	Input Providers	
	Baseline	Midterm
Total monthly revenue	\$5,733	\$74,179*
N	21	5
Input Type		
Animal feed (fodder, forage, concentrate feed, feed additive)	\$6,460	\$369,600***
N	3	1
Durable equipment and machinery	\$2,162	n/a
N	7	0
Fertilizers, pesticides, veterinary drugs	\$1,584	\$320
N	11	1
Veterinary and other services	\$1,250	\$195
N	17	5
Season		
Summer	\$6,996	\$134,662*
N	21	5
Winter	\$4,470	\$17,121
N	21	4

Note: N reflects the number of input providers who reported their volume of procurement in each category.

¹1 USD = 3.125 GEL

4.4.3 Input Procurement

Input providers have several options for securing their products. They can purchase them for resale, rent them, or produce them. At baseline, buying inputs for resale was most common, with all input providers reporting buying inputs, very few renting, and none selling their own produced products (**Exhibit 136**). At midterm, buying for resale declined by 64 percentage points, and renting inputs increased by 40 percentage points (both statistically significant at the 1% level). There was no statistically significant difference between baseline and midterm in producers owning inputs.

Exhibit 136. Sources of Inputs

Source of Input	Input Providers	
	Baseline	Midterm
Bought	100%	36%***
Rented	3%	43%***
Own Production	0%	7%
Imported	n/a	71%

Source of Input	Input Providers	
	Baseline	Midterm
N	35	14

Note: N is the number of input providers who reported the source of their inputs. Multiple responses were allowed and hence columns will not add to 100%.

Credit

With respect to credit given by input providers, no input provider in our sample gave cash credit to farmers and only seven percent of input providers extended in-kind credit. Around 20 farmers were extended in-kind credit by the input providers in our sample. The most common type of in-kind credit was machinery and feed/fodder. However, only one input provider responded to the question around types of in-kind credit, preventing any reliable conclusion.

Storage

Input providers installed a total of 33 m³ chilled storage space at both baseline and midterm but did not buy or rent chilled storage. Input providers installed a total of 139 m³ of dry storage space and purchased or rented 79 m³ dry storage space at midterm.

Exhibit 137. Chilled and Dry Storage Space in Meters Cubed by Input Providers

Storage	Input Providers	
	Baseline	Midterm
Chilled Storage		
Total installed chilled storage capacity (in m ³)	33 m ³	33 m ³
Amount of chilled storage capacity purchased or rented (in m ³)	n/a	0 m ³
N	37	15
Dry Storage		
Total installed dry storage capacity (in m ³)	n/a	139 m ³
Amount of dry storage capacity purchased or rented (in m ³)	n/a	79 m ³
N	0	15

Note: N reflects the number of businesses who reported chilled storage or dry storage.

Input providers had 18 formal (written or verbal) agreements with suppliers and 24 formal agreements with buyers at midterm (**Exhibit 138**).

Exhibit 138. Formal Agreements with Suppliers and Buyers by Input Providers

Variable	Input Providers
	Midterm
Suppliers	
Number of suppliers	12
Number of formal (written/verbal) agreements with suppliers	18
N	15
Buyers	
Number of buyers	938
Number of formal (written/verbal) agreements with buyers	24
N	13

Note: N reflects the number of businesses who reported on their agreements with suppliers and/or buyers. Two outliers were removed for the number of buyers: one firm reported 7,000 buyers, and another reported 500,000 buyers.

4.4.4 Value-Added Services

In addition to providing physical inputs, input providers often provided value-added services (**Exhibit 139**). These included support with feed, fodder and breeding, veterinary care, and artificial insemination. From baseline to midterm the percent of input providers providing at least one of those services increased (from 43% to 87%, statistically significant at the 1% level). Feed and fodder support increased by 37 percentage points (statistically significant at the 10% level); and artificial insemination, which was the least offered service at baseline, increased by 33 percentage points (statistically significant at the 10% level).

Exhibit 139. Percentage of Businesses Providing Value-Added Services (%)

Variable	Input Providers	
	Baseline	Midterm
Percent of Input Providers provide value-added services	43%	87%***
N	35	15
Service Type		
Feed/Fodder Support	40%	77%*
Breeding Support	20%	46%
Veterinary Care	53%	62%
Artificial Insemination	13%	46%*
Other	40%	31%
N	15	13

Note: N for service types reflects only those who stated they provided some type of value-added service

Exhibit 140 shows the% of input providers that have heard of and used Agronavti and Agroface, respectively. Sixty percent of input providers had heard of Agronavti at midterm and 22% of those used it. Forty-seven percent of providers had heard of Agroface, and 57% of those used it.

Exhibit 140. Input Provider Usage of Agronavti and AgroFace

Variable	Input Providers
	Midterm
Agronavti	
Percent of input providers who have heard of Agronavti	60%
N	15
If Input Provider Has Heard of Agronavti...	
Percent of input providers who use Agronavti	22%
N	9
AgroFace	
Percent of input providers who have heard of AgroFace	47%
N	15
If Input Provider Has Heard of AgroFace...	
Percent of input providers who use AgroFace	57%
N	7

Note: N is the number of input providers who report having heard of or using either Agronavti or AgroFace.

Exhibit 141 shows the% of input providers that held food and safety certifications at midterm. The majority of input providers (67%) held a certification categorized as “other.” This included HACCP and ISO 1705 and 4500. The second largest certification held was an ISO 9001 certification (33%); ISO 22000 was the least held certification (11%).

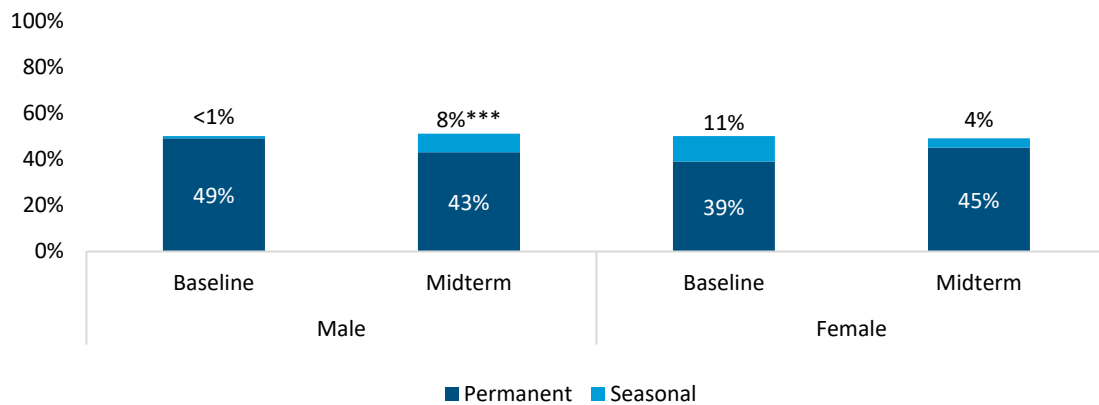
Exhibit 141. Food and Safety Certifications by Input Providers

Variable	Input Providers
	Midterm
ISO 9001	33%
ISO 22000	11%
National Food Agency (NFA) certification	22%
Bio Certification	22%
Other	67%
N	9

Note: N reflects the number of input providers who reported their certifications. Multiple responses were allowed and hence columns will not add to 100%

4.4.5 Overall Labor Use

Input providers hired 7 percentage points more seasonal male employees at midterm than at baseline (statistically significant at the 1% level) (**Exhibit 142**). Permanent male employees declined by 6 percentage points, permanent female employees by 6 percentage points, and seasonal female employees declined by 7 percentage points (none statistically significant).

Exhibit 142. Types of Labor Hired by Gender (%)

N = 23 at baseline, N = 14 at midterm

4.4.6 COVID-19 Impacts

Almost three-quarters (73%) of input providers reported having experienced impacts on their business related to COVID-19 (**Exhibit 143**). The largest business aspect affected was communication or visits from buyers (36%). Around 55% cited other aspects, including decline in sales, problems with staff transportation, decline in consumers, and worsening of consumers' financial situation. 18% reported that access to raw products was more difficult, 55% reported that it was more difficult to sell inputs to farmers and agricultural businesses, and 45% reported the average price of inputs sold to farmers and agricultural businesses was higher.

Exhibit 143. Impacts of COVID-19 on Input Providers

Variable	Input Providers
	Midterm
Percent of input providers who experienced impacts on their business related to COVID-19	73%
N	15
If impacted by COVID-19	

Variable	Input Providers
	Midterm
Transportation of products	9%
Communication or visits from suppliers of raw products ingredients and final products for sale	9%
Communication or visits from input buyers	36%
Other	55%
N	11
Access to raw product suppliers	
Access to raw products is more difficult	18%
No effect	82%
N	11
If access changed to raw product suppliers	
How much did the average price of raw products change per product unit? (USD)	\$4.80
N	5
Ability to sell inputs to farmers/ agricultural businesses	
More difficult to sell	55%
No effect	45%
N	11
Price of inputs sold to farmers/ agricultural businesses	
Average sale price is lower	9%
No effect	45%
Average sale price is higher	45%
N	11

Note: N reflects the number of input providers who reported how COVID-19 impacted them. Multiple responses were allowed for the types of impacts and hence that column will not add to 100%

Section 5. Qualitative Findings

This section presents findings from our qualitative analysis, drawing upon the KIIs and FGDs conducted with dairy and beef value chain stakeholders and project participants, including beef and dairy farmers and business representatives. Where relevant and appropriate, we provide perspectives from Venture37 project staff, USDA, and government officials. These provide context to help with interpretation of the quantitative findings, and highlight areas that could benefit from further exploration and study. Through KIIs and FGDs, we assessed the relevance, effectiveness, efficiency, perceived impact, sustainability, and gender equality and equity of the SQIL project at midterm.

5.1 Relevance

Through interviews with project staff, USDA, and government officials, the research team assessed the relevance of the SQIL project at midterm. Interview topics focused on stakeholder satisfaction with project participation and the project's alignment with US and Georgian government priorities. We also asked stakeholders to describe their perceptions regarding barriers to expanding the dairy and beef industry in Georgia.

5.1.1 Stakeholder Satisfaction with Project

Stakeholders across the dairy and beef value chain reported being satisfied with the project's activities and support. They commented that the project's activities adequately addressed their needs and priorities. Specifically, farmers noted that the project addressed several of the biggest barriers affecting their businesses, including lack of accurate information and lack of financing/capital to upgrade their farms or purchase equipment to improve production. Through participating in trainings and obtaining informational materials in local languages, stakeholders noted that they increased both their awareness and understanding of agricultural practices and that, in many cases, farmers changed their practices as a result of the information that helped improve their products. Farmers also referenced satisfaction with the program's impartiality, which resulted in support being distributed in a fair and transparent manner.

5.1.2 Project Alignment with Government Priorities

Stakeholders from the GoG, USDA, and the project reported that the project was well aligned with the priorities of the GoG and USDA. Specifically, the project's focus on expanding market access, improving sanitary standards, increasing access to finance, and strengthening the regulatory and policy environment related to trade, food safety, and quality assurance all aligned with both the GoG's and USDA's priorities. While the project was well aligned with government priorities, however, stakeholders noted that the GoG was eager for support on efforts that presented some challenges the project could not address. Additionally, one project stakeholder noted that the broad scope and expansive geographic coverage was a challenge for implementation, as stakeholder capacity and need varied based on geographic location. Stakeholders also mentioned areas where the project could adjust to better align or target challenges within the dairy and beef value chain. Specifically, stakeholders suggested the project could increase its focus on activities related to improving SPS and activities focusing on veterinarian services. Stakeholders commented that livestock development was hindered by lack of veterinarians to treat, care for, and provide information on livestock health. The emphasis on veterinarian services was reiterated by both farmers and dairy and beef businesses.

5.1.3 Barriers to Growth in the Dairy and Beef Industry

As part of the baseline assessment conducted in 2019, we identified barriers to productivity and growth in the dairy and beef industry. At baseline, farmers cited lack of available pastureland for cattle grazing, lack of capital to increase herd or invest in farm upgrades, and lack of government support, both regulatory and capacity building support, as key barriers preventing growth. At midterm, many of the same barriers were cited. The lack of arable land for cattle grazing continued to be a barrier to both the expansion of farms as well as improvement in quality, as many farmers remained constrained by the need to grow or purchase feed for their cattle. Farmers also continued to struggle with capital to invest in their farms—specifically, finances needed to purchase equipment. Many farmers also felt that the COVID-19 pandemic, and associated increases in the cost of inputs and decreases in market opportunities due to the decrease in tourism, further constrained their ability to allocate capital towards farm upgrades.

Similarly, farmers continued to note challenges with government support. With regard to the regulatory environment, stakeholders noted challenges with pricing, labeling, and ensuring quality standards across different products. Several stakeholders noted that it was difficult for local producers to compete with imported products which tended to be cheaper. Veterinary care—which at baseline farmers noted was inflexible, costly, and sometimes of low quality—continued to be a significant challenge facing farmers. At midterm, stakeholders reiterated that there was a lack of qualified vets in the country as well as a lack of understanding among farmers about the role and services vets can provide. An official from the government noted that, when an animal is sick, farmers often don't take their animals to the vet, but prefer to go to the pharmacy for advice.

In addition to the barriers noted at baseline, the midterm data collection identified several other barriers that hindered growth. From a quality perspective, stakeholders noted that the structure of the Georgian agricultural industry, specifically the dominance of small farms, was a barrier to improving quality on a large scale, as it was difficult to regulate, inspect, and ensure quality among a large population of small farms. This challenge was demonstrated by reports of milk falsification, which several stakeholders mentioned as a unique issue facing the Georgian agricultural sector. Lastly, stakeholders noted that despite significant efforts, farmers' limited knowledge of agricultural products and improved agricultural practices continued to be a barrier to growth in the sector—including lack of knowledge about agricultural products such as insurance and technologies, as well as of practices such as how to comply with quality standards and use veterinary services, as noted above. Stakeholders commented that a lack of technical capacity and expertise at universities to educate students on improved farming and agricultural practices more generally was contributing to the knowledge gap.

5.2 Effectiveness

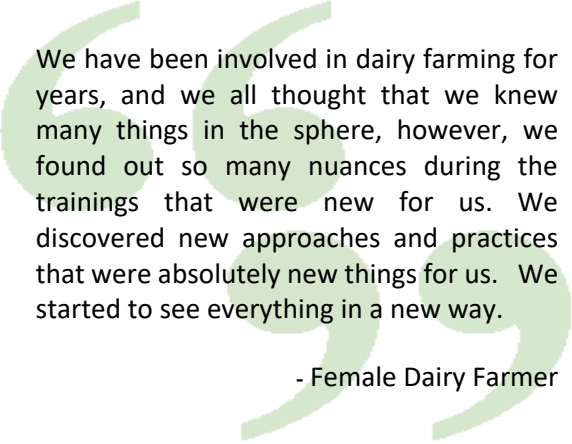
We assessed the effectiveness of project activities through interviews with stakeholders, focusing on whether the implementation of project activities, including training, market information, financial assistance (i.e., co-finance grants and the provision of equipment), and events (i.e., conferences, exhibitions, trade fairs, and meetings) were likely to lead to the project's intended outcomes. Additionally, we examined successes and challenges regarding project implementation.

5.2.1 Training

SQIL provided trainings to stakeholders that included beef and dairy farmers, as well as NFA employees. The project worked with local providers to design and implement trainings to ensure the information and content was tailored to the needs of dairy and beef value chain stakeholders and relevant to the Georgian context. To promote further dissemination and uptake, trainings were recorded and uploaded to social

media, which many respondents found helpful. Training topics for farmers included proper care of cattle, artificial insemination, vaccinations, and suitable feeding practices, which highlighted the need to include milled grains and green fodder in cattle diets. To complement information received during trainings, SQIL provided farmers with a feed ratio program, which allowed farmers to calculate the appropriate ratio of feed for their cattle. The trainings also covered milk storage, pasteurization, and processing using modern technology. Both farmers and the NFA received trainings on food safety standards and food quality management systems, with farmers receiving guidance on increased sanitation and hygiene measures needed due to COVID-19. Additionally, the project provided trainings on farm management and business practices, including labelling, branding, marketing, and financial management.

Participants evaluated trainings positively, stating that they were timely, well-organized, and provided useful information. Though participants preferred face-to-face trainings and hands-on experiences, the COVID-19 pandemic limited the number of in-person trainings SQIL could conduct. Participants noted that trainings on food safety, Hazard Analysis and Critical Control Points (HACCP), and how to use the feed ratio program were the most useful and relevant to their business. Many farmers also noted that they had changed their farming and business practices as a result of the trainings. This included changing housing conditions for cattle, improving ventilation systems in handling facilities to avoid bacterial growth and multiplication, starting cattle vaccinations, changing cattle feed from silo to green fodder, improving milk collection and storage practices, and changing cheese making methods. Farmers who changed their cheese making methods reported that the white cheese they produced post-training contributed to higher sales than the yellow cheese they had produced prior to the training.



We have been involved in dairy farming for years, and we all thought that we knew many things in the sphere, however, we found out so many nuances during the trainings that were new for us. We discovered new approaches and practices that were absolutely new things for us. We started to see everything in a new way.

- Female Dairy Farmer

5.2.2 Market Information

SQIL provided market information and educational resources to farmers through brochures, manuals, and email communication. Manuals were created with, and disseminated through, local businesses and government agencies—covering farm infrastructure, animal health, animal husbandry, artificial insemination, veterinary resources, food safety standards, milk quality, and slaughterhouse sanitation. Through email communications and trainings, farmers also received information about upcoming changes in market regulations that would affect their businesses. The printed brochures and manuals were accessible to farmers as they were free of charge, written in local Georgian languages with short versions of the manuals were also provided in Armenian and Azerbaijani, and phrased in an easy-to-comprehend manner. Farmer found the literature both interesting and useful. Participants from one of the beef value chain FGDs stated that they shared the manuals with their staff to keep everyone updated on pertinent regulations and modern farming methods. The information was uploaded to the Agronavi platform, operated by the GFA, and also available to the public through an electronic library managed by the [Rural Development Agency](#) (RDA). An agency representative stated that the agency was currently working on stands where printed brochures and guidelines could be placed for anyone interested in a copy.

5.2.3 Financial Assistance

In addition to trainings and market information, SQIL provided co-financed grants to beneficiaries, which were used to purchase equipment to assist in improving farming or business practices. The equipment

SQIL helped procure included hay trailers, corn sowing machines, feed mixers, feed dispensers, cattle mattresses, milking machines, milk pasteurization equipment, milk refrigerators, milk tanks, cheese presses, cheese smoking equipment, and vacuum packing machines, among others. Farmers able to access the grants noted they had a positive effect on their businesses. The equipment received from the project facilitated their work, increased the volume of products produced, and improved product quality. One dairy farmer stated that, because of the milk tank he received, his milk, and subsequently his cheese, were of higher quality. Other beneficiaries detailed how the equipment they received supported their businesses. One dairy farmer described his business as more competitive because he could store milk in his tank and deliver to larger companies; another said he was able to collect three tons of milk from different villages and transport it safely to the processing factory. Many farmers stressed that they would not have been able to purchase this equipment without SQIL's assistance. Timeliness of the equipment was raised as an issue for farmers, however—both waiting to hear back regarding their grant applications, and waiting to receive equipment after having fulfilled all grant obligations. Farmers also commented that they turned down grants after being approved due to issues such as timeliness of the equipment and inflexibility in working with farmers to choose the equipment that best fitted their needs. Many farmers did not even apply for the grants as they lacked the financial means to participate in SQIL's co-financing scheme, which required that farmers contribute at least 50% of the value of the grant.¹³

5.2.4 Events

SQIL facilitated farmer and business participation in conferences, exhibitions, trade fairs, and meetings. Though event participation was limited, those who participated described them as having a positive impact. Respondents particularly appreciated SQIL's support in participating in Expo Georgia 2019, where they showcased their products and met with suppliers, business representatives, and veterinarians. Events such as this were productive in providing marketing opportunities and linkages to other actors along the value chain.

I also participated in Expo 2019 and presented my products there. It was a great experience for me as I met new people and also got clients from this event.

- Dairy Farmer

5.2.5 Agronavti

The project worked with GFA to further develop Agronavti, as well as a platform to buy and sell products. Several farmers interviewed were unaware of Agronavti and its uses, however, and several who knew about the application commented that they did not use it as it did not serve their purposes. Farmers noted

This application was quite useful for me. I bought some equipment through this application. Also, when I cannot find a certain product in the vet pharmacy sometimes, the application has many suppliers of similar products, and I can contact these places to get the product

- Male farmer

a number of challenges with Agronavti, including outdated supplier contacts, lack of new or updated information, exorbitant seller prices, and lack of customers for their products. However, some farmers found the application helpful, commenting that they used it to find information on prices, suppliers, equipment, veterinary products, farm infrastructure, food safety, marketing, and relevant news. Farmers who found the platform useful also indicated that the manuals available were the most relevant resources to their businesses. A representative from the GoG stated that the application could be an opportunity for farms' business operations if more businesses adopted modern technology.

¹³ Republic of Georgia Food for Progress, Plan of Operation and Activities. Land O'Lakes. 2018.

5.3 Efficiency

Through interviews with project staff and government officials, we looked at the efficiency of project resources and timeliness of project activities. Additionally, we examined project management, monitoring, and collaboration with stakeholders.

5.3.1 Project Management and Monitoring

Timeliness of Activities: In general, stakeholders commented that project activities—including trainings, grants, distribution of educational materials, and events—were implemented in a timely manner. However, several farmers noted that the trainings were too long, which affected their ability to complete the course. These farmers said it was difficult to dedicate full days or multiple days to trainings while still operating their businesses, and recommended that the project deliver abbreviated training sessions. Similarly, although many farmers noted that they were satisfied with the timeliness of delivery of the equipment procured under co-financing grants, several commented that they felt the procurement process was drawn out, as noted above, and indicated that they either did not apply or chose to forgo participation in the grant component after being awarded a grant, based on the procurement timeline.

Use of Project Resources: A GoG stakeholder noted that resources allocated for each project activity were sufficient to allow for effective implementation. However, they also noted that, at the beginning of the project, a lot of time and resources was spent on preparation and planning activities, including conducting surveys, research studies, and assessments, which could have been condensed to allow for quicker startup of project activities. Although a government stakeholder felt that these activities could have been condensed, other stakeholders commented that they felt these activities were essential to ensuring the project was appropriately aligned with the needs, challenges, and realities of the Georgian context.

Project monitoring and evaluation: A GoG stakeholder noted the project actively used information and feedback from implementation to adjust and adapt programming to address stakeholders' needs more effectively. Specifically, this government stakeholder noted that initially the co-investment grants had a ceiling of USD 25,000; however, based on feedback from participants during the initial calls for proposal, SQIL increased the grant ceiling to USD 75,000. The government stakeholder also noted that the project was able to provide independent evidence and data to stakeholders that helped inform policy and regulatory initiatives. Specifically, the project conducted a study that helped the government and the private sector resolve a contentious VAT exemption issue. A project staff member noted that the project monitored several key outcome indicators through semi-annual surveys, and based on data from those indicators, the project assessed progress and identified if adjustments needed to be made. In the first year of implementation the project identified that they were lagging on a few activities and developed corrective actions to address those lags. Although the project understood the value and utility of qualitative monitoring data, project staff noted that to date they have not produced many learning documents, such as case studies and success stories, using qualitative data and rather have focused more on using quantitative data to inform and adjust programming. However, the project staff noted that now the project has a plan for prioritizing and to expand its qualitative data analysis, indicating that the qualitative data will help provide context and meaning to quantitative progress.

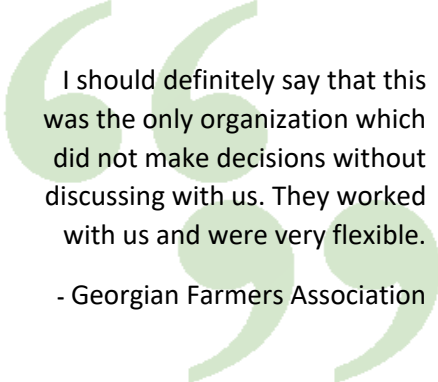
5.3.2 Collaboration with Project Stakeholders

In addition to working with farmers, SQIL collaborated with other beef and dairy value chain actors—including government agencies, farmers associations, research institutions, educational institutions, veterinary service providers, and other training and equipment providers. As mentioned previously, the project worked with all these stakeholders to produce informational manuals, brochures, videos, and

trainings to support farmer education and raise awareness on modern farming practices. In particular, it worked with the GFA on the feed ratio program and Agronavti, as discussed in more detail in **Section 5.2.6**. Furthermore, SQIL worked with the Ministry of Environmental Protection and Agriculture on regulations and guidelines, and trained NFA employees on food safety standards, cattle nutrition, and veterinary medicine specific to slaughterhouses.

The project also conducted business development trainings with associations. Additionally, input providers noted that their participation in SQIL provided advertising opportunities for their businesses, and that their customers increased. The project engaged with educational institutions through student internships and student participation in events. SQIL also worked with research institutions to conduct monitoring activities, perform value chain analyses in the beef and dairy sectors, and develop strategic documents for other stakeholders in these sectors. Several actors noted that the working process with SQIL was dynamic and collaborative, and they were satisfied with the relationship.

Stakeholders noted that, across its work, the project took a very collaborative approach to working with partners, both to identify key areas for implementation and to design project resources. An association representative noted that they worked closely with the project to design relevant education materials, which resulted in more tailored and relevant resources for stakeholders. Similarly, a representative from the business community noted that the project used research and learning generated by partners, including the needs assessment and the sectoral analysis, to plan and modify interventions based on identified needs that included designing a manual based on the findings of the assessment. Collaboration was sustained through open communication between the project and stakeholders, including farmers and businesses. Open communication was particularly important given the challenges, including delays in program activities, due to restrictions posed by the COVID-19 pandemic. Despite these challenges, stakeholders noted that the project was able to adapt and adjust programming to provide continued support to stakeholders.



I should definitely say that this was the only organization which did not make decisions without discussing with us. They worked with us and were very flexible.

- Georgian Farmers Association

5.4 Perceived Impacts

We are not able to assess definitive causal conclusions about program impact. However, stakeholder perceptions of change brought about by SQIL indicated areas where the project potentially had a beneficial effect, while pointing out other areas that might require more attention in the second half of implementation. This section focuses primarily on perceived impacts on farmer knowledge and uptake of improved practices, improvement in product quality, access to financial services, association membership, and potential spillover effects to non-participant farmers. This section also covers effects due to external factors.

5.4.1 Knowledge and Improved Practices

Farmers, both dairy and beef, noted that, since participating in the activity, they had made changes in their hygiene and sanitation practices, including complying with the COVID-19 restrictions. As one female beef farmer commented, “the training made me more attentive. I try to follow the regulations and do everything according to the regulations on my farm.” Another female farmer noted that “we are using the knowledge received during the training in our everyday work on the farm. This especially concerns hygiene norms on the farm.”

Farmers also noted that they improved their cattle infrastructure—including cattle housing conditions, handling facilities, and ventilation systems in cattle handling areas—as a result of the knowledge they gained through the project. Farmers also mentioned improving milk collection and storage practices, which resulted in increases in yield. One female dairy farmer commented, “I used the updated milking practices the day after the training, and I collected more milk than before.” Another female dairy farmer reflected on how she changed her cheese production process using technology and new approaches introduced by the project. She commented that changing the production practices had quickly increased her sales. Many farmers, both dairy and beef, commented that, since receiving the food ration program from SQIL, they had changed their feeding practices, which resulted in better weight gain for their cattle. A male beef farmer noted that, “when I regulated the feeding with the program, I really got better results in terms of weight.”

Beyond changing production and hygiene practices, several farmers mentioned changes in services and business management. One dairy farmer mentioned that, after participating in the SQIL training, they added a delivery service to their business. Another farmer mentioned that he changed his accounting so he could more accurately track expenditures and calculate feed and medicine cost per animal, and that this allowed him to develop annual feeding and care costs more accurately.

5.4.2 Quality

One of the project’s key initiatives for improving quality is development of the GeoGap certification. Developed in conjunction with the GFA, the GeoGap is a local certification farmers can receive if they meet quality product standards. While the GeoGap certification is not fully compliant with the GlobalGap internationally recognized quality standards, the GeoGap certification aligns closely with the GlobalGap requirements, and moves Georgian farmers closer to export-level quality standards. The project experienced some delays with this initiative, and at the time of midterm data collection, SQIL was still working with the GFA to develop and roll out the GeoGap certification—making it impossible to assess the impact of the certification process on farmers’ production or sales. However, given the importance of the initiative, we asked stakeholders to reflect on if, and how, the certification process could improve the production and purchase of food quality in the future, and whether there were any barriers to implementing the certification process.

In general, stakeholders commented that introduction of a certification process was an important step in improving the production of safe, high-quality dairy and beef products. An association representative explained that improvements in product quality meant that farmers would be able to charge higher prices for their products, which in turn would result in greater investment and improvements in dairy and beef businesses. One stakeholder commented that the potential for greater profitability was an incentive for farmers to seek out certification processes. A government representative noted that increasing demands from consumers for quality products created a window of opportunity for this type of certification. Given the potential for increased profit and consumer demand, another representative from the government explained that the certification process could promote healthy competition with the agricultural sector for farmers to improve their products.

Although stakeholders across the board largely saw the benefit of a quality certification process like GeoGap, they noted several barriers that could hinder its success. While the potential for increased profits might be an incentive for some farmers, an association representative noted that certification processes require a lot of resources both financial and technical, which could be a barrier, particularly for small farmers. Given this, stakeholders mentioned that it might be difficult to persuade farmers to participate in the certification process. Similarly, while some consumers might demand better quality products, another association representative commented that other consumers lack the knowledge and

understanding of quality certifications. Lastly, a representative from a separate association noted that not all farmers were registered, which could make it difficult for the GoG to efficiently regulate and track the certification process.

Increased information about the certification process, including a value proposition around the certification, could help increase farmer participation and buy-in. One agency stakeholder also commented that they had pilot farms where they supported farmers to comply with the GeoGap standards—hoping the pilot farms would help convince other farmers to adopt new methods and tools necessary for certification. Increased public awareness and information about the importance of certification processes and simple labeling on products could help encourage consumers to incorporate certifications into their purchasing decisions. The project should consider the potential barriers to the GeoGap certification, as well as the proposed mitigation measures—such as a value proposition, pilot farms, and public awareness on the certification, in addition to others—as it scales up the initiative.

5.4.3 Access to Finance

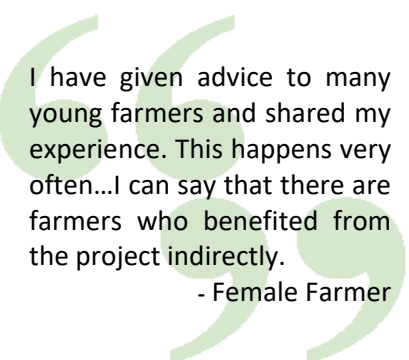
As noted above, many farmers applied for the project’s co-financed grants with varying success. In addition to the co-financed grants, farmers were often able to access finance through non-project related means. Many respondents successfully secured grants, agricultural loans, and equipment from non-governmental organizations, government programs, microfinance institutions, or banks. Despite other avenues of financial assistance, many farmers noted these were not sufficient. Dairy farmers faced additional barriers, as the Bank of Georgia only offered loans to beef farmers. Additionally, there was no standardized vetting system for farmers, so the process relied on informal knowledge rather than set standards. When it came to insurance, farmers had varying opinions and approaches: some were not aware that insurance products were available; some stated the options for agricultural insurance in Georgia were insufficient; and others had insurance covering their buildings, vehicles, equipment, and employees. An insurance company representative noted that the company was working to expand their insurance offerings to better suit farmers, associations, and other actors in the beef and dairy value chains; but currently there appears to be a gap between the services offered and those needed by farmers.

5.4.4 Association Membership

Farmer’s memberships in associations varied. Prior to participating in SQL, many farmers were already members of associations such as the Georgian Dairy Association and the GFA. Associations had different membership structures: some collect membership fees while others mandate a farm size or certain product quality to attain membership. Members received various trainings, market information, events information, and news of grant or funding opportunities through the association. Several farmers—both association members and nonmembers—commented that they did not find membership in associations to be useful. They stated that associations needed to take a more holistic approach to supporting farmers, focusing on more than just trainings. However, other members found association memberships to be beneficial. One farmer was able to purchase feed for his cattle with the association’s help. He also found the information and trainings provided by the association useful. Additionally, associations brought in international experts to develop nutrition plans for members’ cattle and foreign veterinarians to train local specialists. Associations also supported members with marketing, sales, and participation in exhibitions. Through repeated participation in exhibitions, a female dairy farmer noted that her products had higher customer recognition, leading to improved sales. Finally, some farmers utilized their memberships by working with associations to advocate for farmer grievances to the government.

5.4.5 Spillover Effects

To assess whether the project was impacting the practices and methods used by farmers who might not directly be engaged in project activities, we asked project participants and stakeholders if they had seen any examples of spillover effects. Although farmers could not cite specific examples of spillover effects, many project participants noted that they shared the information and knowledge they gained through their participation in the project with their neighbors, friends, co-workers, and other business owners. One beef value chain stakeholder stated that they shared the manuals and education materials they received at trainings with their staff, to keep everyone updated on pertinent regulations and modern farming methods. Similarly, a female dairy farmer noted that she shared information on new methods for cheese making and milk storage with her neighbors, for both of which her neighbors were very grateful. In addition to sharing knowledge, participants noted that they often shared information on upcoming project activities, including grant applications, in case non-participants would like to get engaged with the SQIL project. One farmer noted that he encouraged his friend, a non-participant at the time, to apply for a co-financed grant. This individual was subsequently awarded a grant for a milking machine, which he used to improve his business. More generally, an input supplier stakeholder noted that farmers participating in the project became good examples for other farmers, encouraging them to think differently and improve their practices accordingly.



I have given advice to many young farmers and shared my experience. This happens very often...I can say that there are farmers who benefited from the project indirectly.

- Female Farmer

To further explore potential spillover effects, we asked FGD respondents to identify farmers who did not participate in the project but might have benefited indirectly. Only one farmer (from Samtskhe Javakheti) was able to provide us with a list of farmers who might have indirectly benefited from the project. We selected two individuals from this list, and interviewed them as part of a non-participant case study. One of these non-participating dairy farmers noted that he received information and tips about improved practices from his neighbor, including on feed mixing. The farmer said that, based on the advice from his neighbor, he introduced feed equipment, which resulted in improved feed production and subsequent increased milk yield, fat content, and overall milk quality. The same farmer also noted that he received markets information, including information about funding opportunities and upcoming events, from Facebook and the local Department of Agriculture. Although the farmer did not indicate that the advice he received from his neighbor or the market information he received were specifically from SQIL, given that the project includes feed ratio information in trainings and uses Facebook and the local Department of Agriculture as dissemination channels, it is plausible that the information was part of the project.

Although the non-participant case study does not provide concrete evidence of spillover effects, it confirms that farmers share and seek out information from informal social networks as well as through public dissemination channels. This reinforces the conclusion that the project's approach of creating information materials in local languages and distributing them through project participants and local dissemination channels has the potential to indirectly benefit a broad group of actors.

5.4.6 External Factors

The COVID-19 pandemic impacted project stakeholders in numerous ways, including production cost and product sales. Cost of inputs such as utilities (e.g., gas and electricity), cattle feed, and safety products (e.g., disinfectants and face masks) increased significantly, while final product prices remained the same or decreased, depending on whether farmers tried to stay competitive. Sales remained steady for large farms or farms with contracts with large companies, but others saw a severe decrease in sales. Decreases

in sales were caused by pandemic restrictions on movement and transportation, closure of markets, and declining tourism, which caused the food and hospitality industry—a sector that otherwise consistently purchased products—to shut down.¹⁴ Local dairy products were also competing with a cheap substitute in milk powder imports, which (along with an unstable Georgian Lari) enabled consumers to buy cheaper goods. The pandemic compounded these effects, and farmers were left with unsustainable profits.

As mentioned earlier, the pandemic also forced in-person trainings to be rescheduled to online trainings or uploaded onto social media through pre-recorded trainings and information. While online trainings lacked interaction and many found them to be less effective, it was also convenient for others to receive training without the need to travel from their homes. The project also pivoted to developing online marketing strategies for farmers, as well as high-quality manuals and informational materials.

In addition, COVID-19 affected work on local legislation and regulations. Approximation to European Union legislation slowed during the pandemic, as well as progress on quality seals and certifications. Finally, the project's education partner was unable to support the activity to improve SPS by bringing in expertise on food safety curriculum, as the educational institution could not travel or hire local liaisons due to COVID-19 restrictions.

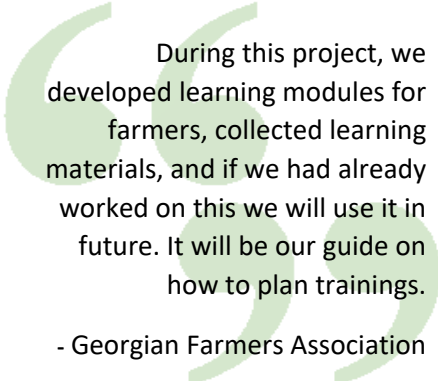
5.5 Sustainability

To assess the sustainability of project interventions, the research team asked stakeholders which project activities and benefits were likely to continue after the project ended, any potential challenges that might prevent sustainability of activities, as well as what could be done in the second half of the project to promote sustainability. We also asked the project's leadership about the project's exit strategy to ensure sustainability.

5.5.1 Opportunities for Sustainability

Across the board, stakeholders were optimistic that the knowledge farmers gained through trainings and the educational materials produced by the project would contribute to sustainable changes and improved practices in the dairy and beef sectors. Stakeholders commented that now that farmers understood the benefits of improved agricultural and hygiene practices, they were motivated to continue following them. Additionally, the equipment procured and infrastructure improvements made using financing from the co-investment grants would continue to bring benefits to stakeholders even after the project ended.

One of the project's key sustainability strategies is implementation of the market-led approach, in which business development firms provide training and technical assistance to the farmers (as opposed to the project directly providing those services). Through technical assistance, SQIL builds the capacity of local Georgian organizations to provide training and services to farmers and other actors in the value chain, with the goal of ensuring that knowledge transfer continues after the project ends. SQIL collaborated with the local Georgian organizations to ensure that training and services provided align with farmers' capacity building needs and priorities, such as animal health, food safety, feed production, regulation requirements, best practices,



During this project, we developed learning modules for farmers, collected learning materials, and if we had already worked on this we will use it in future. It will be our guide on how to plan trainings.

- Georgian Farmers Association

¹⁴ In 2019, 9.3 million international travelers visited Georgia. In 2020, due to the COVID-19 pandemic and subsequent travel restrictions, the number of international travelers visiting Georgia dropped to 1.7 million. Source: <https://www.tourism-review.com/georgian-tourism-sector-suffered-substantial-losses-news11972>

farm management, among others. An association representative shared that this type of approach was helpful as the project worked collaboratively with the association to develop guides and training curricula that were not only useful for the association currently but would help them develop future training for farmers. An association representative similarly noted that the project helped them develop more comprehensive education programs, as well as engage and motivate more farmers to participate in the association. In this way the project not only helped the association develop content but also helped improved their communication with stakeholders, broadening their network to further promote sustainability. Similarly, a representative from another association noted that the project helped them develop a database of active farmers with whom they could engage to identify needs and plan future activities. These capacity building efforts with value chain stakeholders have the potential to promote sustainability of project activities well after its end.

In addition to the market-led approach, the project also promotes sustainability through the continued development and use of the Agronavti platform. SQIL worked with both local Georgian organizations to upload education materials to the platform and promoted use of the platform to farmers and other value chain stakeholders. By working with the GFA to refine and further develop the Agronavti platform as source of information, SQIL is contributing to the development of an information exchange mechanism that will continue to serve as a resource after the project ends.

Lastly, the project promoted sustainability through co-finance mechanisms, both through co-financing of grants as well as co-financing for events. Specifically, as part of the Cattle Exposition, the project required participants to contribute to funding for the event. By promoting co-financing of the event, the project is helping to lay the groundwork for activities to continue without donor support.

5.5.2 Challenges to Sustainability

Although there were promising signs of sustainability, stakeholders noted several challenges that might affect long-term sustainability of project activities and initiatives. As noted in **Section 5.4.2 Quality**, lack of consumer awareness of the meaning and importance of quality standards could affect the sustainability of quality improvement initiatives. Farmers might not be willing to allocate the time and resources necessary to maintain quality standard if they don't feel consumers are interested or willing to purchase their products. This is compounded by the fact that local products are competing with imported goods that are often cheaper. Consumer spending habits and willingness to prioritize local, quality products over cheaper products could impact sustainability.

Additionally, as noted by stakeholders, improving access to financing is a long-term issue that can be challenging to fully address within the life of a project. SQIL helps mitigate this challenge by providing co-financing grants to framers to ease the financial burdens; however, given the continued challenges that farmers face with accessing financing, including lack of relevant financial products and lack of dairy farmer access to loans, lack of access to financing could hinder sustainability of project initiatives once the co-financing grants end. Compounding the issues of financial access, a stakeholder from the business community noted that many of the farms and businesses that received grants lacked business management skills. Without such skills, farms and businesses might not be able to fully realize the benefits generated from the co-investment grant, which could impact the overall sustainability of the initiative.

At a higher level, political factors might take focus away from rural economic development initiatives. As noted in **Section 5.1.3 Barriers to Growth in the Dairy and Beef Industry**, lack of government support, both from a regulatory and capacity building perspective, continued to hinder the agricultural sector. Regulatory and legislative reforms are needed to promote competitiveness of local producers, as well as monitor and regulate quality. Shift in political priorities could affect initiatives focused on improving quality. Similarly, lack of arable land for agriculture continued to be a barrier to growth—which could

affect sustainability of initiatives, if focus shifts to agricultural development of products that require less land (i.e., horticulture and viticulture).

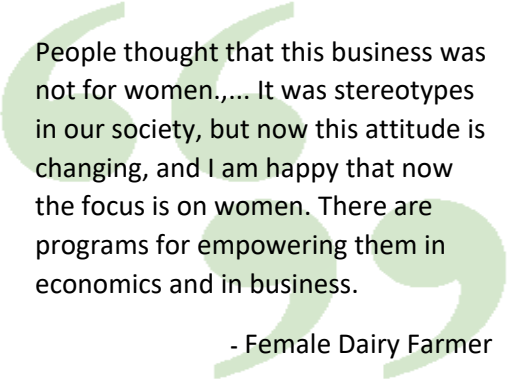
At the time of midterm, the project did not yet have an exit strategy developed; however, each activity has a concept noted that includes a sustainability component. Given the delays encountered due to COVID-19, the project anticipated formulating a more comprehensive sustainability plan in the next two years.

5.6 Gender Equality and Equity

Through interviews with project stakeholders, we examined constraints faced by women in the dairy and beef sectors, and actions the project took to encourage women's participation. Respondents had differing views as to the barriers faced by women in the dairy and beef sectors. While many respondents, both male and female, believed women farmers and other women stakeholders did not face challenges due to their gender, several respondents indicated women did face some challenges related to labor-intensive work, operation of machinery, and driving a tractor. Some farmers also noted that an additional limiting factor women faced was time available to juggle family obligations. Because men did not typically participate in housework, women were expected to complete household chores, limiting the time available to complete both farm and household work. Furthermore, an association representative stated that, despite women's contribution to farm and household duties, business operations and related finances were often run by men. These are consistent with our baseline gender analysis findings that the work women performed and their level of participation in the dairy and beef value chains were guided by cultural norms, and that women's work was underestimated. SQIL took recommendations from the gender analysis and invited both men and women from a household to participate in trainings, provided financial trainings, reached women through technical assistance, and provided linkages for women to other actors in the value chain through participation in events.

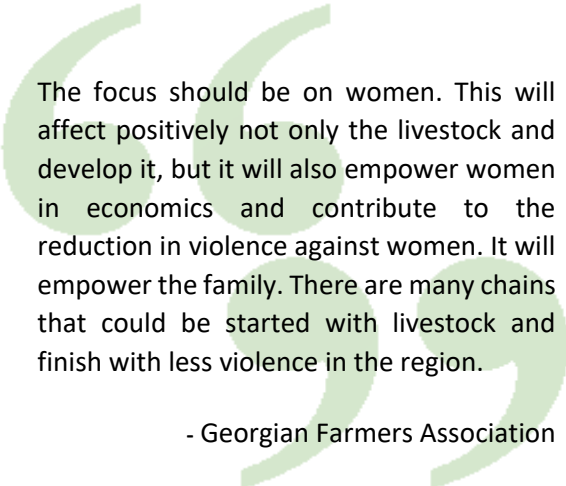
Yet another challenge for women was in accessing financial assistance, as banks typically favored men to receive loans as they often owned assets. However, both farmers and a representative from the Ministry of Environmental Protection and Agriculture noted that there were co-financing programs in which women were prioritized.

Women's participation in associations varied, with some commenting that two-thirds of their members were female, and others noting that women took on leadership roles within their association. Though some women were executives of large companies and owned large farms and milk processing factories, an association representative noted that female representation in these sectors was smaller than men's. A Ministry of Environmental Protection and Agriculture representative stated that the government was monitoring projects and sought to ensure women's participation in them.



People thought that this business was not for women,... It was stereotypes in our society, but now this attitude is changing, and I am happy that now the focus is on women. There are programs for empowering them in economics and in business.

- Female Dairy Farmer



The focus should be on women. This will affect positively not only the livestock and develop it, but it will also empower women in economics and contribute to the reduction in violence against women. It will empower the family. There are many chains that could be started with livestock and finish with less violence in the region.

- Georgian Farmers Association

Section 6. Conclusions and Recommendations

In this report, we document the state at midterm of key dairy and beef value chain actors who were SQIL project beneficiaries; establish project midterm values; and provide recommendations for mid-course corrections. At midterm, we collected extensive qualitative and quantitative data from a broad population of dairy and beef value-chain actors. Our mixed-methods approach frames the midterm evaluation through the lens of SQIL's dairy and beef market systems, considering how SQIL's interventions contribute to development of a sustainable private sector-driven dairy and beef market system. Our inquiries at different levels of the value chain paint a broad picture of SQIL's relevance, impact, effectiveness, efficiency, sustainability, and gender equity. The team collected quantitative data through extensive surveys with dairy and beef farmers and businesses. We complemented these quantitative data with qualitative data collected from dairy and beef farmers and businesses in FGDs. In addition, we conducted KIIs with additional stakeholders—including government agencies and their staffs, financial service providers, sectoral associations, input suppliers, research and educational institutions, and project staff.

Section 6.1 synthesizes the major analytical results from the baseline data collection from dairy and beef farmers and key businesses in the dairy and beef value chains. **Section 6.2** presents findings on how the midterm evaluation informed the project's evaluation questions related to the project's relevance, impacts, effectiveness, efficiency, sustainability, and gender equity. **Section 6.3** presents the limitations of the evaluation. **Section 6.4** provides overall recommendations based on the midterm results for the Georgia SQIL project interventions.

6.1 Key Analytical Findings

Below we summarize key outcome indicators from both qualitative and quantitative data in the midterm performance evaluation. When we note increases or decreases, these are compared to baseline unless otherwise stated. We note statistically significant findings. We also include outcomes that are noteworthy even though not statistically significant because of small sample sizes.

Dairy and Beef Farmers

- On average, farmers engaged in both dairy and beef (dairy/beef farmers) produced 5.5 liters of milk per cow per day. Dairy/beef farmers reported an average increase of 1.7 liters (significant at the 1% level) during peak lactation period. There was no significant difference in milk production by herd size or (summer and winter) season.
- The total daily value of milk sales increased by an average of \$2.50 per cow (significant at the 1% level) for dairy/beef farmers. Increases are significant at the 1% level for herd sizes of 10 or less and herd sizes between 10 and 20 (\$2.70 and \$3.10 per cow, respectively). Daily milk sales also increased during the winter season by \$3.60 (significant at the 1% level).
- Farmers engaging in beef fattening produced 113 kilograms of beef on average annually. There was no significant difference in annual beef production by herd size or season.
- Dairy/beef farmers sold an average of 14 kilograms less per cow (significant at the 10% level) at a decreased value per cow of \$1.00 per kilogram (significant at the 1% level). Farmers with herd sizes of 10 or fewer sold an average of 37 kilograms less per cow (significant at the 10% level) and herd sizes 10–20 sold 35 kilograms less per cow (significant at the 5% level). Farmers with herd sizes greater than 20 reported a decrease in sales price (\$0.80 per cow, significant at the 5% level). Farmers reported selling an average of 45 kilograms less per cow during the winter season (significant at the 1% level).

- There was an increase in the share (by 31 percentage points, significant at the 1% level) of dairy/beef farmers who had written or verbal agreements with buyers. Of those, eight percent had formal written agreements, compared to zero percent at baseline, and averaged 1.8 more annual informal written contracts or agreements (both significant at the 5% level).
- For those employed by dairy/beef farmers, both male and female permanent hires saw a decline in average total labor days (136 days and 179 days, respectively), and part-time seasonal males saw an average decline of 75 total labor days (all significant at the 1% level).
- Fewer dairy/beef farmers applied for a loan (by 13 percentage points, significant at the 10% level), but the amount borrowed increased by an average of \$15,712 (significant at the 1% level). Of the farmers that applied for a loan, more reported using the loan to build/maintain infrastructure for cattle (by 22 percentage points, significant at the 5% level), more used the loan to purchase cattle (by 33 percentage points, significant at the 1% level). But fewer used the loan to pay off other debts (by 9 percentage points, significant at the 10% level), and fewer reported uses classified as “other” (by 30 percentage points, significant at the 1% level). The percent of farmers that started using new financial products in the past 12 months increased (from 1% to 4%, significant at the 1% level).
- 34% of dairy/beef farmers received training on farm business operation practices. Of those, the most common trainings received included feed flow planning (44%) and breeding and reproductive management plan (37%). The least common training was book-keeping and farm costing (15%). Non-profit organizations provided the major share (46%) of trainings to beef/dairy farmers. It should be noted that SQIL subcontracted other NGOs to implement some trainings, so some of the farmers’ responses of “NGOs” might actually be capturing the efforts of the SQIL project.
- 24% of dairy/beef farmers received training on improved cattle husbandry practices, with more than half receiving training on feed and nutrient supplementations (62%), safety and hygiene practices for housing (58%), and safety and hygiene practices while milking (54%). Animal tagging (18%) was the least training received. More than half of all trainings were provided by non-profit organizations.
- Less than half of dairy/beef farmers had heard of Agronavti (40%) or AgroFace (25%). Of those who had heard, 22% used Agronavti and 12% used AgroFace.
- Only 19% of dairy/beef farmers held a certification. Of those, more than half held the National Food Agency certification/registration.
- 55% of dairy/beef farmers reported impacts from COVID-19, with more than half reporting transportation of products being impacted. 80% reported that it was more difficult to access inputs, 86% that the price of inputs increased, and 94% that animal feed prices increased.

Milk Value Chain

- The average cost of a liter of milk did not differ significantly for MCCs and milk processors. However, during the summer the average cost increased for milk processors from \$0.27 to \$0.34 (significant at the 5% level).
- The largest amount of product that milk retailers procured was imeruli cheese, at 1,479 kilograms per month. There was a seasonal difference, with procurements averaging 863 kilograms more milk products during the winter than the summer months.

- On average, 58% of businesses had sales agreements with suppliers, with milk retailers reporting a 40 percentage point increase (significant at the 10% level). Of those who had agreements, the average number of verbal sales agreements was 50.
- On average, the most common safety practice used by milk farmers was keeping milk storage areas clean and hygienic (98%). Only 33% of (the three) MCCs reported that employees washed hands before handling milk (a 56 percentage point decline) and 67% of employees wore clean outer garments before handling milk (a 33 percentage point decline) (both significant at the 10% level).
- The most common milk/milk product quality check among businesses was checking the acidity of milk (97%), with milk processors reporting a 15 percentage point increase in acidity of milk checks (significant at the 5% level). Fat content dropped by 50 percentage points for MCCs (significant at the 5% level), and quality checks characterized as “other” dropped from 17% to 3% (significant at the 1% level).
- On average, temperature instruments used on milk/milk products dropped (from 78% to 42%, (significant at the 1% level). Use of temperature and milk density instruments for MCCs dropped (by 67 percentage points, significant at the 5% level).
- On average, dairy businesses had 2,872 cubic meters of cold storage capacity installed (compared to just 22 cubic meters at baseline), including 104 cubic meters added in the past year. Overall, 8% of dairy businesses bought/rented cold storage capacity, a 17 percentage point decline from baseline (significant at the 5% level). Milk processors largely drove the downward trend with just 6% reporting that they bought/rented cold storage in the past year compared to 31% at baseline, a difference significant at the 1 percent level.
- On average, milk processors sold 64 metric tons less of processed liquid milk per month (significant at the 1% level); MCCs sold 55 metric tons less per month at an increased price of \$0.16 (both significant at the 5% level). MCCs sold 99 metric tons less during the summer at an increased price of \$0.19 (both significant at the 5% level), and 290 liters less during the winter (significant at the 10% level).
- On average, 45% of dairy business received business operation trainings, a 24 percentage point decline. Of those, the most common training received was milk testing training (80%), a 34 percentage point increase (significant at the 1% level). Non-governmental agencies administered the majority of training to milk processors, whereas Land O’Lakes Venture37 SQIL project administered all the training to MCCs.
- MCCs increased male permanent employees by 26 percentage points, but did not hire any seasonal employees at midline, regardless of gender. In general, milk processors decreased the number of permanent employees and increased the amount of seasonal employees, for both males and females.
- Fewer farmers applied for loans (by 20 percentage points, significant at the 1% level) and borrowed an average of \$59,164. Fewer milk processors used loans for buying equipment (by 40 percentage points, significant at the 5% level).
- All MCCs, 68% of milk processors, and 75% of milk retailers reported COVID-19 impacted their business. Two-thirds (67%) of milk retailers reported communication or visits from milk/milk product buyers were most impacted; 46% of milk processors and all MCCs reported transportation of products was most impacted.

Beef Value Chain

- On average, slaughterhouses procured 274 kilograms less beef per month at \$2.24 per kilogram; beef retailers procured 140 kilograms less beef at an increased price of \$1.10; and beef processors procured 4,578 kilograms more beef per month at an increased price of \$1.14 per kilogram.
- 95% of slaughterhouses and all beef processors used safety and quality practices for procured cattle. More slaughterhouses used visual evidence of disease (by 32 percentage points), more beef processors required documentation about pathogen control and chemical residues from slaughterhouses and/or cattle farmers (by 38 percentage points), and more beef retailers had a food safety manager on staff (by 26 percentage points). Food and safety certifications declined for slaughterhouses (by 17 percentage points); but more beef processors (by 20 percentage points) and more beef retailers (by 38 percentage points) held some sort of certification.
- 78% of slaughterhouses had cold rooms/freezers for storing beef (a 40 percentage point increase); 67% of beef processors had cold rooms/freezers for storing beef (a 52 percentage point increase).
- Slaughterhouses installed about 41 cubic meters more chilling storage capacity; beef processors installed 776 cubic meters more chilling storage capacity; and beef retailers installed 16.56 cubic meters more chilling storage capacity.
- 50% of slaughterhouses, 87% of beef processors, and 64% of beef retailers received trainings. Government agencies administered the majority of the trainings for all business. Almost two-thirds (60%) of beef processors had knowledge of Agronavti, more than slaughterhouses (48%) and beef retailers (29%). Of those with knowledge, one-third or fewer slaughterhouses (25%), beef processors (33%), or beef retailers (14%) used it.
- 23% of slaughterhouses, 33% of beef processors, and 25% of beef retailers had knowledge of AgroFace. Of those with knowledge, only 11% of slaughterhouses, 20% of beef processors, and 14% of beef retailers used it.
- On average there was a 68 percentage point increase in sales agreements with beef industry suppliers, and a 36 percentage point increase in sales agreements with buyers.
- Slaughterhouses increased permanent male employees by 9 percentage points and decreased seasonal male employees by 8 percentage points. Slaughterhouses did not hire any female employees. Beef processors increased seasonal female employees by 9 percentage points.
- 11% fewer beef farmers applied for loans, but the amount borrowed increased by \$37,842.
- Almost all (96%) of farmers kept records, with more than three-fourths reporting records on animal reception and financial and administration record keeping.
- 68% of beef business were impacted by COVID-19. Of those, the majority reported communication with or visits from beef product buyers was impacted.

Input Suppliers

- The percent of input providers that sold animal feed or fertilizers, pesticides, and veterinary drugs declined (by 67 and 78 percentage points, respectively, both significant at the 1% level). Most input providers (83%) sold veterinary and other services.
- Input providers sold an average of 765,000 kilograms of animal feed per month during the summer season, 775,000 kilograms animal feed per month during the winter season, and 1,925 kilograms fertilizers, pesticides, veterinary drugs per month during the winter. Total monthly

revenue increased by an average of \$68,446. Monthly revenue for animal feed increased by \$363,140 on average, and the summer season saw an average increase of \$127,666.

- Buying inputs for resale declined (from 100% to 36%, significant at the 1% level), whereas renting inputs increased (from 3% to 43%, significant at the 1% level). About 71 of input providers reported importing inputs.
- Input providers installed a total of 139 cubic meters of dry storage capacity and purchased or rented 79 cubic meters of dry storage capacity. There was no change between baseline and midline on chilled storage capacity.
- Input providers had 18 formal written or verbal agreements with suppliers, and 24 with buyers.
- More input providers provided value-added services (by 44 percentage points, significant at the 1% level). More also provided feed/fodder support (by 37 percentage points) and more provided artificial insemination services (by 33 percentage points) (both significant at the 10% level).
- 60% of input providers had heard of Agronavti and 47% of AgroFace. Of those, 22% used Agronavti and 57% used AgroFace.
- 33% of input providers held an International Business Standard (ISO) 9001 food and safety certification; only 11% held an ISO 22000 certification. Two-thirds (67%) of input providers had an alternative food and safety certification that was unlisted in the survey.
- Input providers hired more seasonal male employees (by 8 percentage points, significant at the 1% level). Female employment did not change significantly.
- 73% of input providers reported that COVID-19 impacted their business. Of those, communication with or visits from input buyers was the most frequently (36%) cited as being impacted, aside from variables classified as “other.” About 82% reported no effect on access to raw product suppliers, 55% reported more difficulty in the ability to sell inputs to farmers or agricultural businesses, and 45% reported either no effect or a higher average price of inputs to farmers/agricultural businesses.

6.2 Key Findings with Respect to Evaluation Criteria

The midline qualitative approach focused on understanding the six OECD-DAC evaluation criteria: (1) stakeholder satisfaction and project alignment with development goals, objectives, and strategies of USDA, US government, and the GoG; (2) project management, monitoring, and collaboration with stakeholders, as well as project implementation successes, challenges, and recommendations to better understand the effectiveness of SQIL at midline; (3) steps taken to promote efficiency of project operations; (4) perceived impacts at midline; (5) planning for sustainability after SQIL; and (6) extent to which project achieved gender equality and equity.

6.2.1 Relevance

To capture the relevance of SQIL in addressing the needs and priorities of stakeholders in the dairy and beef sector, we consider: (1) stakeholder satisfaction with the project; (2) alignment of SQIL activities and strategies with government priorities and policies; and (3) barriers to growth in the dairy industry in Georgia, and how the project addressed them.

Stakeholder Satisfaction with Project

Stakeholders across the dairy and beef value chain were satisfied with the project’s activities. Farmers noted that the project addressed barriers including lack of accurate information and lack of

financing/capital to upgrade their farms or purchase equipment to improve production. Through trainings, educational materials, events, and co-financed grants, farmers were able to increase awareness and understanding of improved agricultural practices and in many cases changed their practices, which resulted in improved production, quality, and sales.

Alignment of SQIL Activities

- SQIL's strategy and activities were well aligned with the GoG's and USDA's priorities to expand market access, improve sanitary standards, increase access to finance, and strengthen the regulatory and policy environment related to trade, food safety, and quality assurance.
- Although the project was well aligned, stakeholders suggested the project could increase its focus on improving SPS and activities focusing on veterinarian services, to address current challenges facing the dairy and beef industry.

Barriers to Growth in the Dairy and Beef Industry

- Many of the same barriers noted in the baseline assessment—including lack of available pastureland for cattle grazing, lack of capital to increase herd or invest in farm upgrades, and lack of government support, both regulatory and capacity building support—continued to be barriers to growth for dairy and beef farmers.
- In addition, the midline identified challenges associated with inspection and regulation—due to the large number of small farms in the industry, limited knowledge of agricultural products and improved agricultural practices, and lack of technical capacity and expertise to build the capacity of value chain actors.

6.2.2 Effectiveness

In examining the effectiveness of the SQIL project activities at midline, we looked at: (1) the extent to which the training, market information dissemination, financial assistance, and events had been implemented by the midline; and (2) key successes as well as challenges that could be addressed in the second half of the project.

Training

- In line with the project's market-led approach, SQIL worked closely with local providers to design and implement trainings to ensure the information and content was tailored to the needs of dairy and beef value chain stakeholders and relevant to the Georgian context.
- Due to COVID-19 restriction, trainings were conducted both in-person and online, with participants preferring in-person trainings. SQIL recorded and uploaded trainings to social media and developed and distributed educational materials to promote dissemination and uptake of learning.
- Training topics included proper care of cattle, artificial insemination, vaccinations, suitable feeding practices, milk storage, pasteurization, processing using modern technology, food safety standards, quality management systems, and farm management and business practices (including labelling, branding, marketing, and financial management).
- Participants evaluated trainings positively, stating that they were timely, well-organized, and provided useful information. Trainings on food safety, HACCP, and how to use the feed ratio program were the most useful and relevant to their business; and many farmers noted that they changed their farming and business practices as a result of the trainings.

Market Information

- SQIL provided market information and educational resources to farmers through brochures and manuals disseminated via email as well as through local businesses and government agencies.
- Information covered farm infrastructure, animal health, animal husbandry, artificial insemination, veterinary resources, food safety standards, milk quality, slaughterhouse sanitation, and changes to relevant regulations.
- Brochure and manuals were produced in local Georgian languages including Armenian and Azeri, written in easy-to-understand language, and free, making them accessible to most farmers.

Financial Assistance

- SQIL provided co-financed grants to beneficiaries to purchase equipment—including hay trailers, corn sowing machines, feed mixers, feed dispensers, cattle mattresses, milking machines, milk pasteurization equipment, milk refrigerators, milk tanks, cheese presses, cheese smoking equipment, and vacuum packing machines, among others.
- Farmers who received co-financed grants noted these had a positive effect on their businesses and helped them increase the volume of products produced and improved their quality.
- Farmers noted challenges with the co-finance grants, however, including timeliness of the equipment, equipment procured not being the most appropriate to their needs, and challenges with meeting the 50-50 co-financing requirement.

Events

- SQIL facilitated farmer and business participation in events that included conferences, exhibitions, trade fairs, and meetings, although participation in these events was generally limited.
- Farmers who did participate in the events found them useful, in particular Expo Georgia 2019, because it allowed them to showcase their products and connect with suppliers, business representatives, veterinarians, and other farmers.

Agronavti

- SQIL worked with the GFA to further develop Agronavti, helping the Association to produce and update informational materials including (manuals, trainings, and brochures).
- Awareness and use of Agronavti varied, with some farmers indicating they had not heard of it and others indicating they were aware of and did use it.
- While some farmers found the Agronavti platform useful, others noted challenges—including outdated supplier contacts, lack of new or updated information, exorbitant seller prices, and lack of customers for their products.

6.2.3 Efficiency

To analyze the extent to which SQIL was efficient, we explore: (1) project management and monitoring, including use of M&E data; (2) timeliness of project resources and activities; and (3) how the project collaborated with stakeholders.

Project Management and Monitoring

- In general, stakeholders commented that project activities, including trainings, grants, distribution of educational materials, and events, were implemented in a timely manner.

However, some farmers noted challenges with timeliness of activities, including remote training being too long and the timeline for the procurement and delivery of equipment under the co-financed grants also too long.

- Project resources allocated for each activity were sufficient to allow for effective implementation.
- The project actively used information and feedback from implementation to adjust and adapt programming to address stakeholders needs more effectively, including most notably increasing the grant ceiling for the co-financed grants from 25,000 Georgian Lari to 75,000 Georgian Lari following initial feedback from beneficiaries.

Collaboration with Project Stakeholders

- SQIL collaborated with government agencies, farmers' associations, research institutions, educational institutions, veterinary service providers, and other training and equipment providers to produce informational manuals, brochures, videos, and trainings to support farmer education and raise awareness of modern farming practices.
- Stakeholders noted that the project took a very collaborative approach to working with partners, both to identify key areas for implementation and to design project resources. Collaboration was sustained through open communication between the project and stakeholders, including farmers and businesses, who noted that they were satisfied with their relationship with the project.

6.2.4 Perceived Impact

We outline below the main perceived impacts of the SQIL project on: (1) stakeholder knowledge and improved practices; (2) dairy and value chain linkages; (3) milk procurement and sales, safety, and quality; (4) dairy policy and regulatory framework progress; and (5) production and sales due to external factors such as COVID-19.

Knowledge and Improved Practices

- Farmers, both dairy and beef, noted that after participating in the activity they made changes in their hygiene and sanitation practices, including complying with COVID-19.
- Dairy farmers noted they improved cattle infrastructure, including cattle housing conditions, handling facilities, and ventilation systems in cattle handling areas, as well as improved milk collection and storage practices.
- Farmers were very happy with the food ratio program as they were able to change their feeding practices, which resulted in better weight gain for their cattle.
- Several farmers mentioned changes they made in services and business management, including offering a delivery service and improving accounting practices.

Quality

- In general, stakeholders felt that the introduction of a quality certification process was an important and beneficial step in improving the production of safe, high-quality dairy and beef products. Stakeholders believe that the potential for increased profitability, as well as rising consumer demand for quality products, would encourage farmers to make the necessary updates to comply with the certification requirements.
- Although stakeholders across the board largely saw the benefit of a quality certification process like GeoGap, they noted potential barriers—including farmer hesitance to invest financial and

technical resources necessary for certification, lack of consumer awareness and understanding of the certification, and challenges with regulating and tracking certification.

Access to Finance

- Many farmers indicated that they secured grants, agricultural loans, and equipment from non-governmental organizations (including the SQIL project), government programs, microfinance institutions, and banks. Despite these forms of financial assistance, some farmers noted they continued to face barriers—including loans not being offered to dairy farmers and lack of standardized vetting systems.
- Farmers had varying opinions and approaches regarding insurance, with some unaware that insurance products were available, some indicating that the insurance options were insufficient, and others who had insurance covering their buildings, vehicles, equipment, and employees. Although insurance providers noted they were seeking to expand their services to farmers, there still appeared to be a gap in addressing farmers' needs.

Association Membership

- Association membership varied among farmers, but many indicated they were already members of associations prior to their participation in the project.
- Associations provided members with trainings, market information, and information on upcoming events, news, and funding opportunities.
- Perceptions around the usefulness of association membership varied among farmers, with some noting that they found the trainings, resources, and connection to suppliers useful, while other farmers, both association members and non-members, feeling that association membership was not useful to their businesses.

Spillover Effects

- Although farmers could not cite specific examples of spillover effects, many project participants noted that they shared information from the project (including manuals, educational materials, and information on grant proposals) with their neighbors, friends, co-workers, and other business owners.

External and Internal Factors

- The COVID-19 pandemic had a significant effect on farmers' production and sales. The increase in the cost of inputs (including utilities, cattle feed, and safety products) affected farmers' profitability, as many kept their pricing constant to stay competitive in the market.
- Large farms or farms with contracts with large companies were able to maintain steady sales, but small farmers saw severe decreases in sales due to restrictions on movement and transportation, closure of markets, and a decline in tourism.
- Local dairy products were also competing with a cheap substitute in milk powder imports, which along with an unstable Georgian Lari, led consumers to buy cheaper goods.
- COVID-19 affected work on legislation and regulatory reform, as well as progress on the GeoGap certification.
- The project's education partner was unable to support the activity, affecting the work on improving HACCP.

6.2.5 Sustainability

To analyze the extent to which SQIL activities and initiatives were likely to be sustainable, we explore: (1) which activities and initiatives were likely to continue after the project ends; (2) potential challenges that would affect sustainability; and (3) how the project might adjust or adapt implementation to improve the likelihood of sustainability.

Opportunities for Sustainability

- Stakeholders were optimistic that the knowledge farmers gained through trainings and educational materials, and the improvements that farmers made using financing from the co-investment grants, would contribute to sustainable changes and improved practices in the dairy and beef sector even after the project ended.
- The project's market-led approach was well received by stakeholders. Stakeholders appreciated that the project collaborated with them to develop services, materials, and products that they could use, to both support farmers as well as internally to improve their own businesses. These capacity building efforts with value-chain stakeholders have the potential to promote sustainability of project activities well after the end of the project.

Challenges to Sustainability

- Lack of consumer awareness around quality standards could affect the sustainability of quality improvement initiatives, as farmers might not be willing to allocate the time and resources to maintain quality standards if consumers are not willing to purchase their products.
- Local producers must compete with cheaper, imported goods, which might affect their willingness to invest in quality as they seek to stay competitive on price.
- Challenges in long-term access to finance could affect farmers' ability to continue investing in improvements in their farms.
- Many farmers lacked business and financial management skills, which could affect their ability to fully realize the benefits generated from the co-investment grants in a way that negatively impacts initiative sustainability.
- Shifts in political will and support for rural economic development initiatives might hinder progress on regulatory and legislative reforms needed to promote competitiveness of local producers, as well as monitor and regulate quality.

6.2.6 Gender Equality and Equity

To analyze the extent to which SQIL improved gender equality and equity we focus on two main questions: (1) constraints faced by women in the dairy and beef sector, and (2) how the project encouraged participation of both men and women.

- Most respondents, both male and female, believed women farmers and other women stakeholders did not face challenges due to their gender. However, several respondents indicated that women did face challenges related to labor-intensive work, the need to balance household obligations with farm work, and issues accessing financial assistance. This is consistent with barriers noted in the baseline gender analysis.
- SQIL took recommendations from the baseline gender analysis, and invited both men and women from a household to participate in trainings, provided financial trainings, reached women through

technical assistance, and provided linkages for women to other actors in the value chain through participation in events.

- Women's participation in associations varied, with some associations commenting that two-thirds of their members were female and noting that women took on leadership roles within their association. Similarly, although some women were executives of large companies and owned large farms and milk processing factories, one stakeholder noted that female representation in these sectors was still lower than for men.

6.3 Study Limitations

We note the following study limitations that are potentially relevant in interpreting the findings in this midterm report: small samples sizes in the business survey, reliance on self-reported data, inability to attribute causation, and farmer and business recruitment for qualitative data

Reliance on Self-Reported Data

We are reliant on self-reported data, which always includes the danger of socially desirable answers. For example, farmers could have under-reported how much milk they sold in the informal market. The self-reported data on milk and beef production and utilization could also be incorrect, as many farmers relied on their memory, best estimates, or incomplete record books to answer very specific questions on the liters of milk produced daily in each of the two seasons.

Inability to Attribute Causation

Perhaps the main limitation of this evaluation is that the design did not allow us to do a rigorous causal assessment. Given that SQL essentially worked with most dairy and beef farmers and businesses in the East-West Highway, an experimental or quasi-experimental design was not feasible. Therefore, any outcomes cannot be attributed to the project with known statistical confidence, although they can provide valuable indications of change.

Farmer and Business Recruitment for Qualitative Data

A limited list of farmers and businesses for FGDs was provided to IMPAQ by Venture 37. To the extent that the farmers and businesses provided by Venture37 were more engaged with the SQL project and were more likely to be the ones recruited for the focus groups, the FGDs were not representative of the perspectives of farmers and businesses who were less engaged with the project.

6.4 Recommendations

The recommendations to Venture37, based on lessons learned in the field and findings from the midterm data, fall into three parts:

Quick Wins

- **Make grants more accessible to farmers.** During focus groups, farmers reported that the current requirement that 50% of the grants had to be co-financed was too onerous. This co-financing level was a barrier to participation for many farmers, particularly given the financial constraints that many farmers were facing due to the COVID-19 pandemic. Given that the project urgently needs to increase the availability of equipment among project beneficiaries, we recommend making the co-financing obligation lower than 50%, with the exact allocation decided in consultation with project beneficiaries. This will encourage more farmers to apply for these grants and help mechanize them.

- **Reduce time taken for procurement of equipment.** At midterm, farmers noted that, in addition to the high requirements for co-financing the grants, there were delays in procurement of equipment. These delays dissuaded farmers from applying for grants or in some cases led to farmers choosing not to take part in the grant due to expected timelines. We recommend revisiting the procurement process to figure out ways to expedite purchasing and delivery. Further we also recommend more clearly explaining to the grant recipients about project procurement procedures necessary for transparent purchase of in-kind rewards.
- **Tailor grants to make them better suited to farmers' needs.** During qualitative focus groups, it was also noted that there was often a mismatch between the equipment farmers needed and what they could purchase. In some instances, farmers noted that the equipment procured did not work with their existing equipment, which impacted their ability to fully utilize and benefit from the equipment. We recommend revisiting the equipment requirements and specifications, to ensure they align with farmers' needs and to get the grant recipients more actively involved in the development of specification and technical characteristics of the items to be purchased for them.
- **Increase frequency of grant cycle applications.** Farmers at midterm appreciated the in-kind grants as an important mechanism through which they could modernize and improve productivity. However, under the current system, farmers were able to apply for the grants only during certain waves, and if they missed a cycle they had to wait until the next cycle to apply. To increase the ability of all project beneficiaries to access the grants, we suggest increasing the flexibility of the grant mechanism to give farmers the option of applying more frequently and/or on an as-needed basis. This would help reduce the time lag for farmers and enable them to access urgently required equipment more readily.
- **Continue to promote technology uptake through the feed ratio software tool.** Farmers commented that the feed ratio program was a useful tool that contributed to improved productivity. Given the lack of arable pastureland, the program is a useful tool for helping farmers increase their productivity without having to increase their land. We recommend that the project continue promoting and expand distribution of this program to maximize its impact.

Medium-term Strategy

- **Work with the Government of Georgia and Georgian Farmers Association to address capacity issues to implement GeoGap Certification.** A key barrier facing the sustainability of the GeoGap certification is the ability to regulate and track certification processes, given that the industry is dominated by small farms that are often not registered. We recommend that the project work with both the Georgian Farmers Association and the Government of Georgia to streamline the tracking system and build the capacity of local extension workers to monitor and inspect small farms to ensure they are compliant with safety and quality standards.
- **Work with the Government of Georgia in mitigating the adverse impacts of COVID-19 on farmers and businesses.** As a result of the COVID-19 pandemic, farmers experienced a rise in input costs and supplies, transportation restrictions, decrease in demand due to a diminished tourism industry, and increased competition with cheaper imported goods—all of which negatively impacted farmers' sales and profitability. We recommend that SQIL leverage its expertise and Venture 37's lessons learned from working in other contexts, to work with the Government of Georgia to develop policies and/or programs to help mitigate the short- and long-term effects of the COVID-19 pandemic on the dairy and beef industry.

Long-Term Strategy

- **Work with government stakeholders to address increased need for veterinary services.**
Stakeholders noted both the lack of access to veterinary services as well as a lack of understanding of the role and importance of veterinary care as a barrier to improving product quality as farmers are not able to provide preventive or treatment care for cattle. We recommend that the project work with government stakeholders and relevant local universities to increase the capacity of veterinary services within the country. In tandem, we recommend that the project continue to reiterate the importance of veterinary care through training, educational materials, and events.

Annex A. Performance Management Plan

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
1	Yield of targeted agricultural commodities among program participants with USDA assistance – Beef ¹⁵ (kg/cow/year)	Farmers				
		Mean	212 kg/animal	244 kg/animal	286 kg/animal	85%
		Gender				
		Female	158 kg/animal	121 kg/animal		
		Male	225 kg/animal	266 kg/animal		
		Age of Farmer				
		15-29	215 kg/animal	355 kg/animal		
		30+	212 kg/animal	234 kg/animal		
		Production Type				
		Grazing in own/rented/shared land	249 kg/animal	366 kg/animal		
		Grazing in common areas of village/community	202 kg/animal	227 kg/animal		
		Rotational grazing	N/A	N/A		
		Paddock grazing	N/A	313 kg/animal		
		Transhumance	244 kg/animal	N/A		
2	Yield of targeted agricultural commodities among program participants with USDA assistance-	Farmers				
		Mean	2,135 L	2,746 L	1514 L	181%
		Gender				
		Female	1,873 L	2,289 L		
		Male	2,298 L	2,855 L		
		Age of Farmer				

¹⁵ This is calculated from detailed questions about five living beef cattle chosen by the respondent as detailed in Section 3.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	Dairy¹⁶ (liters/cow/year)	15-29	3,011 L	2,846 L		
		30+	2,111 L	2,739 L		
		Production Type				
		Grazing in own/rented/shared land	2,100 L	2,741 L		
		Grazing in common areas of village/community	2,062 L	2,543 L		
		Rotational grazing	2,312 L	3,705 L		
		Paddock grazing	1,855 L	3,313 L		
		Transhumance	2,559 L	2,520 L		
3	Number of hectares under improved management practices or technologies that promote improved climate risk reduction and/or natural resources management with USDA assistance¹⁷ (ha) (cumulative)	Total	903 HA	4,088 HA	13,850 HA	30%
4	Number of hectares under improved	Farmers				
		Total	903 HA	4,088 HA	13,850 HA	30%

¹⁶ At baseline, this indicator was calculated based on the following breeds: Local Georgian breeds: Georgian Mountain, Caucasian Brown, Veli's Red, Half breeds, and others. At midterm, this indicator was calculated based on the following breeds: Local breeds, local improved, high productive breeds, and others. Given the different definitions at baseline and midterm, these values are not directly comparable.

¹⁷ At baseline, this indicator was defined as the number of hectares allocated to the following improved management practices: using drought resistant seeds, using flood resistant seeds, using short duration varieties, using adjusted sowing time, or using diversified fodder. At midterm, this indicator is defined as the number of hectares allocated to the following improved management practices: growing drought tolerant and flood resistant seed varieties, pest and disease management for fodder, soil-related fertility and conservation, irrigation, and climate adaptation/climate risk management. Given the different definitions at baseline and midterm, these values are not directly comparable.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	management practices or technologies with USDA assistance ¹⁸ , ¹⁹ (ha) (cumulative)	Technology Type				
		Forage/fodder	655 HA	2,923 HA		
		Concentrate	248 HA	1,165 HA		
		Gender				
		Female	105 HA	1,071 HA		
		Male	798 HA	3,017 HA		
		Age of Farmer				
		15-29	27 HA	506 HA		
		30+	876 HA	3,581 HA		
		Management Practice				
		Crop genetics	N/A	322 HA		
		Pest and disease management	N/A	804 HA		
		Soil-related fertility and conservation	N/A	583 HA		
		Irrigation	N/A	358 HA		
		Climate adaptation/climate risk management	N/A	219 HA		
		Other	N/A	3 HA		
5	Number of individuals in the agriculture system who have applied improved management	Overall Total				
		Overall Total	0	474	17,581	3%
		Farmers				
		Total	0	385		
		Gender				

¹⁸ These reflect values of land allocated to growing forage/fodder and concentrate feed.

¹⁹ The improved management practices and technologies listed were not options at baseline, and so are not presented. Additionally, the hectares under each of these management practices at midterm do not add up to the total for farmers because only 26% of farmers performed any of these practices; the remaining hectares under improved practices are used to grow forage/fodder and concentrate feed.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	practices or technologies as a result of USDA assistance ^{20,21, 22} (cumulative)	Female	0	73 (100%)		
		Male	0	312 (100%)		
		Age of Farmer				
		15-29	0	26 (100%)		
		30+	0	359 (100%)		
		Management Practice				
		Crop genetics	N/A	41 (100%)		
		Pest and disease management	N/A	24 (100%)		
		Soil-related fertility and conservation	N/A	44 (100%)		
		Irrigation	N/A	22 (100%)		
		Climate adaptation/climate risk management	N/A	23 (100%)		
		Other	N/A	2 (100%)		
		Businesses				
		Total	0	89 (57%)		
		Business Type				
		MCC	0	N/A		
		Milk Processor	0	33 (59%)		
		Milk Retailer	0	N/A		
		Slaughterhouse	0	41 (98%)		
		Beef Processor	0	15 (100%)		
		Beef Retailer	0	N/A		
		Input Providers	0	N/A		

²⁰ The number in parentheses represents the percentage of the sample.

²¹ The improved management practices and technologies listed were not options at baseline, and so are not presented.

²² At midterm we do not ask about fattening, feeding, or health practices and we do not ask MCCs, milk and beef retailers, and input providers the questions relevant to this indicator.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Gender				
		Female	0	71 (61%)		
		Male	0	18 (45%)		
		Age of Business Owner				
		15-29	0	5 (31%)		
		30+	0	84 (60%)		
		Practice/Technology				
		Cold Storage	0	92 (59%)		
		Processing Capacity	0	31 (53%)		
		Packaging	0	23 (38%)		
		Housing	0	20 (54%)		
		Fattening	0	N/A		
		Feeding	0	N/A		
		Health	0	N/A		
		Hanging /Deboning etc.	0	11 (73%)		
		Preservation	0	4 (27%)		
6	Number of individuals accessing agricultural-related financial services as a result of USDA assistance ²³	Overall Total				
		Overall Total	0	104	2720	4%
		Farmers				
		Total	0	73 (19%)		
		Size of Farm				
		Less than 1 HA	0	10 (17%)		
		1-4.99 HA	0	23 (13%)		
		5-24.99 HA	0	28 (28%)		

²³ The number in parentheses represents the percentage of the sample.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
7		25+ HA	0	12 (27%)		
		Gender				
		Female	0	8 (11%)		
		Male	0	65 (21%)		
		Age				
		15-29	0	7 (27%)		
		30+	0	66 (18%)		
		Businesses				
		Total	0	31 (21%)		
		Type of Financing				
		Self-Financed	0	133 (87%)		
		Loans	0	36 (24%)		
		Investment by others that allows them co-ownership	0	5 (3%)		
		Other	0	3 (2%)		
		Size of Firm				
		Small (10 or less staff)	0	18 (15%)		
		Medium (249 or less staff)	0	13 (46%)		
		Large (250+ staff)	0	n/a		
		Gender				
		Female	0	3 (8%)		
		Male	0	28 (25%)		
		Age of Business Owner				
		15-29	0	3 (19%)		
		30+	0	28 (21%)		
		Overall Total				

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	Number of loans disbursed as a result of USDA assistance ²⁴	Overall Total	0	104	1650	6%
		Farmers				
		Farmers	0	73		-
		Businesses				
		Businesses	0	31		
8	Value of agriculture-related financing accessed as a result of USDA assistance (cumulative)	Overall Total				
		Overall Total	\$0	\$2,080,084	\$4,791,400	43%
		Farmers				
		Total	\$0	\$1,266,324	\$4,791,400	26%
		Type of Financing				
		Formal sector bank	\$0	\$1,228,920		
		Microfinance institution	\$0	\$37,120		
		Other	\$0	\$0		
		Size of Farm				
		Less than 1 HA	\$0	\$66,432		
		1-4.99 HA	\$0	\$191,680		
		5-24.99 HA	\$0	\$619,164		
		25+ HA	\$0	\$389,048		
		Gender				
		Female	\$0	\$167,360		
		Male	\$0	\$1,098,964		
		Age				
		15-29	\$0	\$112,000		

²⁴ At midterm we define the number of loans a farmer or business took out through the number of farmers or businesses who applied for funding and received partial or full funding.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		30+	\$0	\$1,154,324		
		Businesses				
		Total	\$0	\$813,760	\$4,791,400	17%
		Type of Financing				
		Self-Financed	\$0	\$428,800		
		Loans	\$0	\$813,760		
		Investment by others that allows them co-ownership	\$0	\$86,400		
		Other	\$0	\$0		
		Size of Firm				
		Small (10 or less staff)	\$0	\$263,360		
		Medium (249 or less staff)	\$0	\$550,400		
		Large (250+ staff)	\$0	\$50,860		
		Gender				
		Female	\$0	\$44,800		
		Male	\$0	\$768,960		
		Age	\$0			
		15-29	\$0	\$25,600		
		30+	\$0	\$788,160		
9	Number of individuals who have received USDA-supported degree-granting non-nutrition-	N/A	N/A	N/A		

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	related food security training ²⁵					
10	Number of organizations with increased performance improvement as a result of USDA assistance ²⁶ (cumulative)	Businesses				
		Total	0	137 (87%)	218	6%
		Type of Business				
		MCC	0	3 (100%)		
		Milk Processor	0	41 (73%)		
		Milk Retailer	0	12 (100%)		
		Slaughterhouse	0	42 (100%)		
		Beef Processor	0	15 (100%)		
		Beef Retailer	0	13 (93%)		
		Input Providers	0	11 (73%)		
11	Number of public-private partnerships formed as a result of USDA assistance ²⁷	Total	N/A	N/A		
12	Value of new USG commitments and new public and private sector investment leveraged by USDA to support food	Total	N/A	N/A		

²⁵ This indicator is outside of IMPAQ's scope of work.

²⁶ We include here businesses who follow safety practices, quality checks, have instruments for testing milk, have improved storage, improved packaging, improved processing, and use a new financial product.

²⁷ This indicator is outside of IMPAQ's scope of work.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	security and nutrition ²⁸					
13	Total increase in installed storage capacity (dry or cold storage) as a result of USDA assistance ^{29,30} (m ³)	Overall				
		Total	0	12,728 m ³	10,800 m ³	118%
		Farmers				
		Total	0	7,004 m ³		
		Storage Type				
		Dry	0	3,991 m ³		
		Cold	0	3,013 m ³		
		Business				
		Total	0	5,724 m ³		
		Business Type				
		MCC	0	0		
		Milk Processor	0	911 m ³		
		Milk Retailer	0	700 m ³		
		Slaughter House	0	520 m ³		
		Beef Processor	0	3417 m ³		
		Beef Retailer	0	13 m ³		
		Input Provider	0	5 m ³		
14	Number of policies, regulations and/or	Total	N/A	N/A		

²⁸ This indicator is outside of IMPAQ's scope of work.

²⁹ At baseline this indicator just captured the current dry or cold storage possessed by farmers. At midterm, we show data from a new variable that captured the farmers' purchases or rentals of new dry and/or cold storage capacity.

³⁰ A large scale beef retailer (50,000 m³) and a large scale milk retailer (12,000 m³) were removed from this analysis because their large size masked the true progress of the project.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	administrative procedures in each of the following stages of development as a result of USDA assistance ³¹ (cumulative)					
15	Value of annual sales of farms and firms receiving USDA assistance ³² (cumulative)	Overall				
		Total	\$43,313,476	\$49,553,880	\$123,500,000	40%
		Farmers				
		Total	\$9,666,295	\$28,851,998		
		Type of Product				
		Raw milk	\$2,064,396	\$10,823,598		
		Female	\$231,528	\$345,553		
		Male	\$1,832,869	\$10,478,046		
		Processed milk	\$7,280,056	\$17,669,992		
		Female	\$2,585,816	\$1,437,502		
		Male	\$4,694,240	\$16,232,490		
		Live beef cattle	\$731,887	\$3,452,381		
		Female	\$137,154	\$860,370		
		Male	\$594,732	\$2,592,011		
		Slaughtered beef	\$46,475	\$237,944		
		Female	\$9,517	\$0		
		Male	\$36,958	\$237,944		

³¹ This indicator is outside of IMPAQ's scope of work.

³² At midterm, there were zero female beef retailers.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Businesses				
		Total	\$33,647,181	\$20,701,882		
		Type of Product				
		Milk	\$23,849,001	\$8,304,011		
		Female	\$1,375,373	\$3,412,832		
		Male	\$22,473,627	\$4,891,179		
		Beef	\$8,353,408	\$7,947,118		
		Female	\$610,610	\$368,486		
		Male	\$7,742,798	\$7,578,632		
		Inputs	\$1,444,773	\$4,450,752		
		Female	\$73,404	\$7,872		
		Male	\$1,371,370	\$4,450,752		
		Type of Business				
		MCC	\$1,267,581	\$12,322		
		Female	\$356,740	\$653		
		Male	\$910,841	\$11,669		
		Milk Processor	\$22,459,489	\$7,981,714		
		Female	\$936,682	\$3,401,399		
		Male	\$21,522,807	\$4,580,315		
		Milk Retailer	\$121,931	\$309,976		
		Female	\$81,951	\$10,781		
		Male	\$39,980	\$299,195		
		Slaughterhouse	\$1,971,218	\$4,108,879		
		Female	\$188,684	\$366,643		
		Male	\$1,782,534	\$3,742,236		

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Beef Processor	\$1,321,816	\$2,724,611		
		Female	\$55,016	\$1,843		
		Male	\$1,266,800	\$2,722,768		
		Beef Retailer	\$5,060,373	\$1,113,629		
		Female	\$366,909	\$0		
		Male	\$4,693,464	\$1,113,629		
		Input Providers	\$1,444,773	\$4,450,752		
		Female	\$73,404	\$7,872		
		Male	\$1,371,370	\$4,450,752		
		Age				
		15-29	\$191,406	\$4,572,895		
		30+	\$33,455,775	\$16,128,987		
		Value Added				
		Value Added	\$27,751,944	\$9,486,498		
		Primary	\$3,238,799	\$4,267,072		
16	Volume of commodities sold by farms and firms receiving USDA assistance (MT) (cumulative)	Overall				
		Total	21,000 MT	45,206 MT	226,044 MT	20%
		Farmer				
		Total	5,306 MT	40,115 MT		
		Type of Product				
		Milk	5,181 MT	39,919 MT		
		Beef	125 MT	196 MT		
		Gender				
		Female	1,570 MT	1,292 MT		
		Male	3,736 MT	38,824 MT		

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Age				
		15-29	442 MT	756 MT		
		30+	4,864 MT	39,359 MT		
		Businesses				
		Total	15694 MT	5091 MT		
		Type of Product				
		Milk	13919 MT	3279 MT		
		Beef	1775 MT	1812 MT		
		Gender				
		Female	1500 MT	1548 MT		
		Male	14194 MT	3543 MT		
		Age				
		15-29	45 MT	28 MT		
		30+	15649 MT	5062 MT		
17	Number of Jobs attributed to USDA assistance ³³	Overall				
		Total (FTE)	0	756	3793	125%
		Farmers				
		Total (FTE)	0	382		
		Female	0	213		
		Male	0	169		
		Business				
		Total	0	374		
		Employment Type				
		Permanent Female	0	144		

³³ One large beef processor who reported 4000 newly hired women is excluded from this analysis.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Permanent Male	0	129		
		Part-time/Seasonal Female	0	44		
		Part-time/Seasonal Male	0	57		
18	Number of individuals who have received short-term agricultural sector productivity or food security training as a result of USDA assistance ³⁴	Farmers				
		Mean	N/A	N/A		
		Gender				
		Female	N/A	N/A		
		Male	N/A	N/A		
19	Number of individuals participating in USDA food security programs ³⁵ (cumulative)	N/A	N/A	N/A		
20	Number of individuals benefiting indirectly as a result of USDA Assistance ³⁶ (cumulative)	N/A	0	N/A		
21	Percentage of project-supported	Farmers				
		Mean	6%	24%	56%	43%
		Gender				

³⁴ This indicator is outside of IMPAQ's scope of work.

³⁵ This indicator is outside of IMPAQ's scope of work.

³⁶ This indicator is outside of IMPAQ's scope of work.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	farmers that access key cattle inputs ³⁷	Female	5%	19%		
		Male	7%	25%		
22	Percentage of project-supported farmers that have improved on-farm infrastructure ³⁸	Farmers				
		Mean	2%	26%	47%	55%
		Gender				
		Female	0%	16%		
		Male	3%	28%		
23	Percentage of project-supported farmers with knowledge of at least 5 improved cattle husbandry practices	Farmers				
		At least 5 practices	2%	58%	40%	145%
		Gender				
		Female	0%	47%		
		Male	2%	61%		
24	Percentage of project-supported farmers with knowledge of at least 5 improved farm management practices ³⁹	Farmers				
		At least 5 practices	1%	34%	40%	85%
		Gender				
		Female	0%	22%		
		Male	2%	37%		
25		Businesses				

³⁷ “Key cattle inputs” includes use of fodder seed, mineral black, artificial insemination, vaccination, deworming, and animal identification. The overall indicator was 1 if they used any of these inputs.

³⁸ “Improved on-farm infrastructure” includes farmers who had slatted shed, calf-housing, cow cubicles, cattle handling area, manure storage, milk parlor, provided access to water in housing, and had constant flow of water. This indicator was 1 if farmers had at least 5 of these options.

³⁹ At baseline, this indicator is defined as the percentage of farmers who demonstrated knowledge of at least 4 of the following improved farm management practices, such as farm costing, feed flow planning, animal performance monitoring, and grazing plan. At midterm, we use an updated definition for this indicator as the percentage of farmers who demonstrated knowledge of at least 5 of the following improved farm management practices: animal performance monitoring, animal nutrition and ration balancing, balanced feeding, calculation of feed price per head of animal, record keeping on animal feed flow, improved awareness for Georgian legislative framework, breed improvement/controlled breeding, artificial insemination/embryo transplant, bookkeeping, and farm cost accounting.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
	Milk rejection rate of processors working with the project	Mean	6.5%	7.2%	4%	56%
26	Volume of beef moving through project-supported HACCP-implemented FBOs ⁴⁰ (MT) (cumulative)	Businesses				
		Total	1013 MT	668 MT	12883 MT	13%
		Business Type				
		Slaughterhouse	476 MT	343 MT		
		Beef Processor	133 MT	325 MT		
		Beef Retailer	404 MT	0 MT		
		Gender				
		Female	63 MT	199 MT	3865 MT	5%
		Male	950 MT	469 MT	5797 MT	8%
27	Number of project-supported food business operators (FBOs) that achieve and maintain final approval of HACCP certification (cumulative)	Businesses				
		Total	25	67	180	37%
		Business Type				
		MCC	1	0		
		Milk Processor	11	21		
		Milk Retailer	0	3		
		Slaughterhouse	7	30		
		Beef Processor	6	9		
		Beef Retailer	13	4		
		Gender				
		Female	3	14		
		Male	22	53		

⁴⁰ At midterm, none of the beef retailers reported having the HACCP certification.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
28	Number of businesses supported by the project ⁴¹ (cumulative)	Total	N/A	N/A		
29	Number of sales agreements between project-supported input suppliers, farmers and businesses ⁴²	Overall				
		Total	0	1,655	1,586	104%
		Farmers				
		Total	0	1,439		
		Contract Type				
		Farmer → Business	0	25		
		Business → Business	0	1082		
		Business → Farmer	0	332		
		Businesses				
		Total	0	9,474		
		Contract Type				
		Suppliers	0	4,652		
		Verbal	N/A	4,121		
		Written	N/A	282		
		Input Provider	N/A	249		
		Buyers	0	4,822		
		Verbal	N/A	3,728		
		Written	N/A	762		

⁴¹ This indicator is outside of IMPAQ's scope of work.

⁴² At baseline we did not breakdown sales agreements by verbal and written agreements; for baseline values here, we show the number of agreements farmers had if they say they had any verbal agreements, versus the number of agreements farmers had if they said they had any written agreements. At midterm, we ask farmers directly the number of verbal agreements and the number of written agreements they had with buyers.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Input Provider	N/A	332		
30	Number of project-supported dairy and beef food business operators (FBOs) that receive SOQ certification ⁴³ (cumulative)	Total	N/A	N/A		
31	Number of new product innovations created with assistance from the project ⁴⁴	Total	0	41	36	114%
		Female	0	7		
		Male	0	34		
32	Number of government technical officers trained by the project ⁴⁵	N/A	N/A	N/A		
33	Number of individuals in the dairy and beef sectors utilizing Agronavti ⁴⁶ (cumulative)	Overall				
		Total	N/A	60	5000	1%
		Farmers				
		Total	N/A	32 (23%)		
		Businesses				
		Total	N/A	28 (31%)		
		Type of Business				
		MCC	N/A	1 (50%)		

⁴³ This indicator is outside of IMPAQ's scope of work.

⁴⁴ This indicator is outside of IMPAQ's scope of work.

⁴⁵ This indicator is outside of IMPAQ's scope of work.

⁴⁶ Baseline values for this indicator are not available as question about Agronavti usage were not asked at baseline.

#	Performance Indicator	Data Source	Baseline value	Midterm value	LOP Target	Percent of LOP Target Achieved
		Milk Processor	N/A	12 (31%)		
		Milk Retailer	N/A	4 (57%)		
		Slaughterhouse	N/A	5 (25%)		
		Beef Processor	N/A	3 (33%)		
		Beef Retailer	N/A	1 (25%)		
		Input Providers	N/A	2 (22%)		
34	Number of individuals reached in the SOQ awareness campaign ⁴⁷ (cumulative)	Total	N/A	N/A		

⁴⁷ This indicator is outside of IMPAQ's scope of work.

Annex B. SQL Results Framework

Exhibit B-144. Results Framework: Strategic Objective #1

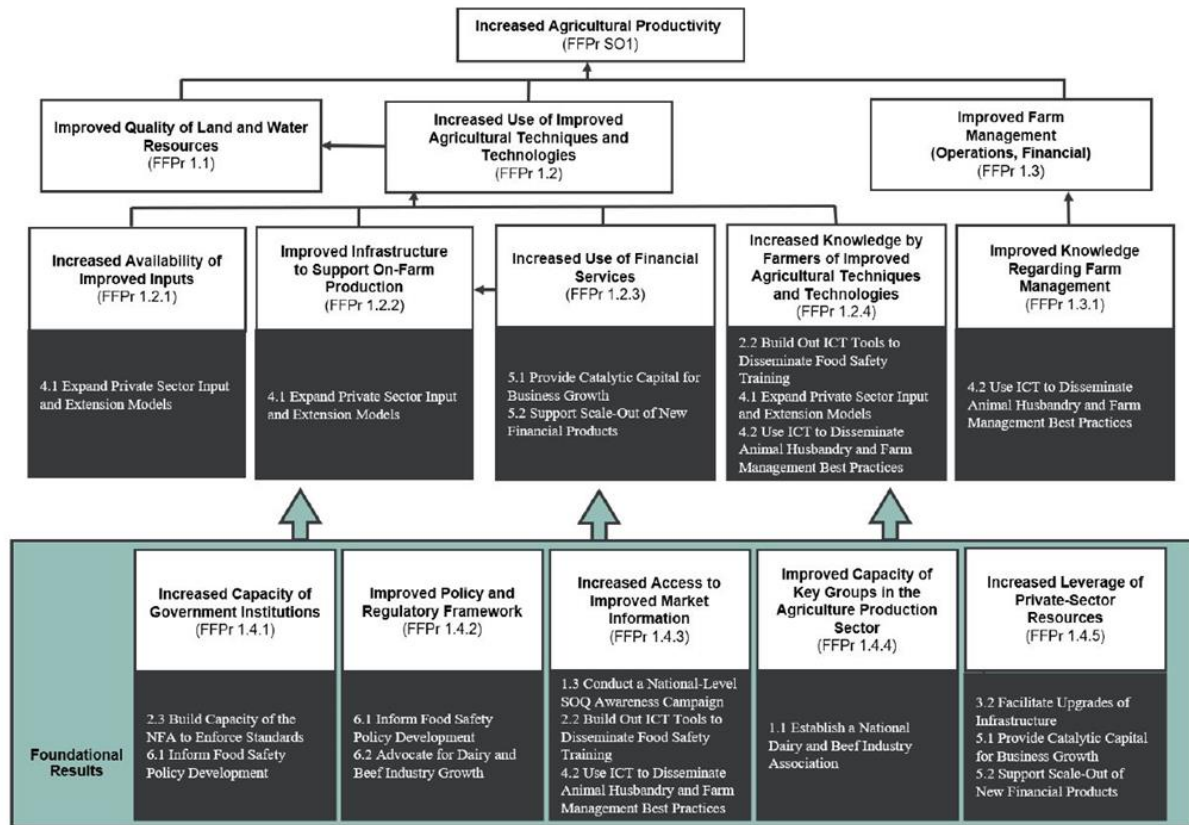
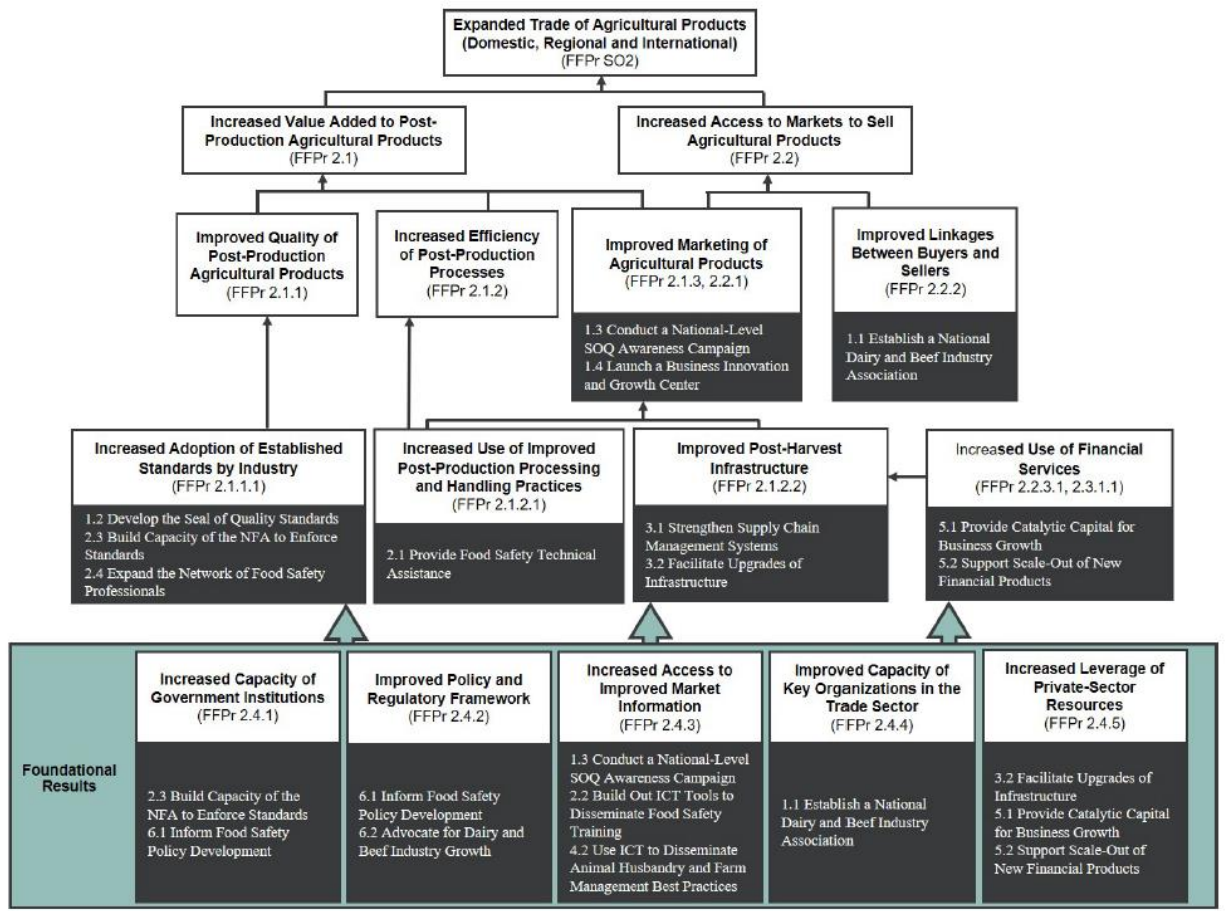


Exhibit B-145. Results Framework: Strategic Objective #2



Annex C. SQIL Scope of Work

Baseline, Midterm, and Final Evaluation Terms of Reference

Land O'Lakes Venture37

Georgia Safety and Quality Investment in Livestock (SQIL) Project

Executive Summary

This document contains the Terms of Reference (TOR) for conducting the baseline and gender analysis, midterm evaluation (MTE), and final evaluation (FE) of the five-year, \$12.8 million Georgia Food for Progress project (Georgia FFPr), Safety and Quality Investment in Livestock (SQIL), funded by the United States Department of Agriculture (USDA) and implemented by Land O'Lakes Venture37 (Venture37) from October 1, 2018 – September 30, 2023. The project aims to increase agricultural productivity and expand trade in the dairy and beef sectors in Georgia and will focus on dairy and beef actors along Georgia's East-West highway corridor. Venture37 is issuing this TOR to confirm availability and cost competitiveness of the most qualified firms from its MEL preferred provider list. This document includes background information on the Georgia SQIL project, the desired methodology, including objectives and illustrative evaluation questions, the timeframe for conducting these evaluations and a list of required deliverables. This document also contains information about the expertise that Venture37 seeks and guidance on how to submit a proposal.

To maximize consistency in the evaluation approach and methodology, Venture37 seeks one evaluator to design and administer the baseline and gender analysis, MTE and FE. The use of one team for all evaluations will provide continuity in the evaluation process. The team will have a deeper understanding of the project and be able to build on each previous evaluation to strengthen subsequent evaluation designs, strategies and findings. Please note that although Venture37 is intending to hire a firm to carry out all three evaluations, subsequent engagement for the MTE and FE will be contingent upon satisfactory completion of the baseline and MTE. Venture37 has the discretion to re-solicit the MTE and FE, if necessary.

Project Overview

Georgia FFPr is a 5-year, \$12.8 million project that will increase agricultural productivity and expand trade among 55,025 direct participants, primarily located along Georgia's East-West highway corridor. Venture37's innovative, demand-driven approach will improve food safety and quality along Georgia's dairy and beef value chains from farm to fork. This will reduce losses and boost productivity and trade of milk and meat products, resulting in nearly \$140 million in dairy and beef sales, thus reducing the trade imbalance of value-added dairy and beef products. The project will implement the following activities to increase agricultural productivity and expand trade.

ACTIVITY 1. EXPAND MARKET ACCESS. The project will strengthen and expand existing associations in Georgia to serve as a knowledge and marketing platform for the dairy and beef industries. In addition, the project will support the development of an industry-based Seal of Quality (SoQ) standardization and certification process for the dairy and beef primary production based on Good Agricultural Practices (GAP), which will be managed by a diverse group of industry participants. The standards will represent Georgian measures of excellence and international manufacturing best practices and will be in correspondence with the GlobalGAP standards in the dairy and beef production and will be in the framework of the global GeoGAP

scheme. The project will also launch a national multimedia campaign to raise national awareness of the GeoGAP standardization efforts and alert the agribusiness industry to the benefits of achieving higher quality standards. Venture37 will also partner with a leading institution to build innovation platforms that will assist entrepreneurs and small/medium business to develop niche dairy and beef products for local and international markets. Participating businesses will be eligible for co-investment from the innovation fund, described in Activity 5.

ACTIVITY 2. IMPROVE SANITARY AND PHYTOSANITARY STANDARDS. The project will build the capacity of local firms to then provide independent, objective food safety technical assistance to dairy and beef business operators across the supply chain, leveraging the successful training model promoted by Michigan State University (MSU) across its global food safety training programs. The project will also work with government institutions to disseminate public extension content and food safety information. Venture37 will also support the National Food Agency (NFA) over the project duration to build the operational infrastructure and human resource capacity within the agency. Finally, the project will refine the food safety training curricula within Georgia's top universities offering food safety-oriented degree programs and work to build the capacity of the laboratories that will further support students and the industry to monitor the safety and quality of food products.

ACTIVITY 3. POST-HARVEST HANDLING AND STORAGE. Venture37 will engage an individual consultant or firm to conduct an analysis of the cold storage, transportation and logistics system across the targeted regions and identify areas for management and infrastructural improvements. Venture37 will conduct a rapid assessment of the highest potential cold storage in the targeted regions, leveraging supply chain optimization tools to determine their baseline capacity, logistics and management functionality. The project will also build the capacity of local business development services and link them to cold chain and logistics operators to develop and refine the latter's business plans. Venture37 will forge linkages between selected firms and commercial banks offering loan products to facilitate lending for infrastructural improvements.

ACTIVITY 4. IMPROVE PRODUCTIVITY. Venture37 will use their innovation fund in Activity 5 and technical assistance to incentivize entrepreneurial businesses to pilot or scale different models for extension services and input provision to dairy and beef farmers. Venture37 will also develop a livestock animal husbandry curriculum and embed within an information communications technology platform. The curriculum will draw on globally accepted best practices for dairy and beef production and will align with industry quality and animal welfare standards. The project will integrate training topics and tools that educate farmers on farm management practices. Venture37 will also organize annual herd and carcass competitions to enable farmers to showcase their livestock and the results of their improved practices, and input providers to highlight the benefits gained from using artificial insemination and improved feed formulation.

ACTIVITY 5. IMPROVE ACCESS TO FINANCIAL SERVICES. Venture37 will establish a \$1.7 million innovation fund focused on increasing product, service and business model innovation – including embedded extension services. The project will define the co-investment windows and parameters to facilitate multiple investment cycles. Co-investment partners will be selected by a multi-stakeholder committee using a competitive procurement process. Most investments will be coupled with technical assistance from the project team and local firms to support co-investors to refine and implement their business growth plans. The project will also promote linkages to commercial banks for continued financing. Venture37 will provide technical support to insurance providers and partnering financial institutions to further the development of their livestock insurance products, scale them, and improve linkages between insurance and credit provider's products that decrease lending risk.

ACTIVITY 6. CAPACITY BUILDING TO INFORM FOOD SAFETY POLICY DEVELOPMENT. The project will mobilize policy experts to assess the Government of Georgia’s (GoG) food safety policy strategies and provide technical assistance to GoG ministries on policy formulation that enables Georgia to meet international standards. Venture37 will also work with the industry association to develop action plans and benchmarks for proposed policy reforms impacting food safety and report its progress to industry stakeholders. Venture37 will facilitate entry points for Georgian associations to engage with steering committees, governmental working groups and civic forums to advocate for dairy and beef industry growth. Venture37 will also engage dairy and beef farmer members to facilitate their close ties and engagement in advocacy efforts.

Evaluation Design

Purpose and Objectives of the Evaluation

The purpose of the baseline and gender analysis, MTE, and FE are to analyze and document the extent to which the program has achieved its goals and objectives and to explain any deviations from the plan. Specific objectives for each evaluation are listed below:

Baseline and Gender Analysis Objectives

The baseline and gender analysis will:

- Understand the current state of key dairy/beef actors, including demographics, socioeconomic status, finances, and dairy-related practices and technologies;
- Understand the gender constraints and opportunities and make recommendations to ensure that both sexes are equally able to participate and benefit from the project;
- Establish the project baseline values;
- Provide recommendations for setting and refining targets for project indicators in accordance with the findings;
- Identify potential strengths, weaknesses, opportunities and threats to project implementation in the target areas;
- Recommend strategies to maximize strengths and mitigate challenges; and
- Generate data to be used for comparative analysis across the life of the project to measure change.

Midterm Evaluation Objectives

The mid-term evaluation will:

- Assess the relevance of the project strategy and approach as well as the validity of assumptions made during project design;
- Measure progress from baseline, including the effectiveness and efficiency of interventions in achieving established targets;
- Assess how women and men have benefited differently from the project and provide recommendations for mitigating any differences;
- Document lessons learned, challenges and unanticipated effects, including the COVID-19 global pandemic;
- Identify enablers and constraints to progress (both internal and external factors) that have supported or limited success of the project;
- Assess sustainability efforts to date;
- Provide recommendations for necessary corrections to strengthen project performance, efficiency and sustainability; and
- Provide recommendations for areas of focus for the final evaluation, including reviewing and strengthening data collection systems and metrics in preparation for the final evaluation.

Final Evaluation Objectives

The final evaluation will:

- Assess whether the project has achieved the expected results as outlined in the results frameworks;
- Assess the relevance, effectiveness, efficiency, impact and sustainability of project activities;
- Measure progress from baseline and midterm and assess attribution to the extent possible;

- Assess how women and men have benefited differently from the project;
- Identify lessons learned through the duration of the project with an emphasis on identifying key strategies, methodologies and factors that contributed to and/or inhibited success, focusing on areas that could be applied to similar programming; and,
- Draw conclusions and provide recommendations to Venture37, USDA, project participants, project partners and other stakeholders including the Government of Georgia to strengthen future or similar projects.

Preliminary Key Evaluation Questions

The evaluation will answer the following key questions within the standard evaluation framework.

Exhibit C-146. Key Evaluation Questions

CRITERIA	EVALUATION QUESTIONS
Relevance	• To what extent do the results framework, assumptions, program design and project activities meet the needs of the various project participants and local conditions in the targeted regions of Georgia? • How well aligned is the project strategy and activities with the development goals, objectives and strategies of the USDA, the U.S. Government and the Georgian Government?
Impact	• What impacts are the project activities having on the various project participants and non-participants, both positive and negative, especially in relation to the expected results and strategic objectives? ○ What impact has the project had on trade in the dairy and beef sector? ▪ How have the sales, profitability, and access to markets (including export markets) of participant dairy and beef sector businesses changed, including dairy and beef farmers, milk collection centers, beef fatteners, processors, slaughterhouses, aggregators, wholesalers, retailers, input and service providers? Why? ▪ What macro-level changes have occurred throughout the project in Georgia's dairy and beef sector, including sales and exports? ○ What is the impact of the SOQ establishment on the dairy and beef sector? ▪ How has the project affected production and purchase of SOQ products? ▪ How has production of SOQ products affected sales and profitability of businesses in the dairy and beef sector? ▪ How did the creation of the SOQ program affect the ability of agricultural actors to meet quality standards? ○ What impact has the project had on intermediate results, such as improved knowledge, practices and productivity. How have progress on these results impacted progress on trade? ▪ How has the project impacted participant farmer knowledge, uptake of improved practices, farm management, post-harvest handling, the use of improved infrastructure? How has this impacted their productivity and ultimately trade? ▪ How has the project impacted participant business knowledge and uptake of improved food safety/quality practices and infrastructure. How has this impacted their sales and ultimately trade? ▪ How has the project impacted access to financial services for dairy and beef sector business? How were any monies used? How did access to the finances impact their profitability? ○ To what extent have non-participant farmers and businesses been affected by the project?

CRITERIA	EVALUATION QUESTIONS
	What internal and external factors have influenced the ability of the project to meet expected results and targets? Specifically, how has the COVID-19 pandemic influenced the project's results?
Effective-ness	- To what extent are the program targets and outcomes likely to be achieved by the end of the project? - What adaptations and adjustments to activities have been made to improve the likelihood of achieving desired results and how can these be expanded or improved to increase program effectiveness? - What key successes should be replicated or what key improvements should be made to the implementation to maximize the results?
Efficiency	- Were the resources and activities provided by the program carried out in a timely manner and with effective use of resources? - How well has the project been managed and monitoring and evaluation data been used to make programmatic decisions?
Sustain-ability	- Which project activities and benefits are likely to be sustained or not sustained past the project lifespan, and why? - How did the market-led approach with business development service firms providing technical assistance affect the sustainability of those services? - Will the SOQ be sustained after the project? Why or why not? - How can the Activity further adapt to the COVID-19 pandemic to better ensure implementation efficiency and sustainability of project outcomes? - How could activities be modified to improve their efficiency and effectiveness and ensure long-term sustainability of results achieved?

MIDTERM EVALUATION. The midterm evaluation will (1) measure the progress the project has made toward key results and strategic objectives; and (2) provide recommendations for the project improvement. The expected start of the midterm evaluation will be March 2021, with field activities starting in late May 2021. The findings will be used by the project team, partners and USDA to make informed decisions about the direction of the project. Based on the findings and recommendations in the midterm report, the project team will compile an action plan for improvements to be made to program implementation and share this with USDA. Venture37 will share the findings of the midterm evaluation and any proposed changes to implementation with key dairy and beef stakeholders during a stakeholder meeting to solicit feedback. If changes to implementation are necessary, Venture37 will submit a modification to USDA for approval and will create a final action plan and timeline to implement. In accordance with the Office of Management and Budget Guidelines for Federal Departments and Agencies that Administer United States Foreign Assistance, Venture37 will upload completed evaluation reports to USDA's website after removing any personally identifying information.

Exhibit C-147. Midterm Evaluation Timeline.

ACTIVITY	MONTH OF IMPLEMENTATION 2021							
	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Develop the midterm evaluation ToR and share with External Evaluator								
Commence the evaluation work with External Evaluator for implementing MTE, submit detailed timeline for implementation and start preparatory work								

External Evaluation will update the evaluation instruments: field questionnaires, sampling design and survey protocols								
External Evaluation will conduct midterm evaluation fieldwork, collect quantitative and qualitative data								
External Evaluation will complete the data entry and cleaning and begin report writing								
External Evaluation will submit final midterm evaluation report with cleaned data to SQLL; Venture37 will then submit final midterm evaluation report to USDA for approval								
Discuss actions to address findings and recommendations with USDA								

Evaluation Methodology

To understand ongoing results and impacts for the various actors involved, Georgia FFPr will undergo a mixed-methods evaluation. The evaluation will use a non-experimental design, comparing the key outcomes for the various project participants across time—dairy and beef farmers, milk collection centers, beef fatteners, processors, slaughterhouses, aggregators, wholesalers, retailers, input and service providers, financial service providers, and GoG Agencies including: the National Food Agency (NFA) and Rural Development Agency (RDA). The external evaluators will collect quantitative and qualitative data from participants at baseline, midterm and final evaluation. The baseline, MTE and FE will be supplemented with data collected through internal semi-annual data collections and monitoring data collected at every event, which will be made available to the evaluator.

To measure the impact of the project on the entire dairy and beef industries, Venture37 will work with project staff and partners to identify cases of non-participant market actors who adjust their practices by “expanding” and “responding” to project activities. Because the project will develop a strong SOQ for the dairy and beef industries in Georgia, it is expected that actors outside of those directly impacted by project interventions will become aware of the benefits of participating in the SOQ, and, for example, adopt technologies and practices that would allow them to become SOQ certified. The concepts of expanding and responding derive from the adapt-adopt-expand-respond framework from the Springfield Centre for Business in Development. Examining these ripple effects will elucidate the broader impact the project is having on the dairy and beef industries as well as the sustainability of the SOQ. The external evaluator will also collect case studies of non-participant market actors who have adapted their practices due to project activities during the MTE and FE.

During the baseline assessment, a gender analysis will also be conducted to understand the context under which the project will operate and provide recommendations for how to ensure men and women will benefit equally. The analysis should be conducted through focus group discussions, key informant interviews, and questions in the dairy household questionnaire to explore issues in the dairy/beef market system such as 1) gender role in the dairy/ beef value chains and associated input and services; 2) decision making and use of income related to dairy/beef businesses from production to value added; 3) constraints and opportunities for women, youth and vulnerable households in the beef/dairy value chain and supporting services. Separate focus group discussions and key informant interviews may need to be held for the gender assessment to ensure the correct people are consulted and all topics are covered.

Exhibit C-3 and the below narrative details the data expected to be collected from stakeholders to answer the key evaluation questions. The evaluator should propose appropriate sample sizes for each type of participant, with a preference for a 95% significance level. Georgia FFPr expects to reach approximately 30,000 farmers and 270 businesses, including MCCs, beef fatteners, processors, slaughterhouses, wholesalers, retailers, input providers, and business development service providers.

Exhibit C-148. Overview of Evaluation Data Collection Methodology

STAKEHOLDER	DATA COLLECTION METHOD	TIMING			
		BASELINE	MIDTERM	ENDLINE	SEMI-ANNUAL (INTERNAL)
Dairy and Beef Farmers	Farmer Survey	X	X	X	X
	Focus Group Discussions	X	X	X	
Milk Collection Centers, Beef Fatteners, Processors, Slaughterhouses, Wholesalers and Retailers	Business Survey	X	X	X	X
	Key Informant Interviews	X	X	X	
Input and Business Development Service Providers,	Business Survey	X	X	X	X
	Key Informant Interviews	X	X	X	
Other Stakeholders	Key Informant Interviews	X	X	X	
Non-Participants	Case Studies		X	X	

Dairy and beef farmers. The evaluation will collect quantitative data through a farmer survey of a randomly selected, repeated cross section of dairy and beef farmer households at baseline, midterm. This survey will ask the farmers about their animal husbandry, farm management and post-production practices, infrastructure, and use of finance, among other factors. Both dairy and beef questions will be included in the same questionnaire since most dairy farmers are also beef farmers. Since project participants will not be chosen before the baseline is conducted, the baseline sample will be selected through a two-stage random sample. First, existing milk collection centers (MCCs), beef fatteners, processors and slaughterhouses will be randomly selected based on businesses registered with the NFA in the targeted region. Second, dairy and beef farmers who contribute milk and/or beef to those stakeholders will be randomly selected for an interview. During subsequent data collection, the respondents will be randomly selected from participant lists. The statistically relevant sample size will be proportionally spread across the target regions and by sex of participant.

In addition to the household survey, focus group discussions will be conducted with farmers at baseline, midterm and final evaluation to provide qualitative data that will offer additional context to the answers from the household survey, including gender considerations.

Milk collection centers, beef fatteners, processors, slaughterhouses, wholesalers and retailers. In-depth key informant interviews will be conducted with a sample of participant food businesses at baseline, midterm and final evaluation, capturing information such as types of products sold, quantity and amount of sales, business and food safety practices, plus additional qualitative information that will offer further context to the quantitative data. In addition, retailers will be asked about purchasing trends of quality dairy and beef products. The key informant interviews at baseline will also explore gender issues. Those food businesses that are also extension service partners will be asked a series of questions on their extension service provision to understand how it impacts their business.

Input and business development service providers. In-depth key informant interviews will be conducted with a sample of these businesses at baseline, midterm, and final evaluation, capturing information such as business practices and sales and qualitative information to provide additional context to the quantitative data. The key informant interviews at baseline will also explore gender issues. Those input

businesses that are also extension service partners will also be asked a series of questions on their extension service provision to understand how it impacts their business.

Other stakeholders. Other stakeholders, such as the NFA, RDA, Scientific Research Center (SRC), financial service providers, and other development actors, will be interviewed at baseline, midterm and final evaluation to capture their feedback on their participation in the project and suggestions for improvement.

Non-participants. Non-participants include market actors similar to project participants who copy project participants' changes, and actors in supporting systems who adjust their own practices in reaction to the new market reality created by the project. Such non-participants, identified by project staff, will be interviewed at midterm and final evaluation to examine the broader impact the project is having on the dairy and beef industries.

Analysis

The quantitative data from dairy and beef farmers will be analyzed through direct comparison with baseline to understand the changes in key indicators that occurred over time. The analysis will be gender-sensitive, exploring differences in output and outcome indicators between men and women. Regression analysis techniques will be used in the midterm and final evaluations to account for differences in observable characteristics of the sample, as well as the amount of time the farmers have been involved in the program. Key observable characteristics will likely include demographic information (age, sex, location), economic status proxy (housing material, livestock ownership) and distance to aggregators. Sales and practices data from the input and business development service providers, MCCs, beef fatteners, processors, slaughterhouses, wholesalers and retailers will be compared over time. If it is found that the participant population and the baseline population differ considerably, midterm and final evaluation data may be compared with the initial internal semi-annual data for some key indicators. All qualitative data will be transcribed and analyzed by themes to provide context and explanation for the quantitative data.

Key Tasks

For each of the baseline, midterm, and final evaluations, these key activities must be completed by the evaluator:

Review of Documents: Undertake review of the Georgia SQIL program documents and other relevant documents that are available at the time, including, but not limited to, the following:

- Project agreement with USDA, including the Georgia SQIL scope of work
- Georgia SQIL Evaluation Plan
- Georgia SQIL approved Attachment D: Performance Indicator Table
- Georgia SQIL Monitoring, Evaluation and Learning Plan (MELP)
- Semi-Annual and Annual Data collected internally (at Midterm and Final Evaluation)
- Output Level Monitoring data exported from IMPACTS system (at Midterm and Final Evaluation)
- Baseline report & data collection tools (at Midterm and Final Evaluation)
- Semi-annual survey instruments (Questionnaires) and sampling protocol developed and utilized by SQIL MEL Team to collect outcome indicator data;
- Midterm report & data collection tools (at Final Evaluation)
- Special Studies conducted throughout implementation (at Midterm and Final Evaluation)
- Semi-annual reports with disaggregated data submitted by Venture37 to USDA (at Midterm and Final Evaluation)

- Any other program documents which will enable the evaluator to get acquainted with the project progress
- Relevant Government of Georgia reports and documents for background information and establishing the socio-economic and political context in which Georgia FFP occurred
- Any existing studies on the dairy/beef sector in Georgia
- Any existing studies or Gender analyses on the agriculture sector in Georgia

Refinement of methodology and data collection tools: The evaluator, in close collaboration with Venture37, will do the following:

- Develop/revise a finalized methodology to carry throughout the three evaluations, including a sampling frame, sampling technique and sample sizes for both quantitative and qualitative surveys that is consistent with the desired methodology in this TOR; The baseline should indicate the methodology for conducting the gender analysis.
- Develop/revise data collection tools for both quantitative and qualitative data collection, including the gender analysis at baseline. Surveys should be similar throughout the three studies to ensure comparability of data over time, but additional questions should be added or new tools created at MTE/FE to explore participation in the project activities, and to ensure all evaluation questions, described above, are answered. The evaluator should review the semi-annual data collection instruments developed by the SQIL project and may follow a similar methodology for the data collection of key outcome indicators in case they find it appropriate in their evaluation design;
- Based upon a reading of the program documents, propose any additional topics or issues for analysis prior to conducting each evaluation.

Field Data Collection

- Plan and coordinate the necessary logistics to collect the data in accordance with the selected methodology.
- Pre-test, edit, translate (if necessary), finalize and reproduce the data collection tools.
- Train and orient enumerators and data collection team.
- Carry out the fieldwork using own transportation, including farmer and business surveys, focus group discussions, and interviews with key informants.
- Ensure effective recruitment of quantitative survey respondents, as well as qualitative research participants and timely implementation of the fieldwork with the preliminary agreed timelines.

Data entry, analysis and reporting

- Enter, clean, synthesize, analyze, and interpret data from both the quantitative surveys and the qualitative protocols using approved statistical packages.
- Aggregate the data for the key Outcome PMP indicators and submit to the SQIL MEL Team for further incorporation into the Semi-Annual Report to be submitted in October to USDA;
- Prepare a draft evaluation report addressing the objectives and questions of this evaluation outlined in this TOR and recommendations for the Georgia SQIL project or for potential similar future projects for review by Venture37 staff and stakeholders. A separate report should be developed for the Gender Analysis conducted at baseline.
- Develop a PowerPoint presentation of evaluation findings, present and submit to Venture37 and stakeholders, as arranged by Venture37.
- Prepare a evaluation report that includes revisions based on feedback on the draft report and presentation.

Timeframe

The midterm evaluation will occur from May-October 2021. The evaluator should propose a staffing scenario/budget consistent with the requirements of this TOR.

Required Deliverables

The deliverables under this contract for the MTE are listed below.

Deliverable	Description	Due Date
Signed modification to Evaluation contract	- Modification to the original evaluation contract will be signed by both Venture37 and the evaluator. This modification will include the following: - A detailed and specific timeline for the implementation of all activities and tasks related to this Midterm evaluation; - The timeline should be based on daily tasks implemented, linked with deliverables, and indicating the responsible person from the Evaluator team	April 16, 2021
Inception Report	The Inception Report should describe the following: - Understanding of the project based on project documents and literature review - Finalized methodology including detailed sampling plan and field procedures - Quality control measures - Communication protocol - Finalized timeline (activities, responsible party, outputs, and timing) - Draft Data collection tools (ready for review by Venture37)	April 26, , 2021
Draft Outline	Draft detailed outline that provides a breakdown of how the results and findings will be reported. Report should include at least following sections: - Acknowledgements - List of Acronyms and abbreviations - Table of Contents - Executive Summary (<i>no longer than 2 pages in final report</i>) - Background of Project and Evaluation - Methodology, Implementation, and study limitations - Results and Findings - Recommendations - Annex: Table of key program indicators, including all FFPr standard indicators and custom indicators with actual progress data, comparing to data from previous reporting periods (namely: compare midline values to the baseline values when there are baseline values; if there are instances where there aren't baseline values, then the comparison will be made to the first instance of data, likely the first internal semi-annual data collection) - Annex: Results Frameworks - Annex: Scope of Work for the evaluation - Annex: Inception Report for the evaluation - Annex: Survey Instruments: questionnaire(s), survey(s), interview protocol(s), focus group discussion protocol(s)	June 28, 2021

Deliverable	Description	Due Date
Draft Midterm evaluation report	The report should be submitted in English addressing all the evaluation objectives and questions listed in the scope of work. The report should not include any personal identifying information of those involved in the study	September 3, 2021
Presentation along with Validation workshop on Evaluation Findings	Presentation on evaluation findings will include as well the validation workshop to discuss main findings. Presentation should include an abbreviated list of evaluation findings that can be presented to relevant internal and external stakeholders, as well as completed list of PMP Outcome indicator data with disaggregates for the review and discussion by Venture37.	September 6, 2021
High-Quality Photos	10-15 high-quality pictures of the process	September 3, 2021
Non-technical Evaluation Summary	Electronic copy of a 3-4 page summary document highlighting key evaluation findings and lessons learned for midterm and final evaluations, including use of data visualizations and language appropriate for non-technical stakeholders and decision-makers in both English and Georgian. The summary should not include any personal identifying information of those involved in the study.	September 24, 2021
Final Data Collection Tools	Electronic copies of all clean and final English-version of data collection tools	September 24, 2021
Final Cleaned Data	Clean and final English versions of: - Quantitative data sets in Microsoft Excel and any other utilized format (SPSS, STATA, etc.) - Qualitative transcripts, field and interview notes, complete list of key informant interviews and FGDs in Microsoft Word document	September 24, 2021
Updated Final midterm report based on USDA Feedback	The Evaluator will update the final midterm evaluation report based on USD comments and submit the final cleaned evaluation report for the acceptance. The Evaluator might also be requested based on need to conduct a brief Presentation with final findings for the donor and Venture37.	November 15th, 2021

Please note that a draft evaluation report that does not meet Venture37 expectations in terms of quality will not be accepted.

Relationships and Responsibilities

Venture37 intends to contract the same organization for the baseline, MTE, and FE if the previous study deliverables meet expectations. If Venture37 expectations are not met, a new competitive recruitment process will be completed in alignment with USDA policies. The successful organization chosen to conduct these evaluations will be financially and legally independent of Venture37 and its partners to ensure evaluation validity.

The evaluator will perform the tasks described in this TOR with support from Georgia SQIL Project staff members, assigned by the Chief of Party, to provide relevant documents and information and to locate participants and stakeholders. The evaluation team will communicate with the Georgia SQIL Project Monitoring, Evaluation & Learning (MEL) Manager and the headquarters GMEL Manager, and keep them informed of their progress. Venture37 staff and stakeholders will provide feedback on the inception report, data collection tools and draft report. During the evaluation, the evaluator may ask for additional advice or guidance from the above-mentioned Venture37 staff, but the evaluator should conduct the evaluation with independence and impartiality.

Venture37 Global Monitoring Evaluation and Learning (GMEL) team, based in the Venture37 headquarters office, will give the final approval on all evaluation deliverables and will work closely with the Georgia SQIL MEL team to ensure the deliverables are reviewed and shared among relevant staff and stakeholders.

Logistics

The assignment will require travel to targeted program regions in Georgia. All resources (e.g. interpreters, enumerators, transport, hotel reservations) should be arranged by the evaluator, and included in the budget.

Proposal Submission Requirements

Required Experience

The selected evaluator must have in-depth knowledge and experience in carrying out program evaluations, especially for agricultural development programs, with some experience in Georgia preferred. The evaluator must have prior experience in evaluating USAID and/or USDA funded programs. Required and desirable qualifications include:

- Minimum 8-10 years work experience in evaluation of economic development programs, especially in agriculture;
- Team has expertise in dairy and livestock value chains, livelihoods, evaluation and gender;
- Strong program evaluation experience, including evidence of success in completing similar evaluations in terms of size, design, and rigor;
- Previous experience in evaluation of USDA/USAID programs;
- Strong qualitative and quantitative research and analytical skills;
- Knowledge of the Georgia preferred;
- Ability to hire experienced enumerators that know Georgian official language;
- Proven record of excellent management, leadership, decision-making and interpersonal skills;
- High capacity for writing in English and preparing quality written products in respect of deadlines;
- Ability to work within the international and multicultural environment.

Submission Details

MEL firms that meet the above experience will be selected from Venture37's MEL preferred provider list to apply for this opportunity. Selected firms should submit the following information, not to exceed 10 pages:

- Brief description of the proposed evaluation methodology, including the proposed sampling strategy for the MTE;
- Workplan, outlining the major activities and time schedule for the implementation of the MTE;
- List and briefly described the proposed personnel and their responsibilities on the evaluation (Curriculum vitae included in the annex);
- Itemized budget for the MTE including any applicable tax with brief narrative explanation of line times.

Annex D. Midterm Inception Report

1. Introduction

Land O'Lakes Venture37 (Venture37) has contracted IMPAQ International, LLC (IMPAQ) to implement the performance evaluation of the five-year Georgia Safety and Quality Investment in Livestock (SQIL) dairy and beef development project, funded by the United States Department of Agriculture (USDA). The evaluation consists of three components: baseline and gender analysis (2018-19), midterm (2021), and final (2023) evaluations.

This inception report describes the theory of change, methods, and tools that will guide IMPAQ's strategy for the midterm evaluation. In this chapter, we provide a background of the project, specific project activities, the results framework, and the evaluation objectives. In the next chapter, we outline the midterm evaluation methodology, including research questions, a detailed sampling and data collection plan, data sources and analysis plan, field procedures, quality control measures, and communications protocol. We conclude the chapter with a timeline of activities and outputs along with a list of personnel assignments. Finally, finalized data collection tools and other supporting materials are included in the annexes.

1.1 Project Background

Georgia is an emerging free market economy and the country has seen rapid periods of growth in the last decade. On average, from 2009 to 2019, the gross domestic product (GDP) grew by 6.1% in real terms.⁴⁸ However, the share of agriculture in the overall GDP has remained low, despite the sector employing almost 38% of Georgia's workforce (as of 2019). In 2019, the agricultural sector contributed only about seven% to Georgia's GDP. However, post 2012, the Government of Georgia has implemented economic reforms and increased private sector initiatives in the agricultural sector that have led to improved productivity, increased productive capacity, and reductions in rural poverty.

Dairy and Beef Value Chains in Georgia

Within agriculture, the dairy and beef sectors account for more than half of total agricultural output. However, productivity levels in these sectors have remained low, despite favorable ecological and climactic conditions.⁴⁹ Absence of adequate farm infrastructure, weak supporting services, and harsh competition from international producers have been the prime causes of low growth levels in the dairy and beef sectors.⁵⁰

Exhibit D-1 depicts the dairy and beef value chains in Georgia. The dairy and beef value chains, at the farm-gate level, include small-scale subsistence farmers, medium-scale commercial farmers, and large commercial farmers. Subsistence farmers usually produce only for home production or village consumption and have either non-existent or weak links to other actors in the value chain like processors and slaughterhouses. In contrast, commercial farmers are linked to milk collection centers, milk processors, beef fatteners, and slaughterhouses to varying degrees. Medium-scale commercial farmers, with livestock holdings of 10-49 cattle, are often linked to large scale processors, while those with livestock holdings of 3-20 cattle are linked to micro-processors. Large scale farmers are those with more than 50

⁴⁸ World Bank Statistics. 2021

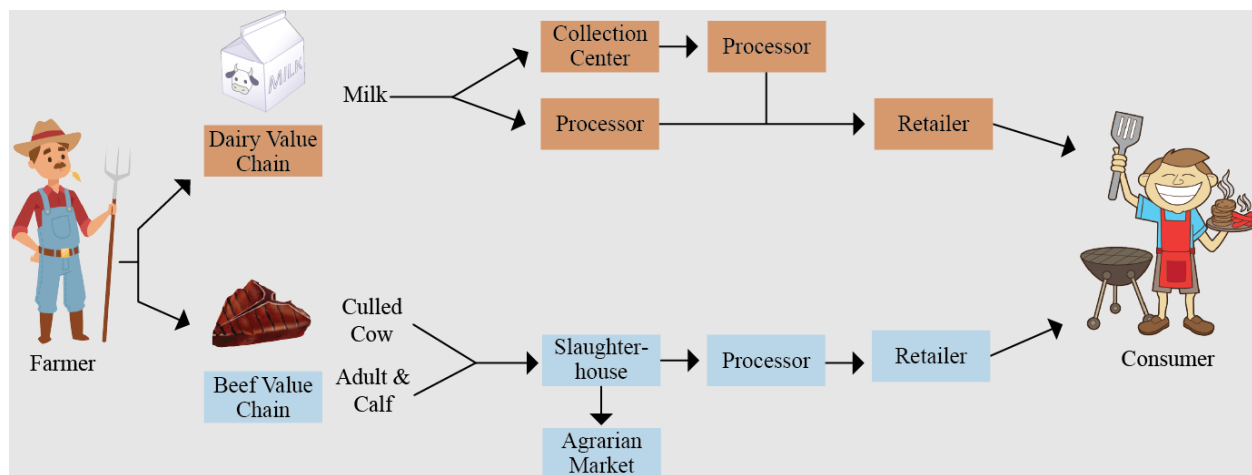
⁴⁹ Georgia Country Report, The Fund Georgian Center for Agribusiness Development. 2016.

⁵⁰ Georgia Country Report, The Fund Georgian Center for Agribusiness Development. 2016.

cattle and are almost always linked to large and medium size processors. Medium and large-scale commercial farmers have varying levels of quality with medium-scale farmers often facing quality rejections.

Intermediate actors in the value chains include milk collection centers, milk and beef processors, milk and beef retailers, slaughterhouses, input suppliers, and business development service providers. Several critical issues affect each actor in the dairy and beef value chains. Common challenges facing each actor include: (a) restricted access to finance and technical capacity, which limits the quality and quantity of services they provide to consumers, (b) high start-up costs and poor management systems, (c) inaccessible financing and risk management instruments, (d) fragmented cold chain and logistics infrastructure, (e) low consumer confidence in domestic products, and (f) food quality and food safety issues.⁵¹

Exhibit D-149. Dairy and Beef Value Chains



Venture37 Georgia SQIL Intervention and Results Framework

With funding from the USDA, Venture37 is leading an innovative, demand-driven Food for Progress Safety and Quality Investment in Livestock (SQIL) project to improve food safety and quality along Georgia's dairy and beef value chains in order to increase competitiveness and trade in both sectors. The Results Framework of the Venture37 Georgia SQIL is presented in **Annex B: Georgia SQIL Results Framework**. The nationwide project, which focuses on medium-scale commercial farmers and businesses, is working to increase profits and productivity and expand trade of milk and beef products along Georgia's East-West highway corridor. The implementation regions, as shown in **Exhibit D-2**.

The theory of change for the project focuses on using a private-sector approach to reach the goal of increasing productivity and profit for the dairy and beef sector actors. Project activities are focused on enhancing income and productivity at the farmer level as well as removing bottlenecks along the dairy and beef value chains. On the supply side, Venture37 is building the capacity of local service providers and other relevant businesses by providing extension and training services to commercially-oriented dairy and beef farmers on areas of animal husbandry and food safety practices. There is also a focus on building the capacity of value-added dairy and beef businesses to optimize their supply chain, improve food safety practices, improve the quality of the mainstream products, and create niche products to support increased business sales and profit. To strengthen processes along the supply chain, there is a focus on improving the supply chain management systems focusing on cold storage, transportation and logistics,

⁵¹ Agriculture for Development: World Development Report, 2008 and Innovations for Agricultural Value Chains Report, Meridian Institute. 2015.

and infrastructure. By reducing losses and enhancing food safety and quality throughout the dairy and beef supply chains, the project seeks to promote efficiency and business viability while also simultaneously increasing the marketing capacity of dairy and beef farmers and agri-businesses.

To expand the market for dairy and beef goods, Venture37 is building up an existing dairy and beef associations to develop and administer a dairy and beef Seal of Quality. Venture37 is also conducting an awareness campaign to build up demand for higher quality products domestically. They are working with the National Food Agency (NFA) to improve their food safety inspection services thereby promoting compliance. As dairy and beef farmers and businesses improve their food safety compliance, the project aims to support them in accessing international markets.

To improve the enabling environment, the project is supporting dairy and beef sector actors to access finance through an innovation fund that will provide matching funds for investment, support through business development service (BDS) firms in the development of sound business plans, and linkages to formal financial institutions. The project is also building the capacity of dairy and beef associations to advocate to the government for favorable laws and policy for dairy and beef value-chain actors.

Exhibit D-150. Map of Regions Targeted in the SQIL Project



To summarize, through its private-sector driven market systems approach, Venture37 is performing six activities within three separate focus areas: capacity building (which includes technical assistance and training), market access, and access to finance. These activities are detailed in the contract scope of work and summarized in **Exhibit D-3** and presented in detail in **Annex B: Georgia SQIL Project Activities**. These activities are designed to help Venture37 reach its goals of increasing agricultural productivity and expanding the trade of agricultural products in the dairy and beef sectors.

Exhibit D-151. SQIL Project Focus Areas and Activities

Activity Number	Activity	Sub-Activity
1	Expand Market Access: Facilitate Private and/or Public Partnerships	Establish a National Dairy and Beef Industry Association
		Develop the Seal of Quality (SOQ) Standards
		Conduct a National Level SOQ Awareness Campaign
		Launch a Business Innovation and Growth Center

Activity Number	Activity	Sub-Activity
2	Training: Sanitary and Phytosanitary Standards	Provide Food Safety Technical Assistance
		Build out ICT Tools to Disseminate Food Safety Training
		Build Capacity of the NFA to Enforce Standards
		Expand the network of Food Safety Professionals
3	Infrastructure: Post-Harvest Handling and Storage	Strengthen Supply Chain Management Systems
		Facilitate Upgrades of Supply Chain Infrastructure
4	Capacity Building: Extension Services	Expand Private Sector Input and Extension Models
		Use ICT to Disseminate Animal Husbandry and Farm Management Best Practices
5	Financial Services: Agricultural Lending	Provide Catalytic Capital for Business Growth
		Support Scale-Out of Livestock Insurance Products
6	Capacity Building: Policy and Regulatory Framework	Inform Food Safety Policy Development
		Advocate for Dairy and Beef Industry Growth

1.2 External Factors

Coronavirus disease 2019 (COVID-19) is a contagious respiratory and vascular disease responsible for an ongoing worldwide pandemic. In early 2020, this worldwide health emergency resulted in a number of setbacks for the SQIL project, derailing project activities and potentially affecting beneficiary/participants outcomes.

According to the SQIL Semi-Annual Performance Report of April 2020 to September 2020, these effects include macroeconomic destabilization of the Georgian economy due to reduced domestic HoReCa demand for dairy and beef products, continuous devaluation of the national currency, increased interest rates and reduced access to finance. The SQIL project made efforts to adapt to the circumstances as COVID-19 brought major changes in how the distribution and supply chains operate, as well as availability and accessibility of dairy and beef inputs, commodities and value-added dairy and beef products. Specific project challenges included reductions of group trainings and technical assistance activities for both private and public participants and postponement of activities that required international travel.

Instead, other types of activities that do not require in-person gatherings of larger groups, utilization of IT tools through implementing internet-based trainings, development publishing and dissemination of training materials, as well as one-on-one technical assistance interventions, were all stepped up during the summer months of 2020.⁵²

As part of this midterm evaluation, IMPAQ will also assess the effects of the COVID-19 pandemic on project participants and the beef and dairy value chains in Georgia. We will examine its influence on project results and key performance indicators outlined in the Performance Monitoring Plan.

1.3 Evaluation Objectives

IMPAQ will work with Venture37 to implement the midterm evaluation of the SQIL project to measure progress made in achieving the intended outcomes presented in the Results Framework (see [Error! Reference source not found.](#)). The Evaluation Questions and their attendant data collection method and data sources are presented in [Error! Reference source not found.](#). The IMPAQ team is employing a market systems approach to answer the evaluation questions. This approach frames the evaluation through the

⁵² SQIL Semi-Annual Performance Report to USDA April 2020 to September 2020

lens of Georgia's dairy and beef market systems and analyzes how SQIL contributes to the development of a sustainable private-sector driven dairy and beef market system. As an organizing framework, market systems analysis looks at the underlying conditions affecting the market (for example, the scale and nature of dairy and beef product demand, the supply base, and the policy environment) and how these conditions, in combination with project activities, influence the strategies of market stakeholders and the emergence of a sustainable market-driven industry. The midterm evaluation has eight objectives, as detailed in the terms of reference (TOR):

- Assess the relevance of the project strategy and approach as well as the validity of assumptions made during project design;
- Measure progress from baseline, including the effectiveness and efficiency of interventions in achieving established targets;
- Assess how women and men have benefited differently from the project and provide recommendations for mitigating any differences;
- Document lessons learned, challenges and unanticipated effects, including the COVID-19 global pandemic;
- Identify enablers and constraints to progress (both internal and external factors) that have supported or limited success of the project;
- Assess sustainability efforts to date;
- Provide recommendations for necessary corrections to strengthen project performance, efficiency and sustainability; and
- Provide recommendations for areas of focus for the final evaluation, including reviewing and strengthening data collection systems and metrics in preparation for the final evaluation.

For the midterm evaluation, the focus will be to test the hypotheses developed in the baseline report about the project's relevance, impact, efficiency, effectiveness, sustainability, and gender equality and equity considerations using a non-experimental design, comparing key outcomes for the various project participants, across time.

SQIL Evaluation Team

To fulfill the evaluation objectives, the Georgia SQIL evaluation team includes:

- ***Dr. Uttara Balakrishnan, Ph.D., Principal Investigator.*** Dr. Balakrishnan will lead this evaluation and will provide technical and methodological oversight.
- ***Ms. Glynnis Melnicove, M.P.A., Qualitative Lead.*** Ms. Melnicove will lead the qualitative aspects of this evaluation, including helping to facilitate key informant interviews, drafting key informant interview and focus group discussion guides and analyzing findings.
- ***Mr. Daniel Zaas, M.I.D.P. and Mr. Adam Taube, M.I.D.P., Quantitative Research Analysts.*** Mr. Zaas and Mr. Taube will provide data cleaning and analysis for the quantitative data for the midterm evaluation. They will also assist in questionnaire development for the quantitative data collection tools.
- ***Ms. Mahrusah Zahin, M.P.A., Qualitative Research Analyst.*** Ms. Zahin will provide data cleaning and analysis for the qualitative data for the midterm evaluation.
- ***Mr. John McCormack, M.Sc., Value Chain Expert.*** Mr. McCormack will provide technical guidance related to the dairy and beef value chains.
- ***Ms. Medea Ioseliani, M.Sc., Local Expert.*** Ms. Ioseliani, a native speaker of Georgian, will be engaged to support field operations and other project activities as needed.

- **Mr. Merabi Chkhartishvili, M.Sc., Local Expert.** Mr. Chkhartishvili, a local dairy expert from Georgia, will be provide local subject matter expertize on the dairy and beef value chains in Georgia.

IMPAQ will collaborate with the **Caucasus Research Resource Center – Georgia (CRRG)** to conduct data collection activities.

2. Evaluation Methodology

In this section, we provide specific details of our mixed methods evaluation approach, including the research questions, sampling plan, data collection methods, field procedures, quality control measures, and a project timeline.

The IMPAQ team will conduct a performance evaluation to meet the midterm evaluation objectives and answer the final midterm evaluation questions. This approach will frame the evaluation through the lens of Georgia's dairy and beef market systems, considering how the SQL interventions contribute to the development of a sustainable private sector driven dairy and beef market systems. IMPAQ will use a formative approach to tie together its inquiries at each level of the value chain into a broad picture of SQL's relevance, impact, effectiveness, and efficiency and to examine the sustainability and equity of the project's activities and impact.

We will organize the midterm evaluation using a mixed-methods approach, comparing progress on key outcomes over time for project participants. The midterm evaluation will characterize the different value chain actors and test hypotheses about the project's relevance, impact, efficiency, sustainability, and gender equality and equity considerations, which IMPAQ developed at baseline. We will evaluate the project's Results Frameworks within the context of the dairy and beef value chains and will compare the extent to which the strategic objectives of the Results Frameworks have been achieved. The midterm evaluation will build off the baseline evaluation results by providing longitudinal data and comprehensive documentation of the dairy and beef market systems, especially after incorporating the effects of the COVID-19 pandemic on project implementation and achievement. We will identify lessons learned through the duration of the project with an emphasis on identifying key strategies, methodologies and factors that contributed to and/or inhibited success, focusing on areas that could be applied to the remaining duration of programming.

In addition, through case studies of non-participant market actors, we will gather information about the spillover benefits of the Georgia SQL on non-participants. In the targeted regions, we will select non-participant dairy and beef farmers and examine if and how they have adapted their practices due to project activities during the midterm evaluation.

2.1 Research Questions

In pursuing our evaluation objectives, we will answer an array of specific evaluation questions relating to the project's relevance, impact, effectiveness, efficiency, sustainability, and gender equality and equity. [Error! Reference source not found.](#) demonstrates our evaluation framework, which maps each evaluation question to their attendant data collection method and data sources within each evaluation criteria. At midterm, we will provide current values for the project indicators and other contextualizing data points, as well as preliminary discussions based on our research that will guide our evaluation activities through the remainder of the project period and will be used to make recommendations to refine the project approach.

2.2 Data Sources

IMPAQ will use similar methods and instruments for each type of project stakeholder as used during baseline to generate consistent data and insights over the life of the project. The focus group discussions (FGDs) and key informant interviews (KIIs) will also help contextualize stakeholder insights on the dairy sector as a whole. We will tailor all qualitative interviews and quantitative data collection instruments to each stakeholders' type of involvement in the project. We will discuss with Venture37 any modifications

needed in data collection instruments from midterm to account for changes in project implementation. We will include additional questions related to program implementation in quantitative and qualitative instruments for this midterm evaluation. All data collection instruments and interviews will be designed initially in English; and will subsequently be translated to Georgian and the local languages of Azerbaijani and Armenian. Data collection personnel will use the most appropriate language for each respondent by selecting the correct language at the start of the survey within the tablet tool.

Document Review

We will review relevant documents from Venture37, which will inform the development of our quantitative and qualitative instruments. These documents include semi-annual performance reports submitted to USDA, special studies conducted by Venture37, and any other relevant documents.

Quantitative Data Sources

The main data sources for the quantitative data collection include: (a) farmer survey with dairy and beef farmers, and (b) a business survey with milk collection centers (MCCs), milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input suppliers.

Based on the margin of error calculations conducted at baseline, a total of 383 farmer households will be surveyed in each data collection round. Accordingly, the midterm data collection for the farmer survey will follow a stratified sampling approach. The sampling frame for the farmer survey will be the beneficiaries of the SQIL project in Georgia in five regions: Kakheti; Kvemo Kartli; Samtskhe Javakheti; Imereti; and Samegrelo, Zemo Svaneti and other regions, as feasible. Using the beneficiary lists provided by Venture37 farmers we will first exclude farmers who will included in focus group discussions (FGDs) as part of the qualitative data collection. Then, farmers will be sampled with probability proportional to size by region to arrive at the final sample of 383 completed farmer household surveys.

The midterm data collection for the business survey will sample 215 businesses similar to baseline based on the margin of error calculations conducted at baseline. From the list of businesses provided to us by Venture37 we will exclude businesses that will be sampled for the FGDs with businesses. Then we will sample businesses through a stratified random sampling approach, stratifying by the geographical location of the businesses. While sampling for the business survey, we will exclude businesses with whom key informant interviews (KIIs) will be conducted. We assume a 50% response rate and will therefore roughly sample double the target of 215 businesses in every round. **Exhibit D-4** summarizes our proposed target numbers of respondents for the quantitative data collection.

Exhibit D-152. Quantitative Data Sources

Stakeholder Type	Data Collection Method	Target Sample Size
Dairy and Beef Farmers	Household Survey	383
Milk Collection Centers, Milk Retailers, Milk Processors, Slaughterhouses, Beef Processors, Beef Retailers, and Input Providers	Business Survey	215

Qualitative Data Sources

We will complement the quantitative data with qualitative data collected from farmers, businesses, other value chain stakeholders, and project stakeholders. These project beneficiaries will be purposively selected to ensure representation of gender and location.

As part of the midterm evaluation, IMPAQ will conduct FGDs with dairy and beef farmers and dairy and beef businesses. A total of 6 FGDs will be conducted with dairy and beef farmers and 5 FGDs with dairy and beef businesses, including milk processors, milk collection centers, milk retailers, beef processors, slaughterhouses, and beef retailers. The sampling for FGDs with farmers (men and women) will focus on

recruiting farmers that have at least five cattle to the extent possible. These FGDs will be conducted in the rural and peri-urban areas in the five project regions. Farmers and businesses for the FGDs will be sampled using the sampling frame provided by Venture37. The final sample selected for the FGDs will exclude those farmers and businesses who will be surveyed under the farmer or business survey under the quantitative data collection.

IMPAQ will also conduct a total of 30 KIIs with representatives from government agencies, financial service providers, sectoral associations, input suppliers, research institutions, education institutions, SQIL, and USDA. The names and contact information for these stakeholders will be provided to us by Venture37.

In addition to FGDs and KIIs, as part of the midterm evaluation IMPAQ will develop two case studies of non-participant farmers who adapted their practices due to project activities. IMPAQ will work closely with Venture37 staff to identify the two non-participant farmers to participate in the case study exercise. IMPAQ anticipates developing one case study of a non-participant rural farmer and one of a non-participant peri-urban farmer. The case studies will explore how the non-participant farmer learned about the adapted practices, how they implemented the new practices, and the results of their adaptations. The case study will seek to identify the spillover effects of the activity as well as provide insight into how the activity can amplify programming through formal and informal networks. **Exhibit D-5** summarizes our proposed target numbers of respondents for the quantitative data collection.

Exhibit D-153. Qualitative Data Sources

Stakeholder	Data Collection Method	Target Sample Size
Dairy and Beef Farmers	Focus Group Discussions	6 (1 in each of the 5 regions, with the exception of Kakheti which will have 2; mixed female/male groups)
Dairy Value Chain Business Representatives: milk processors, milk collection centers, and milk retailers	Focus Group Discussions	3 (1 in Kakheti, 1i in Tbilisi, and 1 in Imereti; mixed female/male groups)
Beef Value Chain Business Representatives: beef processors, slaughterhouses, and beef retailers	Focus Group Discussions	2 (1 in East Georgia and 1 in West Georgia; mixed female/male groups)
Government Agencies and their staff	Key Informant Interviews	9
Financial Service Providers	Key Informant Interviews	2
Sectoral Associations	Key Informant Interviews	8
Input Suppliers	Key Informant Interviews	5
Research Institutions	Key Informant Interviews	2
Education Institutions	Key Informant Interviews	2
SQIL Project Staff	Key Informant Interviews	1
USDA	Key Informant Interviews	1
Non-Participants	Case Studies	2

2.3 Data Collection Methods

As explained above, we will develop different types of qualitative and quantitative instruments to address research questions for each stakeholder type's involvement in the project or dairy and beef sectors and will address overarching issues relating to the project and its activities in the sector. Overall, we developed a farmer survey, seven different business surveys to cover each business type, qualitative guides for the FGDs and KIIs (tailored to different business types and different stakeholders). IMPAQ will use consistent methods and instruments for each type of project stakeholder across baseline, midterm, and final evaluation data collection to generate consistent data and insights over the life of the project. Please see

[Error! Reference source not found.](#) for a list of all data collection instruments.

Key Informant Interviews

At midterm, IMPAQ will conduct KIIs with representatives from government agencies, financial service providers, sectoral associations, input suppliers, research institutions, education institutions, SQIL, and USDA. The KIIs will include questions about the respondents' background, current mandate or involvement in the dairy and/or beef value chain, perceptions of critical issues in the dairy and beef value chain, involvement in and perceptions of SQIL strategies and activities, effects of COVID-19 on the dairy and beef value chains, and specific issues relevant to each type of respondent.

The KIIs with representatives from government agencies will ask about changes observed in the dairy and beef sector in the past two years, barriers to growth in the dairy and beef sector, if and how SQIL engaged with the government to address these barriers as well as whether those efforts are likely to be sustained after the project, and external factors that affected the dairy and beef sector, including the impact of COVID-19. We will ask financial services providers about if and how SQIL has helped them develop new products or strategies for providing services to dairy and beef value chain stakeholders. KIIs with sectoral associations and input suppliers will focus on if and how SQIL has facilitated access to trainings, networks, and financial services. For research institutions, we will assess whether the project has helped address key evidence gaps needed to promote and improve conditions within the dairy and beef value chains. Similarly, KIIs with educational institutions will assess whether the technical assistance provided helped improve and better align curricula and trainings to address the needs within the dairy and beef value chains. The KIIs conducted with the SQIL Chief of Party and USDA will include questions related to the effectiveness, efficiency, and timeliness of activities, plans for sustainability of activities and outcomes, challenges encountered during implementation, and best practices and lessons learned to date. The interview with USDA will also include questions about SQIL alignment with USDA's overall strategy. Due to COVID-19 restrictions, all KIIs will be conducted remotely over Zoom, Teams, Skype, or phone, depending on internet access.

Focus Group Discussions

Midterm Evaluation Key Informant Interview Themes

- Experience engaging with SQIL and perception of efficiency, effectiveness, and timeliness of technical assistance and support
- Current role in the dairy value chain
- Best practices and lessons learned so far
- Effects of COVID-19 on project implementation and beneficiaries
- Perceptions of critical issues in the dairy value chain
- Perceived internal and external factors influencing project activities
- Likelihood of project targets and outcomes being met by the end of the project
- Sustainability of project activities
- Perception of the extent to which activities have efficiently used resources.

IMPAQ will conduct FGDs with a sub-sample of male and female dairy and beef farmers in each of the five targeted regions to provide context to findings from the household survey. During the FGDs with farmers we will ask about their experiences with the SQIL project, including any changes to farming practices, access to new market information or financial services, and engagement in associations as a result of their participation in the project. We will identify if there were any issues related to female participation in project activities, and discuss the effect of COVID-19 on their business. IMPAQ will also conduct FGDs with a sub-sample of dairy and beef value chain businesses, where we will ask about their experience with SQIL including any changes made to their business processes and access to new market information or financial services as a result of their participation in the project. We will also identify if there were any issues related to female participation in project activities and discuss the effect of COVID-19 on their business. Due to COVID-19 gathering restrictions, FGDs will be conducted remotely using Zoom, Teams, Skype, or phone, depending on internet access. Each FGD will be conducted with approximately 8 to 10 beneficiaries.

Midterm Evaluation Focus Group Discussion Themes

- Changes in farming and business practices, access to market information, access to financial services, and participation in associations as a result of project participation
- Experience with GeoGap Certification process
- Differences in participation and benefit of women and men in project activities
- Effect of COVID-19 on dairy and beef value chains
- Perceived internal and external factors influencing project activities

Farmer Surveys

We will administer a farmer survey to male and female dairy and beef farmers to collect data on livelihood strategies, access to financial services, dairy and beef husbandry practices, food safety practices, procurement of inputs, dairy and beef sales, assets (land, machinery, facilities, and cattle rearing infrastructure), and consumption of meat and milk. This information will allow us to conduct a detailed profit analysis. The farm household survey will also include questions on socio-economic characteristics, allowing nuanced analysis of gender dynamics over the life of the project.

Business Surveys

We will collect quantitative data from key businesses including milk collection centers, milk processors, milk retailers, slaughterhouses, beef processors, beef retailers, and input providers. Each business survey will include a component to collect basic business information, employment, business practices, food safety practices (if applicable), infrastructure (if applicable), procurement of farm produce (milk, live animals, meat etc.), types of products offered, sales, input costs, investments, employment, capitalizing, fixed assets, and marketing activities.

Any changes to the data collection protocols will undergo a cultural sensitivity review, once translated, to ensure that questions are asked appropriately. All surveys will be conducted in Georgian (or Azerbaijani/Armenian as needed) by our local partner, CRRC, in Georgia. In conducting the interviews, IMPAQ team members will follow the Federal Policy for the Protection of Human Subjects, receive consent from participants and comply with the ethical standards expected for this type of social research. The team will inform respondents of the purpose of the research and their right to confidentiality; and will seek the consent of each participant to take part in the evaluation and to include their names in a list of respondents in the version of the evaluation report that includes such information. IMPAQ will also consult with Venture37 about other applicable procedures to ensure the evaluation abides by standard local and international ethical review and approval processes.

2.4 Data Analysis

We will analyze qualitative and quantitative data separately and then integrate the findings to provide a comprehensive response to the research questions during each phase of the evaluation.

Quantitative Data Analysis.

At midterm, we will analyze quantitative data from farmers and other dairy market actors. We will use descriptive statistics such as counts, tabulated proportions, and means. We will also look for common trends and patterns in the data that will inform the evaluation. To the extent possible, we will disaggregate these descriptive statistics to reveal differences across project stakeholders based on factors such as gender, ethnicity, scale of operation, and location. Additionally, we will conduct multivariate analysis of the farmer data, focusing on the relationships between key project outcomes and explanatory variables such as production practices and socio-demographic factors. To support multivariate analysis, we will use qualitative methods to provide insights into correlations between different practices being used and desired outcomes such as quality and sales to the extent possible. Finally, we will calculate midterm indicator values of key performance indicators and disaggregate them as required in the Performance Monitoring Plan.

Qualitative Data Analysis

Our qualitative data analysis during the midterm evaluation will identify and substantiate critical themes and issues that emerge during quantitative data collection. To analyze the qualitative data efficiently, impartially, and consistently, we will have a structured summary form of the interviews and focus groups that identifies key themes and maps them to the evaluation questions outlined in Error! Reference source not found.. We will synthesize emerging qualitative results using pattern analysis methods that identify themes in responses. Where relevant, we will differentiate results by value chain stakeholder type, as well as by respondents' gender, scale of operations and location.

Integrating Qualitative and Quantitative Data

The evaluation team will triangulate the qualitative and quantitative analyses to address the evaluation questions. We will compare key findings across both types of data. To overcome any deficiencies in the data, the team will analyze each type of data separately, as described above, and then identify if and how the two sets of findings coincide in the answers they provide to the evaluation questions. Where discrepancies exist, we will consider possible reasons. The team will also use qualitative data, whenever possible, to provide contextual information to help interpret the quantitative results. The process of examining the qualitative and quantitative findings in relation to one another will figure centrally when developing comprehensive lessons learned and recommendations based on the overall evaluation findings.

We will also incorporate a gender-sensitive lens in the midterm evaluation. Through the quantitative farm survey and the FGDs, we will focus on intra-household distribution of roles and responsibilities at the farm level. We will examine how SQIL project activities affected household-level roles in decision-making about dairy and beef activities and control over production and revenue from sales. We will explore the perspectives of women and men about the dairy and beef market and related value chains and the constraints and opportunities faced specifically by women. IMPAQ will identify critical gender concerns to address during evaluation design, data collection, and analysis to ensure that gender is an integral part of the SQIL midterm evaluation. IMPAQ staff will ensure that all evaluation activities appropriately capture and report sex-disaggregated data for outputs and outcomes. We will also employ a gender-sensitive approach throughout our data collection activities by:

- Ensuring that evaluation questions ask specifically about gender inclusiveness, if appropriate

- Disaggregating all data by sex, analyze for gender differences, and report on the findings
- Keeping survey and interview work sensitive to women's schedules and availability to participate

2.5 Field Procedures

IMPAQ's local data collection team, led by Mr. Dustin Gilbreath of CRRC, will organize and implement field data collection operations under the overall supervision of Dr. Balakrishnan. They will be further supported by IMPAQ local expert, Ms. Medea Ioseliani. Following approval of the final inception report and data collection instruments by Venture37, IMPAQ will (1) transmit the final, approved instruments and protocols to the data collection team for translating into Georgian, Azerbaijani, and Armenian and programming into tablets using Kobo software; and (2) conduct initial testing of all the programmed instruments before they are fielded. Due to travel restrictions due to COVID-19, IMPAQ's home office staff will not travel to Georgia for enumerator training. To ensure quality control, IMPAQ's home office staff will join the enumerator training remotely

The pilot testing of the quantitative instruments will take place in-person prior to enumerator training with supervisors. Based on the findings of the pilot testing, the survey instruments will be modified. This will be followed by enumerator training. Enumerator training, which will take place remotely via Zoom due to COVID-19 restrictions, will consist of sessions designed to introduce the enumerator team to the evaluation framework and implementation context, followed by section-by-section review of the data collection instruments and in-class practical application using tablets for the farmer survey and business surveys. The pilot testing and subsequent data collection will include all safety protocols for COVID-19 including: (1) ensuring that all participants wear masks at all times; (2) maintaining a 6 feet distance amongst participants at all times, inside and outside of the training room; and (3) ensuring adequate supply of handwashing stations and/or hand sanitizer at the training venue and during data collection.

All qualitative data will be collected remotely via Zoom or other online platforms. The quantitative data will be collected will be conducted in-person. Dr. Balakrishnan will provide overall oversight for all data collection and data quality control activities to ensure a consistent technical approach and coordination among different activities.

2.6 Quality Control Measures

Evidence-quality data is critical to successful evaluations. Dr. Balakrishnan will lead data quality oversight activities for the SQIL midterm evaluation. The IMPAQ team will use its extensive data collection, management, and validation experience to ensure that the data collected are high-quality. We will also leverage our established and strong working relationship with the data collection team to proactively identify and address any data quality issues that arise during implementation. We have designed our evaluation approach to incorporate multiple measures that will ensure the relevance, reliability, integrity, and accuracy of data we collect. **Exhibit D-6** outlines our methods for data collection quality control.

Exhibit D-154. Methods for Data Collection Quality Control

Quality Controls	IMPAQ Activities
Programming Controls	Include check-box options for electronic data collection instruments to standardize responses. Provide minimum and maximum values for numeric values. These safeguards will reduce the likelihood of data entry errors.
Regular Data Transmission	Transmit data daily (when possible) to our Washington-based research analyst to allow timely identification and remediation of any data errors or concerns with questionnaire implementation.

Quality Controls	IMPAQ Activities
Recording of Qualitative Interviews	Record interview responses and develop qualitative interview summaries using a standardized template to ensure accurate representation of responses and viewpoints.
Data Quality Checks	Work with local team supervisors to lead and conduct field data quality and secondary data quality checks throughout data collection. The team supervisors will conduct data quality checks with 10% of the farmers interviewed during the previous day, using mobile phones to call and ask farmers to repeat their responses on a limited number of the survey questions. These responses will be compared with the survey responses and used to identify problem areas where additional verification and/or remedial training of enumerators is needed. At the beginning of the midterm evaluation start-up, IMPAQ home office staff will conduct two initial reviews of quantitative data in the first week for early identification of any data quality issues and will advise accordingly. The data collection team has wireless modems to transmit data by Internet data if a wi-fi upload is not available.

Oversight of field data collection will involve frequent and open communication between members of the IMPAQ and the data collection teams so that we collaboratively identify and mitigate any issues as they arise.

2.7 Communication Protocol

IMPAQ's midterm evaluation team understands that effective communication with Venture37 Georgia, DC, and MN offices and the highest level of quality assurance and quality control of all work products and technical deliverables are paramount. IMPAQ's management of the midterm evaluation will be enhanced by effective, regular communication with venture37. IMPAQ's "no surprises" policy — which all project managers are required to follow to keep clients regularly and consistently informed about project progress, challenges, solutions, and concerns, ensures that Venture37 will always be fully informed of all relevant project activities and immediately consulted when guidance is needed. The benefit of this policy is that the IMPAQ team and Venture37 will be partners in critical decision-making and problem resolution in all matters. **Exhibit D-7** outlines the communication roles and reporting processes that each midterm evaluation team member will have throughout the midterm evaluation data collection process:

Exhibit D-155. Communication Roles and Reporting Processes

Team Member	Title	Communication Role
Uttara Balakrishnan	Principal Investigator	▪ Main Point of Contact between baseline evaluation team and Venture37. ▪ All official communication will be between Dr. Balakrishnan and Venture37. ▪ During fieldwork: Check in on a weekly via e-mail and phone, when able, with Venture37 Georgia's Chief of Party and Senior Manager – GMEL and SQIL Monitoring, Evaluation, and Learning (MEL) team ▪ Coordinate logistics with data collection firm. ▪ During fieldwork: communicate, via e-mail and by phone, with field team, including Fieldwork Manager, to conduct data quality checks.
Medea Ioseliani	Local Expert	▪ Review all the instruments and protocols, pre-test instruments, and provide project support as needed. ▪ Communicate with Fieldwork Manager, Mr. Gilbreath, to ensure smooth rollout of qualitative and quantitative data collection.
Dustin Gilbreath	Fieldwork Manager	▪ Lead communication with respondent groups for data collection scheduling, location, and other logistics. ▪ Communicate on a regular basis with Dr. Balakrishnan by phone (audio and text) regarding technical and logistical issues, and with SQIL MEL team as needed.

CRRC	Field Enumerators	- Daily in-person check-ins with Field Supervisors. - Periodic in-person check-ins and discussions with Dr. Balakrishnan, regarding data quality check and issues.

2.8 Timeline (activities, responsible party, outputs, and timing)

Exhibit D-8 illustrates the anticipated timeline and responsible entity for the midterm evaluation, contingent on approvals from Venture37 and USDA.

Exhibit D-156. Midterm Evaluation Timeline

Task	Responsible	Tentative Due Date
<i>Inception meeting with Venture37 to discuss protocol, methodology, sampling, tools and timeline</i>	Evaluator and Venture37	April 5, 2021
<i>Venture37 shares TOR with IMPAQ</i>	Venture37	March 11, 2021
<i>Finalize TOR for submission to USDA</i>	Evaluator and Venture37	March 15 - 18, 2021
<i>Develop an inception report and develop/update data collection tools</i>	Evaluator	April 12, 2021
<i>Draft Inception Report and Tools submitted to Venture37 for review</i>	Evaluator	May 5, 2021
<i>Venture37 completes review of Inception Report and Tools</i>	Venture37	May 14, 2021
<i>Finalize Inception Report and Tools based on Venture37's feedback</i>	Evaluator	May 26, 2021
<i>Venture37 sends sampling lists: (a) KII respondents, (b) FGD respondents, (c) farmers for farmer survey, and (d) businesses for business survey</i>	Venture37	April 26, 2021
<i>Draft Inception Report and Tools submitted to Venture37 for second review</i>	Evaluator	May 26, 2021
<i>Venture37 completes second review of Inception Report and Tools</i>	Venture37	May 28, 2021
<i>IMPAQ sends 2 translated tools to Venture37</i>	Evaluator	June 2, 2021
<i>Venture37 review first 2 translated tools</i>	Venture37	June 3, 2021
<i>IMPAQ submits remaining translated tools on rolling basis</i>	Evaluator	June 4 – June 7, 2021
<i>Venture37 reviews translated tools on rolling basis</i>	Venture37	June 7 – June 9, 2021

<i>IMPAQ sends final approved tools to data collection firm</i>	Evaluator	June 10, 2021
<i>Qualitative data collection</i>	Evaluator	June 16 – July 31, 2021
<i>Programming and preparation for quantitative data collection</i>	Evaluator	June 10 – June 24, 2021
<i>Pilot testing quantitative data collection</i>	Evaluator	June 25 – June 30 2021
<i>Enumerator training for quantitative data collection</i>	Evaluator	July 1 – July 2, 2021
<i>Quantitative data collection</i>	Evaluator	July 4 – August 6, 2021
<i>Data quality checks and data entry</i>	Evaluator	August 6 – 15, 2021
<i>Data analysis and report writing</i>	Evaluator	August 16 – October 1, 2021
<i>Draft Endline Report submitted to Venture37 for first review</i>	Evaluator	October 1, 2021
<i>Presentation of evaluation findings to Venture37</i>	Evaluator	October 11, 2021
<i>Venture37 completes review</i>	Venture37	October 14, 2021
<i>All Final Deliverables (Final Midline Report, clean data, photos, and PPT presentation)</i>	Evaluator	October 25, 2021

Annex E. Evaluation Questions, Data Collection Methods, and Data Sources

Exhibit E-157. Evaluation Framework

EVALUATION CRITERIA	EVALUATION QUESTIONS	DATA COLLECTION METHODS	DATA SOURCES
Relevance	To what extent do the results framework, assumptions, program design and project activities meet the needs of the various project participants and local conditions in the targeted regions of Georgia?	▪ Repeated Cross Section Farmer Survey ▪ Business Surveys ▪ Focus Groups ▪ Key Informant Interviews	• Dairy/beef farmers • Dairy/beef businesses • Government agencies • Financial service providers • Sectoral associations • Research institutions • Education institutions • Input suppliers • SQIL COP • USDA
	How well aligned is the project strategy and activities with the development goals, objectives and strategies of the USDA, the U.S. Government and the Georgian Government?		
Impact	What impacts are the project activities having on the various project participants and non-participants, both positive and negative, especially in relation to the expected results and strategic objectives?	▪ Repeated Cross Section Farmer Survey ▪ Business Surveys ▪ Focus Groups ▪ Key Informant Interviews ▪ Non-participant case study	▪ Dairy/beef farmers ▪ Dairy/beef businesses ▪ Government agencies ▪ Financial service providers ▪ Sectoral associations ▪ Input suppliers ▪ SQIL COP ▪ USDA ▪ Non-participants
	What impact has the project had on trade in the dairy and beef sector?		
	How have the sales, profitability, and access to markets (including export markets) of participant dairy and beef sector businesses changed, including slaughterhouses, aggregators, wholesalers, retailers, input and service providers? Why?		
	What macro-level changes have occurred throughout the project in Georgia's dairy and beef sector, including sales and exports?		
	What is the impact of the SOQ establishment on the dairy and beef sector?		
	How has the project affected production and purchase of SOQ products?		
	How has production of SOQ products affected sales and profitability of businesses in the dairy and beef sector?		
	How did the creation of the SOQ program affect the ability of agricultural actors to meet quality standards?		
	What impact has the project has on intermediate results, such as improved knowledge, practices and productivity. How have progress on these results impacted progress on trade?		

EVALUATION CRITERIA	EVALUATION QUESTIONS	DATA COLLECTION METHODS	DATA SOURCES
	How has the project impacted participant farmer knowledge, uptake of improved practices, farm management, post-harvest handling, and the use of improved infrastructure? How has this impacted their productivity and ultimately trade?		
	How has the project impacted participant businesses' knowledge and uptake of improved food safety/quality practices and infrastructure? How has this impacted their sales and ultimately trade?		
	How has the project impacted access to financial services for dairy and beef sector business? How were any monies used? How did access to the finances impact their profitability?		
	To what extent have non-participant farmers or businesses been affected by the project?		
	What internal and external factors have influenced the ability of the project to meet expected results and targets? Specifically, how has the COVID-19 pandemic influenced the project's results?	• Key Informant Interviews • Focus Groups	• Dairy/beef farmers • Dairy/beef businesses • Government agencies • Financial service providers • Sectoral associations • Research institutions • Education institutions • Input suppliers • SQIL COP • USDA
Effectiveness	To what extent are the program targets and outcomes likely to be achieved by the end of the project?	• Key Informant Interviews	• SQIL COP • USDA
	What adaptations and adjustments to activities have been made to improve the likelihood of achieving desired results and how can these be expanded or improved to increase program effectiveness?	• Key Informant Interviews	• SQIL COP • USDA
	What key successes should be replicated or what key improvements should be made to the implementation to maximize the results?	• Repeated Cross Section Farmer Survey • Business Surveys • Focus Groups • Key Informant Interviews	• Dairy/beef farmers • Dairy/beef businesses • Government agencies • Financial service providers • Sectoral associations • Research institutions • Education institutions • Input suppliers • SQIL COP • USDA

EVALUATION CRITERIA	EVALUATION QUESTIONS	DATA COLLECTION METHODS	DATA SOURCES
Efficiency	Were the resources and activities provided by the program carried out in a timely manner and with effective use of resources?	• Focus Groups • Key Informant Interviews	• Dairy/beef farmers • Dairy/beef businesses • Government agencies • Financial service providers • Sectoral associations • Research institutions • Education institutions • Input suppliers • SQIL COP • USDA
	How well has the project been managed and monitoring and evaluation data been used to make programmatic decisions?	• Key Informant Interview	• SQIL COP • USDA
Sustainability	Which project activities and benefits are likely to be sustained or not sustained past the project lifespan, and why?	• Key Informant Interviews • Focus Groups	• Government agencies • SQIL COP • USDA
	How did the market-led approach with business development service firms providing technical assistance affect the sustainability of those services?	• Key Informant Interviews	• SQIL COP
	Will the SOQ be sustained after the project? Why or why not?	• Key Informant Interviews	• Government agencies • Sectoral associations • SQIL COP • USDA
	How can the Activity further adapt to the COVID-19 pandemic to better ensure implementation efficiency and sustainability of project outcomes?	• Key Informant Interviews	• SQIL COP • USDA
	How could activities be modified to improve their efficiency and effectiveness and ensure long-term sustainability of results achieved?	• Key Informant Interviews	• SQIL COP

Annex F. Survey Instruments

Farmer Survey

0. Farmer Screening and Regional Information

Enumerator: Please complete this module before starting the interview with farmer.

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Currently, does your farm own five or more dairy cows, whether they are lactating at the moment or not?	1 Yes	<i>If Yes, Start survey</i> <i>If no, Go to 0.2</i>
	0 No	
0.2 During the past 12 months, has your farm owned five or more beef cattle?	1 Yes	<i>Yes, Start survey</i>
	0 No	<i>No, Thank you for your time!</i>
Regional Information		
0.3 Region/Province	1 Ajara	
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrello-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.4 Enter community/municipality		
0.5 Enter respondent address		
0.6 GPS coordinates		
0.6a Latitude		
0.6b Longitude		

1. Informed Consent

Enumerator: For this survey, ensure you select the owner/director/financial or technical manager who is closely aware of the farms dairy and beef farming activities and participates in key decision-making related to dairy/beef farming on the farm.

Question	Options	Enumerator Instructions and Skip Patterns
Informed Consent		
Hello, my name is _____ and I am part of a team hired by The Caucasus Research Resource Centers – Georgia (CRRG-Georgia) to conduct a survey of dairy and beef farmers. We were hired to collect data for a study on the dairy and beef sector by Land O’Lakes Venture37. Land O’Lakes Venture37 launched a new dairy and beef sector development project in 2019. Your responses to this survey will help Land O’Lakes Venture37 understand the needs of the dairy and beef sector from production to processing and selling and adjust their activities accordingly. Specifically, we would like to ask you questions about your experiences with or thoughts about dairy and beef farming. Your answers will be kept confidential and will not be used for any purpose other than to inform the Land O’Lakes Venture37 project intended to help develop the dairy and beef sector. We will never identify you or anyone in your farm in any reports or information we release. The interview should last about an hour. Participation is voluntary, and you can choose to refuse to do this interview. You can also choose to refuse to answer any questions you are uncomfortable with or do not want to answer. There are no penalties to you for not participating or not answering a question. We are conducting this survey as an independent entity and are not associated with any government body. Please feel free to be open and honest with us in your responses. Additionally, IMPAQ International and CRRG are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic. In case of any further questions after you have participated, you can always contact data collection team members like me, you can call CRRG-Georgia at +995 599 38 80 64. <i>Ask if they have any questions about anything that was just mentioned and clarify all doubts before proceeding further.</i>		
1.1 Are you willing to participate in this interview?	1 Yes	<i>If no, thank respondent for his/her time and conclude interview.</i>
	0 No	

2. Farm Characteristics

Enumerator: Thank you for agreeing to participate in this survey. Let's begin by learning basic information about your farm first.

Questions	Options	Enumerator Instructions and Skip Patterns
Respondent characteristics		
2.1 What is your name?		
2.2 What is your cellphone number that can be used to reach you?		<i>Enter -888 if the respondent does not have a phone number or refuses to share the number</i>
2.3 Are you the owner of the farm?	1 Yes → 2.9 0 No	
2.4 What is the name of the owner of the farm?		<u>Ask if 2.3 = 0</u>
2.5 What is your position in the cattle farm?	1 Co-owner 2 Director 3 Financial manager and/or accountant 4 Technical manager 5 Others (specify)	<u>Ask if 2.3 = 0</u> <i>Select only one option</i>
2.6 What is the gender of the owner?	0 Male 1 Female	<u>Ask if 2.3 = 0</u> <i>Select only one option</i>
2.7 What is the owner's age? (Enter in years)		<u>Ask if 2.3 = 0</u> <i>Enter -888 if the respondent does not know the age of the owner.</i>
2.9 What is the gender of the respondent?	0 Male 1 Female	<i>Do not ask, just input directly.</i> <i>Select only one option</i>
2.10 What is your age? (Enter in years)		
2.13 What is your ethnicity?	1 Armenian 2 Azerbaijani 3 Georgian 4 Others (specify)	<i>Select only one option</i>
2.14 What is the legal status of the cattle farm?	1 Household owned farm (no legal status) 2 Individual entrepreneur 3 Ltd 4 JSC 5 Cooperative 6 Other (specify)	<i>Select only one option</i>

3. Assets and Income Sources

Enumerator: We will now ask you a few general questions about your agricultural and pastureland and other related assets.

Questions	Options	Enumerator Instructions and Skip Patterns
Farm Resources		
3.1 How much agricultural land in total did you own in the last 12 months? (<i>Enter in hectares</i>)		<i>Enter the number in hectares (if the respondent gives the numbers in square meters use your calculator to convert 1 hectare = 10,000 m²)</i> <i>Enter 0 if they do not own any agricultural land</i> <i>Enter -888 if they do not know the answer</i>
3.2 How much grazing-mowing land (pastures) did you own in the last 12 months? (<i>Enter in hectares</i>)		<i>Enter the number in hectares (if the respondent gives the numbers in square meters use your calculator to convert 1 hectare = 10,000 m²)</i> <i>Enter 0 if they do not own any agricultural land</i> <i>Enter -888 if they do not know the answer</i>
Income sources		
3.6 In the last 12 months, what was the main source of income from your cattle farming operations?	1 Dairy farming - milk production 2 Mixed farming – milk production and cattle fattening 3 Cattle fattening 4 Others (specify)	<i>Select only one option</i>
3.6a In the last 12 months, what were the secondary sources of income from your cattle farming operations?	1 Dairy farming - milk production 2 Dairy farming – milk processing 3 Mixed farming – milk production and cattle fattening 4 Cattle fattening 5 Selling calves 6 Other (specify)	<i>Select all that apply</i>

4. Cattle Farming Practices

Enumerator: Now we will ask you about grazing, feeding, housing, and veterinary care practices.

Question	Options				Enumerator Instructions and Skip Patterns	
Cattle ownership						
4.1 How many of the following <<indigenous>> and <<improved>> <<types of cattle>> did your farm own/raise in the last 12 months?	Cattle Type	Indigenous	Local improved (cross breed)	High productive breed	Enter 0 if do not own/raise any. Enter -888 if don't know/refuse	
	1 Bulls					
	2 Cows					
	3 Heifers					
	4 Male calves (Those younger than 6 months)					
	5 Female calves (Those younger than 6 months)					
Grazing						
4.2 Did you graze your cattle in the last 12 months?	1 Yes				Select only one option	
	0 No → 4.7					
	-888 Don't know/refuse					
<u>Ask questions 4.3-4.6 if 4.2=1, else skip to 4.7</u>						
4.3 What grazing system did you use for your cattle in the last 12 months?	1 Grazing in own/rented/shared-in land				<u>Ask if 4.2=1</u> Select all that apply	
	2 Grazing in common areas of village/community					
	3 Rotational grazing					
	4 Paddock grazing (It is rotational grazing in smaller fenced sections of a cultivated pastures or natural pastures)					
	5 Transhumance (Moving livestock to different lands based on season –summer/winter)					
	6 Others (specify)					
4.4 How many hectares of land was used for grazing your cattle in the last 12 months? Please try to estimate if you do not know precise numbers (Enter in hectares)					<u>Ask if 4.2=1 and 4.3=1, 3, 4 and 5</u> Ensure total of owned land and rented land for grazing is quoted Enter -888 if don't know/refuse	
4.6 What types of farming practices did you employ	0 None				<u>Ask if 4.2=1 and ensure that when 0 is selected,</u>	
	1 Used weed control practices on cultivated pastures					
	2 Used fertilizer (other than cattle dung)					

Question	Options	Enumerator Instructions and Skip Patterns
on your grazing land in the past 12 months?	3 Rotate between grass and legumes	<i>no other options can be selected</i> <i>Select all that apply</i>
	4 Harvested hay at proper timing of harvest based on hay/silage crop	
	5 Ensure animal herd size does not exceed pasture carrying capacity	
	6 Used pasture spelling/pasture rest periods	
	7 Used electric fence	
	8 Others (specify)	
	-888 Don't know/refuse	
Fodder and Forage <i>Enumerator: Thank you for letting us know about your grazing practices. Now, we will ask you about other feed and nutritional supplements that you may give to your cattle.</i>		
4.7 In the last 12 months, did you use the following <<types of feed>> for your cattle?	0 None	<i>Select all that apply</i> <i>Ensure that if option 0 is selected, no other option can be selected.</i>
	1 Fodder/forage feed	
	2 Concentrate feed	
	3 Nutritional supplements	
4.8 What types of forage/fodder did you provide to your cattle in the last 12 months?	0 None	<i>Select all that apply</i>
	1 Fresh grass/hay	
	2 Meadow hay	
	3 Alfalfa hay	
	4 Silage	
	5 Barley straw	
	6 Wheat straw	
	7 Conserved forage	
	8 Fresh crop residues	
	9 Stored crop residues	
	10 Others (specify)	
-888 Don't know/refuse		
4.10 What was the total amount of land on which you grew forage/fodder in the last 12 months? (Enter in hectares)		<i>Enter -888 if don't know/refuse</i> <i>Enter "0" if no forage/fodder was grown</i>
4.11 Which of the following improved management	0 None → 4.13	<i>Read list and select all that apply. If other</i>
	1 Grew drought tolerant and flood resistant seed varieties	

Question	Options		Enumerator Instructions and Skip Patterns
practices or technologies did you follow in the last 12 months?	2 Pest and disease management for fodder (Integrated pest management; Improved fungicides, Appropriate application of fungicides, Improved and environmentally sustainable use of cultural, physical, biological, and chemical insecticides and pesticides; Aflatoxin prevention and control during production)		<i>practices reported, list those too in option 6.</i> <u>Ensure that if 0 is selected, no other option can be selected</u>
	3 Soil-related fertility and conservation (Integrated soil fertility management; Soil management practices that increase biotic activity and soil organic matter levels, such as soil amendments that increase fertilizer-use efficiency; Improved fertilizer; improved fertilizer use practices; Erosion control)		
	4 Irrigation (Drip, surface, and sprinkler irrigation; Irrigation schemes)		
	5 Climate adaptation/climate risk management (Drought/flood resistant varieties, Short-duration fodder varieties; Adjustment of sowing time)		
	6 Others (specify)		
	-888 Don't know/refuse → 4.13		
4.12 How much land did you dedicate to each of the following <<improved management practice or technology>> in the last 12 months? (Enter in hectares)	Cultivation Practices	Land Cultivated	<u>Ask only for options selected in 4.11</u> Enter -888 if does not know the answer
	1 Grew drought tolerant and flood resistant seed varieties		
	2 Pest and disease management for fodder (Integrated pest management; Improved fungicides, Appropriate application of fungicides, Improved and environmentally sustainable use of cultural, physical, biological, and chemical insecticides and pesticides; Aflatoxin prevention and control during production)		
	3 Soil-related fertility and conservation (Integrated soil fertility management; Soil management practices that increase biotic activity and soil organic matter levels, such as soil amendments that increase fertilizer-use efficiency; Improved fertilizer; improved fertilizer use practices; Erosion control)		

Question	Options	Enumerator Instructions and Skip Patterns
	4 Irrigation (Drip, surface, and sprinkler irrigation; Irrigation schemes)	
	5 Climate adaptation/climate risk management (Drought/flood resistant varieties, Short-duration fodder varieties; Adjustment of sowing time)	
	6 Others (specify)	
4.13 Which of the following forage/fodder storage practices did you follow in the last 12 months?	0 None 1 Made silage 2 Used Silage pits 3 Used Silage effluent control methods 4 Wrapped in plastic 5 Hay stack / bales of hay 6 Other, specify -888 Don't know/refuse	<u>Ensure that if 0 is selected, no other option can be selected</u> <i>Read list and select all that apply. If other practices reported, list those too in option 6.</i>
Concentrate Feed		
4.15 What type of concentrate feed did you provide to your cattle in the last 12 months?	0 None 1 Molasses 2 Maize bran 3 Wheat bran 4 Beer residues 5 Concentrated supplement feed 6 Barley/oats/rye 7 Corn grain 8 Others -888 Don't know/refuse	Select all that apply
4.17 What was the total amount of land on which you grew concentrate feed in the last 12 months? (Enter in hectares)		Enter -888 if don't know/refuse Enter "0" if no feed was grown
Supplementation		
4.19 What type of nutritional supplements did you provide to your cattle in the last 12 months?	0 None 1 Salt 2 Mineral blocks 3 Premix 3 Others (specify) -888 Don't know/refuse	Select all that apply

Question	Options		Enumerator Instructions and Skip Patterns
Housing and Water			
Enumerator: Now we want to know about the housing and water access arrangements for cattle on your farm.			
4.22 What kinds of cattle infrastructure (housing and handling facilities) were used for your cattle in the last 12 months?	1 Shed		Select all that apply
	2 Slatted shed		
	3 Calf housing		
	4 Cow cubicles		
	5 Cattle handling area		
	6 Others (specify)		
	-888 Don't know/refuse		
4.23 What was the size of the infrastructure facilities in square meters in the last 12 months?	Housing Type	Size	Ask only for options selected in 4.22
	1 Shed		
	2 Slatted shed		
	3 Calf housing		
	4 Cow cubicles		
	5 Cattle handling area		
	6 Others (specify)		
4.24 Did any of these areas have the following facilities and characteristics in the last 12 months?	0 None		Read entire list and select all that apply
	1 Ventilation		
	2 Access to shade		
	3 Access to bedding		
	4 Light		
	5 Suitable for winter		
	6 Manure management and removal		
4.25 Did the cattle handling area have the following types of facilities?	0 None		Ask if 4.22=5 Read entire list and select all that apply.
	1 Cattle shuttle		
	2 Holding pen		
	3 Milking parlor		
	4 Mobile milking machine		
	5 Silage pit		
4.28 In the last 12 months, in what ways did you provide water to your cattle?	1 Brought cattle to a water source		Select all that apply
	2 Provided them access to water in the housing/handling facilities		
	3 Had constant flow of water in the facilities		
	4 Others (specify)		
	-888 Don't know/refuse		
4.34 Over the last 12 months, did any of your cattle have any health problems?	1 Yes		Select only one option
	0 No →4.41		
	-888 Don't know/refuse →4.41		
4.35 Which of the following health issues did your	1 Mastitis		Ask if 4.34 = 1
	2 Conjunctivitis		

Question	Options	Enumerator Instructions and Skip Patterns
cattle experience in the last 12 months?	3 Anaplasmosis 4 Lumpy skin disease 5 Wounds and tetanus 6 Anthrax 7 Foot and mouth disease 8 Brucellosis 9 Ketosis 10 Acidosis 11 Bloat 12 Others (specify) -888 Don't know/refuse	<i>If respondent lists the disease themselves, then select those options. Also confirm by reading the list of diseases and select all that apply</i>
4.36 Did you treat your sick cattle in the last 12 months?	1 Yes 0 No -888 Don't know/refuse	<u>Ask if 4.34 = 1</u> Select only one option
4.37 Why did you not treat your sick cattle?	1 Could not afford it 2 No health facility or veterinarian nearby 3 Others -888 Don't know/refuse	<u>Ask if 4.36 = 0</u> Select all that apply
4.41 In the last 12 months, have you engaged in the following veterinary care practices?	0 None 1 Vaccination 2 Deworming 3 Mastitis control 4 Hoofs trimming 5 Brucellosis control 6 Collaboration with state veterinarians 7 Raising employees awareness on animal health related issues 8 Keeping animal health records 9 Farm hygiene (permanent cleaning, disinfection, etc.) 10 Others (specify)	Select all that apply <u>Ensure that if 0 is selected, no other option can be selected</u>
Breeding		
4.43 Did you breed any of your animals in the last 12 months using any of these methods? Which practices did you use?	0 None 1 Natural breeding 2 Controlled breeding (<i>Farmers control the mating of the cows with select, desired bulls only.</i>) 3 Artificial insemination 4 Others (specify) -888 Don't know/refuse	Select all that apply <u>Ensure that if 0 is selected, no other option can be selected</u>
Milking Practices		
	1 Mobile milking machine 2 By hand	Select all that apply

Question	Options	Enumerator Instructions and Skip Patterns
4.46 In the last 12 months, did you milk by machine or by hand?	3 Using milking parlor -888 Don't know/refuse	
4.47 What are the safety/hygiene measures used by your farm while milking in the last 12 months?	0 None 1 Remove manure from udder and teats 2 Use gloves while milking 3 Ensure milking area is clean 4 Wash teats with an udder wash sanitizing solution 5 Dry teats completely with individual paper towel 6 Dip teats with an effective product immediately after unit removal 7 Proper washing and sanitizing of milk tanks/machine/pipes etc. 8 Observing general hygiene in milking space 9 Post-harvest handling and storage of the milk - temperature control 10 Use of bedding management 11 Others (specify) -888 Don't know/refuse	Read entire list and select all that apply <u>Ensure that if 0 is selected, no other option can be selected</u>
4.48.1 Did you have any storage facilities/capacity for storing the milk after milking in the last 12 months?	1 Yes 0 No -888 Don't know/refuse	Select only one option
4.48.2 If yes, what is the storage capacity? (Enter the total capacity in liters)	_ _ _ _ Litres	Ask if 4.48.1 = 1 Enter 0 if the capacity is 0. If they do not know the answer or refuse to answer enter -888
4.49.0a How many m3/liters of cold storage did you buy and or rent/refurbish in the last 12 months?		Enter 0 if the capacity is 0. If they do not know the answer or refuse to answer enter -888

Question	Options	Enumerator Instructions and Skip Patterns
4.49.0b How many m3/liters of dry storage did you buy and or rent/refurbish in the last 12 months?		Enter 0 if the capacity is 0. If they do not know the answer or refuse to answer enter -888 Dry storage includes storage for keeping boxes, equipment, animal feed, etc.
4.49 What quality checks did you implement before selling milk in the last 12 months?	0 No quality checks implemented	Read entire list and select all that apply <u>Ensure that if 0 is selected, no other option can be selected</u>
	1 Fat content	
	2 Acidity of milk	
	3 Water content	
	4 Bacterial count and somatic cell count	
	5 Antibiotic residue	
	6 Other (specify)	
	-888 Don't know/refuse	
Knowledge of Improved Practices		
4.51 Please name all best practices in Farm Management that you have heard of/are familiar with (<i>Farm Management best practices may include, but not limited to the practices related to - animal nutrition and feeding ratio, breeding and reproductive management, bookkeeping and other practices related to management of the farm</i>)	0 None	Read entire list and select all that apply <u>Ensure that if 0 is selected, no other option can be selected</u>
	1 Animal performance monitoring (record keeping on animal production - milk production, weight gain, etc.)	
	2 Animal nutrition and ration balancing Selection of feed ingredients based on chemical composition	
	3 Balanced feeding (fodder/forage + concentrate feed + Nutritional supplements	
	4 Calculation of feed price per head of animal	
	5 Record keeping on animal feed flow (ingredients, additives, etc.)	
	6 Improved awareness for Georgian legislative framework (Assuring fulfillment of food safety regulations such as farm registration, obligation of notification to government, etc.)	
	7 Breed improvement /controlled breeding (with only selected bulls, controlled calving pattern, etc.)	
	8 Artificial insemination/embryo transplant	
	9 Bookkeeping and farm cost accounting (cash flow planning)	
	10 Other farm management practice (please specify)	
Cattle Husbandry Practices		
4.52 Please name all best practices in <u>animal health</u> that you have heard of/are familiar with.	0 None	Select all that apply <u>Ensure that if 0 is selected, no other option can be selected</u>
	1 Observing biosecurity on farm (farm isolation, control of imported animals, raising employee's awareness on animal health issues, etc.)	

Question	Options	Enumerator Instructions and Skip Patterns
	2 Keeping animal health records 3 Farm hygiene (permanent cleaning, disinfection, etc.) 4 Vaccinations initiated by farm (except State funded vaccination) 5 Mastitis control 6 Hoofs trimming 7 Collaboration with state veterinarians 8 Brucellosis control 9 Tuberculosis control 10 Deworming and/or external parasites treatment 11 Other animal health practice (specify)	
4.53 Please name all best practices in <u>animal welfare</u> that you have heard of/are familiar with.	0 None 1 Providing sufficient space required per head of animal 2 Constant access to sufficient feed and water 3 Other animal welfare related practice (specify)	<i>Read entire list and select all that apply</i> <u>Ensure that if 0 is selected, no other option can be selected</u>
4.54 Please name all best practices in <u>proper usage of veterinary medicinal products</u> that you have heard of/are familiar with.	0 None 1 Record keeping of used Veterinary Medicinal Products 2 Limited usage of antibiotics 3 Handling residues in milk 4 On-farm storage of veterinary medicines	<i>Read entire list and select all that apply</i> <u>Ensure that if 0 is selected, no other option can be selected</u>

5. Labor Use

Enumerator: Thank you for giving us information about your main cattle rearing activities. Now think of all the labor used for all your cattle farming activities. This includes taking your cattle for grazing, feeding, veterinary care, and marketing and sale of output activities.

Questions	Options		Enumerator Instructions and Skip Patterns	
5.1 What types of labor did you use in your cattle farm in the last 12 months?	1 Permanent male		Select all that apply	
	2 Permanent female			
	3 Part-time/Seasonal male			
	4 Part-time/Seasonal female			
5.2 In the last 12 months, how many days of the following <<type of employees>> did you use in <<summer>> and <<winter>> season for cattle raising purposes? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number		
	5.2c Permanent male			
	5.2d Part-time/Seasonal male	Summer	Winter	
	5.2e Permanent female			
	5.2f Part-time/Seasonal female	Summer	Winter	
			<u>Only ask for the options selected in 5.1.</u> For calculating the number of days of labor, include the number of laborers hired for each labor type and the number of days (1 day = 8 hours) they were hired for. This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter -888 if number unknown but were employed at the business.	

6. Output, Productivity, and Sales

Enumerator: Now we will ask you about your output and sales.

Question	Options	Enumerator Instructions and Skip Patterns
Milk Productivity <u>Ask this module if 3.6=1 or 2</u>		
Enumerator: Now we will ask you about your milk production for different types of cows. Please think of your 3 best milk yielding cows and 3 lowest milk yielding cows in the last 12 months. We will ask you details about these cows now. (If the farmer has less than 6 cows, then record the information for all the cows).		
6.1 For how many cows would the respondent like to provide this information? (Enter number)		<u>Use this number to determine the number of times the below questions should be repeated.</u> <u>Ensure number entered cannot exceed 6.</u>
Now let us begin with your best milk yielding cows in the last 12 months. For <<each cow>>, please tell us the following information. Enumerator: After asking the respondent about the three best milk yielding cows, repeat the process by asking about the three poorest milk yielding cows in the last 12 months. Probe by saying, "Now let us answer these questions for your three poorest milk yielding cows." <u>The questions from 6.2-6.9 should be repeated based on the number entered in 6.1.</u>		
6.2 What is the breed of the cow?	1 Local breeds (Georgian mountain, Caucasian brown, Veli's red etc.) 2 Local improved (cross breed) 3 High productive breed 4 Others (specify) -888 Don't know/refuse	Select only one option
6.3 What is the age of this cow in months?		If they do not know the answer or refuse to answer enter -888
6.4 Is this cow currently milking?	1 Yes 0 No -888 Don't know/refuse	
6.5 How many liters of milk did this cow produce yesterday?		<u>Ask if 6.4 = 1</u> If they do not know the answer or refuse to answer enter -888
6.6 How many months ago did this cow last give birth?		If they do not know the answer or refuse to answer enter -888

Question	Options			Enumerator Instructions and Skip Patterns	
	5 Processed milk sold to retailers (Yogurts, Cheese on any other dairy product)			<i>Enter -888 if quantity unknown</i>	
	6 Sold to processors				
	7 Others (specify)				
6.12 What was the average price per liter (or per kilogram for processed milk) you sold in the last <<summer>> and <<winter>> season? Please try to estimate if you do not know precise prices. (<i>Enter in Lari</i>)	Type of Buyer	Summer	Winter	<u><i>Ask for applicable options selected in 6.10.</i></u> <i>This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers.</i> <i>Enter -888 if quantity unknown</i>	
	1 Milk collection center				
	2 Local market for milk				
	3 Local market for processed milk products (Yogurts, Cheese on any other dairy product)				
	4 Processed milk sold to retailers (Yogurts, Cheese on any other dairy product)				
	5 Sold to processors				
	6 Others (specify)				
Milk Rejection <i>Ask this module if 3.6=1 or 3.6=2</i>					
6.13 Was any of your milk that you sold to formal businesses such as milk collection centers and processors rejected on safety and/or quality grounds in the last 12 months?	1 Yes			<i>Select only one option</i>	
	0 No				
	-888 Don't know/refuse				

Question	Options	Enumerator Instructions and Skip Patterns
6.14 On average, what percentage of total milk that was sold was rejected? Think about the monthly proportion of milk rejected in the last 12 months only.		<u>Ask if 6.13 = 1</u> <u>Ensure numbers greater than 100 cannot be entered.</u> Enter -888 if don't know/refuse
Beef Production <u>Ask this module if 3.6 = 2 or 3.6 = 3</u>		
Enumerator: Now we will ask you about your cattle that you sold in the last 12 months. Please provide us details of the last 5 cattle that you sold in the last 12 months.		
6.17 For how many cattle would the respondent like to provide this information for? (Enter number) In case the respondent sold less than 5 cattle in the last 12 months, this number will be lower than 5.		<u>Use this number to determine the number of times the below questions should be repeated.</u> <u>Ensure number entered cannot exceed 5.</u>
For <<each cattle sold>>, please tell us the following information. <u>Ask questions 6.18 and 6.19 for each cow.</u>		
6.18 What was the breed of the cattle sold live in the last 12 months?	1 Local breeds (Georgian mountain, Caucasian brown, Veli's red etc.)	
	2 Local improved (cross breed)	
	3 High productive breeds	
	4 Others (specify)	
	-888 Don't know/refuse	
6.19 What was the live weight of the cattle in kilograms at the time it was sold live in the last 12 months?		Enter -888 if don't know or refuse
6.20 How old was the cattle at the time it was sold? (Enter in months)		Enter -888 if don't know or refuse
6.21 What was the price at which it was sold live? (Enter in Lari)		Enter -888 if don't know or refuse
Beef Buyers <u>Ask this module if 3.6 = 2 or 3.6 = 3</u>		
6.22 What were the different uses of cattle that was allocated to beef	1 Own consumption	Select all that apply
	2 Cattle is slaughtered at home/farm for selling	

Question	Options			Enumerator Instructions and Skip Patterns
production in the last 12 months?	3 Sold to slaughterhouses			
	4 Others (specify)			
6.23 How do you use the beef that you slaughter?	1 Own consumption			<u>Ask if 6.22 = 2</u> <i>Select all that apply</i>
	2 Sell at local market			
	3 Sell to retailers/processors			
	4 Others (specify)			
	-888 Don't know/refuse			
6.24 What safety/hygiene practices did you employ while slaughtering beef in the last 12 months?	0 None			<u>Ask if 6.22 = 2</u> <u>Ensure that if 0 is selected, no other option can be selected</u> <i>Select all that apply. After respondent has answered, go through the list and ensure whether these practices were used.</i>
	1 Stun animals before evisceration and separation of carcass from offal			
	2 Special stunning area, restraining area, and slaughter area			
	3 Have a designated slaughter slab			
	4 Have a designated bleeding area			
	5 Water is easily available			
	7 Proper hygiene and sanitation practices followed			
	8 Others (specify)			
	-888 Don't know/refuse			
6.25 On an average, about how many total cattle were allocated to each use in the last 12 months? Please try to estimate if you do not know precise numbers. (Enter number)		Summer	Winter	<u>Ask for applicable options in 6.22 and 6.23 (6.23 = 2 or 3)</u> <i>This is an important question. Please probe respondent and as them to try to estimate even if they do not know precise numbers.</i> <i>Enter number> 0. If number is unknown, enter -888.</i>
	1 Own consumption (include cattle slaughtered for own consumption)			
	2 Slaughtered cattle carcass (beef) sold at local market			
	3 Slaughtered cattle carcass (beef) sold to retailers/processor			
	4 Live cattle sold to slaughterhouses			
	5 Others (specify)			
6.26 What was the average price per kilogram received from <<type of buyer>> in the last <<summer>> and <<winter>> seasons? Please try to estimate if you do not know precise numbers.	Type of Buyer	Summer	Winter	<u>Ask for applicable options in 6.22 and 6.23 (6.23 = 2 or 3)</u> <i>This is an important question. Please probe respondent and as them</i>
	1 Slaughtered cattle carcass (beef) sold at local market			
	2 Slaughtered cattle carcass			

Question	Options			Enumerator Instructions and Skip Patterns
	(beef) sold to retailers/processor			to try to estimate even if they do not know precise numbers. Enter -888 if don't know/refuse Ensure average monthly price per kilogram in the last 12 months
	3 Live cattle sold to slaughterhouses			
	4 Others (specify)			
Sale Agreements Enumerator: Thank you for answering questions about your outputs and sales. Finally, I would like to ask about your sales agreements.				
6.30 How many verbal arrangements did you have with your buyers in the last 12 months?				Enter -888 if does not know the answer Enter 0 if not verbal agreements
6.30b How many formal (written) arrangements did you have with your buyers in the last 12 months?				Enter -888 if does not know the answer Enter 0 if no formal (written) agreements
6.31a What were the total revenues of your farm from dairy and beef sales in the last 12 months for all the cattle you raised? Please think about revenues from all sources (Enter in Lari)				Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero
6.31b What were the total costs of your farm from dairy and beef sales in the last 12 months for all the cattle you raised? Please think about costs from all sources (Enter in Lari)				Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse
6.33 Overall, considering all your costs and revenue you obtained from your dairy and beef sales in the last 12 months, what would your approximate profit be for all the cattle you raised? (Enter approximate amount in Lari)				Work with the farmer to get a rough estimate of the profit for both milk and beef production operations.

7. Business Management

Enumerator: Thank you for answering questions about your cattle use and sales. Now, I have a few questions about your general business management practices.

Questions	Options	Enumerator Instructions and Skip Patterns
Credit Enumerator: First we will ask about your credit access.		
7.1 Did your farm apply for any loans in the last 12 months?	0 No, have never applied 1 Yes, applied and got full funding 2 Yes, applied and got partial funding 3 Yes, applied and did not get any funding -888 Don't know/refuse	
7.3 How much did you borrow in the last 12 months? (Enter in Lari)		<u>Ask if 7.1 = 1-2</u> Enter -888 if don't know/refuse
7.4 What were the primary purposes for obtaining loans in the last 12 months?	1 Build/maintain infrastructure for cattle 2 Purchase/maintain new equipment or machinery 3 Purchase feed/veterinary care or other such inputs 4 Purchase cattle 5 Purchase different livestock (other than cattle) 6 Paying off other debts 7 Others (specify) -888 Don't know/refuse	<u>Ask if 7.1 = 1-2</u> Select all that apply
7.5 From which sources did you receive loans in the last 12 months?	1 Formal sector banks 2 Informal sector – moneylenders 3 Informal sector – social networks 4 Cooperatives/Farmer associations 5 Micro finance institutions 6 Input suppliers 7 Buyers 8 Others (specify) -888 Don't know/refuse	<u>Ask if 7.1 = 1-2</u> Select all that apply
7.7 Which new financial products did you starting using in the 12 months?	0 None 1 Livestock or crop insurance 2 General business insurance 3 Microcredit loans 4 Mutual funds 5 Capital gains bonds 6 Others (specify) -888 Don't know/refuse	Select all that apply
7.7a Has your farm made any investments in the business in the last 12 months?	1 Yes 0 No -888 Don't know/refuse	<u>Select only one option</u>

Questions	Options	Enumerator Instructions and Skip Patterns
7.7b What was the total value of investments made in the last 12 months?		<u>Ask if 7.7a = 1</u> <u>Enter in Lari</u>
Group Membership <i>Enumerator: Now can you provide us any information about any groups you are a part of.</i>		
7.8 What business group/organization/association is your business a member of in the last 12 months?	0 Not part of any relevant business group	<i>Select all that apply</i> <u>Ensure that if 0 is selected, no other option can be selected</u>
	1 Georgian Dairy Association	
	2 Georgian Farmers Association	
	3 Georgian Trade Union	
	4 Farmers of Future	
	5 Association Elkana	
	6 Cheese Producer’s Association	
	7 Others (specify)	
	-888 Don’t know/refuse	
0 No Services		
7.9 What kind of SERVICES did you obtain from being part of such groups in the last 12 months?	1 Information on cattle raising practices	<u>Ask if 7.8=1-4</u> <i>Select all that apply</i>
	2 Credit	
	3 Machinery or equipment for cattle farm	
	4 Group selling support, including transportation	
	5 Others (specify)	
	-888 Don’t know/refuse	
Information and Training <i>Enumerator: Now we want to ask you about any cattle rearing training activities that you may have received in the last 12 months.</i>		
7.10 Are any of your cattle tagged/have an identification device? Think about all the cattle you have raised in the last 12 months.	1 Yes	<i>Under a new system, every cattle in Georgia is supposed to receive a unique identification code inscribed on an ear tag or other ID device.</i>
	0 No	
	-888 Don’t know/refuse	
7.11 In the last 12 months, did you use any of the following business practices?	0 None	<i>Select all that apply</i> <u>Ensure that if 0 is selected, no other option can be selected</u>
	1 Make a grazing plan	
	2 Make a plan for selling output	
	3 Keeping financial records of costs and revenues	
	4 Cash flow planning	
	5 Others (specify)	
-888 Don’t know/refuse		
7.12 Did anyone in your farm receive training in any farm business operation practices in the last 12 months?	1 Did not receive any training	<i>Select all that apply</i>
	2 Grazing plan	
	3 Animal performance monitoring	
	4 Feed flow planning	
	5 Internal and external parasites management planning	

	6 Breeding/reproductive management plan 7 Milk and live animals marketing plan (sales plan) 8 Book keeping and farm costing (cash flow planning) 9 Others (specify) -888 Don't know/refuse	
7.13 Who provided this training?	1 Government agencies 2 Non-profit organization 3 Cooperative/farmer association 4 Input suppliers 5 Buyers 6 Other private organization 7 Land O' Lakes Venture 37/SQIL project 8 Others (specify) -888 Don't know/refuse	<u>Ask if 7.12 = 2-9</u> <i>Select all that apply</i>
7.14 Did anyone in your farm receive training in improved cattle husbandry practices in the last 12 months?	1 Did not receive any training → 7.16 2 Feed and nutrient supplementations 3 Vaccinations 4 Deworming 5 Mastitis control 6 Other veterinary care and disease prevention 7 Animal tagging 8 Breeding techniques 9 Safety and hygiene practices while milking 10 Safety and hygiene practices for housing 11 Others (specify) -888 Don't know/refuse → 7.16	<i>Select all that apply</i>
7.15 Who provided this training?	1 Government agencies 2 Non-profit organization 3 Cooperative/farmer association 4 Input suppliers 5 Buyers 6 Other private organization 7 Land O' Lakes Venture 37/SQIL project 8 Others (specify) -888 Don't know/refuse	<u>Ask if 7.14 = 2-11</u> <i>Select all that apply</i>
7.16 Have you heard about the mobile application Agronavti?	1 Yes 0 No -888 Don't know/refuse	<i>Select only one option</i>
7.17 Do you use Agronavti?	1 Yes 0 No -888 Don't know/refuse	<u>Ask if 7.16 = 1</u> <i>Select only one option</i>
7.18 Have you heard about the web page AgroFace?	1 Yes 0 No -888 Don't know/refuse	<i>Select only one option</i>

7.19 Do you use AgroFace?	1 Yes	<i>Ask if 7.18 = 1 Select only one option</i>
	0 No	
	-888 Don't know/refuse	
7.20 Please list the certifications that your farm has as of today	1 ISO 9001	<i>Select all that apply Ensure that if "5" is chosen no other option is chosen</i>
	2 National Food Agency (NFA) certification/registration	
	3 Bio/Organic Certification	
	4 Georgian Milk Seal	
	5 None	
	6 Other (specify)	
7.21 Would you be interested to obtain any kind of quality/food safety certification for your farm?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	

8. Household Decision Making

Enumerator: Thank you very much for providing detailed information about your farm operations. Before we end the survey, we would like to ask you questions about which household member is involved in performing and making decisions about your farm.

Questions	Options	Enumerator Instructions and Skip Patterns
Ask if 2.14 = 1, else skip to Section 9		
8.1 Who was primarily responsible for performing the following activities in the last 12 months in your household?		
8.1a Purchase of inputs (feed etc.)	1 Male head of HH	<i>Select only one option</i>
	2 Female head of HH	
	3 Female co head of HH (spouse/mother etc.)	
	4 Male Co head of HH (spouse/father etc.)	
	5 Jointly	
	6 Other male adult in the household	
	7 Other female adult in the household	
	8 Others (specify)	
8.1b Basic medical treatment of the cattle	1 Male head of HH	<i>Select only one option</i>
	2 Female head of HH	
	3 Female co head of HH (spouse/mother etc.)	
	4 Male Co head of HH (spouse/father etc.)	
	5 Jointly	
	6 Other male adult in the household	
	7 Other female adult in the household	
	8 Others (specify)	
8.1c Day-to-day animal management	1 Male head of HH	<i>Select only one option</i>
	2 Female head of HH	
	3 Female co head of HH (spouse/mother etc.)	
	4 Male Co head of HH (spouse/father etc.)	
	5 Jointly	
	6 Other male adult in the household	
	7 Other female adult in the household	
	8 Others (specify)	
8.1d Selling of output to buyers	1 Male head of HH	<i>Select only one option</i>
	2 Female head of HH	
	3 Female co head of HH (spouse/mother etc.)	
	4 Male Co head of HH (spouse/father etc.)	
	5 Jointly	
	6 Other male adult in the household	
	7 Other female adult in the household	
	8 Others (specify)	
8.1e Record keeping	0 Not applicable	<i>Select only one option</i>
	1 Male head of HH	
	2 Female head of HH	

Questions		Options	Enumerator Instructions and Skip Patterns
	3 Female co head of HH (spouse/mother etc.)		
	4 Male Co head of HH (spouse/father etc.)		
	5 Jointly		
	6 Other male adult in the household		
	7 Other female adult in the household		
	8 Others (specify)		
8.2 Who made the final decision about the following activities in the last 12 months?			
8.2a Which inputs to buy?	1 Male head of HH	Select only one option	
	2 Female head of HH		
	3 Female co head of HH (spouse/mother etc.)		
	4 Male Co head of HH (spouse/father etc.)		
	5 Jointly		
	6 Other male adult in the household		
	7 Other female adult in the household		
	8 Others (specify)		
8.2b Which cattle raising practices to use?	1 Male head of HH	Select only one option	
	2 Female head of HH		
	3 Female co head of HH (spouse/mother etc.)		
	4 Male Co head of HH (spouse/father etc.)		
	5 Jointly		
	6 Other male adult in the household		
	7 Other female adult in the household		
	8 Others (specify)		
8.2c When to sell milk/cattle	1 Male head of HH	Select only one option	
	2 Female head of HH		
	3 Female co head of HH (spouse/mother etc.)		
	4 Male Co head of HH (spouse/father etc.)		
	5 Jointly		
	6 Other male adult in the household		
	7 Other female adult in the household		
	8 Others (specify)		
8.2d Where to sell	1 Male head of HH	Select only one option	
	2 Female head of HH		
	3 Female co head of HH (spouse/mother etc.)		
	4 Male Co head of HH (spouse/father etc.)		
	5 Jointly		
	6 Other male adult in the household		
	7 Other female adult in the household		
	8 Others (specify)		
8.2e Allocation of revenue	1 Male head of HH	Select only one option	
	2 Female head of HH		

Questions		Options	Enumerator Instructions and Skip Patterns
		3 Female co head of HH (spouse/mother etc.)	
		4 Male Co head of HH (spouse/father etc.)	
		5 Jointly	
		6 Other male adult in the household	
		7 Other female adult in the household	
		8 Others (specify)	
8.2f New livestock/farm investments		1 Male head of HH	<i>Select only one option</i>
		2 Female head of HH	
		3 Female co head of HH (spouse/mother etc.)	
		4 Male Co head of HH (spouse/father etc.)	
		5 Jointly	
		6 Other male adult in the household	
		7 Other female adult in the household	
		8 Others (specify)	

9. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your dairy farm production due to COVID-19.		
9.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
9.2 Which of the following aspects of your business were impacted by COVID-19?	1 Farm infrastructure 2 Access to feed supplies 3 Transportation of products 4 Animal Health / Access to veterinary services 5 Communication or visits from dairy business input vendors 6 Communication or visits from dairy or beef buyers 7 Communication or visits from Venture37 project staff 8 Access to formal credit and/or financial service 9 Other, specify -888 Don't know/refuse	Ask if 9.1 = 1 Select all that apply
9.3 Has your access to inputs changed because of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect 3 Easier to access inputs -888 Don't know/refuse	Ask if 9.1 = 1 Select only one option
9.3a Has the price of inputs changed because of COVID-19, if at all?	1 Price of inputs has increased 2 Same/no effect 3 Price of inputs has decreased -888 Don't know/refuse	Ask if 9.1 = 1 Select only one option
9.3b Did animal feed prices change because of COVID-19, if at all?	1 Animal feed prices increased 2 Same/no effect 3 Animal feed prices decreased -888 Don't know/refuse	Ask if 9.1 = 1 Select only one option
Dairy Production Ask 9.4 – 9.8 if 3.6 = 1 or 3.6 = 2, else skip to 9.9		
9.4 How did your dairy production change because of COVID-19, if at all?	1 Production per day decreased 2 Production per day remained the same/no effect → 9.6 3 Production per day increased -888 Don't know/refuse → 9.8	Ask if 9.1 = 1 Select only one option
9.5 By how many liters did the milk production change per day, on average?		Ask if 9.4 = 1 or 3 Enter the volume in liters
	1 More difficult to sell	Ask if 9.1 = 1

9.6 How has your ability to sell milk changed because of COVID-19?	2 Same/no effect	<i>Select only one option</i>
	3 Easier to sell	
	-888 Don't know/refuse	
9.7 How has the average price of milk because of COVID-19?	1 Average sale price is lower	<u>Ask if 9.1 = 1</u>
	2 Average sale price is the same/no effect → 9.9	
	3 Average sale price is higher	<i>Select only one option</i>
	-888 Don't know/refuse → 9.9	
9.8 By how much did the average price of milk change per liter, on average?		<u>Ask if 9.7 = 1 or 3</u> <i>Enter value in Lari</i>
Beef Production <i>Ask 9.9 – 9.13 if 3.6 = 2 or 3.6 = 3</i>		
9.9 How did your beef production change because of COVID-19, if at all?	1 Production per day decreased	<u>Ask if 9.1 = 1</u>
	2 Production per day remained the same/no effect → 9.11	
	3 Production per day increased	<i>Select only one option</i>
	-888 Don't know/refuse → 9.11	
9.10 By how many kilograms did the beef production change per day, on average?		<u>Ask if 9.9 = 1 or 3</u> <i>Enter the volume in kilograms</i>
9.11 How has your ability to sell beef changed because of COVID-19?	1 More difficult to sell	<u>Ask if 9.1 = 1</u>
	2 Same/no effect	
	3 Easier to sell	<i>Select only one option</i>
	-888 Don't know/refuse	
9.12 How has the average price of beef because of COVID-19?	1 Average sale price is lower	<u>Ask if 9.1 = 1</u>
	2 Average sale price is the same/no effect	
	3 Average sale price is higher	<i>Select only one option</i>
	-888 Don't know/refuse	
9.13 By how much did the average price of beef change per kilogram, on average?		<u>Ask if 9.12 = 1 or 3</u> <i>Enter value in Lari</i>

End of Survey Questions

Enumerator: Answer these questions yourself at the end of the interview. Do not ask the respondent.

Questions	Options	Enumerator Instructions
In which language was the interview conducted?	1 Georgian	<i>Select only one option</i>
	2 Azerbaijani	
	3 Armenian	
During the interview, was the atmosphere at the interview site	1 Extremely chaotic and noisy; disruptive to interview	<i>Select only one option</i>
	2 Some noise and interruptions, but interview went reasonably well	
	3 Very quiet and calm; ideal for interview	

Milk Collection Center Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE A

0. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrel-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

6. Informed Consent

Question	Options	Enumerator Instructions and Skip Patterns
<i>Ask the respondent if they have a good understanding of the business and are able to answer detailed questions about it. Continue only if the answer is yes; otherwise thank the respondent and inquire about the feasibility of interviewing a key business decision-maker.</i>		
Informed Consent Hello, my name is _____ and I am part of a team hired by The Caucasus Research Resource Centers – Georgia (CRRC-Georgia) to conduct a survey of dairy and beef production. We were hired to conduct a study on the dairy and beef industry by Land O’Lakes Venture37. They just launched a project focusing on strengthening the dairy and beef industry, particularly concerning the safety and quality of dairy and beef products. I was hired to collect information from key stakeholders, like you, in the dairy and beef industry in order to gain a better understanding of the status and needs of the sector, so they can better set up their activities. With your permission, I would like to ask you questions about your business activities. Your answers will be kept confidential and will not be used for any purpose other than to inform the Land O’Lakes Venture37 project intended to help develop the dairy and beef sectors. The interview should last about 60-90 minutes. Participation is voluntary, and you can choose to refuse to do this interview. You can also choose to refuse to answer any questions you are uncomfortable with or do not want to answer. Please note that everything you say to me is confidential. We will never identify you or anyone in your business in any reports or information we release. There are no penalties to you for not participating or not answering a question. We are conducting this survey as an independent entity and are not associated with any government body. Please feel free to be open and honest with us in your responses. Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic. In case of any further questions after you have participated, you can always contact data collection team members like me, or you can call CRRC-Georgia at +995 599 38 80 64.		
<i>Ask if they have any questions about anything that was just mentioned and clarify all doubts before proceeding further.</i>		
1.1 Are you willing to participate in this interview?	1 Yes	If no, thank respondent for his/her time and conclude interview.
	0 No	

7. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (Enter in years)		
2.4 What is your position in the business?	1 Owner→ 2.8	Select only one option If chief executive officer (CEO) and owner are same, enter option 1
	2 Partner/Co-owner→ 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8		
2.5 What is the name of the owner of the business?		Ask if 2.4 = 3-6
2.6 What is the gender of the owner of the business?	0 Male	Ask if 2.4 = 3-6
	1 Female	
2.7 What is the age of the business owner?	1 30 years or older	Ask if 2.4 = 3-6 Select only one option
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		Enter respondent's personal cellphone Enter -888 if the respondent does not have a phone number
2.9 What is the name of your business?		Enter -888 if don't know/refuse
2.10 How many months has this business been in operation? (Enter in months)		Enter -888 if don't know/refuse
2.10a Did you provide your collected milk exclusively to only one client?	1 Yes	Select only one option
	0 No	
2.10b Please tell us, who was that client/company?		Ask if 2.10a = 1

8. Input Supply

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about how you procure milk and your storage and handling practices.				
Milk Procurement				
3.1 Did your business procure any milk in the last 12 months?	1 Yes 0 No	If "0" is selected, end survey and thank participant for his/her time		
3.3 What types of milk did your business procure from suppliers in the last 12 months?	1 Cow milk 2 Other (specify) -888 Don't know/refuse	Select all that apply		
For each <<type of milk>>, ask the following questions. Ask questions 3.5 - 3.6 only for applicable options selected in 3.3				
3.5 What was the average monthly volume of <<type of milk>> you bought in the last 12 months, in liters ? Please try to estimate if you do not know precise numbers.	Type of milk	Summer	Winter	Ask for applicable options selected in 3.3 This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer. Ensure average monthly amount in the last 12 months is quoted. Enter total amount quoted is in liters. Enter -888 if quantity unknown.
	1 Cow milk			
3.6 What was the average price per liter of <<type of milk>> you bought in the last 12 months? Please try to estimate if you do not know precise prices. (Enter in Lari)	Type of milk	Summer	Winter	Ask for applicable options selected in 3.3 This is an important question. Please probe respondent and ask them to try to estimate even if they do not know exact prices. Ensure price per liter is quoted Enter -888 if value unknown
	1 Cow milk			
3.7a How many milk suppliers (farmers/individuals) did you have during the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no suppliers
3.7b How many verbal sales agreements/contracts did you have with your milk suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no verbal sales agreements
3.7c How many formal (written) sales agreements/contracts did you				Enter -888 if don't know/refuse Enter 0 if no formal (written) sales agreements

Question	Options	Enumerator Instructions and Skip Patterns
have with your milk suppliers in the last 12 months?		
Safety and Quality Practices for Procured Milk		
Enumerator: Now we want to learn about the specific safety practices and checks you have in place for the milk you procure.		
3.13 What milk safety practices did your business employ in the last 12 months?	0 None	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 Employees wash hands before handling milk	
	2 Employees wear clean outer garments before handling milk	
	3 Purified water is used for cleaning milk collection containers	
	4 Cleaning milk collection containers with water and soap	
	5 Sanitizing milk collection containers with disinfectants after cleaning with water and soap	
	6 Milk storage areas are kept clean and hygienic	
	7 Other (specify)	
	-888 Don't know/refuse	
3.14 What quality checks for incoming milk did your business use in the last 12 months?	0 No quality checks implemented	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 Fat content	
	2 Acidity of milk	
	3 Water content	
	4 Bacterial count and somatic cell count	
	5 Antibiotic residue	
	6 Protein	
	7 Other (specify)	
	-888 Don't know/refuse	
3.15 What instruments did your business use for testing milk during the collection process in the last 12 months?	0 No instruments	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 Taste, smell, visual observation	
	2 Temperature	
	3 Milk density (use of lactometer)	
	4 Clot-on-boiling tests	
	5 Gerber tests for fat	
	6 pH tests level of acidity (lactic acid in mill)	
	7 Portable or stationary lactosan	
	8 Other (specify)	
	-888 Don't know/refuse	
3.16 Has your business rejected any milk on safety and/or	1 Yes	<i>Select only one option</i>
	0 No	

Question	Options	Enumerator Instructions and Skip Patterns
quality grounds in the last 12 months?	-888 Don't know/refuse	
3.17 On average, what percentage of total milk that is received by your business in a month, is rejected? Think about the monthly proportion of milk rejected in the last 12 months only.		<u>Ask if 3.16 = 1</u> Ensure only numbers between 0 and 100 can be entered Enter -888 if don't know/refuse
Food Safety Regulations		
Enumerator: Now we want to learn about broad food safety regulations that your business follows.		
3.20 Please list the certifications that your business has as of today	0 None	Select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 ISO 9001	
	2 ISO 22000	
	3 National Food Agency (NFA) certification	
	4 HACCP	
	5 Bio Certification	
3.21 Does your business implement the HACCP system?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
3.22 Why doesn't your business implement the HACCP system?	1 Newly opened business	Ask if 3.21 = 0 Select all that apply
	2 Lack of awareness that it is obligatory for my business	
	3 Lack of financial resources	
	4 Lack of human resources	
	5 Other (specify)	
3.23 Are you planning on obtaining HACCP certification in future?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
3.24 Which of these food safety standards and regulations did you/your employees apply in your daily work in the last 12 months?	0 None	Select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Maintain running water available in working area	
	2 Maintenance of ventilation	
	3 Territory and area are maintained in accordance with regulations	
	4 Pest control and disinfection in place	
	5 Emergency management	
	6 Product Recall and withdrawal practice	

Question	Options	Enumerator Instructions and Skip Patterns
	7 Using new or improved marketing approach, tools /sales management practice, etc.	

9. Value-Added Services

Question	Options	Enumerator Instructions and Skip Patterns
Milk Aggregation		
<i>Enumerator: Now we want to learn about milk aggregation, storage practices and sales of raw milk of your business.</i>		
4.1 What was your total current installed milk chilling capacity in the last 12 months? Think only about your milk storage capacity relevant for aggregation. (Enter in m ³)		Ensure total milk chilling capacity for aggregation in last 12 months is quoted Enter -888 if don't know/refuse.
4.2a How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u> <u>Enter 0 if no cold storage capacity bought or rented/refurbished in the last 12 months</u>
4.2b What was your total current installed dry storage capacity in the last 12 months? (Enter in m ³)	<u>m3</u>	<u>Dry storage capacity such as for keeping boxes, equipment, animal feed, etc.</u> <u>Enter -888 if don't know/refuse.</u>
4.2c How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u> <u>Enter 0 if no dry storage capacity bought or rented/refurbished in the last 12 months</u>
4.4 What storage practices for milk aggregation did your business employ in the last 12 months?	0 None	Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Milk is stored at below 4 degrees Celsius	
	2 Maintain appropriate humidity in storage area	
	3 Business has milk cooling tanks	
	4 Other (specify)	
	-888 Don't know/refuse	
4.7a How many buyers for raw milk did you have during the last 12 months?		Enter -888 if don't know/refuse Enter 0 if no suppliers
4.7b How many verbal sales agreements/contracts did you have with buyers for raw milk in the last 12 months?		Enter -888 if don't know/refuse Enter 0 if no verbal agreements/contracts
4.7c How many formal (written) sales agreements/contracts did you have with buyers for raw milk in the last 12 months?		Enter -888 if don't know/refuse Enter 0 if no formal (written) agreements/contracts
4.7d Was any of cow milk delivered by you rejected by your buyers on safety or quality grounds in the last 12 months?	1 Yes	Select only one option
	0 No	

4.7e On average, what percentage of total cow milk that your business delivers to buyers in a month was rejected in the last 12 months? Think about average monthly percentage of rejected milk, in the last 12 months?				<u>Ask if 4.7d = 1</u> Ensure only numbers between 0 and 100 can be entered Enter -888 if don't know/refuse
4.8 What types of raw milk did your business sell to buyers in the last 12 months?	1 Cow milk			Read entire list and select all that apply
	2 Other (specify)			
	-888 Don't know/refuse			
For each <<type of raw milk>>, ask the following questions. <u>Ask questions 4.10 – 4.11 for applicable options selected in 4.8</u>				
4.10 What was the average monthly volume of <<type of raw milk>> you sold in the last 12 months, in liters ? Please try to estimate if you do not know precise numbers.	Type of Raw Milk	Summer	Winter	<u>Ask for applicable options selected in 4.8</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Ensure average monthly volume in 12 months is quoted Enter -888 if quantity unknown
	1 Cow milk			
	2 Other (specify)			
4.11 What was average price per liter of <<type of raw milk>> you sold in the last 12 months? Please try to estimate if you do not know precise numbers. (Enter in Lari)	Type of Raw Milk	Summer	Winter	<u>Ask for applicable options selected in 4.8</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise prices. Ensure price per liter is quoted Enter -888 if value unknown
	1 Cow milk			
	2 Other (specify)			
Training				
4.30 What type of training or technical assistance has your business received in the last 12 months?	0 No training			Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Business operations/management training			
	2 Milk handling, processing, and storage training			
	3 Food safety training			
	4 Milk testing training			
	5 Bookkeeping			
	6 Other (specify)			
-888 Don't know/refuse				
4.31 From whom did your business receive training/technical assistance in the last 12 months?	1 Government agencies (National, state or local)			<u>Ask if 4.30 = 1-5</u> Read entire list and select all that apply
	2 Non-governmental organizations			
	3 Private companies/Other businesses			

	4 Input suppliers	
	5 Business service providers	
	6 Own technical staff providing training	
	7 Land O'Lakes Venture37 SQL project	
	8 Other (specify)	
	-888 Don't know/refuse	
4.32 Have you heard about the mobile application Agronavti?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
4.33 Do you use Agronavti?	1 Yes	<i>Ask if 4.32 = 1</i> <i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
4.34 Have you heard about the web page AgroFace?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
4.35 Do you use AgroFace?	1 Yes	<i>Ask if 4.34 = 1</i> <i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	

10. Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your milk input costs, storage costs and costs for value-added services that we have discussed, we want to learn about other costs in your businesses			
5.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.1a Permanent male		
	5.1b Part-time/Seasonal male		
	5.1c Permanent female		
	5.1d Part-time/Seasonal female		
5.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.2a Permanent male		
	5.2b Part-time/Seasonal male		
	5.2c Permanent female		
	5.2d Part-time/Seasonal female		
5.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 5.3a if 5.2b > 0</u> <u>Ask 5.3b if 5.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	5.3a Part-time/Seasonal male		
	5.3b Part-time/Seasonal female		

11. Business Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we will talk about your business management and marketing practices.		
Business Management		
6.2a What type of records did you keep in the last 12 months?	0 None	Read entire list and select all that apply Ensure that if “0” is chosen no other option is chosen
	1 Milk reception (origin, quantity)	
	2 Initial tests of milk	
	3 Financial administrative recording (income, expenses, profit, employment, etc.)	
	4 Other (specify)	
	-888 Don’t know/refuse	
Credit		
Enumerator: Now we will talk about credit.		
6.5 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	Read entire list and select all that apply
	2 Loans (from formal, informal sources)	
	3 Investment by others that allows them business co-ownership	
	4 Other (specify)	
	-888 Don’t know/refuse	
6.6 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes, applied and received → 6.8	Select only one option
	2 Yes, applied but did not receive	
	3 No, have not applied → 6.12	
	-888 Don’t know/refuse → 6.12	
6.7 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present→ 6.12	Read entire list and select all that apply
	2 Lack of collateral→ 6.12	
	3 High interest rate→ 6.12	
	4 Other (specify) → 6.12	
	-888 Don’t know/refuse→ 6.12	
6.8 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	1 Buying equipment for business	Ask if 6.6 = 1 Read entire list and select all that apply
	2 Managing short-term cash shortage	
	3 Managing any unplanned shock to business	
	4 Business expansion	
	5 Other (specify)	
	-888 Don’t know/refuse	
6.9 What is the total value of loans from formal sources that your business obtained in the last 12 months? (Enter in Lari)		Ask if 6.6 = 1 Enter -888 if don’t know/refuse
	0 No	

6.12 Has your business used any other financial products in the last 12 months?	1 Business insurance	<i>Read entire list and select all that apply</i>	
	2 Livestock insurance		
	3 Mutual funds	<i>Ensure if "0" option is chosen, then no other option is selected</i>	
	4 Capital gain bonds		
	5 Other (specify)		
New Investments and Profits			
<i>Enumerator: Now we will talk about new investments and profits.</i>			
6.13 In total, how much did your business spend in new investments in the last 12 months? <i>(Enter in Lari)</i>		<i>Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc. Enter -888 if don't know/refuse If multiple investments were made, enter total amount invested in last 12 months</i>	
6.13a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources <i>(Enter in Lari)</i>		<i>Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero</i>	
6.13b What were the total costs of your business in the last 12 months? Please think about costs from all sources <i>(Enter in Lari)</i>		<i>Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse</i>	
6.14 What were the total profits of your business in the last 12 months? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but not including any income you paid yourself? <i>(Enter in Lari)</i>		<i>Ensure total profit in last 12 months is quoted Enter -888 if don't know/refuse Enter 0 if profit is zero Negative values are allowed</i>	
Challenges			
6.15 What are the main challenges in operating your business?	0 No challenges	<i>For lack of storage facilities, enter option 8; for poor storage facilities, enter option 9.</i>	
	1 Lack of information on prices and/or demand		
	2 Lack of information about rules, regulations, and safety standards		
	3 Lack of access to inputs	<i>Read entire list and select all that apply</i>	
	4 Unstable supply from farmers/other businesses		
	5 Lack of access to credit		

	6 Lack of access to markets for selling product	<i>Ensure if "0" option is chosen, then no other option is selected</i>
	7 Lack of proper technology/Use of old or poor production technologies	
	8 Inadequate infrastructure	
	9 Inefficiencies in post-harvest handling and storage	
	10 Low marketing capacity	
	11 Lack of qualified workforce	
	12 Other (specify)	
	-888 Don't know/refuse	

7. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your milk business due to COVID-19. We will ask about how it has influenced your inputs, products, and sales.		
7.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
7.2 Were any of the following items of your business impacted by COVID-19?	1 Transportation of products 2 Access to inputs 3 Communication or visits from milk suppliers 4 Communication or visits from milk/milk product buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	Ask if 7.1 = 1 Select all that apply
7.3 Has your access to inputs changed as a result of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect → 7.5 3 Easier to access inputs -888 Don't know/refuse → 7.5	Ask if 7.1 = 1 Select only one option
7.4 How did your milk procurement change as a result of COVID-19, if at all?	1 Procurement per day decreased 2 Procurement per day remained the same/no effect → 7.6 3 Procurement per day increased -888 Don't know/refuse → 7.6	Ask if 7.1 = 1 Select only one option
7.5 By how many liters per day did milk procurement change, on average?		Ask if 7.4 = 1 or 3 Enter the volume in kilograms
7.6 How has your ability to sell milk as a result of COVID-19?	1 Sales per day increased 2 Same/no effect 3 Sales per day decreased -888 Don't know/refuse	Ask if 7.1 = 1 Select only one option
7.7 How has the average price of milk changed as a result of COVID-19?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	Ask if 7.1 = 1 Select only one option
7.8 By how much did the average price of milk change per kilogram, on average?		Ask if 7.7 = 1 or 3 Enter value in Lari

Milk Processor Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE B

0. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrello-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

12. Informed Consent

Question	Options	Enumerator Instructions and Skip Patterns
<i>Ask the respondent if they have a good understanding of the business and are able to answer detailed questions about it. Continue only if the answer is yes; otherwise thank the respondent and inquire about the feasibility of interviewing a key business decision-maker.</i>		
Informed Consent		
Hello, my name is _____ and I am part of a team hired by The Caucasus Research Resource Centers – Georgia (CRRC-Georgia) to conduct a survey of dairy and beef production. We were hired to conduct a study on the dairy and beef industry by Land O’Lakes Venture37. They just launched a project focusing on strengthening the dairy and beef industry, particularly concerning the safety and quality of dairy and beef products. I was hired to collect information from key stakeholders, like you, in the dairy and beef industry in order to gain a better understanding of the status and needs of the sector, so they can better set up their activities. With your permission, I would like to ask you questions about your business activities. Your answers will be kept confidential and will not be used for any purpose other than to inform the Land O’Lakes Venture37 project intended to help develop the dairy and beef sectors. The interview should last about 60-90 minutes. Participation is voluntary, and you can choose to refuse to do this interview. You can also choose to refuse to answer any questions you are uncomfortable with or do not want to answer. Please note that everything you say to me is confidential. We will never identify you or anyone in your business in any reports or information we release. There are no penalties to you for not participating or not answering a question. We are conducting this survey as an independent entity and are not associated with any government body. Please feel free to be open and honest with us in your responses. Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic. In case of any further questions after you have participated, you can always contact data collection team members like me, or you can call CRRC-Georgia at +995 599 38 80 64.		
<i>Ask if they have any questions about anything that was just mentioned and clarify all doubts before proceeding further.</i>		
1.1 Are you willing to participate in this interview?	1 Yes	If no, thank respondent for his/her time and conclude interview.
	1 No	

13. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (Enter in years)		
2.4 What is your position in the business?	1 Owner → 2.8	Select only one option If chief executive officer (CEO) and owner are same, enter option 1
	2 Partner/Co-owner → 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8		
2.5 What is the name of the owner of the business?		Ask if 2.4 = 3-6
2.6 What is the gender of the owner of the business?	0 Male	Ask if 2.4 = 3-6
	1 Female	
2.7 What is the age of the business owner?	1 30 years or older	Ask if 2.4 = 3-6 Select only one option
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		Enter respondent's personal cellphone Enter -888 if the respondent does not have a phone number
2.9 What is the name of your business?		Enter -888 if don't know/refuse
2.10 How many months has this business been in operation? (Enter in months)		Enter -888 if don't know/refuse

14. Input Supply

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about how you procure milk and your storage and handling practices.				
Milk Procurement				
3.1 Did your business procure any milk in the last 12 months?	1 Yes 0 No	If "0" is selected, end survey and thank participant for his/her time		
3.3 What types of milk did your business procure from suppliers in the last 12 months?	1 Buffalo milk 2 Cow milk 3 Goat milk 4 Sheep milk 5 Reconstituted milk powder 6 Other (specify) -888 Don't know/refuse	Select all that apply		
For each <<type of milk>>, ask the following questions. <u>Ask questions 3.5 - 3.6 only for applicable options selected in 3.3</u>				
3.5 What was the average monthly volume of <<type of milk>> you bought in the last 12 months, in liters ? Please try to estimate if you do not know precise numbers.	Type of milk	Summer	Winter	Ask for applicable options selected in 3.3
	1 Buffalo milk (Enter in liters)			This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer.
	2 Cow milk (Enter in liters)			
	3 Goat milk (Enter in liters)			
	4 Sheep milk (Enter in liters)			
	5 Reconstituted milk powder (Enter in Liters))			Ensure average monthly amount in the last 12 months is quoted.
	6 Other (specify)			Enter -888 if quantity unknown.
3.6 What was the average price per unit of <<type of milk>> you bought in the last 12 months? Please try to estimate if you do not know precise prices. (Enter in Lari)	Type of milk	Summer	Winter	Ask for applicable options selected in 3.3
	1 Buffalo milk (Enter in liters)			This is an important question. Please probe respondent and ask them to try to estimate even if they do not know exact prices.
	2 Cow milk (Enter in liters)			
	3 Goat milk (Enter in liters)			
	4 Sheep milk (Enter in liters)			
	5 Reconstituted milk powder (Enter in Liters))			Enter -888 if value unknown

Question	Options			Enumerator Instructions and Skip Patterns
	6 Other (specify)			
3.7a How many milk suppliers (farmers/individuals) did you have during the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no suppliers
3.7b How many verbal sales agreements/contracts did you have with your milk suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no verbal sales agreements
3.7c How many formal (written) sales agreements/contracts did you have with your milk suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no formal (written) sales agreements
Safety and Quality Practices for Procured Milk				
Enumerator: Now we want to learn about the specific safety practices and checks you have in place for the milk you procure.				
3.13 What milk safety practices did your business employ in the last 12 months?	0 None			Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Employees wash hands before handling milk			
	2 Employees wear clean outer garments before handling milk			
	3 Purified water is used for cleaning milk collection and processing containers			
	4 Cleaning milk collection containers with water and soap			
	5 Sanitizing milk collection containers with disinfectants after cleaning with water and soap			
	6 Milk storage areas are kept clean and hygienic			
	7 Other (specify)			
	-888 Don't know/refuse			
3.14 What quality checks for incoming milk did your business use in the last 12 months?	0 No quality checks implemented			Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Fat content			
	2 Acidity of milk			
	3 Water content			
	4 Bacterial count and somatic cell count			
	5 Antibiotic residue			
	6 Other (specify)			
	-888 Don't know/refuse			
3.15 What instruments did your business use for testing milk during the	0 No instruments			Read entire list and select all that apply
	1 Taste, smell, visual observation			
	2 Temperature			

Question	Options	Enumerator Instructions and Skip Patterns
collection process in the last 12 months?	3 Milk density (use of lactometer) 4 Clot-on-boiling tests 5 Gerber tests for fat 6 pH tests level of acidity (lactic acid in mill) 7 Other (specify) -888 Don't know/refuse	Ensure if "0" option is chosen, then no other option is selected
3.16 Has your business rejected any milk on safety and/or quality grounds in the last 12 months?	1 Yes 0 No -888 Don't know/refuse	Select only one option
3.17 On average, what percentage of total milk that is received by your business in a month, is rejected? Think about the monthly proportion of milk rejected in the last 12 months only.		<u>Ask if 3.16 = 1</u> Ensure only numbers between 0 and 100 can be entered Enter -888 if don't know/refuse
Food Safety Regulations		
Enumerator: Now we want to learn about broad food safety regulations that your business follows.		
3.20 Please list the certifications that your business has as of today	0 None 1 ISO 9001 2 ISO 22000 3 National Food Agency (NFA) certification 4 HACCP 5 Bio Certification 6 Georgian Milk Certification 7 None	Select all that apply Ensure if "0" option is chosen, then no other option is selected
3.21 Does your business implement the HACCP system?	1 Yes 0 No -888 Don't know/refuse	Select only one option
3.22 Why doesn't your business implement the HACCP system?	1 Newly opened business 2 Lack of awareness that it is obligatory for my business 3 Lack of financial resources 4 Lack of human resources 5 Other (specify)	Ask if 3.21 = 0 Select all that apply
3.23 Are you planning on obtaining HACCP certification in future?	1 Yes 0 No -888 Don't know/refuse	Select only one option
3.24 Which of these food safety standards and regulations did you/your employees apply in your daily work in the last 12 months?	0 None 1 Maintain running water available in working area 2 Maintenance of ventilation	Select all that apply Ensure if "0" option is chosen, then no other option is selected

Question	Options	Enumerator Instructions and Skip Patterns
	3 Territory and area are maintained in accordance with regulations	
	4 Pest control and disinfection in place	
	5 Emergency management	
	6 Product Recall and withdrawal practice	
	7 Using new or improved marketing approach, tools /sales management practice, etc.	

15. Value-Added Services

Question	Options	Enumerator Instructions and Skip Patterns
Milk Storage		
<i>Enumerator: Now we want to learn about your storage practices and costs for milk that you procure and milk/milk products that you process.</i>		
4.1 What was your total current installed milk chilling capacity in the last 12 months? (Enter in m ³)	m ³	Ensure total milk chilling capacity for both incoming raw milk and processed milk/milk products is quoted Enter -888 if don't know/refuse.
4.2a How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
4.2b What was your total current installed dry storage capacity in the last 12 months? (Enter in m ³)	<u>m3</u>	<u>Dry storage capacity such as for keeping boxes, equipment, animal feed, etc.</u> <u>Enter -888 if don't know/refuse.</u>
4.2c How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
4.4 What storage practices for milk did your business employ in the last 12 months?	0 None	Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Milk and milk products are stored at below 4 degrees Celsius	
	2 Maintain appropriate humidity in storage area	
	3 Business has milk cooling tanks	
	4 Other (specify)	
	-888 Don't know/refuse	
Milk Processing		
<i>Enumerator: Now we want to learn about your processing practices and sales of processed milk products.</i>		
4.5 What was your total current installed daily milk processing capacity in the last 12 months? Think only about your milk processing capacity. (Enter in m ³)		Ensure that only milk processing capacity is quoted and milk storage capacity is not included. Enter -888 if don't know/refuse.
4.6 Did your business buy or rent any processing capacity in the last 12 months?	1 Bought new processing capacity	Explain that this is different from milk chilling capacity and refers only to processing capacity
	2 Rented processing capacity	
	3 Did not buy/rent any processing capacity	
	-888 Don't know/refuse	

4.8 What types of processing did your business employ in the last 12 months?	1 Standardization (including filtration)	<i>Read entire list and select all that apply</i>
	2 Separation	
	3 Normal homogenization	
	4 High-pressure homogenization	
	5 Pasteurization	
	6 Cheese making (setting, draining, pressing, ageing)	
	7 Other (specify)	
	-888 Don't know/refuse	
4.9 Did your business sell any processed milk products in the last 12 months?	1 Yes	<i>Select only one option</i>
	0 No → 4.18	
<u>Ask questions 4.9a – 4.17 if 4.9 = 1, else skip to 4.18</u>		
4.9a How many buyers for milk and/or milk products did you have during the last 12 months?		<i>Enter -888 if don't know/refuse Enter 0 if no suppliers</i>
4.9b How many verbal sales agreements/contracts did you have with your milk and/or milk product buyers in the last 12 months?		<i>Enter -888 if don't know/refuse Enter 0 if no verbal agreements/contracts</i>
4.9c How many formal (written) sales agreements/contracts did you have with your milk and/or milk product buyers in the last 12 months?		<i>Enter -888 if don't know/refuse Enter 0 if no formal (written) agreements/contracts</i>
4.9d Were any of the milk and/or milk products delivered by you rejected by your buyers on safety or quality grounds in the last 12 months?	1 Yes	<i>Select only one option</i>
	0 No	
4.9e On average, what percentage of total milk and or/ milk products that your business delivers to buyers in a month was rejected in the last 12 months? Think about average monthly percentage of rejected milk products, in the last 12 months?		<u>Ask if 4.9d = 1</u> <i>Ensure only numbers between 0 and 100 can be entered Enter -888 if don't know/refuse</i>
4.11 What types of processed milk products did your business sell to buyers in the last 12 months?	1 Processed liquid milk	<i>Read entire list and select all that apply</i>
	2 Cottage cheese	
	3 Matsoni	
	4 Imeruli cheese	
	5 Sulgini cheese	
	6 Nadugi	
	7 Sour Cream	
	8 Yogurt	
	9 Butter	
	10 Other (specify)	
	-888 Don't know/refuse	

For each <<type of processed milk product>>, ask the following questions. Ask questions 4.13 – 4.14 for applicable options selected in 4.11

4.13 What was the average monthly volume of <<type of processed milk product>> you sold in the last 12 months? Please try to estimate if you do not know precise numbers	Type of Processed Milk Product	Summer	Winter	<u>Ask for applicable options selected in 4.11</u> <i>This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers.</i> <i>Ensure average monthly volume in 12 months is quoted</i> <i>Enter -888 if quantity unknown</i>
	1 Processed liquid milk (Enter in liters)			
	2 Cottage cheese (Enter in kilograms)			
	3 Matsoni			
	4 Imeruli cheese (Enter in kilograms)			
	5 Sulgini cheese (Enter in kilograms)			
	6 Nadugi (Enter in kilograms)			
	7 Sour Cream (Enter in kilograms)			
	8 Yogurt (Enter in kilograms)			
	9 Butter (Enter in kilograms)			
	10 Other (specify)			
4.14 What was average price per unit of <<type of processed milk product>> you sold in the last 12 months? Please try to estimate if you do not know precise numbers. (Enter in Lari)	Type of Processed Milk Product	Summer	Winter	<u>Ask for applicable options selected in 4.11</u> <i>This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise prices.</i> <i>Enter -888 if value unknown</i>
	1 Processed liquid milk (price/liter)			
	2 Cottage cheese (price/kilogram)			
	3 Matsoni			
	4 Imeruli cheese (price/kilogram)			
	5 Sulgini cheese (price/kilogram)			
	6 Nadugi (price/kilogram)			
	7 Sour Cream (price/kilogram)			
	8 Yogurt (price/kilogram)			

	9 Butter (price/kilogram)			
	10 Other (specify)			
4.17 Did your enterprise apply any of the following innovations in the last 12 months?	0 None	Select all that apply Ensure if "0" option is chosen, then no other option is selected		
	1 Automatization of processes			
	2 Innovative processing technologies			
	3 Packaging			
	4 Label printing machine installment			
	5 New product development			
	6 Branding of products			
7 Other (specify)				
4.17a How many new products did your business produce/develop in the last 12 months?		Ask if 4.17 = 5 Enter -888 if don't know/refuse		
Milk Packaging				
4.18 Did your business provide any packaging services for processed milk and milk products in the last 12 months?	1 Yes	Select only one option		
	0 No			
	-888 Don't know/refuse			
Training				
4.22 What type of training or technical assistance has your business received in the last 12 months?	0 No training → 5.1	Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected		
	1 Business operations/management training			
	2 Milk handling, processing, and storage training			
	3 Safety and quality control procedures			
	4 Food safety standards and regulations training			
	5 Milk testing training			
	6 Bookkeeping			
	7 Other (specify)			
-888 Don't know/refuse → 5.1				
4.23 From whom did your business receive training/technical assistance in the last 12 months?	1 Government agencies (National, state or local)	Ask if 4.22 = 1-6 Read entire list and select all that apply		
	2 Non-governmental organizations			
	3 Private companies/Other businesses			
	4 Input suppliers			
	5 Business service providers			
	6 Own technical staff providing training			
	7 Land O'Lakes Venture37/ SQIL Project			
	8 Other (specify)			
	-888 Don't know/refuse			
	1 Yes	Select only one option		
	0 No			

4.24 Have you heard about the mobile application Agronavti?	-888 Don't know/refuse	
4.25 Do you use Agonavti?	1 Yes	<u>Ask if 4.24 = 1</u> Select only one option
	0 No	
	-888 Don't know/refuse	
4.26 Have you heard about the web page AgroFace?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
4.27 Do you use AgroFace?	1 Yes	<u>Ask if 4.26 = 1</u> Select only one option
	0 No	
	-888 Don't know/refuse	

5 Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your storage costs and costs for value-added services that we have discussed, we want to learn about your labor costs.			
5.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.1a Permanent male		
	5.1b Part-time/Seasonal male		
	5.1c Permanent female		
	5.1d Part-time/Seasonal female		
5.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.2a Permanent male		
	5.2b Part-time/Seasonal male		
	5.2c Permanent female		
	5.2d Part-time/Seasonal female		
5.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 5.3a if 5.2b > 0</u> <u>Ask 5.3b if 5.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	5.3a Part-time/Seasonal male		
	5.3b Part-time/Seasonal female		

6 Business Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we will talk about your business management and marketing practices.		
Business Management and Marketing Practices		
6.2a What type of records did you keep in the last 12 months?	0 None	Read entire list and select all that apply Ensure that if “0” is chosen no other option is chosen
	1 Records on milk reception (origin, quantity, provider, etc.)	
	2 Records on milk processing (types of production, production output)	
	3 Laboratory analysis during the processing	
	4 Financial administrative recording (income, expenses, profit, employment, etc.)	
	5 Temperature control of raw materials and end products recordings	
	6 Other (specify)	
	-888 Don’t know/refuse	
Credit		
Enumerator: Now we will talk about credit.		
6.5 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	Read entire list and select all that apply
	2 Loans (from formal, informal sources)	
	3 Investment by others that allows them business co-ownership	
	4 Other (specify)	
	-888 Don’t know/refuse	
6.6 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes, applied and received→ 6.8	Select only one option
	2 Yes, applied and did not receive	
	3 No, have not applied → 6.12	
	-888 Don’t know/refuse → 6.12	
6.7 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present→ 6.12	Ask if 6.6=0 and then skip to 6.12
	2 Lack of collateral→ 6.12	Read entire list and select all that apply
	3 High interest rate→ 6.12	
	4 Other (specify) → 6.12	
	-888 Don’t know/refuse→ 6.12	
Ask questions 6.8 – 6.9 if 6.6=1		
	1 Buying equipment for business	Ask if 6.6 = 1
	2 Managing short-term cash shortage	

6.8 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	3 Managing any unplanned shock to business	Read entire list and select all that apply	
	4 Business expansion		
	5 Other (specify)		
	-888 Don't know/refuse		
6.9 What is the total value of loans from formal sources that your business obtained in the last 12 months? (<i>Enter in Lari</i>)		Ask if 6.6 = 1 Enter -888 if don't know/refuse	
6.12 Has your business used any other financial products in the last 12 months?	0 No	Read entire list and select all that apply	
	1 Business insurance		
	2 Livestock insurance		
	3 Mutual funds		
	4 Capital gain bonds	Ensure if "0" option is chosen, then no other option is selected	
	5 Other (specify)		
New Investments and Profits			
Enumerator: Now we will talk about new investments and profits.			
6.13 In total, how much did your business spend in new investments in the last 12 months? (<i>Enter in Lari</i>)		Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc. Enter -888 if don't know/refuse If multiple investments were made, enter total amount invested in last 12 months	
6.13a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources (<i>Enter in Lari</i>)		Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero	
6.13b What were the total costs of your business in the last 12 months? Please think about costs from all sources (<i>Enter in Lari</i>)		Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse	
6.14 What were the total profits of your business in the last 12 months? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but not including any income you paid yourself? (<i>Enter in Lari</i>)		Ensure total profit in last 12 months is quoted Enter -888 if don't know/refuse Enter 0 if profit is zero Negative values are allowed	

Challenges		
6.15 What are the main challenges in operating your business?	0 No challenges	<i>For lack of storage facilities, enter option 8; for poor storage facilities, enter option 9.</i> <i>Read entire list and select all that apply</i> <i>Ensure if “0” option is chosen, then no other option is selected</i>
	1 Lack of information on prices and/or demand	
	2 Lack of information about rules, regulations, and safety standards	
	3 Lack of access to inputs	
	4 Unstable supply from farmers/other businesses	
	5 Lack of access to credit	
	6 Lack of access to markets for selling product	
	7 Lack of proper technology/Use of old or poor production technologies	
	8 Inadequate infrastructure	
	9 Inefficiencies in post-harvest handling and storage	
	10 Low marketing capacity	
	11 Lack of qualified workforce	
	12 Other (specify)	
	-888 Don't know/refuse	

7. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your milk business due to COVID-19. We will ask about how it has influenced your inputs, products, and sales.		
7.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
7.2 Were any of the following items of your business impacted by COVID-19?	1 Transportation of products 2 Access to inputs 3 Communication or visits from milk suppliers 4 Communication or visits from milk/milk product buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	<u>Ask if 7.1 = 1</u> Select all that apply
7.3 Has your access to inputs changed as a result of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect → 7.5 3 Easier to access inputs -888 Don't know/refuse → 7.5	<u>Ask if 7.1 = 1</u> Select only one option
7.4 How did your milk procurement change as a result of COVID-19, if at all?	1 Procurement per day decreased 2 Procurement per day remained the same/no effect → 7.6 3 Procurement per day increased -888 Don't know/refuse → 7.6	<u>Ask if 7.1 = 1</u> Select only one option
7.5 By how many liters per day did milk procurement change, on average?		<u>Ask if 7.4 = 1 or 3</u> Enter the volume in kilograms
7.6 How has your ability to sell milk and milk products because of COVID-19?	1 Sales per day increased 2 Same/no effect 3 Sales per day decreased -888 Don't know/refuse	<u>Ask if 7.1 = 1</u> Select only one option
7.7 How has the average price of milk and milk products changed because of COVID-19?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	<u>Ask if 7.1 = 1</u> Select only one option
7.8 By how much did the average price of milk and milk products change per kilogram, on average?		<u>Ask if 7.7 = 1 or 3</u> Enter value in Lari

Milk Retailer Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE C

0. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrello-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

16. Informed Consent

Question	Options	Enumerator Instructions and Skip Patterns
<i>Ask the respondent if they have a good understanding of the business and are able to answer detailed questions about it. Continue only if the answer is yes; otherwise thank the respondent and inquire about the feasibility of interviewing a key business decision-maker.</i>		
Informed Consent		
Hello, my name is _____ and I am part of a team hired by The Caucasus Research Resource Centers – Georgia (CRRC-Georgia) to conduct a survey of dairy and beef production. We were hired to conduct a study on the dairy and beef industry by Land O’Lakes Venture37. They just launched a project focusing on strengthening the dairy and beef industry, particularly concerning the safety and quality of dairy and beef products. I was hired to collect information from key stakeholders, like you, in the dairy and beef industry in order to gain a better understanding of the status and needs of the sector, so they can better set up their activities. With your permission, I would like to ask you questions about your business activities. Your answers will be kept confidential and will not be used for any purpose other than to inform the Land O’Lakes Venture37 project intended to help develop the dairy and beef sectors. The interview should last about 45-60 minutes. Participation is voluntary, and you can choose to refuse to do this interview. You can also choose to refuse to answer any questions you are uncomfortable with or do not want to answer. Please note that everything you say to me is confidential. We will never identify you or anyone in your business in any reports or information we release. There are no penalties to you for not participating or not answering a question. We are conducting this survey as an independent entity and are not associated with any government body. Please feel free to be open and honest with us in your responses. Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic. In case of any further questions after you have participated, you can always contact data collection team members like me, or you can call CRRC-Georgia at +995 599 38 80 64.		
<i>Ask if they have any questions about anything that was just mentioned and clarify all doubts before proceeding further.</i>		
1.1 Are you willing to participate in this interview?	1 Yes	If no, thank respondent for his/her time and conclude interview.
	2 No	

17. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (<i>Enter in years</i>)		
2.4 What is your position in the business?	1 Owner → 2.8	<i>Select only one option</i> <i>If chief executive officer (CEO) and owner are same, enter option 1</i>
	2 Partner/Co-owner → 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
<i>Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8</i>		
2.5 What is the name of the owner of the business?		<i>Ask if 2.4 = 3-6</i>
2.6 What is the gender of the owner of the business?	0 Male	<i>Ask if 2.4 = 3-6</i>
	1 Female	
2.7 What is the age of the business owner?	1 Older than 30 years	<i>Ask if 2.4 = 3-6</i>
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		<i>Enter respondent's personal cellphone</i> <i>Enter -888 if the respondent does not have a phone number</i>
2.9 What is the name of your business?		<i>Enter -888 if don't know/refuse</i>
2.10 How many months has this business been in operation? (<i>Enter in months</i>)		<i>Enter -888 if don't know/refuse</i>

18. Sales, Revenues and Costs

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about your sales of packaged milk/milk products.				
Milk/Milk Products Sales				
3.1 Did your business sell any milk/milk products in the last 12 months?	1 Yes	<u>If "0" is selected, end survey and thank participant for his/her time</u>		
	0 No			
<u>Ask questions 3.2 – 3.9b if 3.1= 1, else end survey and thank participant for his/her time</u>				
3.3 What types of milk/milk products did your business sell to buyers in the last 12 months?	1 Processed liquid cow milk	<i>Read entire list and select all that apply</i>		
	2 Cottage cheese			
	3 Nadugi			
	4 Matsoni			
	5 Imeruli cheese			
	6 Sulgini cheese			
	7 Sour cream			
	8 Yogurt			
	9 Butter			
	10 Other (specify)			
	-888 Don't know/refuse			
<i>For each <<type of packaged milk/milk product>>, ask the following questions. <u>Ask questions 3.4 – 3.5 for applicable options selected in 3.3</u></i>				
3.4 What was the average monthly volume of <<type of milk/milk product>> you sold in the last summer season? Winter season? Please try to estimate if you do not know precise numbers.	Type of Packaged Milk/Milk product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> <i>This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. For option 1-4 ensure average monthly volume is quoted in liters and for options 5-9 in kilograms Ensure average monthly volume in 12 months is quoted If different types/flavors of flavored yogurt are sold enter average monthly volume across all types</i>
	1 Processed liquid cow milk (Enter in liters)			
	2 Cottage cheese (Enter in kilograms)			
	3 Nadugi ((Enter in kilograms)			
	4 Matsoni (Enter in kilograms)			
	5 Imeruli cheese (Enter in kilograms)			
	6 Sulgini cheese (Enter in kilograms)			

	7 Sour cream (Enter in kilograms)			If different types/flavors of hard and soft cheese are sold enter average monthly volume across all types Enter -888 if quantity unknown
	8 Yogurt (Enter in kilograms)			
	9 Butter (Enter in kilograms)			
	10 Other (specify)			
3.5 What was average price per unit of <<type of milk/milk product>> you sold in the last summer season? Winter season? Please try to estimate if you do not know precise numbers. (Enter in Lari)	Type of Packaged Milk/Milk product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise prices. If different types/flavors of flavored yogurt are sold enter average price per unit across all types If different types/flavors of hard and soft cheese are sold enter average price per unit across all types Enter -888 if value unknown
	1 Processed liquid cow milk (price/liter)			
	2 Cottage cheese (Enter in kilograms)			
	3 Nadugi ((Enter in kilograms)			
	4 Matsoni (Enter in kilograms)			
	5 Imeruli cheese (Enter in kilograms)			
	6 Sulgini cheese (Enter in kilograms)			
	7 Sour cream (Enter in kilograms)			
	8 Yogurt (Enter in kilograms)			
	9 Butter (Enter in kilograms)			
	10 Other (specify)			
Milk/Milk Products Procurement				
For each <<type of packaged milk/milk product>>, ask the following questions. <u>Ask questions 3.8 - 3.9 only for applicable options selected in 3.3</u>				
3.8 What was the average monthly volume of <<type of milk/milk product>> you bought in the last summer season? Winter season?	Type of Packaged Milk/Milk product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe

Please try to estimate if you do not know precise numbers.	1 Processed liquid cow milk (Enter in liters)			respondent and ask them to try to estimate even if they do not have a precise answer. Ensure average monthly amount in the last 12 months is quoted. If different types/flavors of yogurt are procured enter average monthly volume across all types If different types/flavors of hard and soft cheese are procured enter average monthly volume across all types Enter -888 if quantity unknown.
	2 Cottage cheese (Enter in kilograms)			
	3 Nadugi ((Enter in kilograms)			
	4 Matsoni (Enter in kilograms)			
	5 Imeruli cheese (Enter in kilograms)			
	6 Sulgini cheese (Enter in kilograms)			
	7 Sour cream (Enter in kilograms)			
	8 Yogurt (Enter in kilograms)			
	9 Butter (Enter in kilograms)			
	10 Other (specify)			
3.9 What was the average price per unit of <<type of milk/milk product>> you bought in the last summer season? Winter season? Please try to estimate if you do not know precise prices. (Enter in Lari)	Type of Packaged Milk/Milk product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know exact prices. If different types/flavors of yogurt are procured enter average price per unit across all types If different types/flavors of hard and soft cheese are procured enter average
	1 Processed liquid cow milk (price/liter)			
	2 Cottage cheese (Enter in kilograms)			
	3 Nadugi ((Enter in kilograms)			
	4 Matsoni (Enter in kilograms)			

	5 Imeruli cheese (Enter in kilograms)			price per unit across all types Enter -888 if value unknown
	6 Sulgini cheese (Enter in kilograms)			
	7 Sour cream (Enter in kilograms)			
	8 Yogurt (Enter in kilograms)			
	9 Butter (Enter in kilograms)			
	10 Other (specify)			
3.7a How many suppliers of milk/milk products (farmers/individuals) did you have during the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no suppliers
3.7b How many verbal sales agreements/contracts did you have with your milk/milk products suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no verbal sales agreements
3.7c How many formal (written) sales agreements/contracts did you have with your milk/milk products suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no formal (written) sales agreements
Safety and Quality Practices for Packaged Milk/Milk Products				
Enumerator: Now we want to learn about the specific safety practices and checks you have in place for the packaged milk/milk products you procure.				
3.13 What safety practices did your business employ for milk/milk products in the last 12 months?	0 None	Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected		
	1 Milk is stored at below 4 degrees Celsius			
	2 Milk products like yogurt, matsoni and cheese are stored at below 4 degrees Celsius			
	3 General sanitary norms are observed			
	4 Drinking water periodic lab control			
	5 Personnel hygiene and health observation			
	6 Control of packaging materials			
	7 Stock rotation control (raw materials and end products)			
	8 Other (specify)			
	-888 Don't know/refuse			

3.14 What quality checks for incoming milk/milk products did your business use in the last 12 months?	0 No quality checks implemented	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 Checking 'sell-by' date	
	2 Checking 'use-by/best before date'	
	3 Other (specify)	
	-888 Don't know/refuse	
3.15 Has your business rejected any milk on safety and/or quality grounds in the last 12 months?	1 Yes	<i>Select only one option</i>
	0 No → 3.17	
	-888 Don't know/refuse → 3.17	
3.16 On average, what percentage of total milk that is received by your business in a month, is rejected? Think about the monthly proportion of milk rejected in the last 12 months only.		<i>Ask if 3.15 = 1</i> <i>Ensure only numbers between 0 and 100 can be entered</i> <i>Enter -888 if don't know/refuse</i>
3.17 Has your business rejected any milk product (yogurt/cheese etc.) on safety and/or quality grounds in the last 12 months?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
3.18 On average, what percentage of total milk products (yogurt/cheese etc.) that is received by your business in a month, is rejected? Think about the monthly proportion of milk products rejected in the last 12 months only.		<i>Ask if 3.17 = 1</i> <i>Ensure only numbers between 0 and 100 can be entered</i> <i>Enter -888 if don't know/refuse</i>
Food Safety Regulations for Packaged Milk/Milk Products		
<i>Enumerator:</i> Now we want to learn about broad food safety regulations that your business follows.		
3.20 Please list the certifications that your business has as of today	0 None	<i>Select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 ISO 9001	
	2 ISO 22000	
	3 National Food Agency (NFA) certification	
	4 HACCP	
	5 Bio Certification	
3.21 Does your business implement the HACCP system?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
3.22 Why doesn't your business implement the HACCP system?	1 Newly opened business	<i>Ask if 3.21 = 0</i> <i>Select all that apply</i>
	2 Lack of awareness that it is obligatory for my business	
	3 Lack of financial resources	
	4 Lack of human resources	
	5 Other (specify)	
3.23 Are you planning on obtaining HACCP certification in future?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
	0 None	<i>Select all that apply</i>

3.24 Which of these food safety standards and regulations did you/your employees apply in your daily work in the last 12 months?	1 Maintain running water available in working area	Ensure if "0" option is chosen, then no other option is selected
	2 Maintenance of ventilation	
	3 Territory and area are maintained in accordance with regulations	
	4 Pest control and disinfection in place	
	5 Emergency management	
	6 Product Recall and withdrawal practice	
	7 Using new or improved marketing approach, tools /sales management practice, etc.	
Storage of Packaged Milk/Milk Products		
Enumerator: Now we want to learn about your storage practices for packaged milk/milk products and associated costs.		
3.20 What was your total installed chilling capacity in the last 12 months? (Enter in m ³)	m ³	Ensure total milk/milk products chilling capacity in last 12 months is quoted Explain that this includes both chilling and freezing facilities Enter -888 if don't know/refuse.
3.21a How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?		Enter -888 if don't know/refuse
3.21b What was your total current installed dry storage capacity in the last 12 months? (Enter in m ³)	m ³	Dry storage capacity such as for keeping boxes, equipment, animal feed, etc. Enter -888 if don't know/refuse.
3.21c How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?		Enter -888 if don't know/refuse
3.23 What storage practices for milk did your business employ in the last 12 months?	0 None	Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Milk/milk products are stored below 4 degrees Celsius	
	2 Maintain appropriate humidity in storage area	
	3 Other (specify)	
	-888 Don't know/refuse	
Training		
	0 No training → 3.26	

3.24 What type of training or technical assistance has your business received in the last 12 months?	1 Business operations/management training	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	2 Milk/milk products storage training	
	3 Food safety and handling training	
	4 Other (specify)	
	-888 Don't know/refuse → 3.26	
3.25 From whom did your business receive training/technical assistance in the last 12 months?	1 Government agencies (National, state or local)	<u>Ask if 3.24 = 1-4</u> <i>Read entire list and select all that apply</i>
	2 Non-governmental organizations	
	3 Private companies/Other businesses	
	4 Input suppliers	
	5 Business service providers	
	6 Own technical staff providing training	
	7 Venture37/Land O'Lakes	
	8 Other (specify)	
3.26 Have you heard about the mobile application Agronavti?	-888 Don't know/refuse	
	1 Yes	<i>Select only one option</i>
	0 No	
3.27 Do you use Agonavti?	-888 Don't know/refuse	
	1 Yes	<u>Ask if 3.26 = 1</u> <i>Select only one option</i>
	0 No	
3.28 Have you heard about the web page AgroFace?	-888 Don't know/refuse	
	1 Yes	<i>Select only one option</i>
	0 No	
3.29 Do you use AgroFace?	-888 Don't know/refuse	
	1 Yes	<u>Ask if 3.28 = 1</u> <i>Select only one option</i>
	0 No	

19. Business Practices

Question	Options	Enumerator Instructions and Skip Patterns	
Enumerator: Now we will talk about your business management and marketing practices.			
Business Management and Marketing Practices			
4.2a What type of records did you keep in the last 12 months?	0 None	Read entire list and select all that apply Ensure that if "0" is chosen no other option is chosen	
	1 Records on products reception (origin, quantity, provider, etc.)		
	2 Records on product selling		
	3 Financial and administrative records (income, expenditure, profit, employment, etc.)		
	4 Other (specify)		
	-888 Don't know/refuse		
Credit			
Enumerator: Now we will talk about credit.			
4.4 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	Read entire list and select all that apply	
	2 Loans (from formal, informal sources)		
	3 Investment by others that allows them business co-ownership		
	4 Other (specify)		
	-888 Don't know/refuse		
4.5 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes → 4.7	Select only one option	
	0 No		
	-888 Don't know/refuse		
4.6 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present → 4.11	Ask if 4.5=0 and then skip to 4.11 Read entire list and select all that apply	
	2 Lack of collateral → 4.11		
	3 High interest rate → 4.11		
	4 Other (specify) → 4.11		
	-888 Don't know/refuse → 4.11		
<u>Ask questions 4.7 – 4.8 if 4.5=1</u>			
4.7 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	1 Buying equipment for business	Ask if 4.5 = 1 Read entire list and select all that apply	
	2 Managing short-term cash shortage		
	3 Managing any unplanned shock to business		
	4 Business expansion		
	5 Other (specify)		
	-888 Don't know/refuse		

4.8 What is the total value of loans from formal sources that your business obtained in the last 12 months? (<i>Enter in Lari</i>)		<i>Ask if 4.5 = 1 Enter -888 if don't know/refuse</i>
4.11 Has your business used any other financial products in the last 12 months?	0 No	<i>Read entire list and select all that apply</i>
	1 Business insurance	
	2 Mutual funds	
	3 Capital gain bonds	
	4 Other (specify)	

New Investments and Profits

Enumerator: Now we will talk about new investments and profits.

4.12 In total, how much did your business spend in new investments in the last 12 months? Think only about investments related to milk/milk products. (<i>Enter in Lari</i>)		<i>Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc. Ensure only investments related to milk and milk products is quoted Enter -888 if don't know/refuse If multiple investments were made, enter total amount invested in last 12 months</i>
4.12a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources (<i>Enter in Lari</i>)		<i>Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero</i>
4.12b What were the total costs of your business in the last 12 months? Please think about costs from all sources (<i>Enter in Lari</i>)		<i>Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse</i>
4.13 What were the total profits of your business in the last 12 months as a result of milk and milk product sales? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but not including any income you paid yourself? (<i>Enter in Lari</i>)		<i>Ensure total profit in last 12 months is quoted Ensure only profits related to milk and milk products is quoted Enter -888 if don't know/refuse Enter 0 if profit is zero Negative values are allowed</i>

Challenges

4.14 What are the main challenges in operating your business?	0 No challenges	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 Unstable supply from wholesalers/other businesses	
	2 Lack of access to credit	
	3 Lack of access to markets for selling product	
	4 Low marketing capacity	
	5 Lack of qualified workforce	
	6 Other (specify)	
	-888 Don't know/refuse	

20. Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your milk input costs, storage costs and costs for value-added services that we have discussed, we want to learn about other costs in your businesses			
5.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.1a Permanent male		
	5.1b Part-time/Seasonal male		
	5.1c Permanent female		
	5.1d Part-time/Seasonal female		
5.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.2a Permanent male		
	5.2b Part-time/Seasonal male		
	5.2c Permanent female		
	5.2d Part-time/Seasonal female		
5.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 5.3a if 5.2b > 0</u> <u>Ask 5.3b if 5.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	5.3a Part-time/Seasonal male		
	5.3b Part-time/Seasonal female		

6. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your milk business due to COVID-19. We will ask about how it has influenced your inputs, products, and sales.		
6.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
6.2 Were any of the following items of your business impacted by COVID-19?	1 Transportation of products 2 Access to inputs 3 Communication or visits from input suppliers 4 Communication or visits from milk/milk product buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	<u>Ask if 6.1 = 1</u> Select all that apply
6.3 Has your access to inputs changed as a result of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect → 6.5 3 Easier to access inputs -888 Don't know/refuse → 6.5	<u>Ask if 6.1 = 1</u> Select only one option
6.4 How has your ability to sell milk/milk products changed as a result of COVID-19?	1 More difficult to sell 2 Same/no effect 3 Easier to sell -888 Don't know/refuse	<u>Ask if 6.1 = 1</u> Select only one option
6.5 How has the average price of milk/milk products changed as a result of COVID-19?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	<u>Ask if 6.1 = 1</u> Select only one option
6.6 By how much did the average price of milk/milk products change per kilogram, on average?		<u>Ask if 6.5 = 1 or 3</u> Enter value in Lari

Slaughterhouse Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE D

0. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrela-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

21. Informed Consent

Question	Options	Enumerator Instructions and Skip Patterns
<i>Ask the respondent if they have a good understanding of the business and are able to answer detailed questions about it. Continue only if the answer is yes; otherwise thank the respondent and inquire about the feasibility of interviewing a key business decision-maker.</i>		
Informed Consent		
Hello, my name is _____ and I am part of a team hired by The Caucasus Research Resource Centers – Georgia (CRRC-Georgia) to conduct a survey of dairy and beef production. We were hired to conduct a study on the dairy and beef industry by Land O’Lakes Venture37. They just launched a project focusing on strengthening the dairy and beef industry, particularly concerning the safety and quality of dairy and beef products. I was hired to collect information from key stakeholders, like you, in the dairy and beef industry in order to gain a better understanding of the status and needs of the sector, so they can better set up their activities. With your permission, I would like to ask you questions about your business activities. Your answers will be kept confidential and will not be used for any purpose other than to inform the Land O’Lakes Venture37 project intended to help develop the dairy and beef sectors. The interview should last about 45-60 minutes. Participation is voluntary, and you can choose to refuse to do this interview. You can also choose to refuse to answer any questions you are uncomfortable with or do not want to answer. Please note that everything you say to me is confidential. We will never identify you or anyone in your business in any reports or information we release. There are no penalties to you for not participating or not answering a question. We are conducting this survey as an independent entity and are not associated with any government body. Please feel free to be open and honest with us in your responses. Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic. In case of any further questions after you have participated, you can always contact data collection team members like me, or you can call Kristina Vacharadze from CRRC-Georgia at +995 599 38 80 64.		
<i>Ask if they have any questions about anything that was just mentioned and clarify all doubts before proceeding further.</i>		
1.1 Are you willing to participate in this interview?	1 Yes	If no, thank respondent for his/her time and conclude interview.
	3 No	

22. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (<i>Enter in years</i>)		
2.4 What is your position in the business?	1 Owner → 2.8	<i>Select only one option</i> <i>If chief executive officer (CEO) and owner are same, enter option 1</i>
	2 Partner/Co-owner → 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
<i>Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8</i>		
2.5 What is the name of the owner of the business?		<i>Ask if 2.4 = 3 - 6</i>
2.6 What is the gender of the owner of the business?	0 Male	<i>Ask if 2.4 = 3 - 6</i>
	1 Female	
2.7 Is the owner of the business older than 30 years of age?	1 30 years or older	<i>Ask if 2.4 = 3 - 6</i>
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		<i>Enter respondent's personal cellphone</i> <i>Enter -888 if the respondent does not have a phone number</i>
2.9 What is the name of your business?		<i>Enter -888 if don't know/refuse</i>
2.10 How many months has this business been in operation? (<i>Enter in months</i>)		<i>Enter -888 if don't know/refuse</i>

23. Input Supply

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about how you procure cattle.				
Cattle Procurement				
3.1 Did your business procure any cattle for slaughter in the last 12 months?	1 Yes	<u>If "0" is selected, end survey and thank participant for his/her time</u>		
	0 No			
3.3 What types of cattle did your business procure from suppliers in the last 12 months?	1 Local breeds (Georgian mountain, Veli's red, etc.)	Select all that apply		
	2 Local improved (cross breed)			
	3 High productive breed			
	4 Other (specify) _____			
<u>For each <<type of cattle>>, ask the following questions. Ask questions 3.5 - 3.6 only for applicable options selected in 3.3</u>				
3.5 What was the average monthly number of alive <<type of cattle>> you bought in the last 12 months? Please try to estimate if you do not know precise numbers.	Type of Cattle	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer. Ensure average monthly amount in the last 12 months is quoted Enter number of alive cows is quoted Enter -888 if quantity unknown
	1 Local breeds (Georgian mountain, Veli's red, etc.)			
	2 Local improved (cross breed)			
	3 High productive breed			
	4 Other (specify) _____			
3.6 What was the average price per alive cow, per kilogram of <<type of cattle>> you bought in the last 12 months? Please try to estimate if you do not know precise numbers. (Enter in Lari)	Type of Cattle	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer Ensure price per alive cow per kilogram is quoted
	1 Local breeds (Georgian mountain, Veli's red, etc.)			
	2 Local improved (cross breed)			
	3 High productive breed			

Question	Options			Enumerator Instructions and Skip Patterns
	4 Other (specify)_____			Enter -888 if value unknown
3.7 Did you buy any culled cows for slaughter in the last 12 months?	1 Yes			Select only one option
	0 No → 3.10a			
	-888 Don't know/refuse → 3.10a			
For each <<type of cattle>>, ask the following questions. <u>Ask questions 3.8 - 3.9 if 3.7 = 1 and for applicable options selected in 3.3, else skip to 3.10a</u>				
3.8 What was the average monthly number of culled <<type of cattle>> you bought in the last 12 months? Please try to estimate if you do not know precise numbers.	Type of Cattle	Summer	Winter	<u>Ask if 3.7=1 and for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer. Ensure only number of culled cows are quoted Ensure average monthly amount in the last 12 months is quoted Enter number of alive cows is quoted Enter -888 if quantity unknown
	1 Local breeds (Georgian mountain, Caucasian brown, Veli's red etc.)			
	2 Local improved (cross breed)_____			
	3 High productive breed			
	4 Other (specify)_____			
3.9 What was the average price per culled cow per kilogram of <<type of cattle>> you bought in the last 12 months? Please try to estimate if you do not know precise numbers. (Enter in Lari)	Type of Cattle	Summer	Winter	<u>Ask if 3.7=1 and for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer Ensure price per culled cow per kilogram is quoted Enter -888 if value unknown
	1 Local breeds (Georgian mountain, Caucasian brown, Veli's red etc.)			
	2 Local improved (cross breed)			
	3 High productive breed			
	4 Other (specify)_____			

Question	Options	Enumerator Instructions and Skip Patterns
3.10a How many suppliers (farmers/individuals) did you have during the last 12 months?		Enter -888 if don't know/refuse Enter 0 if no suppliers
3.10b How many verbal sales agreements/contracts did you have with your suppliers in the last 12 months?		Enter -888 if don't know/refuse Enter 0 if no verbal sales agreements
3.10c How many formal (written) sales agreements/contracts did you have with your suppliers in the last 12 months?		Enter -888 if don't know/refuse Enter 0 if no formal (written) sales agreements
Safety and Quality Practices for Procured Cattle		
Enumerator: Now we want to learn about the specific safety practices and checks you have in place for the cattle you procure.		
3.16 Which of the following cattle safety practices did your business employ in the last 12 months?	0 None	Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Health checks – veterinarian certificate, inspection on arrival, isolation of any diseased or stressed /injured animals	
	2 Health body condition score	
	3 Visual evidence of disease	
	4 Level of backfat	
	5 Blood analysis – antibiotic and hormone residue	
	6 Blood analysis – tick borne disease	
	7 Drinking water periodic lab control	
	8 Personnel hygiene and health condition observation	
	9 Control of packaging materials	
	10 Control of used chemicals	
	11 Surfaces swab test	
	12 regulation prescribed post-mortem inspection on slaughtering line	
	13 Other (specify)	
	-888 Don't know/refuse	
Food Safety Regulations for Procured Cattle		
Enumerator: Now we want to learn about broad food safety regulations that your business follows.		
3.20 Please list the certifications that your business has as of today	0 None	Select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 ISO 9001	
	2 ISO 22000	
	3 National Food Agency (NFA) certification	
	4 HACCP	
	5 Bio Certification	

Question	Options	Enumerator Instructions and Skip Patterns
3.21 Does your business implement the HACCP system?	1 Yes 0 No -888 Don't know/refuse	Select only one option
3.22 Why doesn't your business implement the HACCP system?	1 Newly opened business 2 Lack of awareness that it is obligatory for my business 3 Lack of financial resources 4 Lack of human resources 5 Other (specify)	Ask if 3.21 = 1 Select all that apply
3.23 Are you planning on obtaining HACCP certification in future?	1 Yes 0 No -888 Don't know/refuse	Select only one option
3.24 Which of these food safety standards and regulations did you/your employees apply in your daily work in the last 12 months?	0 None 1 Maintain running water available in working area 2 Maintenance of ventilation 3 Territory and area are maintained in accordance with regulations 4 Pest control and disinfection in place 5 Labelling- Reference number / code (animal identification code or code assigned by the business operator at slaughterhouse) 6 Labelling- Slaughterhouse Approval Number/code 7 Labelling- Approval Number/code of business operator engaged in carcass cutting 8 Labelling – indication of places of the Animal's birth, breeding, fattening and slaughter, if different 9 Lab test on carcass (BSE) 10 Using new or improved marketing approach, tools /sales management practice, etc. 11 Ensuring employees safety and observing of risk management related to COVID-19	Select all that apply Ensure if "0" option is chosen, then no other option is selected

24. Business Services and Practices

Question	Options	Enumerator Instructions and Skip Patterns
Housing Practices for Procured Cattle		
<i>Enumerator: Now we want to learn about the specific housing practices that you employ for the procured cattle and associated costs.</i>		
4.1 Which animal housing practices did your business employ in the last 12 months?	0 No housing for cattle → 4.4	Read entire list and select all that apply
	1 Open lot with shelter belt	
	2 Open lot with shed	Ensure if "0" is chosen, no other option is chosen
	3 Confinement lot with solid floor	
	4 Other (specify)	
	-888 Don't know/refuse → 4.4	
Storage Practices and Costs for Slaughtered Beef		
<i>Enumerator: Now we want to learn about your storage practices for the slaughtered beef and associated costs.</i>		
4.10 What storage practices for beef did your business employ in the last 12 months?	0 None	Read entire list and select all that apply
	1 Beef is stored at below 7 degrees Celsius	
	2 Maintain appropriate humidity in storage area	Ensure if "0" is selected, no other options are chosen.
	3 Business has cold rooms and freezers	
	4 Other (specify)	
	-888 Don't know/refuse	
4.11 What was your total current installed beef chilling capacity in the last 12 months? (Enter in m ³)	m ³	Enter -888 if don't know/refuse.
4.11a How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
4.11b What was your total current installed dry storage capacity in the last 12 months? (Enter in m ³)	<u>m3</u>	<u>Dry storage capacity such as for keeping boxes, equipment, animal feed, etc.</u> <u>Enter -888 if don't know/refuse.</u>
4.11c How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
4.15 Did your slaughterhouse provide any packaging services for beef in the last 12 months?	1 Yes	Select only one option
	0 No → 4.18	
	-888 Don't know/refuse → 4.18	
4.16 What packaging practices for slaughtered beef did your business employ in the last 12 months?	1 Packaging in vacuum packs	Ask if 4.15 = 1
	2 Packaging in plastic sachets	
	3 Other (specify)	Read entire list and select all that apply
	-888 Don't know/refuse	

Beef Sales (Buyers, Sales Volume, Sales Value)				
4.18 Did your slaughterhouse sell any beef in the last 12 months?	1 Yes		Select only one option	
	0 No			
	-888 Don't know/refuse			
<u>Ask questions 4.20 – 4.24d if 4.18 = 1, else skip to 4.29</u>				
4.20 What grades and cut/carcass of beef did your business sell to buyers in the last 12 months?	1 whole carcass, half carcass, quarter carcass		Ask if response to 4.18 = 1	
	2 Cuts of carcass		Read entire list and select all that apply	
	3 Other (specify)			
For each <<grade and cut/carcass of beef>>, ask the following questions. <u>Ask questions 4.22 – 4.23 for applicable options selected in 4.20</u>				
4.22 What was the average monthly volume of slaughtered <<grade and cut/carcass of beef>> you sold in the last 12 months, in kilograms ? Please try to estimate if you do not know precise numbers. (Enter number)	Grade of beef	Summer	Winter	<u>Ask for applicable options selected in 4.20</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Ensure average monthly volume in 12 months is quoted Enter -888 if quantity unknown
	1 whole carcass, half carcass, quarter carcass			
	2 Cuts of carcass			
	3 Other (specify)			
4.23 What was the price per kilogram of <<grade and cut/carcass of beef>> you sold in the last 12 months? (Enter in Lari)	Grade of beef	Summer	Winter	<u>Ask for applicable options selected in 4.20</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Ensure price per kilogram of beef is quoted Enter -888 if value unknown
	1 whole carcass, half carcass, quarter carcass			
	2 Cuts of carcass			
	3 Other (specify)			
4.24a How many buyers did you have during the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no suppliers
4.24b How many verbal sales agreements/contracts did you have with				Enter -888 if don't know/refuse Enter 0 if no verbal agreements/contracts

your buyers in the last 12 months?		
4.24c How many formal (written) sales agreements/contracts did you have with your buyers in the last 12 months?		<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no formal (written) agreements/contracts</i>
4.24d Did your enterprise apply any of the following innovations in the last 12 months?	0 None	<i>Read entire list and select all that apply</i> <i>Ensure if "0" is chosen, no other option is chosen</i>
	1 Carcass cutting/grading	
	2 Freezing	
	3 Deboning	
	4 Preservation/aging	
	5 Packaging	
	6 Automatization of the process	
	7 Using modern stunning methods in line with animal welfare standards (bolt gun, electronic, etc.)	
	8 Processing of animal by-products	
4.25a What was the number of cattle slaughtered in the last 12 months?		<i>Enter -888 if do not know/refuse to answer</i>
4.25b What was the price of slaughtering service per calf in the last 12 months?		<i>Enter in Lari per calf</i> <i>Enter -888 if do not know/refuse to answer</i>
4.25c What was the revenue from only cattle slaughtering services in the last 12 months?		<i>Enter in Lari</i> <i>Enter -888 if do not know/refuse to answer</i>
4.25d How many farmers/individuals have approached you for slaughtering services only did you have during the last 12 months?		<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no suppliers</i> <i>Please only tell us the number of farmers/individuals who have come for only slaughtering services</i>
4.25e How many verbal sales agreements/contracts did you have with those who have approached you for slaughtering services		<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no verbal sales agreements</i> <i>Please only tell us the number of verbal contracts with those who have come for only slaughtering services</i>

in the last 12 months?		
4.25f How many formal (written) sales agreements/contracts did you have with those who have approached you for slaughtering services in the last 12 months?		<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no formal (written) sales agreements</i> <i>Please only tell us the number of formal (written) contracts with those who have come for only slaughtering services</i>
4.25g Do farmers/middlemen bring their cattle for being slaughtered and take back the beef with them?	1 Yes 0 No → 4.29 -888 Don't know/refuse → 4.29	Select only one option
4.25h What was the total number of cows for personal consumption that you slaughtered in the last 12 months?		Enter -888 if do not know/refuse to answer
Training		
4.29 What type of training or technical assistance has your business received in the last 12 months?	0 No training → 5.1 1 Product cleaning 2 Product processing 3 Product transportation 4 Product storage 5 Product packaging 6 Product grading 7 Product inspection 8 Product fattening 9 Other (specify) -888 Don't know/refuse → 5.1	<i>Read entire list and select all that apply</i> <i>Ensure if "0" is selected, no other options are chosen.</i>
4.30 From whom did your business receive training/technical assistance in the last 12 months?	1 Government agencies (National, state or local) 2 Non-governmental organizations 3 Private companies/Other businesses 4 Input suppliers 5 Business service providers 6 Own technical staff providing training 7 Venture37/Land O'Lakes 8 Other (specify) -888 Don't know/refuse	<i>Ask if 4.29 = 1-9</i> <i>Read entire list and select all that apply</i>
4.31 Have you heard about the mobile	1 Yes 0 No	Select only one option

application Agronavti?	-888 Don't know/refuse	
4.32 Do you use Agonavti?	1 Yes	<i>Ask if 4.31 = 1</i> <i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
4.33 Have you heard about the web page AgroFace?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
4.34 Do you use AgroFace?	1 Yes	<i>Ask if 4.33 = 1</i> <i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	

25. Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your storage costs and costs for value-added services that we have discussed, we want to learn about your labor costs.			
5.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.1a Permanent male		
	5.1b Part-time/Seasonal male		
	5.1c Permanent female		
	5.1d Part-time/Seasonal female		
5.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.2a Permanent male		
	5.2b Part-time/Seasonal male		
	5.2c Permanent female		
	5.2d Part-time/Seasonal female		
5.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 5.3a if 5.2b > 0</u> <u>Ask 5.3b if 5.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	5.3a Part-time/Seasonal male		
	5.3b Part-time/Seasonal female		

26. Business Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we will talk about your business management and marketing practices.		
Business Management and Marketing Practices		
6.2a What type of records did you keep in the last 12 months?	0 None	Read entire list and select all that apply Ensure that if "0" is selected, no other option is chosen
	1 Records on animal reception (origin, quantity, provider, weight, age, tagging, etc.)	
	2 Records on animal health condition	
	3 Records regarding slaughter (cold dress weight)	
	4 Record on carcass selling (selling, direction)	
	5 Temperature control of cold storage area	
	6 Financial and administration record keeping	
	7 Other (specify)	
	-888 Don't know/refuse	
Credit		
Enumerator: Now we will talk about credit.		
6.5 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	Read entire list and select all that apply
	2 Loans (from formal, informal sources)	
	3 Investment by others that allows them business co-ownership	
	4 Other (specify)	
	-888 Don't know/refuse	
6.6 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes, applied and received → 6.8	Select only one option
	2. Yes, applied but did not receive	
	3. No, have not applied → 6.12	
	-888 Don't know/refuse	
6.7 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present → 6.12	Ask if 6.6=0 and then skip to 6.12
	2 Lack of collateral → 6.12	
	3 High interest rate → 6.12	Read entire list and select all that apply
	4 Other (specify) → 6.12	
	-888 Don't know/refuse → 6.12	
<u>Ask questions 6.8 – 6.9 if 6.6=1</u>		
	1 Buying equipment for business	<u>Ask if 6.6 = 1</u>
	2 Managing short-term cash shortage	

6.8 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	3 Managing any unplanned shock to business	<i>Read entire list and select all that apply</i>
	4 Business expansion	
	5 Other (specify)	
	-888 Don't know/refuse	
6.9 What is the total value of loans from formal sources that your business obtained in the last 12 months? <i>(Enter in Lari)</i>		<i>Ask if 6.6 = 1</i> <i>Enter -888 if don't know/refuse</i>
6.12 Has your business used any other financial products in the last 12 months?	0 No	<i>Read entire list and select all that apply</i> <i>Ensure if "0" is selected, no other options are chosen.</i>
	1 Business insurance	
	2 Livestock insurance	
	3 Mutual funds	
	4 Capital gain bonds	
	5 Other (specify)	
New Investments and Profits		
Enumerator: Now we will talk about new investments and profits.		
6.13 In total, how much did your business spend in new investments in the last 12 months? <i>(Enter in Lari)</i>		<i>Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc.</i> <i>Enter -888 if don't know/refuse</i> <i>If multiple investments were made, enter total amount invested in last 12 months</i>
6.13a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources <i>(Enter in Lari)</i>		<i>Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero</i>
6.13b What were the total costs of your business in the last 12 months? Please think about costs from all sources <i>(Enter in Lari)</i>		<i>Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse</i>
6.14 What were the total profits of your business in the last 12 months? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but		<i>Ensure total profit in last 12 months is quoted</i> <i>Enter -888 if don't know/refuse</i>

not including any income you paid yourself? <i>(Enter in Lari)</i>		<i>Enter 0 if profit is zero Negative values are allowed</i>
Challenges		
6.15 What are the main challenges in operating your business?	0 No challenges	<i>For lack of cold storage facilities for slaughtered beef, enter option 8; for poor housing facilities for cattle for slaughter, enter option 9.</i> <i>Read entire list and select all that apply</i> <i>Ensure if "0" is selected, no other options are chosen.</i>
	1 Lack of information on prices and/or demand	
	2 Lack of information about rules, regulations, and safety standards	
	3 Lack of access to inputs	
	4 Unstable supply from farmers/other businesses	
	5 Lack of access to credit	
	6 Lack of access to markets for selling product	
	7 Lack of proper technology/Use of old or poor production technologies	
	8 Inadequate infrastructure	
	9 Inefficiencies in cattle handling and housing	
	10 Low marketing capacity	
	11 Lack of qualified workforce	
	12 Other (specify)	
-888 Don't know/refuse		

7. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your cattle slaughtering business due to COVID-19. We will ask about how it has influenced your inputs, products, and sales.		
7.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
7.2 Were any of the following items of your business impacted by COVID-19?	1 Transportation of products 2 Access to inputs 3 Communication or visits from cattle suppliers 4 Communication or visits from beef product buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	Ask if 7.1 = 1 Select all that apply
7.3 Has your access to inputs changed as a result of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect → 7.5 3 Easier to access inputs -888 Don't know/refuse → 7.5	Ask if 7.1 = 1 Select only one option
7.4 How did your cattle slaughtering production change as a result of COVID-19, if at all?	1 Production per day decreased 2 Production per day remained the same/no effect → 7.6 3 Production per day increased -888 Don't know/refuse → 7.6	Ask if 7.1 = 1 Select only one option
7.5 By how many kilograms did cattle slaughtering production change, on average?		Ask if 7.4 = 1 or 3 Enter the volume in kilograms
7.6 How has your ability to sell beef and slaughtering service changed as a result of COVID-19?	1 More difficult to sell 2 Same/no effect 3 Easier to sell -888 Don't know/refuse	Ask if 7.1 = 1 Select only one option
7.7 How has the average price of beef and slaughtering service sold changed as a result of COVID-19?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	Ask if 7.1 = 1 Select only one option
7.8 By how much did the average price of beef and slaughtering service sold change per kilogram, on average?		Ask if 7.7 = 1 or 3 Enter value in Lari

Beef Processor Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE E

1. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrello-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

2. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (Enter in years)		
2.4 What is your position in the business?	1 Owner → 2.8	Select only one option If chief executive officer (CEO) and owner are same, enter option 1
	2 Partner/Co-owner → 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8		
2.5 What is the name of the owner of the business?		Ask if 2.4 = 3 - 6
2.6 What is the gender of the owner of the business?	0 Male	Ask if 2.4 = 3 - 6
	1 Female	
2.7 Is the owner of the business older than 30 years of age?	1 30 years or older	Ask if 2.4 = 3 - 6 Select only one option
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		Enter respondent's personal cellphone Enter -888 if the respondent does not have a phone number
2.9 What is the name of your business?		Enter -888 if don't know/refuse
2.10 How many months has this business been in operation? (Enter in months)		Enter -888 if don't know/refuse

3. Input Supply

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about how you procure beef.				
Beef Procurement				
3.1 From whom did you procure beef for processing in the last 12 months?	1 Slaughterhouses	Select all that apply		
	2 Beef or cattle farmers			
	3 Imported frozen beef			
	4 Other (specify)			
	-888 Don't know/refuse			
3.4 What grade/cuts of beef did you procure in the last 12 months?	1 whole carcass, half carcass, quarter carcass	Select all that apply		
	2 Cuts of carcass			
	3 Other (specify)			
	-888 Don't know/Refuse			
For each <<type of beef cut/grade>>, ask the following questions. Ask questions 3.5 - 3.6 only for applicable options selected in 3.4				
3.5 On an average, what quantity of each grade did you procure for <<grade and cut/carcass of beef>> in the last <<summer>> and <<winter>> season? Please try to estimate if you do not know precise numbers. (Enter in kilograms)	Grade of Beef	Summer	Winter	Ask for applicable options selected in 3.4 Enter -888 if value unknown
	1 whole carcass, half carcass, quarter carcass			
	2 Cuts of carcass			
	3 Other (specify)			
	5 Other (specify)_____			
3.6 On an average, what was the price for <<grade and cut/carcass of beef>> per kilogram that you procured in the last <<summer>> and <<winter>> season? Please try to estimate if you do not know precise numbers. (Enter in Lari for price per kilogram)	Grade of Beef	Summer	Winter	Ask for applicable options selected in 3.4 This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer. Enter -888 if value unknown
	1 whole carcass, half carcass, quarter carcass			
	2 Cuts of carcass			
	3 Other (specify)			
3.7a How many beef suppliers (farmers/individuals/enterprises) did you have during the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no suppliers
3.7b How many verbal sales agreements/contracts did you have with your beef suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no verbal sales agreements
3.7c How many formal (written) sales agreements/contracts did you				Enter -888 if don't know/refuse

Question	Options	Enumerator Instructions and Skip Patterns
have with your beef suppliers in the last 12 months?		<i>Enter 0 if no formal (written) sales agreements</i>

4. Value-Added Services and Safety Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we want to learn about the specific processing activities that your business performs.		
4.1 Which kind of activities has your business engaged in the last 12 months?	1 Hanging	Read the entire list and select all that apply
	2 Deboning	
	3 Cutting	
	4 Grading	
	5 Packaging	
	6 Preservation	
	7 Other (specify)	
	-888 Don't know/refuse	
Storage and Preservation		
4.8 What types of storage facilities did your facility have in the last 12 months?	1 Chill room/refrigerators	Select all that apply
	2 Cold room/freezers	
	3 Shock freezer	
	4 Other (specify)	
	-888 Don't know/refuse	
4.9 What was your total current installed chilling capacity in the last 12 months, including cold and chilling rooms, refrigerators, and freezers. (Enter in m ³)	m ³	Enter -888 if don't know/refuse.
4.10a How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
4.10b What was your total current installed dry storage capacity in the last 12 months? (Enter in m ³)	m ³	<u>Dry storage capacity such as for keeping boxes, equipment, animal feed, etc.</u> <u>Enter -888 if don't know/refuse.</u>
4.10c How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
4.12 What types of storage practices did your business use in the last 12 months?	1 Products are stored below 7 degrees	Select all that apply
	2 Maintain appropriate humidity levels	
	3 Observation of product transportation regulations	
	4 Other (specify)	
	-888 Don't know/refuse	
4.13 What types of preservation methods did your business use in the last 12 months?	1 Canning	Select all that apply
	2 Curing	
	3 Chemicals	

Question	Options	Enumerator Instructions and Skip Patterns
	4 Drying/Dehydration 4 Fermentation 6 Freezing 7 Irradiation 8 Smoking 9 Thermal Processing 10 Other (specify) -888 Don't know/refuse	
Food Safety Practices		
4.15 What types of food safety practices did your business observe in the last 12 months?	0 None 1 Sanitize hands before handling raw meat 2 Use gloves for contact with raw meat 3 Rotate sanitizing chemicals regularly 4 Use chemical sanitizers for hand tools which make contact with meat 5 Use sterilizer pots for heat sterilization of hand tools 6 Require documentation about pathogen control and chemical residues from slaughterhouses and/or cattle farmers 7 Written policies and procedures for product recall 8 Conduct audits of slaughterhouses 9 Food safety manager on staff 10 Other (specify) -888 Don't know/refuse	Read entire list and select all that apply
Certifications		
4.15a Please list the certifications that your business has as of today	0 None 1 ISO 9001 2 ISO 22000 3 National Food Agency (NFA) certification 4 HACCP 5 Bio Certification	Select all that apply Ensure that if "0" is chosen no other option is chosen
4.15b Does your business implement the HACCP system?	1 Yes 0 No -888 Don't know/refuse	Select only one option
	1 Newly opened business	Ask if 4.15b = 1

Question	Options	Enumerator Instructions and Skip Patterns
4.15c Why doesn't your business implement the HACCP system?	2 Lack of awareness that it is obligatory for my business	Select all that apply
	3 Lack of financial resources	
	4 Lack of human resources	
	5 Other (specify)	
4.15d Are you planning on obtaining HACCP certification in future?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
Training		
4.19 What type of training or technical assistance has your business received in the last 12 months?	0 No training → 4.21	Read entire list and select all that apply
	1 Cleaning	
	2 Cutting	
	3 Deboning	
	4 Grading	
	5 Packaging	
	6 Making sausages, patty and other beef products etc.	
	7 Preservation and freezing	
	8 Storage	
	9 Transportation	
	10 Inspection	
	11 Other (specify)	
4.20 From whom did your business receive training/technical assistance in the last 12 months?	1 Government agencies (National, state or local)	Ask if 4.19 is not equal to 0 Read entire list and select all that apply
	2 Non-governmental organizations	
	3 Private companies/Other businesses	
	4 Input suppliers	
	5 Business service providers	
	6 Own technical staff providing training	
	7 Land O'Lakes Venture37/SQIL project	
	8 Other (specify)	
	-888 Don't know/refuse	
4.21 Have you heard about the mobile application Agronavti?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
4.22 Do you use Agonavti?	1 Yes	Ask if 4.21 = 1 Select only one option
	0 No	
	-888 Don't know/refuse	
4.23 Have you heard about the web page AgroFace?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	

Question	Options	Enumerator Instructions and Skip Patterns
4.24 Do you use AgroFace?	1 Yes	<u>Ask if 4.23 = 1</u> <u>Select only one option</u>
	0 No	
	-888 Don't know/refuse	
4.25a Did your enterprise apply any of the following innovations in the last 12 months?	0 None	<u>Select all that apply</u>
	1 Automatization of processes	
	2 Innovative processing technologies	
	3 Packaging	
	4 Label printing machine installment	
	5 New product development	
	6 Branding of products	
	7 Other (specify)	
4.25b How many new products did your business produce/develop in the last 12 months?		<u>Ask if 4.25a = 5</u> <u>Enter -888 if do not know/refuse to answer</u>

5. Sales and Distribution

Question	Options	Enumerator Instructions and Skip Patterns																																	
<i>Now we will discuss about your product sales and distribution.</i>																																			
5.1 Which of the following types of products did your business sell in the last 12 months?	1 Cuts of beef/steak (different cuts and grades) 2 Liver and heart 3 Sausage (including boiled sausage) 4 Mincemeat / Ground beef 5 Khinkali / dumplings 6 Abkhazura / Kupati (Local varieties of sausages) 7 Khashi products (stomach and legs) 8 Beef patty/ Kebab 9 Stuffed cabbage-roll / Dolma 10 Pancake stuffed with meat 11 Marinated products 12 Smoked beef products 13 Canned stew meat 14 Gelatin 15 Other (specify) -888 Don't know/refuse	<i>Select all that apply.</i> <i>Read list if needed to ensure respondent has considered all options.</i>																																	
<i>For each <<type of product>>, ask the following question. <u>Ask question 5.3-5.4 for applicable options selected in 5.1</u></i>																																			
5.3 What quantity of the <<beef products>> did you sell daily in the last <<summer>> and <<winter>> season?	<table border="1"> <thead> <tr> <th>Beef product</th><th>Summer</th><th>Winter</th></tr> </thead> <tbody> <tr><td>1 Cuts of beef/steak (different cuts and grades)</td><td></td><td></td></tr> <tr><td>2 Liver and heart</td><td></td><td></td></tr> <tr><td>3 Sausage (including boiled sausage)</td><td></td><td></td></tr> <tr><td>4 Mincemeat / Ground beef</td><td></td><td></td></tr> <tr><td>5 Khinkali / dumplings</td><td></td><td></td></tr> <tr><td>6 Abkhazura / Kupati (Local varieties of sausages)</td><td></td><td></td></tr> <tr><td>7 Khashi products (stomach and legs)</td><td></td><td></td></tr> <tr><td>8 Beef patty/ Kebab</td><td></td><td></td></tr> <tr><td>9 Stuffed cabbage-roll / Dolma</td><td></td><td></td></tr> <tr><td>10 Pancake stuffed with meat</td><td></td><td></td></tr> </tbody> </table>	Beef product	Summer	Winter	1 Cuts of beef/steak (different cuts and grades)			2 Liver and heart			3 Sausage (including boiled sausage)			4 Mincemeat / Ground beef			5 Khinkali / dumplings			6 Abkhazura / Kupati (Local varieties of sausages)			7 Khashi products (stomach and legs)			8 Beef patty/ Kebab			9 Stuffed cabbage-roll / Dolma			10 Pancake stuffed with meat			<i>Ask only for options selected in 5.1.</i> <i>If they do not know number of kilograms of beef patty, then ask them about the number of patties in each pack and what they may weigh.</i>
Beef product	Summer	Winter																																	
1 Cuts of beef/steak (different cuts and grades)																																			
2 Liver and heart																																			
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10 Pancake stuffed with meat																																			

Question	Options			Enumerator Instructions and Skip Patterns
	11 Marinated products			
	12 Smoked beef products			
	13 Canned stew meat			
	14 Gelatin			
	15 Other (specify)			
5.4 What was the price per unit of <<beef product>> you sold in the last <<summer>> and <<winter>> season? (Enter in Lari)	Beef product	Summer	Winter	<i>Ask only for options selected in 5.1</i>
	1 Cuts of beef/steak (different cuts and grades)			
	2 Liver and heart			
	3 Sausage (including boiled sausage)			
	4 Mincemeat / Ground beef			
	5 Khinkali / dumplings			
	6 Abkhazura / Kupati (Local varieties of sausages)			
	7 Khashi products (stomach and legs)			
	8 Beef patty/ Kebab			
	9 Stuffed cabbage-roll / Dolma			
	10 Pancake stuffed with meat			
	11 Marinated products			
	12 Smoked beef products			
	13 Canned stew meat			
	14 Gelatin			
	15 Other (specify)			
5.5a How many buyers for beef products did you have during the last 12 months?				<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no suppliers</i>

Question	Options	Enumerator Instructions and Skip Patterns
5.5b How many verbal sales agreements/contracts did you have with your beef products buyers in the last 12 months?		<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no verbal agreements/contracts</i>
5.5c How many formal (written) sales agreements/contracts did you have with your beef products buyers in the last 12 months?		<i>Enter -888 if don't know/refuse</i> <i>Enter 0 if no formal (written) agreements/contracts</i>

6. Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your storage costs and costs for value-added services that we have discussed, we want to learn about your labor costs.			
6.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	6.1a Permanent male		
	6.1b Part-time/Seasonal male		
	6.1c Permanent female		
6.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	6.2a Permanent male		
	6.2b Part-time/Seasonal male		
	6.2c Permanent female		
6.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 6.3a if 6.2b > 0</u> <u>Ask 6.3b if 6.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	6.3a Part-time/Seasonal male		
	6.3b Part-time/Seasonal female		

7 Business Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we will talk about your business management and marketing practices.		
Business Management and Marketing Practices		
7.2a What type of records did you keep in the last 12 months?	0 None	<i>Ensure that if “0” is chosen, no other option is chosen</i> <i>Read entire list and select all that apply</i>
	1 Records on beef reception (origin, quantity, provider, etc.)	
	2 Records on beef processing (types of production, production output)	
	3 Laboratory analysis during the processing	
	4 Financial and administration record keeping	
	5 Temperature control of raw materials and end product recordings	
	6 Other (specify)	
	-888 Don’t know/refuse	
Credit		
Enumerator: Now we will talk about credit.		
7.5 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	<i>Read entire list and select all that apply</i>
	2 Loans (from formal, informal sources)	
	3 Investment by others that allows them business co-ownership	
	4 Other (specify)	
	-888 Don’t know/refuse	
7.6 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes, applied and received → 7.8	<i>Select only one option</i>
	2 Yes, applied but did not receive	
	0 No, haven’t applied→ 7.12	
	-888 Don’t know/refuse → 7.12	
7.7 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present→ 7.12	<i>Ask if 7.6=0 and then skip to 7.12</i> <i>Read entire list and select all that apply</i>
	2 Lack of collateral→ 7.12	
	3 High interest rate→ 7.12	
	4 Other (specify) → 7.12	
	-888 Don’t know/refuse→ 7.12	
7.8 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	1 Buying equipment for business	<i>Ask if 7.6 = 1</i> <i>Read entire list and select all that apply</i>
	2 Managing short-term cash shortage	
	3 Managing any unplanned shock to business	
	4 Business expansion	
	5 Other (specify)	
	-888 Don’t know/refuse	

7.11 What was the total cost of interest from paying off any business-related loans from formal sources in the last 12 months? <i>(Enter in Lari)</i>		<i>Ask if 7.6 = 1</i> <i>Ensure total cost in last 12 months is quoted</i> <i>Enter -888 if don't know/refuse</i> <i>Enter 0 if this expense was not incurred</i>
7.12 Has your business used any other financial products in the last 12 months?	0 No	<i>Read entire list and select all that apply</i>
	1 Business insurance	
	2 Livestock insurance	
	3 Mutual funds	
	4 Capital gain bonds	
	5 Other (specify)	
New Investments and Profits		
<i>Enumerator: Now we will talk about new investments and profits.</i>		
7.13 In total, how much did your business spend in new investments in the last 12 months? <i>(Enter in Lari)</i>		<i>Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc.</i> <i>Enter -888 if don't know/refuse</i> <i>If multiple investments were made, enter total amount invested in last 12 months</i>
7.13a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources <i>(Enter in Lari)</i>		<i>Ensure total revenue in last 12 months is quoted.</i> <i>Enter -888 if don't know/refuse. Enter 0 if revenue is zero</i>
7.13b What were the total costs of your business in the last 12 months? Please think about costs from all sources <i>(Enter in Lari)</i>		<i>Ensure total costs in last 12 months are quoted.</i> <i>Enter -888 if don't know/refuse</i>
7.14 What were the total profits of your business in the last 12 months? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but not including any income you paid yourself? <i>(Enter in Lari)</i>		<i>Ensure total profit in last 12 months is quoted</i> <i>Enter -888 if don't know/refuse</i> <i>Enter 0 if profit is zero</i> <i>Negative values are allowed</i>
Challenges		
	0 No challenges	

7.15 What are the main challenges in operating your business?	1 Lack of information on prices and/or demand	<i>Select all that apply. Provide a few examples from these, if needed</i>
	2 Lack of information about rules, regulations, and safety standards	
	3 Lack of information on processing techniques	
	4 Lack of access to inputs	
	5 Unstable supply from other businesses	
	6 Lack of access to credit	
	7 Lack of access to markets for selling product	
	8 Lack of proper technology/Use of old or poor production technologies	
	9 Inadequate infrastructure	
	10 Inefficiencies in beef processing and storage	
	11 Low marketing capacity	
	12 Lack of qualified workforce	
	13 Other (specify)	
-888 Don't know/refuse		

8. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your beef processing due to COVID-19. We will ask about how it has influenced your inputs, production, and sales.		
8.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
8.2 Were any of the following items of your business impacted by COVID-19?	1 Transportation of products 2 Access to inputs 3 Communication or visits from input vendors 4 Communication or visits from beef product buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	<u>Ask if 8.1 = 1</u> Select all that apply
8.3 Has your access to inputs changed as a result of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect → 8.5 3 Easier to access inputs -888 Don't know/refuse → 8.5	<u>Ask if 8.1 = 1</u> Select only one option
8.4 How did your beef processing change as a result of COVID-19, if at all?	1 Processing per day decreased 2 Processing per day remained the same/no effect → 8.6 3 Processing per day increased -888 Don't know/refuse → 8.6	<u>Ask if 8.1 = 1</u> Select only one option
8.5 By how many kilograms did beef processing production change, on average?		<u>Ask if 8.4 = 1 or 3</u> Enter the volume in kilograms
8.6 How has your ability to sell processed beef changed as a result of COVID-19?	1 More difficult to sell 2 Same/no effect 3 Easier to sell -888 Don't know/refuse	<u>Ask if 8.1 = 1</u> Select only one option
8.7 How has the average price of processed beef changed as a result of COVID-19?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	<u>Ask if 8.1 = 1</u> Select only one option
8.8 By how much did the average price of processed beef change per kilogram, on average?		<u>Ask if 8.7 = 1 or 3</u> Enter value in Lari

Beef Retailer Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE F

0. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrel-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

27. Informed Consent

Question	Options	Enumerator Instructions and Skip Patterns
<i>Ask the respondent if they have a good understanding of the business and are able to answer detailed questions about it. Continue only if the answer is yes; otherwise thank the respondent and inquire about the feasibility of interviewing a key business decision-maker.</i>		
Informed Consent		
Hello, my name is _____ and I am part of a team hired by The Caucasus Research Resource Centers – Georgia (CRRC-Georgia) to conduct a survey of dairy and beef production. We were hired to conduct a study on the dairy and beef industry by Land O’Lakes Venture37. They just launched a project focusing on strengthening the dairy and beef industry, particularly concerning the safety and quality of dairy and beef products. I was hired to collect information from key stakeholders, like you, in the dairy and beef industry in order to gain a better understanding of the status and needs of the sector, so they can better set up their activities. With your permission, I would like to ask you questions about your business activities. Your answers will be kept confidential and will not be used for any purpose other than to inform the Land O’Lakes Venture37 project intended to help develop the dairy and beef sectors. The interview should last about 45-60 minutes. Participation is voluntary, and you can choose to refuse to do this interview. You can also choose to refuse to answer any questions you are uncomfortable with or do not want to answer. Please note that everything you say to me is confidential. We will never identify you or anyone in your business in any reports or information we release. There are no penalties to you for not participating or not answering a question. We are conducting this survey as an independent entity and are not associated with any government body. Please feel free to be open and honest with us in your responses. Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic. In case of any further questions after you have participated, you can always contact data collection team members like me, or you can call CRRC-Georgia at +995 599 38 80 64.		
<i>Ask if they have any questions about anything that was just mentioned and clarify all doubts before proceeding further.</i>		
1.1 Are you willing to participate in this interview?	1 Yes	If no, thank respondent for his/her time and conclude interview.
	4 No	

28. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (<i>Enter in years</i>)		
2.4 What is your position in the business?	1 Owner → 2.8	<i>Select only one option</i> <i>If chief executive officer (CEO) and owner are same, enter option 1</i>
	2 Partner/Co-owner → 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
<i>Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8</i>		
2.5 What is the name of the owner of the business?		<i>Ask if 2.4 = 3-6</i>
2.6 What is the gender of the owner of the business?	0 Male	<i>Ask if 2.4 = 3-6</i>
	1 Female	
2.7 What is the age of the business owner?	1 Older than 30 years	<i>Ask if 2.4 = 3-6</i> <i>Select only one option</i>
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		<i>Enter respondent's personal cellphone</i> <i>Enter -888 if the respondent does not have a phone number</i>
2.9 What is the name of your business?		<i>Enter -888 if don't know/refuse</i>
2.10 How many months has this business been in operation? (<i>Enter in months</i>)		<i>Enter -888 if don't know/refuse</i>

29. Sales, Revenues and Costs

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about your sales of beef/beef products.				
Beef/Beef products Sales				
3.1 Did your business sell any beef/beef products in the last 12 months?	1 Yes	<u>Explain that beef implies raw beef (packaged or unpackaged) and beef products implies products such as beef stew which have beef as the main ingredient.</u> <u>If "0" is selected, end survey and thank participant for his/her time</u>		
	0 No			
<u>Ask questions 3.3 – 3.9 if 3.1= 1, else end survey and thank participant for his/her time</u>				
3.3 What types of beef/beef products did your business sell to buyers in the last 12 months?	1 Beef patty / Kebab	Read entire list and select all that apply		
	2 Cuts of beef (different cuts and grades)			
	3 Canned stew meat			
	4 Gelatin			
	5 Smoked products			
	6 Marinated products			
	7 Sausage (including boiled sausage)			
	8 Khashi products			
	9 Khinkali / dumplings			
	10 Stuffed cabbage-roll / Dolma			
	11 Mincemeat / Ground beef			
	12 Afkhazura / Kupati (Local varieties of sausages)			
	13 Pancake stuffed with meat			
	14 Heart and liver			
	15 Other (specify)			
	-888 Don't know/refuse			
<u>For each <<type of beef/beef product>>, ask the following questions. Ask questions 3.4 – 3.5 for applicable options selected in 3.3</u>				
3.4 What was the average monthly volume of <<type of beef/beef product>> you sold in the last summer season? Winter season? Please try to estimate if you do not know precise numbers.	Type of beef/beef product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if
	1 Beef patty / Kebab (Enter in kilograms)			

	2 Cuts of beef (different cuts and grades)			<i>they do not know precise numbers. Ensure average monthly volume in 12 months is quoted</i> <i>Enter -888 if quantity unknown</i> <i>For option 7 and 8, if there are different grades and cuts, enter average volume across all grades and cuts.</i>
	3 Canned stew meat (Enter in cans)			
	4 Gelatin (Enter in kilograms)			
	5 Smoked products (Enter in kilograms)			
	6 Marinated products (Enter in kilograms)			
	7 Sausage (including boiled sausage) (Enter in kilograms)			
	8 Khashi products (Enter in kilograms)			
	9 Khinkali / dumplings (Enter in kilograms)			
	10 Stuffed cabbage-roll / Dolma (Enter in kilograms)			
	11 Mincemeat / Ground beef (Enter in kilograms)			
	12 Afkhazura / Kupati (Local varieties of sausages) (Enter in kilograms)			
	13 Pancake stuffed with meat (Enter in kilograms)			

	14 Heart and liver (Enter in kilograms)			
	15 Other (specify)			
3.5 What was average price per unit of <<type of beef/beef product>> you sold in the last summer season? Winter season? Please try to estimate if you do not know precise numbers. (Enter in Lari)	Type of beef/beef product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise prices. Enter -888 if value unknown
	1 Beef patty/ Kebab (price/kilogram)			
	2 Cuts of beef (different cuts and grades)			
	3 Canned stew meat (price/can)			
	4 Gelatin (price/kilogram)			
	5 Smoked products (price/kilogram)			
	6 Marinated products (price/kilogram)			
	7 Sausage (including boiled sausage) (price/kilogram)			
	8 Khashi products ((price/kilogram)			
	9 Khinkali / dumplings (price/kilogram)			
10 Stuffed cabbage-roll / Dolma (price/kilogram)				

	11 Mincemeat / Ground beef (price/kilogram)			
	12 Afkhazura / Kupati (Local varieties of sausages) (price/kilogram)			
	13 Pancake stuffed with meat (price/kilogram)			
	14 Heart and liver (Enter in kilograms)			
	15 Other (specify)			

Beef/Beef Products Procurement

For each <<type of beef/beef product>>, ask the following questions. **Ask questions 3.8 - 3.9 only for applicable options selected in 3.3**

3.8 What was the average monthly volume of <<type of beef/beef product>> you bought in the last summer season? Winter season? Please try to estimate if you do not know precise numbers.	Type of beef/beef product	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if they do not have a precise answer. Ensure average monthly amount in the last 12 months is quoted. Enter -888 if quantity unknown.
	1 Beef patty/ Kebab (Enter in kilograms)			
	2 Cuts of beef (different cuts and grades)			
	3 Canned stew meat (Enter in cans)			
	4 Gelatin (Enter in kilograms)			
	5 Smoked products (Enter in kilograms)			
	6 Marinated products			

	(Enter in kilograms)			
	7 Sausage (including boiled sausage) (Enter in kilograms)			
	8 Khashi products (Enter in kilograms)			
	9 Khinkali / dumplings (Enter in kilograms)			
	10 Stuffed cabbage-roll / Dolma (Enter in kilograms)			
	11 Mincemeat / Ground beef (Enter in kilograms)			
	12 Afkhazura / Kupati (Local varieties of sausages) (Enter in kilograms)			
	13 Pancake stuffed with meat (Enter in kilograms)			
	14 Heart and liver (Enter in kilograms)			
	15 Other (specify)			
3.9 What was the average price per unit of <<type of beef/beef product>> you bought in the last summer season? Winter season? Please try to estimate if you do not know precise prices. (Enter in Lari)	Type of beef/beef product 1 Beef patty/ Kebab (price/kilogram)	Summer	Winter	<u>Ask for applicable options selected in 3.3</u> This is an important question. Please probe respondent and ask them to try to estimate even if

	2 Cuts of beef and steak (different cuts and grades)			<i>they do not know exact prices.</i> <i>Enter -888 if value unknown</i>
	3 Canned stew meat (price/can)			
	4 Gelatin (price/kilogram)			
	5 Smoked products (price/kilogram)			
	6 Marinated products (price/kilogram)			
	7 Sausage (including boiled sausage) (price/kilogram)			
	8 Khashi products ((price/kilogram)			
	9 Khinkali / dumplings (price/kilogram)			
	10 Stuffed cabbage-roll / Dolma (price/kilogram)			
	11 Mincemeat / Ground beef (price/kilogram)			
	12 Afkhazura / Kupati (Local varieties of sausages) (price/kilogram)			

	13 Pancake stuff ed with nmeat (price/kilogra m)			
	14 Heart and liver (Enter in kilograms)			
	15 Other (specify)			
3.10a How many suppliers did you have during the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no suppliers
3.10b How many verbal sales agreements/contracts did you have with your beef/beef products suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no verbal sales agreements
3.10c How many formal (written) sales agreements/contracts did you have with your beef/beef products suppliers in the last 12 months?				Enter -888 if don't know/refuse Enter 0 if no formal (written) sales agreements
Safety and Quality Practices for Beef/Beef products				
Enumerator: Now we want to learn about the specific safety practices and checks you have in place for the beef/beef products you procure.				
3.13 What safety practices did your business employ for beef/beef products in the last 12 months?	0 None			Read entire list and select all that apply Ensure if "0" option is chosen, then no other option is selected
	1 Sanitize hands before handling raw meat			
	2 Use gloves for contact with raw meet			
	3 Rotate sanitizing chemicals regularly			
	4 Use chemical sanitizers for hand tools which make contact with meat			
	5 Use sterilizer pots for heat sterilization of hand tools			
	6 Require documentation about pathogen control and chemical residues from slaughterhouses and/or beef processors			
	7 Written policies and procedures for product recall			
	8 Conduct audits of slaughterhouses/processors			
	9 Food safety manager on staff			
	10 Other (specify)			
	-888 Don't know/refuse			

3.14 What quality checks for incoming beef/beef products did your business use in the last 12 months?	0 No quality checks implemented	<i>Read entire list and select all that apply</i> <i>Ensure if "0" option is chosen, then no other option is selected</i>
	1 Checking 'sell-by' date	
	2 Checking 'use-by/best before date'	
	3 Other (specify)	
	-888 Don't know/refuse	
Food Safety Regulations for Beef/Beef products		
Enumerator: Now we want to learn about broad food safety regulations that your business follows.		
3.20 Please list the certifications that your business has as of today	1 ISO 9001	<i>Select all that apply</i>
	2 ISO 22000	
	3 National Food Agency (NFA) certification	
	4 HACCP	
	5 Bio Certification	
	6 None	
3.21 Does your business implement the HACCP system?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
3.22 Why doesn't your business implement the HACCP system?	1 Newly opened business	<i>Ask if 3.21 = 1</i> <i>Select all that apply</i>
	2 Lack of awareness that it is obligatory for my business	
	3 Lack of financial resources	
	4 Lack of human resources	
	5 Other (specify)	
3.23 Are you planning on obtaining HACCP certification in future?	1 Yes	<i>Select only one option</i>
	0 No	
	-888 Don't know/refuse	
	8 Other control practices (specify)	
Storage of Beef/Beef products		
Enumerator: Now we want to learn about your storage practices for beef/beef products and associated costs.		
3.20 What was your total installed beef chilling capacity in the last 12 months, including cold and chilling rooms, refrigerators, and freezers? (<i>Enter in m³</i>)		<i>Ensure total beef/beef products chilling capacity in last 12 months is quoted</i> <i>Explain that this includes both chilling and freezing facilities</i> <i>Enter -888 if don't know/refuse.</i>
3.21a How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?		<i>Enter -888 if don't know/refuse</i>
3.21b What was your total current installed dry storage capacity in the last 12 months? (<i>Enter in m³</i>)	<u>m3</u>	<i>Dry storage capacity such as for keeping boxes, equipment, animal feed, etc.</i>

		<i>Enter -888 if don't know/refuse.</i>
3.21c How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?		<i>Enter -888 if don't know/refuse</i>
3.23 What storage practices for beef/beef products did your business employ in the last 12 months?	0 None 1 Beef/beef products are stored below 7 degrees Celsius 2 Maintain appropriate humidity in storage area 3 Other (specify) -888 Don't know/refuse	<i>Read entire list and select all that apply</i> <i>Ensure if the "0" or "-888" are selected that no other options are chosen</i>
Training		
3.24 What type of training or technical assistance has your business received in the last 12 months?	0 No training → 4.1 1 Business operations/management training 2 Beef/beef products freezing training 3 Food safety and handling training 4 Other (specify) -888 Don't know/refuse → 4.1	<i>Read entire list and select all that apply</i> <i>Ensure if the "0" or "-888" are selected that no other options are chosen</i>
3.25 From whom did your business receive training/technical assistance in the last 12 months?	1 Government agencies (National, state or local) 2 Non-governmental organizations 3 Private companies/Other businesses 4 Input suppliers 5 Business service providers 6 Own technical staff providing training 7 Land O'Lakes Venture37/SQIL Project 8 Other (specify) -888 Don't know/refuse	<i>Read entire list and select all that apply</i>
3.26 Have you heard about the mobile application Agronavti?	1 Yes 0 No -888 Don't know/refuse	<i>Select only one option</i>
3.27 Do you use Agonavti?	1 Yes 0 No -888 Don't know/refuse	<i>Ask if 3.26 = 1</i> <i>Select only one option</i>
3.28 Have you heard about the web page AgroFace?	1 Yes 0 No -888 Don't know/refuse	<i>Select only one option</i>
3.29 Do you use AgroFace?	1 Yes 0 No -888 Don't know/refuse	<i>Ask if 3.28 = 1</i> <i>Select only one option</i>

30. Business Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we will talk about your business management and marketing practices.		
Business Management and Marketing Practices		
4.2a What type of records did you keep in the last 12 months?	0 None	Read entire list and select all that apply Ensure if “0” is chosen, no other option is chosen
	1 Records on products reception (origin, quantity, provider, etc.)	
	2 Records on product selling	
	3 Financial and administrative records	
	4 Other (specify)	
	-888 Don’t know/refuse	
Credit		
Enumerator: Now we will talk about credit.		
4.4 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	Read entire list and select all that apply
	2 Loans (from formal, informal sources)	
	3 Investment by others that allows them business co-ownership	
	4 Other (specify)	
	-888 Don’t know/refuse	
4.5 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes → 4.7	Select only one option
	0 No	
	-888 Don’t know/refuse	
4.6 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present→ 4.11	Ask if 4.5=0 and then skip to 4.11 Read entire list and select all that apply
	2 Lack of collateral→ 4.11	
	3 High interest rate→ 4.11	
	4 Other (specify) → 4.11	
	-888 Don’t know/refuse→ 4.11	
4.7 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	1 Buying equipment for business	Ask if 4.5 = 1 Read entire list and select all that apply
	2 Managing short-term cash shortage	
	3 Managing any unplanned shock to business	
	4 Business expansion	
	5 Other (specify)	
	-888 Don’t know/refuse	
4.8 What is the total value of loans from formal sources that your business obtained in the last 12 months? (Enter in Lari)		Ask if 4.5 = 1 Enter -888 if don’t know/refuse
	0 No	
	1 Business insurance	

4.11 Has your business used any other financial products in the last 12 months?	2 Mutual funds	Read entire list and select all that apply	
	3 Capital gain bonds		
	4 Other (specify)		
New Investments and Profits			
<i>Enumerator: Now we will talk about new investments and profits.</i>			
4.12 In total, how much did your business spend in new investments in the last 12 months? Think only about investments related to beef/beef products. (Enter in Lari)		Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc. Ensure only investments related to beef and beef products is quoted Enter -888 if don't know/refuse If multiple investments were made, enter total amount invested in last 12 months	
4.13a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources (Enter in Lari)		Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero	
4.13b What were the total costs of your business in the last 12 months? Please think about costs from all sources (Enter in Lari)		Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse	
4.13 What were the total profits of your business in the last 12 months as a result of beef and beef product sales? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but not including any income you paid yourself? (Enter in Lari)		Ensure total profit in last 12 months is quoted Ensure only profits related to beef and beef products is quoted Enter -888 if don't know/refuse Enter 0 if profit is zero Negative values are allowed	
Challenges			
4.14 What are the main challenges in operating your business?	0 No challenges	Read entire list and select all that apply Ensure if the "0" or "-888" are selected that no other options are chosen	
	1 Unstable beef/beef products supply from wholesalers/other businesses		
	2 Lack of access to credit		
	3 Lack of access to markets for selling product		

	4 Low marketing capacity	
	5 Lack of qualified workforce	
	6 Other (specify)	
	-888 Don't know/refuse	

31. Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your storage costs and costs for value-added services that we have discussed, we want to learn about your labor costs.			
5.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.1a Permanent male		
	5.1b Part-time/Seasonal male		
	5.1c Permanent female		
5.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.2a Permanent male		
	5.2b Part-time/Seasonal male		
	5.2c Permanent female		
5.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 5.3a if 5.2b > 0</u> <u>Ask 5.3b if 5.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	5.3a Part-time/Seasonal male		
	5.3b Part-time/Seasonal female		

6. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your beef business due to COVID-19. We will ask about how it has influenced your cattle, dairy production, and sales.		
6.1 Have you experienced any impacts on your business related to COVID-19 in the last 12 months?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
6.2 Were any of the following items of your business impacted by COVID-19 in the last 12 months?	1 Transportation of products 2 Access to inputs 3 Communication or visits from input vendors 4 Communication or visits from beef product buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	<u>Ask if 6.1 = 1</u> Select all that apply
6.3 Has your access to inputs changed as a result of COVID-19, if at all?	1 More difficult to access inputs 2 Same/no effect 3 Easier to access inputs -888 Don't know/refuse	<u>Ask if 6.1 = 1</u> Select only one option
6.4 How has your ability to sell beef products changed as a result of COVID-19 in the last 12 months?	1 More difficult to sell 2 Same/no effect 3 Easier to sell -888 Don't know/refuse	<u>Ask if 6.1 = 1</u> Select only one option
6.5 How has the average price of beef products changed as a result of COVID-19 in the last 12 months?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	<u>Ask if 6.1 = 1</u> Select only one option
6.6 By how much did the average price of beef products change per kilogram, on average?		<u>Ask if 6.5 = 1 or 3</u> Enter value in Lari

Input Supplier Business Survey

Question	Options	Enumerator Instructions and Skip Patterns
0.1 Type of business	1 Milk Collection Center → Module A	<i>Based on the business type load the correct module.</i>
	2 Milk processor → Module B	
	3 Milk Retailer → Module C	
	4 Slaughterhouse → Module D	
	5 Beef processor/wholesaler → Module E	
	6 Beef Retailer → Module F	
	7 Input Provider → Module G	

MODULE G

1. Regional Information

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Please fill out this information prior to starting the interview with the respondent.		
0.1 Region/Province	1 Ajara	Do not ask respondent these questions and fill them out with your own knowledge.
	2 Guria	
	3 Imereti	
	4 Kakheti	
	5 Mtskheta-Mtianeti	
	6 Racha-Lechkhumi and Kvemo Svaneti	
	7 Samagrel-Zemo Svaneti	
	8 Samtskhe-Javakheti	
	9 Tbilisi	
	10 Kvemo Kartli	
	11 Shida Kartli	
	12 Abkhazia (Gali)	
0.2 Enter community/municipality		
0.2a Factual address		
0.3 Enter respondent ID (from list)		Enter business ID from list. If business is not in list, enter -888.
0.4 GPS coordinates		
0.4a Latitude		
0.4b Longitude		

2. Business Characteristics

Question	Options	Enumerator Instructions and Skip Patterns
Respondent Characteristics		
2.1 What is your name?		
2.2 Gender of respondent	0 Male	
	1 Female	
2.3 Age of respondent (Enter in years)		
2.4 What is your position in the business?	1 Owner → 2.8	Select only one option If chief executive officer (CEO) and owner are same, enter option 1
	2 Partner/Co-owner → 2.8	
	3 Top manager (Director, CEO)	
	4 Mid-level manager (head of department)	
	5 Specialist (senior, chief, etc.)	
	6 Other (specify)	
Ask questions 2.5 - 2.7 if 2.4 = 3 - 6, else skip to 2.8		
2.5 What is the name of the owner of the business?		Ask if 2.4 = 3-6
2.6 What is the gender of the owner of the business?	0 Male	Ask if 2.4 = 3-6
	1 Female	
2.7 What is the age of the business owner?	1 30 years or older	Ask if 2.4 = 3-6 Select only one option
	2 Younger than 30 years	
	-888 Don't know/refuse	
2.8 What phone number can you be reached at?		Enter respondent's personal cellphone Enter -888 if the respondent does not have a phone number
2.9 What is the name of your business?		Enter -888 if don't know/refuse
2.10 How many months has this business been in operation? (Enter in months)		Enter -888 if don't know/refuse

3. Sales, Revenues and Costs

Question	Options	Enumerator Instructions and Skip Patterns		
Enumerator: We will first ask you questions about your input sales.				
Input Sales				
3.1 Did your business supply any inputs to farmers and other agricultural businesses (such as aggregators, processors, slaughterhouses, etc.) in the last 12 months? Think about all types of farmers and agricultural businesses, including those in the beef and dairy sectors.	1 Yes	Select only one option. If "0" is selected, end interview and thank participant for his/her time.		
	0 No			
3.3 What types of inputs did your business sell to buyers in the last 12 months? Think about all agricultural inputs, including dairy and beef inputs.		Explain that they should think about all inputs, including dairy and beef inputs Read entire list and select all that apply		
	1 Animal feed (fodder, forage, concentrate feed, feed additives) → 3.4			
	2 Durable equipment and machinery → 3.4			
	3 Fertilizers, pesticides, veterinary drugs → 3.4			
	4 Post-harvest storage and processing machinery → 3.4			
	5 Veterinary and other services (ag. extension, warehousing, transportation, laboratory, artificial insemination, animal identification, etc.) → 3.4			
	6 Other (specify) → 3.4			
For each <<type of input>>, ask the following questions. <u>Ask questions 3.4 – 3.5 for applicable options selected in 3.3</u>				
3.4 What was the average monthly volume of <<type of input>> you sold in the last summer season? Winter season? Please try to estimate if you do not know precise numbers. Think about sales in all agricultural sectors, including dairy and beef sectors.	Type of Input	Summer	Winter	Ask if 3.3 = 1 – 6 and for applicable options selected in 3.3 This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. This is an important question. Please probe respondent and ask them
	1 Animal feed (fodder, forage, concentrate feed, feed additives) (kg)			
	2 Durable equipment and machinery (number)			
	3 Fertilizers, pesticides, veterinary drugs (kg)			

	4 Post-harvest storage and processing machinery (number)			<i>to try to estimate even if they do not know precise numbers.</i> <i>Ensure average monthly revenue in 12 months is quoted</i> <i>Enter -888 if quantity unknown</i>
	5 Veterinary and other services (ag. extension, warehousing, transportation, laboratory, artificial insemination, animal identification, etc.)			
	6 Other (specify)			
3.5 What was the average monthly revenue from <<type of input>> in the last summer season? Winter season? Please try to estimate if you do not know precise numbers. Think about revenue from all agricultural sectors, including dairy and beef sectors.	Type of input	Summer	Winter	<u>Ask if 3.3 for applicable options selected in 3.3</u> <i>This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers.</i> <i>Ensure average monthly revenue in 12 months is quoted</i> <i>Enter -888 if quantity unknown</i>
	1 Animal feed (fodder, forage, concentrate feed, feed additives)			
	2 Durable equipment and machinery			
	3 Fertilizers, pesticides, veterinary drugs			
	4 Post-harvest storage and processing machinery (number)			
	5 Veterinary and other services (ag. extension, warehousing, transportation, laboratory, artificial insemination, animal			

	identification, etc.)													
	6 Other (specify)													
3.6 Did you give credit in terms of cash to farmers in the last 12 months? Think about all farmers, including beef and dairy farmers.	1 Yes 0 No → 3.10a -888 Don't know/refuse → 3.10a	Select only one option												
3.7 On an average, how many total farmers did you give credit (in cash) to over the last 12 months? Please try to estimate if you do not know precise numbers. Think about all types of farmers, including dairy and beef farmers. (Enter number)		This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Ensure total number of debtors over the last 12 months are quoted Enter number greater than or equal to 0. If number is unknown, enter -888.												
3.8 What is the total value of loans that your business extended to farmers in the last 12 months? Please try to estimate if you do not know precise numbers. Think about all types of farmers, including dairy and beef farmers. (Enter in Lari)		This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter -888 if don't know/refuse												
3.9 At what interest rate did you lend money to farmers in the last 12 months for <<type of loan>>?	<table border="1"> <thead> <tr> <th>Type of loan</th> <th>Interest Rate Charged</th> </tr> </thead> <tbody> <tr> <td>1 Annual</td> <td></td> </tr> <tr> <td>2 Monthly</td> <td></td> </tr> <tr> <td>3 Quarterly</td> <td></td> </tr> <tr> <td>4 Other (specify)</td> <td></td> </tr> </tbody> </table>	Type of loan	Interest Rate Charged	1 Annual		2 Monthly		3 Quarterly		4 Other (specify)		Enter -888 if don't know/refuse If interest rate charged differ across various farmers, enter average interest rate		
Type of loan	Interest Rate Charged													
1 Annual														
2 Monthly														
3 Quarterly														
4 Other (specify)														
3.10 What was the total amount of money you received in interest payments from any loans you extended to farmers in the last 12 months? Think about all types of farmers, including dairy and beef farmers. (Enter in Lari)		Ensure total cost in last 12 months is quoted Enter -888 if don't know/refuse Enter 0 if this expense was not incurred Ensure only total amount of money received in interest payments is quoted												
3.10a Did you give in-kind credit to farmers in the last 12 months?	1 Yes 0 No → 3.11 -888 Don't know/refuse → 3.11	Select only one option												
3.10b What types of in-kind credit did you provide to farmers in the last 12 months?	1 Cows 2 Machinery 3 Feed/Fodder	Ask if 3.10a=1 Select all that apply												

	4 Veterinary medicines	
	5 Other (specify)	
3.10c How did you earn interest in in-kind credit provided by you in the last 12 months?	1 Milk sent by farmers 2 Labor time (farmers worked for me) 3 Other (specify)	Ask if 3.10a=1 Select all that apply
3.10d What was the typical duration of in-kind credit given to farmers in the last 12 months?	1 Over the summer season 2 Over the winter season 3 For the whole year 4 For a few months in the year 5 Other (specify)	Ask if 3.10a=1 Select all that apply
3.10e On an average, how many total farmers did you give credit (in-kind) to over the last 12 months? Please try to estimate if you do not know precise numbers. Think about all types of farmers, including dairy and beef farmers. (Enter number)		This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Ensure total number of debtors over the last 12 months are quoted Enter number greater than or equal to 0. If number is unknown, enter -888.
3.11 Did you give credit to agricultural businesses in the last 12 months? Think about all agricultural businesses, including beef and dairy businesses.	1 Yes 0 No → 3.16 -888 Don't know/refuse → 3.16	Select only one option
3.12 On an average, how many total businesses did you give credit to over the last 12 months? Please try to estimate if you do not know precise numbers. Think about all agricultural businesses, including beef and dairy businesses. (Enter number)		Ask if 3.11 = 1 This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Ensure total number of debtors over the last 12 months are quoted Enter number greater than or equal to 0. If number is unknown, enter -888.
3.13 What is the total value of loans that your business extended to agricultural businesses in the last 12 months? Please try to estimate if you do not know precise numbers. Think about all agricultural businesses, including beef and dairy businesses. (Enter in Lari)		Ask if 3.11 = 1 This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter -888 if don't know/refuse
	Type of loan	Interest Rate Charged
		Ask if 3.11 = 1

3.14 At what interest rate did you lend money to agricultural businesses in the last 12 months for <<type of loan>>?	1 Annual		Enter -888 if don't know/refuse If interest rate charged differ across various buyers, enter average interest rate
	2 Monthly		
	3 Quarterly		
	4 Other (specify)		
3.15 What was the total amount of money you received in interest payments from any loans you extended to agricultural businesses in the last 12 months? Think about all agricultural businesses, including beef and dairy businesses. (Enter in Lari)			Ask if 3.11 = 1 Ensure total cost in last 12 months is quoted Enter -888 if don't know/refuse Enter 0 if this expense was not incurred Ensure only total amount of money received in interest payments is quoted
Raw Material Procurement/Production/Renting Costs and Practices			
Enumerator: Now we want to talk to you about whether you produce, procure or rent the raw materials for inputs you supply to beef and dairy farmers and other value chain actors and associated costs and practices.			
3.16 Where did your business get the supply for the products you sold to farmers and other businesses in the last 12 months?	1 Bought from other local market/retailers/wholesalers		Select all that apply
	2 Own production		
	3 Rented inputs		
	4 Imported		
	-888 Don't know/refuse		
Storage			
Enumerator: Now we want to learn about the storage for the supply that you procure, produce or rent.			
3.25a What was your total current installed cold storage capacity in the last 12 months, including cold and chilling rooms, refrigerators, and freezers. (Enter in m ³)	m ³		Enter -888 if don't know/refuse.
3.25b How many m ³ of cold storage did you buy and or rent/refurbish in the last 12 months?			Enter -888 if don't know/refuse
3.25c What was your total current installed dry storage capacity in the last 12 months? (Enter in m ³)	m ³		Dry storage capacity such as for keeping boxes, equipment, animal feed, etc. Enter -888 if don't know/refuse.
3.25d How many m ³ of dry storage did you buy and or rent/refurbish in the last 12 months?			Enter -888 if don't know/refuse

3.25e How many suppliers did you have in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
3.25f How many formal (written) / verbal agreements did you make with suppliers in the last 12 months?		<u>Enter -888 if don't know/refuse</u>
3.25g How many customers (farmer/individuals) did you have during last 12 months?		<u>Enter -888 if don't know/refuse</u>
3.25h How many formal (written) / verbal agreements did you make with buyers in the last 12 months?		<u>Enter -888 if don't know/refuse</u>

4. Value-Added Services

Question	Options	Enumerator Instructions and Skip Patterns
Value-Added Services to Buyers		
<i>Enumerator: Now we want to learn about any value-added services you provide farmers or businesses.</i>		
4.1 Did you provide any support services to your buyers in the last 12 months? Think about all support services provided to farmers and agricultural businesses.	1 Yes	Select only one option
	0 No → 4.4	
	-888 Don't know/refuse → 4.4	
<i>Ask question 4.2 if 4.1 = 1, else skip to 4.3</i>		
4.2 Which support services did your business provide to buyers in the last 12 months? Think about all support services provided to farmers and agricultural businesses.	1 Training/capacity building/technical feed/fodder support	<u>Ask if 4.1 = 1</u> Read entire list and select all that apply
	2 Training/capacity building/technical breeding support	
	3 Training/capacity building/technical support for animal health services/veterinary care	
	4 Training/capacity building/technical support for artificial insemination services/materials	
	5 Other (specify)	
	-888 Don't know/refuse	
4.3 Have you heard about the mobile application Agronavti?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
4.4 Do you use Agronavti?	1 Yes	<u>Ask if 4.3 = 1</u> Select only one option
	0 No	
	-888 Don't know/refuse	
4.5 Have you heard about the web page AgroFace?	1 Yes	Select only one option
	0 No	
	-888 Don't know/refuse	
4.6 Do you use AgroFace?	1 Yes	<u>Ask if 4.5 = 1</u> Select only one option
	0 No	
	-888 Don't know/refuse	
4.7 Please list the certifications that your business has as of today	0 None	Select all that apply Ensure that if "0" is chosen, no other option is chosen
	1 ISO 9001	
	2 ISO 22000	
	3 National Food Agency (NFA) certification	
	4 Bio Certification	

5. Other Costs

Question	Options		Enumerator Instructions and Skip Patterns
Enumerator: Other than your storage costs and costs for value-added services that we have discussed, we want to learn about your labor costs.			
5.1 In the last 12 months, how many of the following <<type of employees>> did your business have? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.1a Permanent male		
	5.1b Part-time/Seasonal male		
	5.1c Permanent female		
	5.1d Part-time/Seasonal female		
5.2 In the last 12 months, how many new of the following <<type of employees>> did your business hire? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. Enter 0 if no employee in that category. Enter -888 if number unknown but were employed at the business.
	5.2a Permanent male		
	5.2b Part-time/Seasonal male		
	5.2c Permanent female		
	5.2d Part-time/Seasonal female		
5.3 In the last 12 months, on average, for how many days did your business hire the following <<type of employees>>? Please try to estimate if you do not know precise numbers. (Enter number)	Employee Type	Number	This is an important question. Please probe respondent and ask them to try to estimate even if they do not know precise numbers. <u>Ask 5.3a if 5.2b > 0</u> <u>Ask 5.3b if 5.2d > 0</u> Enter -888 if number of days unknown but were hired by the business.
	5.3a Part-time/Seasonal male		
	5.3b Part-time/Seasonal female		

6. Business Practices

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Now we will talk about your business management and marketing practices.		
Business Management and Marketing Practices		
6.2a What type of records did you keep in the last 12 months?	0 None	Read entire list and select all that apply Ensure if “0” is selected, no other option is selected
	1 Input supplies inventory records	
	2 Sales records (by farmer type, quantity)	
	3 Financial administrative recording	
	4 Other (specify)	
	-888 Don’t know/refuse	
6.2b Which of the following practices did you or your employees apply in your daily work in the last 12 months?	0 None	Read entire list and select all that apply Ensure if “0” is selected, no other option is selected
	1 Raising the employees’ awareness regarding up-to-date animal health and food safety regulation	
	2 Stock rotation control	
	3 Cascade training (Train the trainer under APS Grants)	
	4 Online sales and online service	
	5 Using new or improved marketing approach, tools /sales management practice, etc.	
	6 Ensuring employees safety and observing of risk management related to COVID-19	
7 Other (specify)		
Credit		
Enumerator: Now we will talk about credit.		
6.5 How was your business financed overall in the last 12 months?	1 Self-financed (owner money, assets etc.)	Read entire list and select all that apply
	2 Loans (from formal, informal sources)	
	3 Investment by others that allows them business co-ownership	
	4 Other (specify)	
	-888 Don’t know/refuse	
6.6 Did your business apply for any loans from formal sources in the last 12 months?	1 Yes, applied and received → 6.8	Select only one option
	2 Yes, applied but did not receive →6.7	
	3 No, have not applied → 6.12	
	-888 Don’t know/refuse → 6.12	
6.7 Why did your business not receive any loans from formal sources in the last 12 months?	1 No formal financial institution present→ 6.12	Ask if 6.6=0 and then skip to 6.12
	2 Lack of collateral→ 6.12	
	3 High interest rate→ 6.12	

	4 Other (specify) → 6.12 -888 Don't know/refuse → 6.12	Read entire list and select all that apply
6.8 What were the primary purposes for obtaining loans from formal sources in the last 12 months?	1 Buying equipment for business 2 Managing short-term cash shortage 3 Managing any unplanned shock to business 4 Business expansion 5 Other (specify) -888 Don't know/refuse	Ask if 6.6 = 1 Read entire list and select all that apply
6.11 What was the total cost of interest from paying off any business-related loans from formal sources in the last 12 months? (Enter in Lari)		Ask if 6.6 = 1 Ensure total cost in last 12 months is quoted Enter -888 if don't know/refuse Enter 0 if this expense was not incurred
6.12 Has your business used any other financial products in the last 12 months?	0 No 1 Business insurance 2 Livestock insurance 3 Mutual funds 4 Capital gain bonds 5 Other (specify)	Read entire list and select all that apply Ensure if "0" is selected, no other options are chosen.
New Investments and Profits		
Enumerator: Now we will talk about new investments and profits.		
6.13 In total, how much did your business spend in new investments in the last 12 months? (Enter in Lari)		Explain that this could mean expenditure on new machinery, new software, new marketing investments, new vehicles etc. Enter -888 if don't know/refuse If multiple investments were made, enter total amount invested in last 12 months
6.13a What were the total revenues of your business in the last 12 months? Please think about revenues from all sources (Enter in Lari)		Ensure total revenue in last 12 months is quoted. Enter -888 if don't know/refuse. Enter 0 if revenue is zero
6.13b What were the total costs of your business in the last 12 months? Please think about costs from all sources (Enter in Lari)		Ensure total costs in last 12 months are quoted. Enter -888 if don't know/refuse

6.14 What were the total profits of your business in the last 12 months? That is, what was the total net income the business earned during the last 12 months after paying all expenses including the wages of employees, but not including any income you paid yourself? <i>(Enter in Lari)</i>		<i>Ensure total profit in last 12 months is quoted Enter -888 if don't know/refuse Enter 0 if profit is zero Negative values are allowed</i>
Challenges		
6.15 What are the main challenges in operating your business?	0 No challenges	<i>Read entire list and select all that apply Ensure if "0" or "-888" is selected, no other options are chosen.</i>
	1 Lack of information on prices and/or demand	
	2 Lack of information about rules, regulations, and safety standards	
	3 Lack of access to markets for selling product	
	4 Low marketing capacity	
	5 Lack of qualified workforce	
	6 Other (specify)	
	-888 Don't know/refuse	

7. Effects of COVID-19

Question	Options	Enumerator Instructions and Skip Patterns
Enumerator: Thank you for your responses thus far. Now, we would like to learn about the effects on your provision of inputs to farmers and other agricultural businesses due to COVID-19. We will ask about how it has influenced your supply of products and sales.		
7.1 Have you experienced any impacts on your business related to COVID-19?	1 Yes 0 No → END -888 Don't know/refuse → END	Select only one option
7.2 Were any of the following items of your business impacted by COVID-19?	1 Transportation of products 2 Access to raw products, ingredients, and final products for sale 3 Communication or visits from suppliers of raw products ingredients and final products for sale 4 Communication or visits from input buyers 5 Communication or visits from Venture37 project staff 6 Access to formal credit and/or financial service 7 Other, specify -888 Don't know/refuse	Ask if 7.1 = 1 Select all that apply
7.3 Has your access to raw product suppliers changed as a result of COVID-19, if at all?	1 More difficult to access raw products, ingredients and final products for sale 2 Same/no effect → 7.5 3 Easier to access raw products, ingredients and final products for sale -888 Don't know/refuse → 7.5	Ask if 7.1 = 1 Select only one option
7.4 By how much did the average price of raw products change per product unit, on average?		Ask if 7.3 = 1 or 3 Enter value in Lari
7.5 How has your ability to sell inputs to farmers or agricultural businesses changed as a result of COVID-19?	1 More difficult to sell 2 Same/no effect 3 Easier to sell -888 Don't know/refuse	Ask if 7.1 = 1 Select only one option
7.6 How has the average price of inputs sold to farmers or agricultural businesses changed as a result of COVID-19?	1 Average sale price is lower 2 Average sale price is the same/no effect → END 3 Average sale price is higher -888 Don't know/refuse → END	Ask if 7.1 = 1 Select only one option
7.7 By how much did the average price of inputs sold to farmers or agricultural businesses change per kilogram, on average?		Ask if 7.6 = 1 or 3 Enter value in Lari

Beef and Dairy Farmers

Focus Group Discussion Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Number of Participants:	Female: Male:

INTRODUCTION

- 1. Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Land O'Lakes Venture37 implemented SQIL Project (ინვესტირება უვნებელ და ხარისხიან მესაქონლეობაში) to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 120 minutes. Throughout the discussion today, there is no wrong answer but there might be differing points of view. Please feel free to share your opinions and your experiences, even if it differs from what others have said. Everything you say here today will be confidential between us and our project. Your names or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you wish to leave, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic.

Does anyone have any questions for me? In case of any further questions after you have participated, you can always contact data collection team members like me, or other members of our team. I am happy to share our contact information.

- 2. Obtained verbal informed consent [Read Consent Form]**
 - Did you ask if the participant had any questions? ☐ Yes ☐ No
 - Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start by talking a little bit about yourselves. Everyone please introduce yourselves – tell us if you are a dairy and/or a beef farmer and how long you have been farming.
2. I would like to talk to you about the activities that you participated in as part of the Safety and Quality Investment in Livestock (SQIL) project, both the technical assistance you received, and the resources that you received. First, I would like to talk about technical assistance.
 - a. What kind of technical assistance did you receive as part of the SQIL project? *(Probe for food safety, sanitary and phytosanitary standards, post-harvest handling, farm management practices, quality standard in animal health, animal welfare, marketing, etc.)*
 - b. Who provided this technical assistance and in what format did you receive the technical assistance (i.e. in person training, audiovisual online training, self-guided training through the distributed educational/learning materials, self-guided training through Agronavti mobile application or blog.agronavt.ge online platforms)?
 - c. In your opinion, how relevant was the technical assistance in terms of timing? *(Give example if needed: For example, if the training was on harvesting was it conducted prior to the harvest season and with enough time for you to incorporate the learnings into your practice?)*
 - d. What did you learn or find useful about the technical assistance? What did you not like about your technical assistance?
 - e. Have you changed any of your farming, animal husbandry, farm management, post-harvest handling, or food safety practices because of this technical assistance? If so, which ones? *(Probe for feeding practices, practices for ensuring high-quality milk and beef, housing for dairy cows and beef cattle, herd health, breeding, milking practices, slaughtering practices, farm management and record keeping, marketing, etc.)* If not, why?
 - f. What specific results, positive or negative, have you seen because of the technical assistance? *(Probe for increased production or productivity, sales, profitability, access to markets, trade, improved animal health, improved quality of milk, beef, and dairy value-added products, improved farm infrastructure and household income etc.)*
 - g. What additional technical assistance, if any, would you find useful?
3. What kind of financial services, if any, have you gained access to as part of your participation in the project? *(Probe for loan, grant, insurance, etc.)*
 - a. How did you use the money? *(Probe for purchased inputs, invest in infrastructure, hired staff, marketing, etc.)*
 - b. How did access to the financial services impact your businesses profitability?
 - c. If you did not gain access to financial services as part of your participation in the project, why not? *(Probe for did not know how to access the services, did not meet the eligibility requirements, did not need financial services, etc.)*
4. What kind of market information activities or events, if any, have you gained access to or participate in as part of your participation in the project? *(Probe pricing information, weather information, supplier information, service provider information, trade fairs, cattle Expo 2019, sectoral studies etc.)*
 - a. How did you hear about these activities or gain access this market information? *(Probe for Agronavti mobile application, blog.agronavt.ge ; distribution of learning/educational materials and Rac-Ioli Feed ratio calculator; Georgian Farmers Association, and other resources)*

- b. What specific results, positive or negative, have you seen as a results of your participation in these market activities or because of this market information? *(Probe more accurate pricing, increase sales, access to new suppliers/buyers, etc.)*
 - c. If you did not participate in these market activities or gain access to market information as part of your participation in the project, why not? *(Probe for did not know where to find the information, did not find the information useful or relevant to my business, etc.)*
- 5. What additional business support services, if any, have you gained access to as part of your participation in the project? *(Probe for advisory, extension, input supply, technical support services, etc.)*
- 6. What dairy or farmers associations, if any, are you a member of?
 - a. What activities have you participated in as a member of the association? *(Probe for training, linked to service providers, guidance on policy issues, financing opportunities, conferences, competitions, etc.)*
 - b. What specific results, positive or negative, have you seen because of your membership and participation in the association? *(Probe for more access to new suppliers/buyers, improved management practices, more accurate information, guidance on standards and regulations, etc.)*
 - c. If you are not a member of a dairy or farmers association, why not? *(Probe for did not know the associations existed, cannot find information about being a member, cannot afford the membership fee, do not see the benefit of the being a member, etc.)*
- 7. What kinds of challenges do female dairy and beef farmers face that men do not? Please explain.
 - a. *(For female farmers)* Did you face any challenges to participating in project activities or accessing services through the project? If yes, please describe.
 - b. *(For female farmers)* What can the project do to help address these challenges moving forward?
- 8. What internal or external factors affected your dairy and beef farming activities in the last 18 months? *(Probe for impacts of COVID-19, changes in regulatory legislation, etc.)*
 - a. How could the project better adapt to the COVID-19 pandemic and support you as farmers?
- 9. In your option, is the SQLL project adequately addressing the needs of dairy and beef farmers like you? What other activities could the project do to address your needs?
- 10. Have you seen examples of any spillover effects from the project on other farmers that are not participating in the project? If yes, please elaborate.
- 11. In your opinion, how could the SQLL activities of the project be modified to improve their efficiency and effectiveness for you as farmers?
 - a. How could the SQLL project be modified to ensure sustainability of results for you as farmers?
- 12. Is there anything that I did not ask that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

Thank participants for their time.

Dairy Value Chain Businesses (Milk Collection Centers, Milk Processors, Wholesalers, Retailers)
Focus Group Discussion Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Number of Participants:	Female: Male:

INTRODUCTION

Introduce yourself and the study. Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Land O'Lakes Venture37 implemented SQIL Project (ინვესტირება უვნებელ და ხარისხიან მესაქონლეობაში) to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 90 minutes. Throughout the discussion today, there is no wrong answer but there might be differing points of view. Please feel free to share your opinions and your experiences, even if it differs from what others have said. Everything you say here today will be confidential between us and our project. Your names or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you wish to leave, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Does anyone have any questions for me? In case of any further questions after you have participated, you can always contact data collection team members like me, or other members of our team. I am happy to share our contact information.

Obtained verbal informed consent [Read Consent Form]

- Did you ask if the participant had any questions? ☐ Yes ☐ No
- Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start by talking a little bit about yourselves. Everyone please introduce yourselves – tell us about your business and how long you have been running your business.
2. I would like to talk to you about the activities that you participated in as part of the SQLL project, both the technical assistance you received, and the resources that you received. First, I would like to talk about technical assistance.
 - a. What kind of technical assistance did your business receive as part of the SQLL project? *(Probe for expanding suppliers, food safety and quality, finance and business support)*
 - b. Who provided this technical assistance and in what format did you receive the technical assistance? *(i.e. in person training, audiovisual online training, the distributed educational/learning materials, self-guided training through Agronavti mobile application or blog.agronavt.ge online platforms)*
 - c. In your opinion, how relevant was the technical assistance in terms of timing? *(Give example if needed: For example, if the training was on was it conducted prior to the harvest season and with enough time for you to incorporate the learnings into your practice?)*
 - d. What did you learn or find useful about the technical assistance? What did you not like about your technical assistance?
 - e. Have you changed any of your business practices as a result of these technical assistance? If so, please describe which ones? *(Probe for sourcing suppliers, complying with food safety standards, financial management and record keeping, marketing, etc.)* If not, why?
 - f. What specific results, positive or negative, have you seen because of the technical assistance? *(Probe for increased sales, profits, access to markets, trade, household income, etc.)*
 - g. What additional technical assistance, if any, would you find useful?
3. What kind of financial services, if any, have you gained access to as part of your participation in the project? *(Probe for loan, grant, insurance, etc.)*
 - a. How did you use the money? *(Probe for invest in infrastructure, hired staff, marketing, etc.)*
 - b. How did access to the financial services impact your businesses profitability? If you did not gain access to financial services as part of your participation in the project, why not? *(Probe for did not know how to access the services, did not meet the eligibility requirements, did not need financial services, etc.)*
4. What kind of market information activities or events, if any, have you gained access to or participate in as part of your participation in the project? *(Probe pricing information, weather information, supplier information, service provider information, trade fairs, cattle Expo 2019, sectoral studies etc.)*
 - a. How did you hear about these activities or gain access this market information? *(Probe for Agronavti mobile application, blog.agronavt.ge; distribution of learning/educational materials and Rac-Ioli Feed ratio calculator; Georgian Farmers Association, and other resources)*
 - b. What specific results, positive or negative, have you seen as a results of your participation in these market activities or because of this market information? *(Probe more accurate pricing, increase sales, access to new suppliers/buyers, etc.)*
 - c. If you did not participate in these market activities or gain access to market information as part of your participation in the project, why not? *(Probe for did not know where to find the information, did not find the information useful or relevant to my business, etc.)*

5. What kinds of challenges do female dairy value chain business owners face that men do not? Please explain.
 - a. *(For female business owners)* Did you face any challenges to participating in project activities or accessing services through the project?
 - b. *(For female business owners)* What can the project do to help address these challenges moving forward?
6. What internal or external factors effected your business activities in the last 18 months? *(Probe for impacts of COVID-19, changes in regulatory legislation, etc.)*
 - a. How could the project better adapt to the COVID-19 pandemic and support you as business?
7. In your option, is the SQIL project adequately addressing the needs of dairy value chain business owners like you? What other activities could the project do to address your needs?
8. Have you seen examples of any spillover effects from the project on other businesses that are not participating in the project? If yes, please elaborate.
9. In your opinion, how could the SQIL activities of the project be modified to improve their efficiency and effectiveness of your business?
 - a. How could the SQIL project be modified to ensure sustainability of results of your business?
10. Is there anything that I did not ask that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

Thank participants for their time.

Beef Value Chain Businesses (Beef Processors, Slaughterhouses, Wholesalers, Retailers)

Focus Group Discussion Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Number of Participants:	Female: Male:

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Land O'Lakes Venture37 implemented SQIL Project (ინვესტირება უვნებელ და ხარისხიან მესაქონლეობაში) to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 90 minutes. Throughout the discussion today, there is no wrong answer but there might be differing points of view. Please feel free to share your opinions and your experiences, even if it differs from what others have said. Everything you say here today will be confidential between us and our project. Your names or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you wish to leave, you may do so. If you choose not to take part, you will not be negatively affected in any way.

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Does anyone have any questions for me? In case of any further questions after you have participated, you can always contact data collection team members like me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
 - a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start by talking a little bit about yourselves. Everyone please introduce yourselves – tell us about your business and how long you have been running your business.
2. I would like to talk to you about the activities that you participated in as part of the SQLL project, both the technical assistance you received, and the resources that you received. First, I would like to talk about technical assistance.
 - a. What kind of technical assistance did your business receive as part of the SQLL project? *(Probe for expanding suppliers, food safety and quality, finance and business support)*
 - b. Who provided this technical assistance and in what format did you receive the training? *(i.e. in person training, audiovisual online training, the distributed educational/learning materials, self-guided training through Agronavti mobile application or blog.agronavt.ge online platforms)*
 - c. In your opinion, how relevant was the trainings in terms of timing? *(Give example if needed: For example, if the training was on was it conducted prior to the harvest season and with enough time for you to incorporate the learnings into your practice?)*
 - d. What did you learn or find useful about the technical assistance? What did you not like about the technical assistance?
 - e. Have you changed any of your business practices as a result of this technical assistance? If so, please describe which ones? *(Probe for sourcing suppliers, complying with food standards, financial management and record keeping, marketing, etc.)* If not, why?
 - f. What specific results, positive or negative, have you seen because of the technical assistance? *(Probe for increased sales, profits, access to markets, trade, household income, etc.)*
 - g. What additional technical assistance, if any, would you find useful?
3. What kind of financial services, if any, have you gained access to as part of your participation in the project? *(Probe for loan, grant, insurance, etc.)*
 - a. How did you use the money? *(Probe for invest in infrastructure, hired staff, marketing, etc.)*
 - b. How did access to the financial services impact your businesses profitability? If you did not gain access to financial services as part of your participation in the project, why not? *(Probe for did not know how to access the services, did not meet the eligibility requirements, did not need financial services, etc.)*
4. What kind of market information activities or events, if any, have you gained access to or participate in as part of your participation in the project? *(Probe pricing information, weather information, supplier information, service provider information, trade fairs, cattle Expo 2019, sectoral studies etc.)*
 - a. How did you hear about these activities or gain access this market information? *(Probe for Agronavti mobile application, blog.agronavt.ge ; distribution of learning/educational materials and Rac-Ioli Feed ratio calculator; Georgian Farmers Association, and other resources)*
 - b. What specific results, positive or negative, have you seen as a results of your participation in these market activities or because of this market information? *(Probe more accurate pricing, increase sales, access to new suppliers/buyers, etc.)*
 - c. If you did not participate in these market activities or gain access to market information as part of your participation in the project, why not? *(Probe for did not know where to find the information, did not find the information useful or relevant to my business, etc.)*

5. What kinds of challenges do female dairy value chain business owners face that men do not? Please explain.
 - a. *(For female business owners)* Did you face any challenges to participating in project activities or accessing services through the project?
 - b. *(For female business owners)* What can the project do to help address these challenges moving forward?
6. What internal or external factors effected your business activities in the last 18 months? *(Probe for impacts of COVID-19, changes in regulatory legislation, etc.)*
 - a. How could the project better adapt to the COVID-19 pandemic and support you as farmers?
7. In your option, is the SQL project adequately addressing the needs of beef value chain business owners like you? What other activities could the project do to address your needs?
8. In your opinion, how could the SQL activities of the project be modified to improve their efficiency and effectiveness of your business?
 - a. How could the SQL project be modified to ensure sustainability of results for your business?
9. Have you seen examples of any spillover effects from the project on other businesses that are not participating in the project? If yes, please elaborate.
10. Is there anything that I did not ask that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

Thank participants for their time.

Georgia Food-for-Progress Midterm Evaluation

Key Informant Interview Guides

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Government Agency
Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Land O'Lakes Venture37 to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start with a brief introduction. What is your name and how long have you been working with [government department/agency]?
 - a. What is your role in the [government department/agency]?
2. What is your agency's broad mandate? For the dairy/beef sector, what specific tasks are implemented by your agency? *(Probe: Get as much detail about the specific tasks performed for the dairy/beef sector, at what levels they are performed, and how they are performed.)*
3. Have you noticed any changes in the development in the dairy and beef sector, including changes in competitiveness, adherence to food safety systems, sales, export, trade, awareness in the past 2 years since the beginning of the Safety and Quality Investment in Livestock (SQIL) project? Is yes, please describe.
4. What are the barriers to growth in the dairy and beef industries in Georgia? *(Probe for each sector and each value chain actor)*
 - a. What do you think needs to be done to address these barriers? *(Probe for each sector and each value chain actor)*
 - b. What do you see as the government's role in addressing these barriers?
 - c. What do you see as the role of the SQIL project in address these barriers?
 - d. Did your [government department/agency] work towards bringing any specific changes in the dairy/beef sector in the last year? If yes, what are these changes and why are they important?
5. Can you please describe how the SQIL project has engaged with your [government department/agency]? *(Probe for training, workshops, technical assistance in developing manuals, risk assessments, conducting studies for assessment of needs for and impact of legislation/regulation initiatives, awareness activities etc.)*
 - a. In your opinion, how did the assistance provided by the project help your [government department/agency] to address the barriers to growth in the dairy and beef industries?
 - What assistance did you find most useful? In your opinion, how well aligned is the project's assistance with the goals, objectives, and strategies of the Georgian Government?
 - How could the project better address the needs of your [government department/agency]?
 - b. In your opinion, how relevant is the project's assistance in terms of timing? *(Give example if needed: For example, if the assistance was on assessing the impact of legislation was it provided in enough time to inform changes in future policies and/or legislation?)*
6. Of the programs that SQIL assisted you with, which ones, if any do you think the Government will sustain after the project ends?
 - a. If there are policies or programs that you do not think the Government will sustain after the project, why do you think that?
 - b. How has the market-led approach with business development service firms providing technical assistance affected the sustainability of those services?
 - c. What other actors, if any, do you think might sustain some or all of the SQIL programs that the Government does not sustain?
 - d. What could be done to facilitate and support the Government in sustaining SQIL programs after the project ends?

7. I would now like to ask you about the potential impact that the industry lead quality and food safety initiatives can have on the dairy and beef industry in Georgia. Such initiatives include: “GeoGAP”, “Georgian Milk Certification”, ISO 22000.
 - a. In your opinion, how can such industry lead quality and food safety assurance certifications affect the production and purchase of certified products?
 - b. In your opinion, how can such industry lead initiatives affect the ability of agricultural actors to meet quality standards?
 - c. What are the barriers to sustainability of such initiatives?
 - d. What other actors, if any, do you think might take on responsibility for such industry lead quality and food safety certification initiatives after the project ends?
 - e. What can the project do in moving forward quality and food safety initiatives?
8. What kind of challenges do women face specifically women in the dairy and beef value chain in Georgia? *(Probe for specific actors such as farmers, cooperatives, processors, breeders, etc.)*
 - a. How do you think SQIL can address these challenges?
9. What internal and external factors have affected the dairy and beef industries in Georgia in the past 18 months? *(Probe for impact of COVID-19, changes in regulatory legislation, etc.)*
 - a. What adjustments, if any, did the project make to help dairy and beef value chain actors adapt to these challenges?
 - b. How could the project better adapt to the COVID-19 pandemic to support actors in the dairy and beef value chain?
10. In your opinion, is there anything about the SQIL project that could have been strengthened or done differently? Do you have any suggestions for improving the project? *(Probe for successes and challenges)*
11. In your opinion, how could the SQIL activities be modified to improve their efficiency and effectiveness of results?
 - a. How could the SQIL activities be modified to ensure the sustainability of results?
12. Do you have any further observations, thoughts to share, or questions before we conclude the interview?

Thank participant for his/her time.

Financial Service Providers
Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

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The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

1. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start with a brief introduction. What is your name and how long have you been working with [organization]?
 - a. What is your role in the organization?
2. I would like to learn about your business and the work that you do with stakeholders involved in the dairy and beef value chain. What types of financial products and services do you provide to dairy and beef value chain stakeholders? *(Probe for loans, credit, savings, insurance, etc. For each of the value chain stakeholders: farmers, suppliers, processors, aggregators, transporters, etc.)*
3. What requirements does your organization have for providing financial services to dairy and beef value chain stakeholders? *(Probe for size of business, record/declaration/proof of income, collateral, credit history, business plan, etc.)*
4. What are the key barriers or challenges to working with dairy and beef value chain stakeholders? *(Probe for risk evaluation, collateral, business plan, underdeveloped livestock insurance system, etc. For each of the value chain stakeholders: farmers, suppliers, processors, aggregators, transporters, etc.)*
 - a. What has your organization done to try to address these barriers and make financial services more accessible to dairy and beef value chain stakeholders?
 - b. What do you see as the role of the SQL project in address these barriers?
5. What is your organization's process for identifying and vetting potential clients from the dairy and beef value chain?
 - a. How do you market and disseminate information to these actors? *(Probe for through associations, informal networks, social media, website, etc.)*
6. Can you please describe how the Safety and Quality Investment in Livestock (SQL) project has engaged with your organization? *(Probe technical assistance in developing financial products for farmers, connected financial institutions with credit eligible farmers, educating farmers in conducting proper financial calculation for better communication with financial institutions, developing electronic programs to support farmers in financial calculations, etc.)*
 - a. In your opinion, did the assistance provided by the project help your organization in addressing the barriers or challenges that you face to providing financial services to dairy and beef value chain stakeholders?
 - *(If yes),* what assistance did you find most useful?
 - *(If no),* how could the project better address the needs of association?
 - b. In your opinion, how relevant was the SQL assistance in terms of timing?
 - c. What additional support could the SQL project provide you to help you better provide financial services to dairy and beef value chain actors?
 - d. Do you plan to expand and diversify services to farmers? If yes, please explain.
7. Of the activities that SQL assisted you with, which ones, if any do you think your business will sustain after the project ends?
 - a. If there are policies or programs that you do not think your business will sustain after the project, why do you think that?
 - b. What can SQL do to better support your business in sustaining these activities?

8. What internal and external factors have affected your business in the past 18 months? (*Probe for impact of COVID-19, changes in regulatory legislation, etc.*)
 - a. What adjustments, if any, did the project make to help your business adapt to these challenges?
 - b. How could the project better adapt to the COVID-19 pandemic to support your business and other actors in the dairy and beef value chains?
9. In your opinion, how could the SQIL activities be modified to improve their efficiency and effectiveness and ensure sustainability of results?
 - a. How could the SQIL activities be modified to ensure the sustainability of results?
10. Do you have any further observations, thoughts to share, or questions before we conclude the interview?

Thank participant for his/her time.

Sectoral Associations

Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Venture37 International Development to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start with a brief introduction. What is your name and how long have you been working with [association]?
 - a. What is your role in the association?
2. What is your association's broad mandate? *(Probe: Get as much detail about the association's overall goals, membership, size, and geographical spread)*
 - a. What kind of benefits do members obtain by being part of the association?
 - b. What kinds of activities does the association conduct? *(Probe for training, capacity building, organizing trade fairs, etc.)*
3. What are the key changes that the association has been trying to bring in the dairy/beef sector? Why? *(Probe: What are the broad objectives that the association has been trying to achieve through these changes? Changes for dairy/beef sector farmers? Other value chain actors such as milk collection centers, processors, slaughterhouses, and retailers?)*
4. Have you noticed any changes in the development in the dairy and beef sector, including changes in competitiveness, adherence to food safety systems, sales, export, trade, awareness in the past 2 years since the beginning of the Safety and Quality Investment in Livestock (SQIL) project? Is yes, please describe.
5. Can you please describe how the SQIL project has engaged with your association? *(Probe technical assistance in organizational management, developing a package of services for association members, supporting in policy advocacy, development of quality standards, supporting association for better connection with business representatives, disseminating food safety information, etc.)*
 - a. In your opinion, did the assistance provided by the SQIL project help your association to address the needs of your members?
 - *(If yes)*, what assistance did you find most useful?
 - *(If no)*, how could the project better address the needs of association?
 - b. In your opinion, how relevant was the SQIL assistance in terms of timing?
 - c. What changes, positive or negative, have you noticed in your association membership or participation since the project began?
6. Of the programs that SQIL assisted you with, which ones, if any do you think your association will sustain after the project ends?
 - a. If there are policies or programs that you do not think your association will sustain after the project, why do you think that?
 - b. What other actors, if any, do you think might sustain some or all of the SQIL programs your association does not sustain?
 - c. What could be done to facilitate and support your association in sustaining SQIL programs after the project ends?
7. I would now like to ask you about the potential impact that the industry lead quality and food safety initiatives can have on the dairy and beef industry in Georgia. Such initiatives include: "GeoGAP", "Georgian Milk Certification", ISO 22000.
 - a. In your opinion, how can such industry lead quality and food safety assurance certifications affect the production and purchase of certified products?
 - b. In your opinion, how can such industry lead initiatives affect the ability of agricultural actors to meet quality standards?

- c. What are the barriers to sustainability of such initiatives?
 - d. What other actors, if any, do you think might take on responsibility for such industry lead quality and food safety certification initiatives after the project ends?
 - e. What can the project do in moving forward quality and food safety initiatives?
8. What kind of roles do women usually have in your association? Is it common for women to be in leadership roles?
- a. If women do not participate or work significantly, why do you think women are not involved in the association?
 - b. What can SQLL do to improve women's involvement in the association?
9. What internal and external factors have affected your business in the past 18 months? (*Probe for impact of COVID-19, changes in regulatory legislation, etc.*)
- a. What adjustments, if any, did the project make to help your business adapt to these challenges?
 - b. How could the project better adapt to the COVID-19 pandemic to support your business and other actors in the dairy and beef value chain?
10. In your opinion, is there anything about the SQLL project that could have been strengthened or done differently? Do you have any suggestions for improving the project? (*Probe for successes and challenges*)
11. In your opinion, how could the SQLL activities be modified to improve their efficiency and effectiveness of results?
- a. How could the SQLL activities be modified to ensure sustainability of results?
12. Do you have any further observations, thoughts to share, or questions before we conclude the interview?

Thank participant for his/her time.

Research Institutions

Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Venture37 International Development to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start with a brief introduction. What is your name and how long have you been working with [research institution]?
 - a. What is your role at [research institution]?
2. What is your [research institution]'s broad mandate? *(Probe: Get as much detail about the research institution's overall goals in relation to the dairy and beef sector)*
 - a. How do you see your institutions role in supporting the dairy and beef sector in Georgia?
3. What are the key research efforts and/or policies that your institution focuses on concerning the dairy and beef sectors? *(Probe: What are the broad objectives that the institutions is trying to achieve through its research?)*
 - a. What stakeholders or actors do you typically engage with and disseminate information to as part of your research efforts? *(Probe for Government, farmers, private sector, international donors, etc.)*
4. Can you please describe how the Safety and Quality Investment in Livestock (SQIL) project has engaged with your research institution? *(Probe to understand the specific assessment and studies the institution has been engaged in and the types of support that the SQIL staff provided during that engagement)*
 - a. How do the assessments/sectoral studies that you worked on with the SQIL project contribute to improving the overall production and sustainability of the dairy and beef sectors in Georgia?
 - b. How have the findings from the assessments/sectoral studies that you participated in been utilized by dairy and beef value chain stakeholders? *(Probe for specific examples of how the studies were used to inform programming, presented to Government officials to inform policy dialogues, etc.)*
 - c. What can the project do to increase the utilization of the findings from these studies?
 - d. What additional assessments or studies do you think the SQIL project could conduct to further improve the dairy and beef value chains in Georgia?
5. I would like to ask you about your experience working on the assessments/sectoral studies with SQIL. What is your opinion of the quality of the technical guidance and support that the project provided throughout the assessment? Did you feel that the technical guidance provided was sufficient?
 - a. What recommendations do you have for how the project can improve collaboration with research institutions, like yourself, in the future?
 - b. In your opinion, were these assessments/sectoral studies conducted in a timely manner? If not, why not?
 - c. How can the SQIL project better support your institution in developing and sustaining relationships with other stakeholders and actors in this space?
6. What internal and external factors have affected your business in the past 18 months? *(Probe for impact of COVID-19, changes in regulatory legislation, etc.)*
 - a. What adjustments, if any, did the project make to help your business adapt to these challenges?
 - b. How could the project better adapt to the COVID-19 pandemic to support your business and other actors in the dairy and beef value chains?

7. In your opinion, is there anything about the SQIL project that could have been strengthened or done differently? Do you have any suggestions for improving the project? (*Probe for successes and challenges*)
8. In your opinion, how could the SQIL activities be modified to improve their efficiency and effectiveness of results?
 - a. How could the SQIL activities be modified to ensure sustainability of results?
9. Do you have any further observations, thoughts to share, or questions before we conclude the interview?

Thank participant for his/her time.

Education Institutions

Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Venture37 International Development to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start with a brief introduction. What is your name and how long have you been working with [education institution]?
 - a. What is your role at [education institution]?
2. What is your [education institution]'s broad mandate? *(Probe: Get as much detail about the education institution's overall goals in relation to the dairy and beef sector)*
3. What are the specific programs (degree or non-degree), trainings, or services that your institution offer dairy and beef value chain stakeholders? *(Probe for services offered to farmers, veterinarians, food safety specialists, agricultural economists, input suppliers, etc.)*
4. Can you please describe how the Safety and Quality Investment in Livestock (SQIL) project has engaged with your education institution? *(Probe to understand the specific capacity building activities, marketing efforts, technical assistance for the students, providing educational resources (manuals) etc.)*
5. I would like to ask you about your experience working with SQIL to develop and/or revise your institution's academic curricula and training programs (including capacity building of the lecturers).
 - a. What is your opinion of the quality of the technical guidance and educational personal capacity building support that the project provided throughout the assessment? Did you feel that the technical guidance/support provided was sufficient?
 - b. In what ways, if any, do you feel that the new and/or revised curricula accurately address the needs of Georgian dairy and beef value chain stakeholders?
 - c. What feedback, positive or negative, have you received about the new and/or revised curricula from instructors and students?
 - d. What specific results, positive or negative, have you seen from implementing the new or revised curricula? *(Probe for increased student engagement/enrollment, improvement knowledge and practices of farming practices and food safety, etc.)*
 - e. In your opinion, how likely is it that your institution will be able to sustain the new curricula after the project ends?
 - f. What barriers exist for sustaining the curricula after the project ends?
 - g. How can the project help you address the barriers to sustainability?
 - h. What recommendations, if any, do you have for how the project can improve collaboration with education institutions, like yourself, in the future?
6. What internal and external factors have affected your business in the past 18 months? *(Probe for impact of COVID-19, changes in regulatory legislation, etc.)*
 - a. What adjustments, if any, did the project make to help your business adapt to these challenges?
 - b. How could the project better adapt to the COVID-19 pandemic to support your business and other actors in the dairy and beef value chain?
7. In your opinion, is there anything about the SQIL project that could have been strengthened or done differently? Do you have any suggestions for improving the project? *(Probe for successes and challenges)*
8. In your opinion, how could the SQIL activities be modified to improve their efficiency and effectiveness of results?

- a. How could the SQIL activities be modified to ensure sustainability of results?
- 9. Do you have any further observations, thoughts to share, or questions before we conclude the interview?

Thank participant for his/her time.

Input Suppliers

Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Venture37 International Development to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. Let us start by talking a little bit about yourself. Tell us about your business.
 - a. Who are your main clients? *(e.g. mainly farmers, or other beef and dairy value chain actors like retailers, processors etc.)*
 - b. What services do you provide to your clients? *(Probe to uncover the full range of services, for example, production, food safety, post-harvest, marketing, organizational, financial services, product certification services, veterinary services and farm management services.)*
2. I would like to talk to you about the activities that you participated in as part of the SQL project, both the training you received and the events you were involved with. First, I would like to talk about training.
 - a. What kind of training did you receive as part of the SQL project? *(Probe for food safety and quality, communication with business representatives, finance and business support, facilitation and marketing events, improved service delivery and provision of technical services as part of input supply package)*
 - b. Who provided this training and in what format did you receive the training (i.e. in person, audiovisual training, self-guided training through Agronavti)?
 - c. In your opinion, how relevant was the training in terms of timing?
 - d. What did you learn or find useful about the training? What did you not like about your training?
 - e. Have you changed any of your business practices because of these trainings? If so, which ones? *(Probe for changes in clientele, trainings or services offered, service delivery method, fees amount or fees method for services, etc.)* If not, why?
 - f. What additional trainings, if any, would you find useful?
3. What events were you involved in as part of the SQL project?
 - a. In your opinion, were these events successful?
 - i. *(If yes)*, please explain why.
 - ii. *(If no)*, what the project do moving forward to make the events more successful?
 - b. What specific results, positive or negative, have you seen as part of your participant in these events? *(Probe for improved sales and income, access new markets or clients, expand network, etc.)*
4. What kind of financial services, if any, have you gained access to as part of your participation in the project? *(Probe for loan, grant, insurance, etc.)*
 - a. How did you use the money? *(Probe for invest in infrastructure, hired staff, marketing, etc.)*
 - b. What specific results, positive or negative, have you seen because of this service? *(Probe for increased sales, profitability, access to markets, trade, etc.)*
 - c. *If you did not gain access to financial services as part of your participation in the project, why not? (Probe for did not know how to access the services, did not meet the eligibility requirements, did not need financial services, etc.)*
5. What are the biggest challenges that you face in your business?
 - a. What do you think is necessary to successfully tackle these challenges?
 - b. What ways, if any, has your involvement with the project helped you address some of these challenges?

- c. One of the challenges noted by the project is low demand on the producer and processor side to invest in improvements. How do you think the project can help address this issue?
- 6. What Government of Georgia regulations and policies influence your business service provision most?
 - a. Do you work directly with government agencies to learn about any policy changes or new developments in dairy and beef sector? If so, please describe.
 - b. What ways, if any, has your involvement in the project facilitated linkages to associations or government offices that influence your business?
- 7. What internal and external factors have affected your business in the past 18 months? (*Probe for impact of COVID-19, changes in regulatory legislation, etc.*)
 - a. What adjustments, if any, did the project make to help your business adapt to these challenges?
 - b. How could the project better adapt to the COVID-19 pandemic to support your business and other actors in the dairy and beef value chain?
- 8. What kinds of challenges do female input suppliers face that are not faced by male input suppliers? Please explain.
 - a. (*For female business owners*) Did you face any challenges to participating in project activities or accessing services through the project? If yes, please describe.
 - b. (*For female business owners*) What can the project do to help address these challenges moving forward?
- 9. In your opinion, is the SQL project adequately addressing the needs of input suppliers like you? What other activities could the project do to address your needs?
- 10. In your opinion, how could the SQL activities be modified to improve their efficiency and effectiveness of results?
 - a. How could the SQL activities be modified to ensure sustainability of results?
- 11. Have you seen examples of any spillover effects from the project on other businesses that are not participating in the project? If yes, please elaborate.
- 12. Is there anything that I did not ask that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

Thank participant for their time.

SQLI Staff (Chief of Party)
Key Informant Interview Guide

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Venture37 International Development to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 60 minutes. Please feel free to be open and honest with us while sharing your opinions. Everything you say here today will be confidential between our project and us. Your name or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you decide you would no longer like to participate, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Do you have any questions for me? In case of any further questions after you have participated, you can always contact me, or other members of our team. I am happy to share our contact information.

2. **Obtained verbal informed consent [Read Consent Form]**
- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP

1. How long have you been involved with the SQIL project?
2. What are the barriers to growth in the dairy and beef industry in Georgia?
3. How has SQIL been attempting to address these barriers?
 - a. How well aligned are the project's strategies aligned with those of USDA, USG, and the Georgian Government?
4. Can you tell me about the activities that you or your project staff have been providing as part of this project?
 - a. Were these activities implemented as planned? If not, why not?
 - b. How have these activities affected project participants?
 - c. Did the activities achieve the intended results? Why or why not? (*Probe about sales, access to markets, access to financial services, product quality, knowledge and management practices, marketing, etc.*)
 - d. What macro-level changes have occurred throughout the project in Georgia's dairy and beef sector?
 - e. Was the implementation of some activities more successful than others? If so, which ones and why?
 - f. For those activities that were not as successful, what adaptations or adjustments can be made to improve their effectiveness?
 - g. Did men and women have equal opportunities to participate in the activities?
 - Was there a difference between how specific activities affected men and women?
 - What do you think SQIL could do in the future to ensure there is not a difference between how men and women benefit from specific activities?
5. I know there have been some delays in implementing the GeoGap certification process, however I would like to ask you about the potential impact that industry lead quality and food safety initiatives can have on the dairy and beef industry in Georgia. Such initiatives include: "GeoGAP", "Georgian Milk Certification", ISO 22000.
 - b. In your opinion, how can such industry lead quality and food safety assurance certifications affect the production and purchase of certified products?
 - c. In your opinion, how can such industry lead initiatives affect the ability of agricultural actors to meet quality standards?
 - d. What are the barriers to sustainability of such initiatives?
6. From your perspective, which project activities and benefits are likely to be sustained past the project lifespan and why? Which project activities and benefits are not likely to be sustained and why?
 - a. What are the biggest challenges to sustainability?
 - b. How has the market-led approach with business development service providers affected the sustainability of those services?
 - c. How can the project adapt or modify activities to promote long-term sustainability of results moving forward?
 - d. What is the project's exit plan?
7. In what ways, if any, has the project used monitoring, evaluation, and learning data to make programmatic decisions?

- a. What can the project do moving forward to improve the use of monitoring, evaluation, and learning data in decision-making?
8. What challenges, internal or external, did the project face during implementation that influenced the ability of the project to meet expected results and targets? (*Probe for COVID-19, changes in legislation regulation, changes in personnel, etc.*)
- a. What adaptation and adjustment to activities have been made to address these challenges and improve the likelihood of achieving the desired results?
 - b. How can the activities further adapt to address these challenges and improve efficiency and sustainability?
 - c. Specifically, with regards to the effect of COVID-19, how can the project further adapt activities to improve efficiency and sustainability?
9. As noted during the inception meeting, several other “quality” certification initiatives have begun since SQL implementation started. How has that effected the implementation of SQL? Have you had to adapt your programming based on these other activities?
10. Please tell us about any innovations that you discovered during the implementation of the project.
11. Are there any lessons learned or best practices from implementation that can be built on during the second half of implementation?
12. Is there anything that I did not ask about that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

Thank participant for his/her time.

Non-Participant Case Study

1.	Date (DD/MM/YYYY):	
2.	Start Time:	
3.	Finish Time:	
4.	Venue/Locality:	
5.	Facilitator Name(s):	
6.	Note Taker Name(s):	
7.	Name of Participant:	
8.	Gender:	

INTRODUCTION

1. **Introduce yourself and the study.** Our names are _____ and _____ (Facilitator and Note Taker). Thank you very much for taking the time to participate in this discussion. We are working on behalf of the Caucasus Research Resource Center (CRRC). CRRC is collaborating with IMPAQ International and Venture37 International Development to understand dairy and beef farming in Georgia. Today, I would like to ask you questions about your experience with or thoughts about the dairy and beef industry in Georgia. Our goal is to capture a wide range of viewpoints that can inform Venture37's dairy and beef activities in Georgia.

The discussion will be approximately 120 minutes. Throughout the discussion today, there is no wrong answer but there might be differing points of view. Please feel free to share your opinions and your experiences, even if it differs from what others have said. Everything you say here today will be confidential between us and our project. Your names or other identifying information will not be used in any of our reports. You are free to choose whether to take part in this discussion and if after we begin you wish to leave, you may do so. If you choose not to take part, you will not be negatively affected in any way.

If I have your permission, I would like to record our discussion today, for the purpose of taking notes later. This recording can only be accessed by our research team and will not be shared with anyone else.

Does anyone have any questions for me? In case of any further questions after you have participated, you can always contact data collection team members like me, or other members of our team. I am happy to share our contact information.

Additionally, IMPAQ International and CRRC are taking significant measures to reduce exposure to COVID-19 for the field team and the respondents; however, as in any community or public setting, an exposure risk remains. It is important that these matters are recognized prior to your participation. By participating in this interview, you acknowledge the COVID-19 safety protocols and are aware of the risks for collecting data during this pandemic.

2. **Obtained verbal informed consent [Read Consent Form]**

- a. Did you ask if the participant had any questions? ☐ Yes ☐ No
 - b. Did participant agree to participate? ☐ Yes ☐ No ☐ STOP
1. Let's start by telling me a little bit about yourself and your business.

- a. How long you have been a dairy or beef farmer?
2. What are the barriers you face that prevent you from increasing your milk and/or beef production? What changes can help you address some of these barriers? *(Probe: What role do breeds/genetics, animal health and feeding play in productivity levels of milk and/or beef?)*
3. What training, coaching, or consultation support have you participated in over the past 12 months? *(Probe trainings delivered by other implementing partners, the government, etc.)*
4. The Safety and Quality Investment in Livestock (SQIL) project is a US Department of Agriculture funded project that is currently being implemented in Georgia by Land O'Lakes/Venture 37. Do you know anyone who has participated in activities of the SQIL project? If so, how many of your associates have participated in the project?
5. What changes, if any, have you made to your production practices in the past 12 months? *(Probe for production practices including grazing, fodder and forage, cultivation, concentrate feed, supplementation, housing and water, breeding, milking, and cattle husbandry, etc.)*
 - a. What prompted you to make these changes? *(Probe for saw a neighbor/friend implement the change with success, a neighbor/friend recommended I make the change, found information on a website, saw an advertisement, etc.)*
 - b. What support or guidance, if any, did you receive, perhaps from a neighbor/friend, to help you implement these changes? *(Probe for neighbor/friend shared training materials with me, neighbor/friend directed me towards online training resources, etc.)*
 - c. What specific results, positive or negative, have you seen because of changing your processes? *(Probe for increased production, sales, profitability, access to markets, trade, etc.)*
6. What new market information, if any, have you gained access to in the past 12 months? *(Probe pricing information, weather information, supplier information, etc.) – If respondent says they have not gained access to new market information you can skip the rest of the question.*
 - a. How did you gain access to this information? *(Probe for a neighbor/friend gave me the information, found the information online, etc.)*
 - b. How did you use this information in your business? *(Probe for changed the pricing of my products, changed my production schedule, connected to new suppliers, etc.)*
 - c. What specific results, positive or negative, have you seen as a result of this information? *(Probe more accurate pricing, increase sales, access to new suppliers/buyers, etc.)*
7. What internal or external factors, if any, have affected your dairy and beef farming activities in the last 12 months? *(Probe for impacts of COVID-19, changes in legislation regulations, etc.)*
 - a. How have you adjusted your business due to mentioned factors?
 - b. What resources or support, if any, have you used to help you adjust to the impacts of mentioned factors?
8. Is there anything that I did not ask that you would like to share with me, or do you have any additional thoughts about what we have discussed today?

Thank participants for their time.