



Mid Term Evaluation of the Rebuilding Livelihoods and Resiliency in Zimbabwe Project - 674-A-00-10-00002-00

(January 17, 2010 – November 30, 2013)



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- Agricultural consultancy
- Evaluations
- Trainings
- Advisory services

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List of Acronyms and Abbreviations

ABS	Accounting Bureau System
AGRITEX	Agricultural Technical and Extension Services
AI	Artificial Insemination
AIDS	Acquired Immune Deficiency Syndrome
DA	District Administrator
DZL	Dairy Board Zimbabwe (Private Limited)
FGD	Focus Group Discussion
FAO	Food and Agriculture Organization
FTLRP	Fast Track Land Reform programme
GPA	Global Political Agreement
GoZ	Government of Zimbabwe
HDDS	Household Dietary Diversity Score
HH	Household
HIV	Human Immunodeficiency Virus
IR	Intermediate Result
Kg	Kilogram
LPD	Livestock Production Department
MAHFP	Months of Adequate Household Food Provision
M & E	Monitoring and Evaluation
MCC	Milk Collection Centre
MTE	Mid Term Evaluation
MPG	Milk Producer Group
NADF	National Association of Dairy Farmers
CLW	Community Livestock Worker
NGO	Non-Governmental Organization
NR	Natural Region
RDC	Rural District Council
SADC	Southern African Development Community
TB	Tuberculosis
TOR	Terms of Reference
USAID	United States Agency for International Development
WHO	World Health Organization of the United Nations
USD	United States Dollar
ZLD	Rebuilding Livelihoods and Resiliency in Zimbabwe

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The findings, interpretations, and conclusions expressed in this report are entirely those of the authors. Every effort was made to ensure the accuracy and validity of the findings and conclusions contained in this report. However, errors and gaps in the analysis are possible. We take responsibility for any and all such omissions or inaccuracies.

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Executive Summary

USAID and their Objectives

Since January 17, 2010, Land O'Lakes International Development has been implementing the Rebuilding Livelihoods and Resiliency in Zimbabwe (ZDL) Project. Initially, the project was to be completed in January 2011, but it was later extended by an additional two years in May 2011 up to May 31, 2013. A further extension up to November 30, 2013 was later granted after realizing that there were some outstanding issues to be fulfilled. This project was initiated with the objective of supporting USAID/Zimbabwe's Assistance Objective 3: Livelihoods Restored and Maintained/Economy Stabilized and Growing and Assistance and Objective 4: Increased Income and Employment Generated by the Agricultural Sector by contributing to the following IRs and sub IRs:

- IR 3.2: Basic Economic Activity and Livelihoods, Income Generation, and Employment
 - Sub-IR 3.2.1: Improved Livelihoods, Income Generation, and Employment.
- IR 4.1: Increased Agricultural Production
 - Sub-IR 4.1.1: Contract Farming and Out grower Schemes Strengthened

It was expected that the significant gains from dairy in terms of income, improved food security and improved asset base that had been demonstrated regionally could be replicated in Zimbabwe.

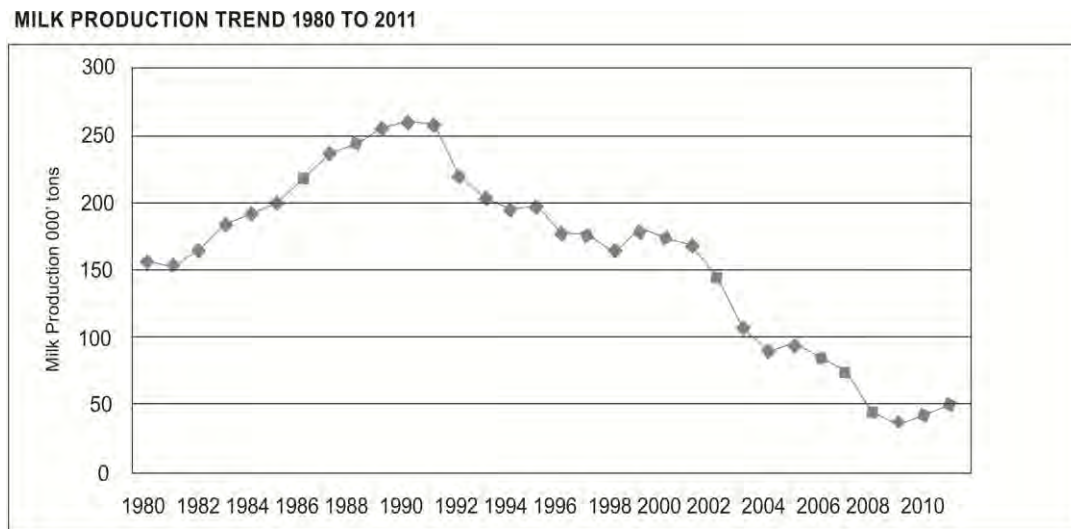
Background to Dairy in Zimbabwe

Zimbabwe had once been a major milk producer and exporter of milk throughout the SADC region, peaking at approximately 260 million liters in 1990. During the same period, several Zimbabwean Companies exported milk and purchased other milk producing companies regionally. However, Zimbabwe has faced a decline in agricultural production, for nearly a decade between the late 1990s and 2008 due to a complex combination of socio-economic, political and environmental factors. This has negatively affected the ability of many dairy farmers to remain in viable milk business. Sadly, by 2008 the total annual milk volume was less than 35 million liters, and many milk processing plants in the country had been shut down. The country was thus running at less than 30% of installed capacity.

The signing of the Global Political Agreement (GPA) in September 2008 which led to the formation of an "all inclusive government" and the subsequent dollarization of the economy in February 2009 saw a recovery in many sectors of the economy. However, the large scale agricultural productive base which had been eroded by the Fast Track Land Reform Programme (FTLRP) saw large scale dairy farmers decreasing from 423 in 2000 to less than 120 in 2012 (ZADIT, 2012). Currently, Zimbabwe is importing more than 60 million litres of milk annually.

This is part of desperate efforts which are done to meet the increased consumer demand. There is therefore need to provide a lasting solution to a unique situation for smallholder producers to meet this demand. Fig 1 below summarizes the annual milk production trends in Zimbabwe from 1980 to 2011.

Figure 1: Milk production trend in Zimbabwe (1980 – 2011)



Source: Dairy Services

Background to smallholder milk production in Zimbabwe

The small holder dairy sector started to be developed in earnest since 1980 as a poverty alleviation tool and a method to raise farm incomes, improved nutrition and employment in rural areas. Numerous “schemes” had been set up in the 1990s often with subsidies to cover running costs, and administered by government departments. During this period, a total of 35 sites were set up nationally. Whilst a few are currently operating, the majority of them never ever opened. The private sector saw such projects as a social corporate responsibility rather than viable business that could supply quality products. Many of the site selection criteria did not take into account markets, or where dairy farmers were located so often requiring substantial subsidies in transport and running costs of the centers. With the hyperinflation of the 2000s, nearly all the centers stopped functioning as the subsidies could no longer be paid and markets imploded. The year 2009 saw seven centers reopening via EU Stabex fund, which was administered by NADF. This approach has been criticized for focusing more on production of milk than on markets linkages and center financial management.

The ZDL Project Background

In the Zimbabwean context, the challenge of reducing food insecurity for vulnerable people and helping them recover from economic meltdown most usually means helping communities to cope better with the risk of drought and diversify of their livelihoods. Less than 20% of the country’s total estimated irrigation capacity is currently being utilized and the most frequent cause of food deprivation is the failure of rain-fed crops on smallholder farms (AGRITEX, 2011). Moreover, because virtually all Zimbabwean farmers grow maize as their staple food, variability in rainfall is particularly dangerous and exposes a great many households to food insecurity. Other causes of food insecurity in Zimbabwe relate to the high unemployment rates following the hyperinflation period, migration of young people

overseas and other generally adverse economic conditions that are mirrored in the high rural and urban poverty rates.

Taken together, these strategic and practical considerations suggest that the main objective for an income-based food access program like ZDL is to prevent vulnerable but viable households from requiring food assistance during the next drought or other economic crisis. To achieve this result, Land O'Lakes is focused on long-term access elements of food security. Through a unique value chain approach, Land O'Lakes is looking to improve rural incomes from dairy production and goat production (the goat production focus was not part of the extended program). The program specifically targets households who live close to existing milk centers with the prospect that they will eventually become resilient to external shocks, and cope more easily with negative trends and seasonality. By increasing farmer capacity to earn greater income through informal and formal milk marketing, and maximizing livestock product yields, program beneficiaries are expected to be less dependent over the long-run on variations in traditional crop production and raise incomes. The program not only increases household access to food through income earnings, but also by increasing the consumption of milk by household members and other dairy revenue streams, and by providing manure that can be used to fertilize up to about 1ha of maize per year or for vegetable gardens around the house. This was in addition to the use of dairy male calves for beef and / or draught power.

The project aims to build the livelihoods and promote food security of farmers through interventions in the livestock and dairy value chains. The project components currently in the project and activities under this project include;

- i. Component 1: Dairy Production, Collection, and Processing-linking smallholder dairy farmers to milk markets.
- ii. Component 2: Increased Capacity in Preventive Animal Health and Rangeland Management – improving access to animal health and on farm fodder production.
- iii. Component 3: A Donkey Transport Pilot Project to develop donkey traction in support of the dairy production.
- iv. There was a fourth component of goat production but this was not funded in the extension and so not part of this evaluation.

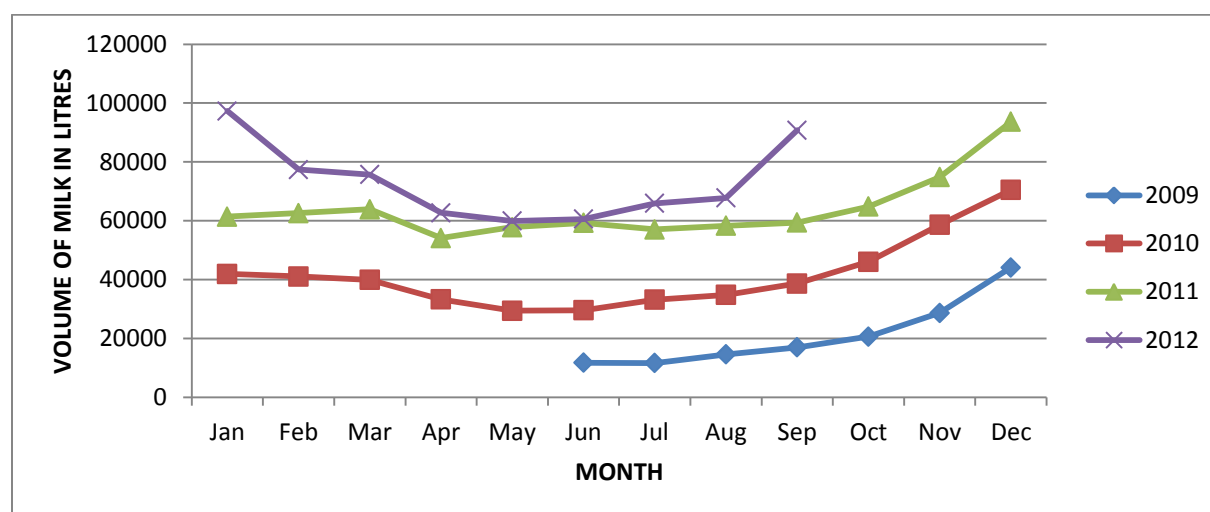
Food and Nutrition Security at HH level Impact

The Majority of the beneficial households (88%) reported that they have adequate supplies of basic food all year round while some 12% reported that they experience occasional shortages in some months of the year. Food insecurity is usually experienced between January and March of each year. The average Household Dietary Diversity Score (HDDS) for this survey was 7.6 meaning to say that on average targeted households consumed at least 7 out of the 12 food groups within a 24 hour period. This figure is slightly higher than the 7.2 score at baseline. There is a general increase in milk consumption (66.7%) across all the sites visited. Increases were mainly attributed to increase in production which is directly attributed to the project. People tend to consume more milk when production is higher than when production is lower. Dairy cows are normally milked twice per day and most of the afternoon production is either consumed at home or sold in the local markets.

Component 1 Dairy Production, Collection, and Processing- Results

The survey show that, milk delivery at MCCs has increased by 672% from an average of 11,754 liters in June 2009 to an average of 90,762 liters in September 2012 (Fig 2).

Figure 2: Total milk volumes delivered to the MCCs (2009 – 2012)



Many farmers do not deliver all the milk to the MCCs since for many it is technically impossible to have more than one trips to the MCC due distance challenges while, others just choose to keep some of the milk for other uses. On an average day, a farmer keeps 2.2 liters per day of his/her production, 1.1 liters are consumed by the household, 0.7 liters are used to feed the calf, 0.3 liters are sold in the local markets and 0.1 liters are given to relatives, friends and neighbors. About half (49.8%) of the income from milk sales is used for purchasing staple food. The other uses include purchasing agriculture inputs (12.2%), paying for school fees (10.2%) and purchasing groceries (11.4%).

An average mixed / exotic breed results in a gross margin of about USD85 per month while a local breed has a gross margin of about USD19 per month. Although local breeds are profitable, their returns are too low to justify a viable business investment.

On average 60% of the farmers reported hiring at least one person on a full time basis after the launch of the ZDL project. Although such laborers sometimes assist with other duties at the farm, their main duty is to assist with the dairy enterprise which is the reason why they were hired.

Every household interviewed acknowledged receiving several business trainings as well as trainings in new technologies from Land O'Lakes and partners and more than 90% of the farmers have proceeded to adopt the trained technologies on their farms. The business trainings have improved efficiency and financial accountability at farm level. Partnership between NADF and Land O'Lakes has improved the effectiveness of the trainings and the general success of the ZDL project.

Milk marketing. At the assembly or bulking level, the project seeks to increase the quantity of raw milk supplied by smallholder farmers to rural milk collection centers (MCCs) for onward sale to dairy processors, or local processing and onto other buyers.

As mentioned earlier smallholder dairy had a subsidized past with a social rather than a business focus the running of the MCCs without subsidies and qualified staff was a major area of weakness. MCCs needed a complete change in focus away from social goals to a core responsibility as a marketing center to provide farmers a secure and remunerative outlet for their surplus milk. Land O'Lakes/NADF has had to invest considerable time and resources in working with existing MCCs and helping to rehabilitate other centers completely from the ground up. Technical assistance has focused in particular on business management and the running of the centers, quality analysis (introduction of platform tests) and installation of cooling tanks and other dairy hygiene equipment needed for small farmers to compete in the formal market.

The program's quality control and other technical assistance is important and appears to be making excellent progress, these investments coupled with the other fundamental aspects of market development, including training in business management and cooperative principles have assisted several MCCs turn the corner from loss to profit. Several MCCs had been struggling with deep management problems and lack the capacity to prepare a realistic business plan that is focused on the core responsibility of a marketing center, which is to provide farmers a secure and remunerative outlet for their milk.

The ZDL's market development work at times is also being complicated by elaborate arrangements at the MCC level including promises that the marketing center will manage various types of revolving funds, group procurement of inputs, and artificial insemination services. Because little distinction is usually made between the farmer group and MCC, these centers are also variably regarded by different stakeholders as a focal point for nutrition clubs and awareness building on prevention and care of HIV/AIDS. These development goals are each important, but must not get in the way of the center's primary marketing function and other fundamentals of good business management.

Considerable efforts and focus has been put on MCC management and development of systems including financial management and the provision of business development services like the Accounting Bureau System (ABS). These have had success in assisting MCC management and board to change their focus.

Preventative Animal Health and Rangeland/Fodder flow Management

Findings from the survey indicate that farmers across different sites grow an average of 0.7 ha of fodder. At baseline, no one was producing fodder.

Every farmer interviewed acknowledged that they are using better veterinary intervention methods than before the ZDL project. Although there are several sources of veterinary extension advice which include the government departments, NGOs, Community Livestock Workers (CLWs) and private veterinarians, many farmers (more than 60%) are treating their animals on their own.

Farmers use a mixture of grazing methods for feeding their dairy cows; the most common being paddock grazing (35.6%), followed by zero grazing (20.3%), and open range (16.8%). Almost half of the farmers (44.1%) use cultivated pastures while a significant number (38.8%) use natural pastures and only 16.7% use purchased dairy feed for feeding their cows.

Farmers use different modes of transport to carry milk from their farms to MCCs, ranging from cars, public transport, scotch carts, bicycles and donkeys. Although farmers acknowledged that using donkeys to transport milk to the MCCs was both cheaper and sustainable, only 6.2% of the farmers were actually using donkeys for milk transportation. The average gross margin for a donkey in traction is USD30 per month. The use of donkeys for carrying milk becomes difficult when distances are long (more than 10 km).

Gender and Environmental Considerations

The involvement of women and youth in key ZDL activities will help guarantee that project outcomes are sustainable. Currently 33% of the benefitting households are female whilst 28% of MCC/MPA committee members were female. In many cases decisions about the purchase of dairy inputs are generally made by both husband and wife (46.7%), wife alone (24.5%) and husband alone (19.6%). It was also noted that decisions about using money from milk sales are generally made by both male and females together (50.2%). Surprisingly women are more involved (23.3%) in individual decision making process than men (18.8%). Most females who were involved on their own were unmarried. Children and other household members are rarely involved (less than 10%) in the decisions about money. Youth are more involved in cattle herding than other household members with 46.2% of surveyed households indicating the duty is reserved for them. In some cases, men (17.6%) and women (10.9%) are also involved with cattle herding. In many families, milking is generally carried out by youth (35.6%) and adult males (22.4%). Women are generally not involved in such roles (10.9%).

It is desirable that cow shades, composts and milking parlors be located at least 8m from the water sources to avoid contamination. Most of the shades (56.4%) are located more than eight meters from the water sources, some 31.4% are located between 3 – 8 meters from the water sources whilst only 12.2% are located within three meters from the water source. A significant amount of people (58.6%) located their composts at a distance of more than eight meters from the water source while some 33.3% were located within a distance of 3 – 8 meters from the water source. Small portions (8.1%) of the composts were located with a distance of 3 meters from the water source. Most of the waste chemicals are either thrown in the toilets (55.4%), burnt (24.5%), or buried under ground (16.6%). Only 1.3% is thrown onto the open ground.

Project design, implementation and achievements

The ZDL project was designed to allow empowerment through training, market linkages and technical support. The design is such that communities actively participate in the project rather than being passive recipients of a foreign idea. The MCC / MPA methodology entrusts

the MCC committee members to make all the major decisions about their operations thereby making this approach sustainable in the medium to long term. Project achievements include; increases in the milk produced, marketed and consumed, increases in the area under fodder, as well as increases in annual farmer payouts.

Evaluation of processes that affect achievement of project outputs

Unlike other approaches, the MCC methodology allows farmers to access cheaper inputs and bulk the milk for better markets. The MCC /MPA methodology also allow farmers to manage the project through committees. This is more sustainable in the long run. The revolving fund for feed and cows also enables farmers to take the project more seriously. This is different from relief interventions which are usually for free. Training of CLWs complement government efforts as well as enhancing project sustainability through presence of trained personnel in the area. The project is also linked to the private sector for sustainability. Beneficiaries of this project are selected based on willingness as well as ability to participate. Training in business management and new technologies is also done to equip dairy farmers with new information.

Evaluation of project sustainability and beneficiary rating

Although the beneficiaries of the project were not directly involved in the project design, they were actively involved in the planning and implementation of the project. This is a critical condition necessary for the sustainable development of dairy projects. This approach enhanced ownership and community maintenance of the project assets both of which emerged as fundamental requirements for sustainability. However, MCC management committees still required further capacity building to prepare for management of the project after program termination. Some threats to the sustainable development of dairy projects were identified and they included; inadequate extension support, natural resource degradation, inadequate markets, droughts and political instability. Sadly, most of the threats to sustainability are external in the sense that farmers are not directly responsible for them. In spite of all these limitations, the project is highly rated by both beneficiaries and stakeholders. More than 80% of the farmers are either satisfied or highly satisfied with the project approach.

Next Steps for Expanded support to Dairy Industry: -

- 1. Expansion of Milk center network** – The MTE has found that incomes of smallholders can be substantially increased by their integration into the dairy value chain and it has been demonstrated that this is a cost effective investment. The number of existing centers that could effectively generate surplus milk and are located to supply markets are limited. So a way of spreading this effective way of increasing incomes to new areas and sites could be identified with the private sector involvement, filling in the so called milk pockets/sheds.
- 2. Development of support services** – ZDL has started the process of working with private sector service providers to assist in the better targeting of smallholder dairy farmers. This could be further developed especially in technical advice and financial services.

- 3. Improved productivity and farm management** – The focus on farm level business management and improving productivity is never over and the challenges on improving farmers’ competitiveness in the high cost Zimbabwe environment. Focus on farm grown feeds and fodder is essential to improve competitiveness plus basic farm management skills.
- 4. Processor Competitiveness improvements** - In addition to getting the fundamentals of MCC management right, these new centers also require market linkages with formal sector processors. By working directly with small and medium-scale processors to improve their quality control systems and develop new product lines this is key to a vibrant dairy industry. To understand the importance of this, it is first necessary to recognize that Zimbabwe is currently a net dairy importer. This means the best way to increase the competitiveness of local production is to improve on the price and/or quality of local supplies. By improving small and medium dairy processors testing of milk/products it would be possible to take a very significant step towards this objective by reducing wastage in the marketing system and by guaranteeing quality milk is used to produce the type of local products that can compete with imports at the highest end of the domestic market. The support could be provided to dairy processors would enabled there to be built a direct market relations between the smallholder groups that USAID is targeting and the assisted firms. At least three processors have so far established, or are in the process of establishing, direct market linkages with participating farmer groups. Would these new market linkages have developed without Land O’Lakes’ support? This hypothetical question is, of course, difficult to answer, but it is worth noting that each of the companies mentioned specifically commented that they were worried about the quality of smallholder milk and would have been reluctant to buy from these farmers without first working on the platform testing of milk improvements that Land O’Lakes helped to install. With this in mind, it appears that USAID would do well to continue and even expand its work at the processor level, but with a clear-cut focus on building long-term linkages and even business partnerships between new MCCs and interested processors.
- 5. Promotion of Milk and Dairy Products** - Local milk promotion campaigns and the link with nutritional program would assist in further developing and expanding the market for local milk products. The private sector has been innovative in switching to long life products to combat the short falls in the cold chain, however further promotion for consummation of milk is required to increase milk consumption for the current 5 liters per person per year to 20 liters per person per year recommended by the World Health Organization of the United Nations (WHO).

Section 1: Background and Objectives

1.1 Background information

Zimbabwe faced a decline in agricultural production for nearly a decade between the late 1990s and 2008 due to a complex combination of socio-economic, political and environmental factors. Various factors have contributed to the decline, some of which are a constrained policy environment, lack of or limited access to affordable agricultural inputs, reduced extension support and climate change variability. This has negatively affected the ability of many farming households to access sufficient levels of food through their own production and/or normal market channels. The result was widespread chronic food insecurity particularly in the rural communities. The population living in rural areas is estimated at 65 to 70% which includes the most vulnerable section of the population. Unaffordable and unavailable inputs set within the context of unfavorable climatic factors and policy constraints continue to lead to poor yields in the agriculture sector. Recent macro level economic policy changes, which were introduced at the beginning of 2009, such as the introduction of the US dollar and the liberalization of trade restrictions, has resulted in a significant shift in approaches to 'livelihood recovery' strategies and the re-vamping of the once thriving rural markets.

Among the affected sectors is the dairy sector which, prior to 2000, was driven by large scale commercial farmers who were producing enough milk for the local market as well as exporting surplus milk and other dairy products. Milk production plunged from an all-time annual high of 260 million liters to the current 51 million liters annually¹. The production falls far short of the demand estimated at 180 million liters. Since January 2010, Land O'Lakes, with partner NADF, has been implementing the ***Rebuilding Livelihoods and Resiliency in Zimbabwe (ZDL) project***, in Manicaland, Mashonaland East, Masvingo, Midlands and Matabeleland South Provinces of Zimbabwe. This USAID-funded project aims to build the livelihoods and promote food security of farmers through interventions in the livestock and dairy value chains. The program activities focus on assisting vulnerable households, particularly women-lead households, to increase milk production; rebuild the goat, cattle and dairy herds through pass-on schemes; improve rangeland/fodder flow management and preventative animal health services, stimulate market linkages between value chain actors, and promote use of donkey draught power in dairy production.

1.2 Purpose of the assignment

The purpose of the assignment is to critically and objectively review the project activities, the implementing environment and to assess whether targeted beneficiaries are receiving services as expected, and that the project is on track to meeting its stated goals and objectives. Furthermore, the mid-term evaluation is an opportunity to document lessons and discuss necessary modifications to effectively and efficiently meet the stated goals and objectives. Specifically, the midterm evaluation of the Land O'Lakes intervention focused on the following performance factors:

- Evaluation of project progress
- Evaluation of project design, implementation and achievements,

¹ ARDA Dairy Development Programme (DDP)

- Evaluation of processes that affect achievement of project outputs
- Evaluation of sustainability of project outcomes
- Evaluation of beneficiary rating of project services
- Documenting lessons learnt
- Suggesting recommendations for the remaining period of the project

1.3 Methodology and approach used

The evaluation was conducted in October 2012 following a work schedule developed by the consulting team in conjunction with Land O'Lakes Monitoring and Evaluation (M&E) Team. The review was undertaken in a participatory manner, working intimately with the Land O'Lakes M&E team, program staff and stakeholders to document program effects and lessons learnt. The evaluation team comprised of two external consultants², and eight enumerators. The two consultants participated in stakeholder meetings, focus group discussions and key informant interviews whilst the enumerators were involved with the administration of the household interviews with the guidance of the team leader.

1.3.1 Data Sources

The consulting team reviewed several project documents and reports compiled during the project implementation period. Secondary information was complemented and put into context through information gathered directly from site visits, key informant interviews, stakeholders, participants and focus group discussions. Sources of secondary information included project design documentation, quarterly reports and baselines surveys, among others. From the review of existing monitoring data and periodic assessments conducted by Land O'Lakes, the extent to which the project was able to meet its expected results was determined. Qualitative sources provided program orientation, directly informed the report, identified key informants and served to guide the agenda of key informant interviews. Key informants provided extensive and invaluable information regarding all aspects of the project implementation, results and coordination with other efforts.

To complement existing data, primary data collection was conducted through household interviews, focus group discussions and key informant interviews. Broadly, the quantitative survey objective was to understand how the ZDL project increased household resilience with regards to poverty reduction, income creation and food security. The household interview was designed to explore issues related to dairy management, fodder production, milk transportation, milk marketing and management of MCCs. Random sampling criteria were used to allow for an unbiased selection of survey respondents and for the results to be generalized at program level. A dominantly closed-ended, pre-coded questionnaire was designed, pre-tested, modified and then used to collect household data. The five main sources of data for the evaluation could therefore be summarized as:

- i. Analysis and review of secondary data
- ii. Review of project progress reports
- iii. Household survey data

²Tawedzegwa Musitini – Team Leader and Lifa Jacob Mazibuko- Dairy Specialist

- iv. Stakeholder deliberative dialogue using focus group discussions and key informant interviews
- v. Direct observation of dairy cows, fodder and MCCs

1.3.2 Site Selection

During the field visits made to ten MPAs, focus group discussions were held and household interviews were conducted and the summarized information is presented in the Table 1 below. The evaluation visited eight districts, Makoni, Mutasa, Chipinge, Wedza, Seke, Gokwe, Masvingo and Goromonzi. The districts, location/s to be sampled were selected using the simple random sampling method.

Table 1: Summary of HH Survey Sample.

Province	District	Name of MCC	No of FGDs	HH Interviews		
				Active members	Non active members	Total
Manicaland	Makoni	Sangano	2	13	4	17
	Makoni	Dowa	2	10	2	12
	Mutasa	Hauna	2	23	7	30
	Chipinge	Rusitu United	2	15	4	19
	Chipinge	Mayfield	2	79	25	104
Mashonaland East	Wedza	Wedza	2	23	7	30
	Goromonzi	Chikwaka	2	26	4	30
	Seke	Marirangwe	2	15	4	19
Midlands	Gokwe	Gokwe	2	28	8	36
Masvingo	Masvingo	Hamaruomba	2	14	11	25
TOTAL	8	10	20	243 (75.5%)	79 (24.5%)	322*

** initially, the sample size was supposed to be 370 but could not be reached because there were fewer people who were still active members of MPA's and delivering milk to the MCC's. Although non active members were targeted, reaching them was constrained. Farmers tend to divorce themselves from active participation in MCC /MPA projects when their cows are dry.*

1.3.3 Household survey data collection

The survey targeted both active (75.5%) and non-active (24.5%) MPA / MCC members. Active members were those who had at least one cow in lactation by the time of the survey while non-active members were those MPA / MCC members who were not milking any cow by the time of the survey. Composition of non-active members comprised of those cows had dried up and some beneficiaries of revolving fund loan facility whose cows had not yet produced. A two stage sampling strategy was employed to select MPA /MCCs and households. The first stage was the selection of MPA's and the second stage was the selection of households. MPAs / MCC were purposively selected while households were selected using simple random sampling. During selections of MPAs /MCCs efforts were made to involve sites that were at different levels of development and to include sites that were

distributed in different agro ecological zones. After data was collected, captured and cleaned, frequencies and descriptive data were generated and interpreted. This information was triangulated with other information sources like quarterly management reports and secondary data to answer the study questions and draw conclusions.

1.3.4 Collection and analysis of qualitative data

Focus group discussions (FGD) were used to obtain views of groups of stakeholders and the key informant interviews were used to obtain individual views of certain individuals in isolation. Specific objectives of the FGDs were to:

- Measure community perceptions on project design and monitoring and their level of engagement in implementation.
- Understand the ZDL project components in detail and skills transferred to the target households.
- Assess the contribution of the ZDL project to household income and food security.
- Determine the sustainability of the ZDL project towards enhancing household income and food security.

At each of the 10 sites visited, two FGDs (one for males and another one for females) were held with about 10 participants (MCC members who regularly supply milk to the center). FGD participants were randomly selected from MCC registers using a simple random sampling methodology. Detailed interviews using semi-structured checklists were conducted with key informants.

1.4 Household demographics

Household demographics are useful in the analysis of households' vulnerability status, access to income and food security. Female, elderly and child-headed households tend to be more vulnerable and exposed to risk compared to male headed households. There are marginal differences in household demographic characteristics by location. The majority of the interviewed households are male-headed (ranging from 51.6% male-headed households in Wedza to 84.6% in Mayfield). Table 2 illustrates household demographic characteristics by project site (MCC). Most of the milk producers were middle aged male-headed households. On average, young people (less than 35 years of age) are not so much involved in the project. There is no age or any other restriction whatsoever in joining MPA's but from observations, existing members are those that joined the MPA's at their inception in the 1980's and those under the age of 35 were by then very young. In most instances, those who wish to join MPA's have to pay certain fees to compensate for costs met by existing members for certain developments like purchase of generators and construction of buildings. As a result, most youths will find it difficult to join because of such prohibitive costs. In addition to that, there has not been a deliberate attempt to lure youths into joining MPA's either by existing members or independent organizations.

Table 2: Household demographics

Name of MCC	Gender of HH Head		HH Head Mean Age (years)	HH with Chronically Ill Member
	Male (%)	Female (%)		(%) Households
Sangano	81.2	18.8	60.4	25
Dowa	83.3	16.70	59.9	8.3
Chikwaka	63.3	36.7	57.4	13.3
Mayfield	84.6	15.4	55.5	28
Rusitu United	73.7	26.3	55.9	5.3
Hauna	76.7	23.3	53.3	23.3
Hamaruomba	68	32	61.2	44
Gokwe	68.6	31.4	58.0	34.3
Marirangwe	78.9	21.1	55.2	31.6
Wedza	51.6	48.4	61.8	38.7
Average	74.5	25.5	57.2	26.0

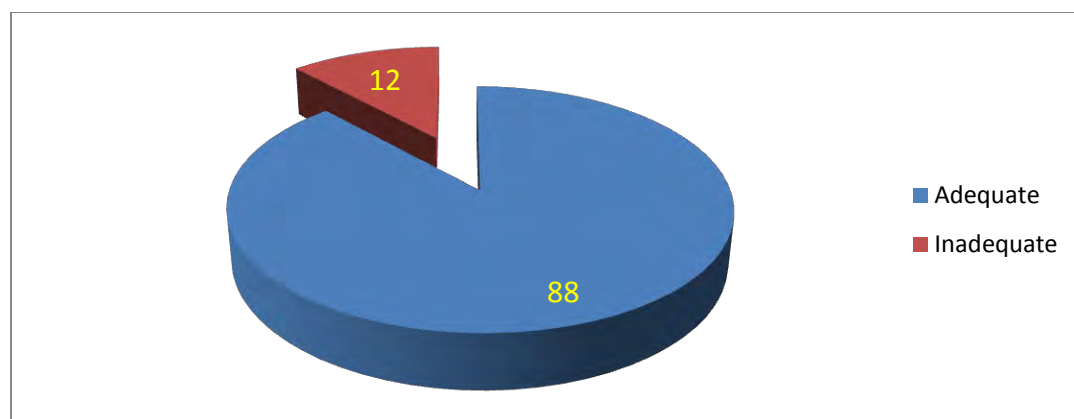
Although 25% of the interviewed households were male headed, 33% of the actual beneficiaries were females. This shows that some of the female beneficiaries came from families where the household head is male. From the results, we also noted that 26% of respondent households cared for a chronically ill person. This shows a fair representation and inclusion in development projects; of households that are caring for HIV and AIDS infected persons as well as those with other diseases like diabetes, TB and other chronic diseases.

Section 2: Evaluation of project progress

2.1 Food and Nutrition Security at HH level

The evaluation assessed the household food and nutrition security for the MCC/MPA beneficiaries. First to be considered was the household food access which is defined as the ability to acquire sufficient quality and quantity of food to meet all household members' nutritional requirements for productive lives. The survey computed the household food adequacy status during the past twelve months. Most of the households (88%) reported that they have adequate supplies of basic food year round and only 12% of the households reported that they experience some shortages in some months of the year (Fig 3).

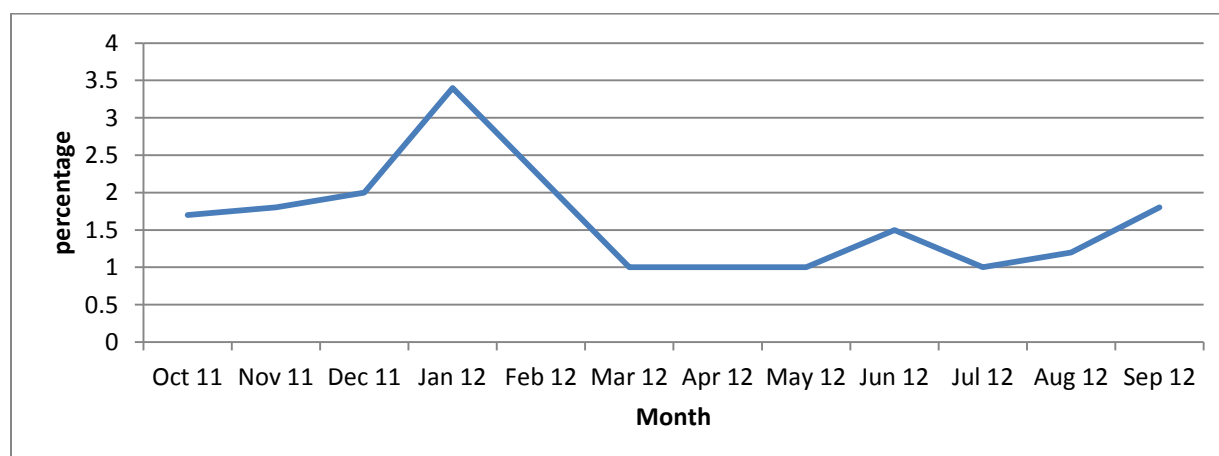
Figure 3: Household Food Adequacy Levels



2.1.1 Months of Household Food Provisioning (MHFP)

The evaluation survey also computed the percentage of households with some months of food insecurity. Although most of the people (more than 90%) are generally food secure, there are some (less than 4%) who occasionally experience months of food insecurity (Fig 4). This usually happens between January and February of each year.

Figure 4: Percentage of Households of with inadequate food supplies

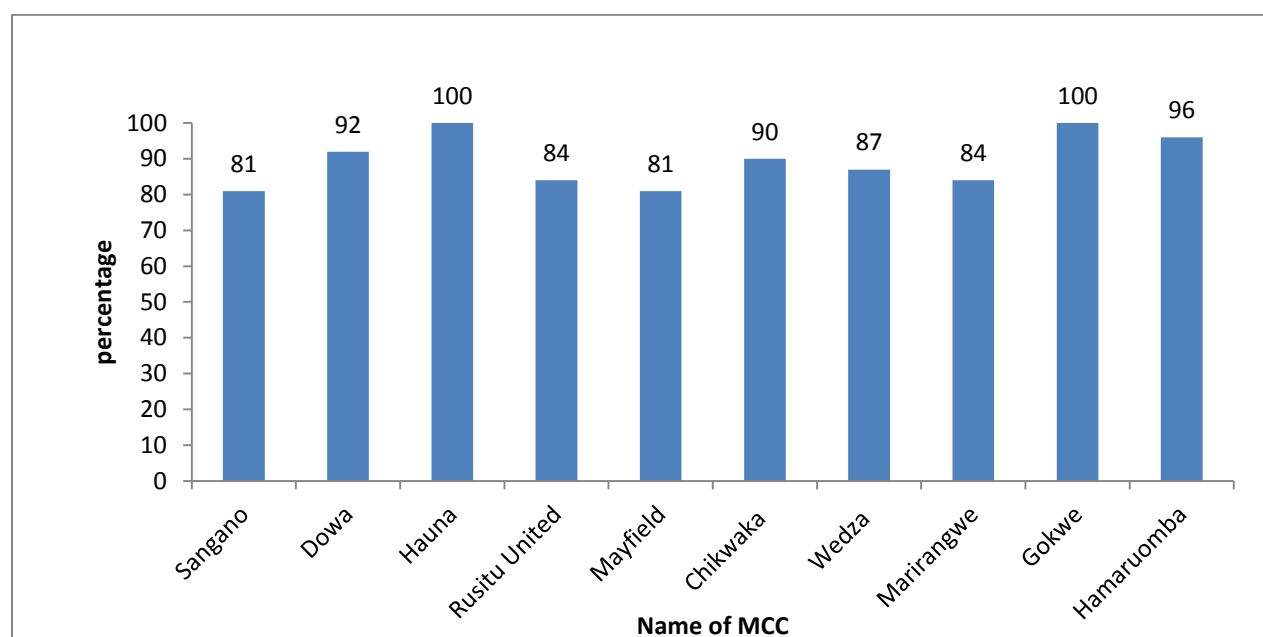


The evaluation also assessed the household months of inadequate food supplies segregated by MCC. Households in Hauna and Gokwe reported consistent supplies of food all year round, while households in all the other MCCs reported sufficient food supplies for 80% of the year (Fig 5). This suggests that beneficiary households are generally more food secure than the general population³. In spite of the general production challenges, successful households become food secure by being able to buy food from those with excess

³The Zimbabwe Vulnerability Assessment (2012) reported that about 30% of the rural population are food insecure and therefore require food assistance to survive.

production. However, MCC beneficiary are more food secure than the general population. Moreover, households from more successful MCCs are generally more food secure than households from less successful sites. Whist those MCC beneficiaries face challenges for about two to three months, the general population in Zimbabwe faces acute food shortages for about three to five months.

Figure 5: Percentage of Households with no months of food insecurity segregated by location



2.1.2 Household Dietary Diversity Score (HDDS)

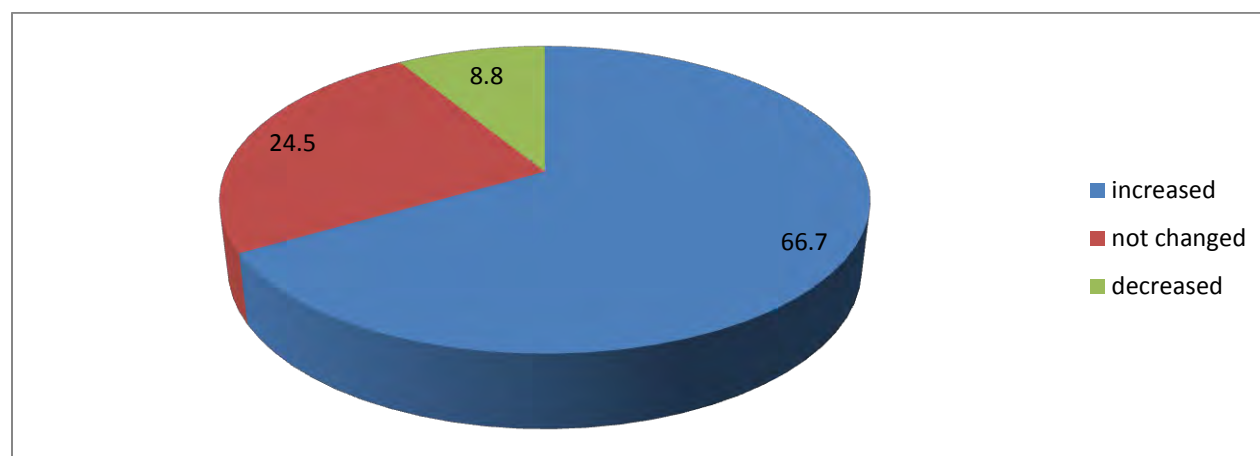
The survey also assessed the Household Dietary Diversity Score (HDDS) which is calculated by summing the number of food groups consumed in the household over the 24 hour recall period. The HDDS is the sum of the following 12 food groups (cereals, white roots and tubers, vegetables, fruits, meat, eggs, fish and other sea foods, pulses, milk and milk products, oils, sweets and spices). The HDDS is meant to provide an indication of household economic access to food, thus items that require household resources to obtain, such as condiments, sugar and sugary foods, and beverages are included in the score. The dietary diversity scores facilitate the assessment of changes in diet before and after an intervention (improvement expected). The average HDDS for this survey was 7.6, meaning to say that on average targeted households consumed at least 7 out of the 12 food groups within a 24 hour period. This figure is slightly higher than the 7.2 score at baseline. There is no significant difference in HDDS across locations (Table 3).

Table 3: Household Dietary Diversity Score (HDDS) segregated by location

Name of MCC	Mean HDDS	Minimum HDDS	Maximum HDDS
1. Sangano	7.9	5.00	10.00
2. Dowa	8.2	6.50	10.00
3. Hauna	7.8	5.00	12.00
4. Rusitu United	7.8	3.50	12.00
5. Mayfield	7.3	2.00	11.50
6. Wedza	7.8	4.00	12.00
7. Chikwaka	7.7	4.50	11.50
8. Marirangwe	7.5	5.00	11.00
9. Gokwe	7.9	5.00	12.00
10. Hamaruomba	7.1	4.50	11.00
Average	7.6	2.00	12.00

2.1.3 Milk consumption at household level

There is a general increase in milk consumption (66.7%) across all the MCCs visited. However, some 24.5% of the farmers indicated that their milk consumption has not changed as a result of the ZDL project, while 8.8% indicated a decrease (Fig 6). Increases were mainly attributed to increase in production which is directly attributed to the project. People tend to consume more of a product when production is higher than when production is lower.

Figure 6: Percentage change in milk consumption at household level for MPA members

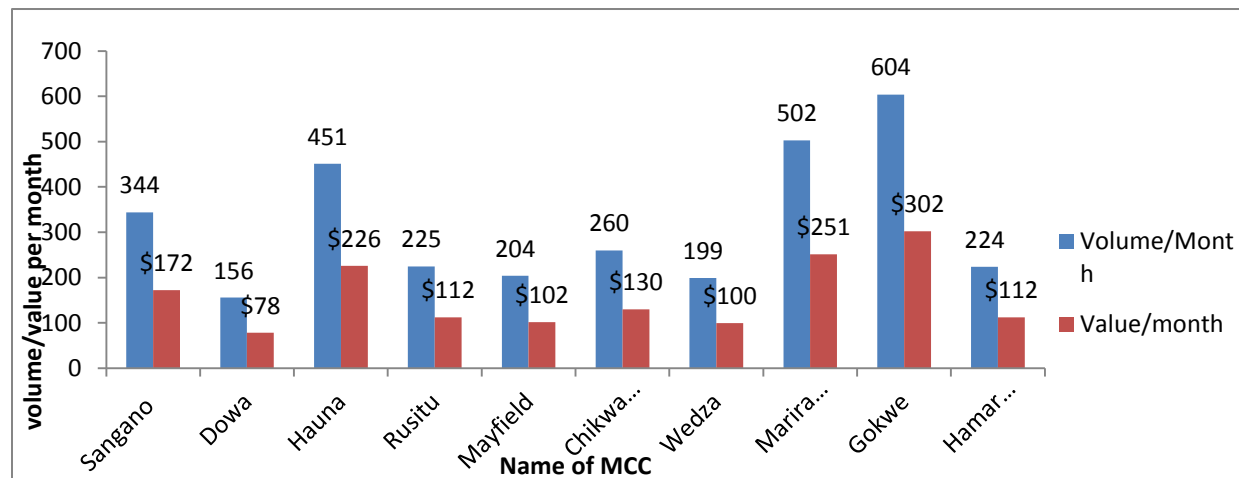
2.2 Dairy Production, Collection, and Processing

2.2.1 Volume and value of milk produced by farmers

This section summarizes the average volume of milk produced by farmers at each location between October 2011 and September 2012. This includes all the milk produced including that consumed at home, given to friends/relatives and sold in the local markets. A closer

analysis of this section shows that a significant volume of milk (about 30%) is not delivered to the MCCs (Fig 8). This accounts for milk that is usually milked in the afternoon that is often used for other things (Table 5).

Figure 7: Average Volumes and values of milk produced by farmers at each location



2.2.2 Milk delivery at MCCs

Land O'Lakes is currently working with fifteen sites, seven of which were previously working with the Stabex 95 programme. This is a European Union (EU) project that assisted dairy projects between before the ZDL intervention. Of those that were not under the Stabex 95 project, two (Chikwaka and Rusitu United) had completely closed doors, citing viability problems. Unlike the Stabex approach which was predominantly humanitarian, the Land O'Lakes approach is developmental, paying particular attention to business training and long term development. Currently, all the fifteen MCCs are managing to meet the center running costs and they are up to date with farmer pay-outs. The number of farmers delivering milk to the MCCs at any given time has increased for all centers (Table 3). Most of the indigenous breeds are milked for a maximum of four months per cycle; therefore it is not possible for every farmer to be delivering milk throughout the year. There is also a significant (about 70%) increase in the average farmer pay-out per month across all locations (Figure 8).

Table 4: Summary of milk deliveries and farmer pay-outs before and after the ZDL project

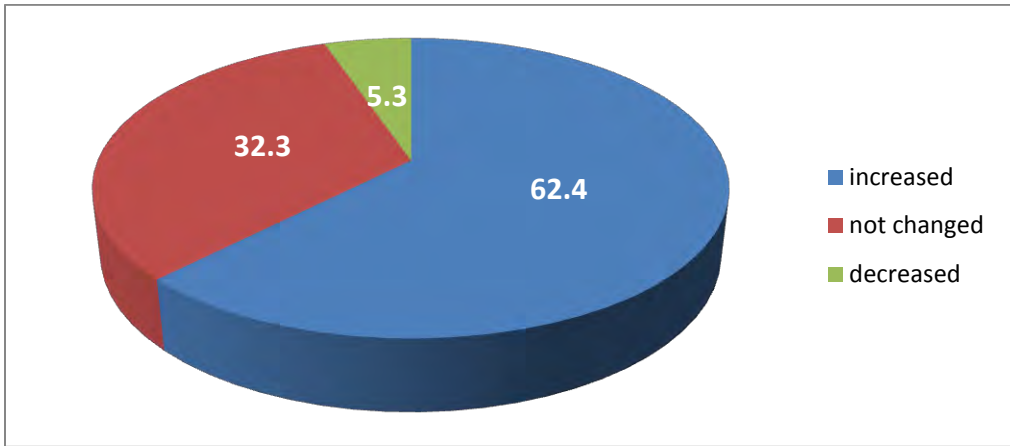
Name of MCC	BEFORE THE ZDL PROJECT			CURRENT (WITH ZDL INTERVENTION)			% Increase in farmer pay-outs
	No of Farmers delivering milk to the MCC/period	Total milk delivered to the MCC in litres/month	Average farmer monthly pay-out (USD)	No of Farmers delivering milk to the MCC/period	Total milk delivered to the MCC in litres/month	Average farmer monthly pay-out (USD)	
Sangano	16	4,680	132	20	7500	188	42.4
Dowa	0	0	0	14	3600	117	**
Hauna	4	480	72	17	3300	116	61.2
Rusitu United	0	0	0	33	5500	75	**
Mayfield	0	0	0	80	9060	68	**
Wedza	17	2400	65	23	4500	107	64.6
Chikwaka	0	0	0	33	6000	91	**
Marirangwe	23	10400	208	26	24000	424	103.8
Gokwe	30	6000	150	37	8500	172	14.7
Hamauromba	13	1820	77	17	6400	207	168.8

** Could not be computed due to absence of baseline data

2.2.3 Milk sales

Findings from the evaluation show that 62.4% of the farmers indicated an increase in the volume of milk sold during the ZDL project while 32.3% and 5.3% reported no change in sales and a decrease in sales respectively (Fig 8). Milk sales changed due to project intervention and include both sales at the MCCs and other sales. Many farmers indicated that they are more comfortable selling their milk to the MCC than other markets because MCC markets are more predictable in terms of payments and deliveries. Producers whose farms are far from the MCC (more than 10 km), however, find it difficult to deliver their afternoon output to the MCC and therefore they end up selling elsewhere.

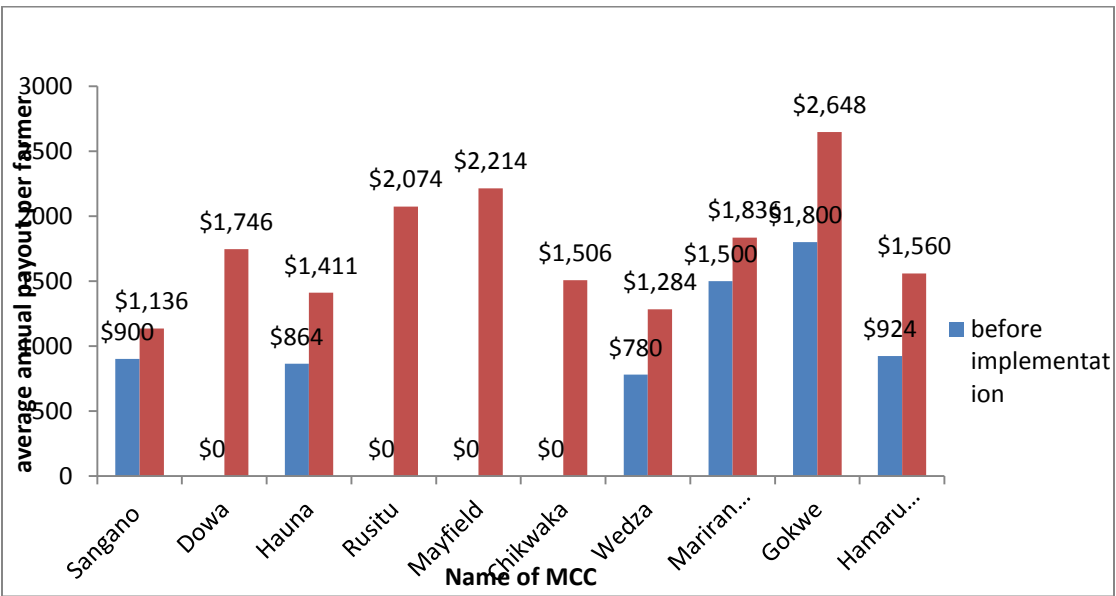
Figure 8: Status (Changes) in farmer milk sales after the ZDL implementation.



2.2.4 Annual farmer pay-out

The evaluation also compared average annual farmer pay-outs per location before and after project implementation. There is a constant increase in the amount of money that has been received by farmers at each MCC (Fig 9). Highest figures were recorded in Gokwe, where each farmer receives an annual average pay-out of USD 2,648 and lowest figures were reported in Sangano where a single farmer gets an annual average pay-out of USD 1,136. Gokwe has a distinct advantage of having a Dutch trained LPD extension worker who has a very high accreditation amongst the villagers and MPA members. The Gokwe MCC also processes the milk into high value products such as yoghurt, lacto and naturally soured milk thereby giving more value to the members.

Figure 9: Average annual farmer payout disaggregated by MCC before and after the ZDL implementation.



2.2.5 Milk not delivered to the MCC

It was noted during the evaluation that farmers do not deliver all the milk to the MCCs. Many farmers are not able to have more than one trip to the MCC due to distance, while others just choose to keep some of the milk for other uses. On an average day, a farmer keeps 2.2 liters per day of his/her production, 1.1 liters are consumed by the household, 0.7 liters are used to feed the calf, 0.3 liters are sold in the local markets and 0.1 liters are given to relatives, friends and neighbors (Table 5). Most of the transport modes used by farmers make it difficult to travel to the MCC twice per day. The distances travelled also make it difficult to use donkeys and bicycles for two trips per day.

Table 5: Status of milk not delivered to the MCC per day, per farmer

Name of MCC	litres consumed by the household	litres used to feed calves	litres sold in other markets	litres given to others	Total
Sanganano	1.1	1.2	0.0	0.1	2.4
Dowa	1.1	0.3	0.3	0.1	1.8
Hauna	1.1	1.2	0.3	0.1	2.7
Rusitu United	1.0	0.5	0.2	0.1	1.8
Mayfield	0.7	0.5	0.2	0.0	1.4
Wedza	1.2	0.1	0.4	0.1	1.8
Chikwaka	1.3	1.3	1.2	0.1	3.9
Marirangwe	0.9	0.5	0.2	0.3	1.9
Gokwe	1.9	1.5	0.2	0.0	3.6
Hamaruomba	1.0	0.3	0.0	0.0	1.3
Average Total	1.1	0.7	0.3	0.1	2.2

2.2.6 Income from milk sales

About half (49.8%) of the income from milk sales is used for purchasing staple food. The other uses include purchasing agriculture inputs (12.2%), paying for school fees (10.2%) and purchasing groceries (11.4%). Income from milk sales is not generally used for expenses such as clothing (1.5%). Most of the dairy farmers focus more on dairy than other agricultural practices such as crop farming; thus, it is unsurprising that the bulk of their income is used for purchasing the staple cereals. Other uses include transport, funeral costs and entertainment (Table 6).

Table 6: Uses of income from dairy sales

Use of income	% of total
Purchase staple food	49.8
Purchase of non-staple food / Groceries	11.4
Education / School fees	10.2
Purchase of agricultural inputs	12.2
Clothing	1.5
Others	14.4

2.2.7 Profitability of the dairy cow in lactation

The evaluation also assessed the returns from a dairy cow in lactation. Survey results show that an average exotic / mixed breed which is fairly managed produces an average of 8 liters in the dry season and 12 litres per day in the wet season (averages 10 litres). This translates to about 300 litres per month/cow which is sold at an average price of USD0.5 per liter or about USD150 per month. Transport costs vary from place to place, with some farmers using bicycles, motor bikes, scotch carts, cars, donkeys etc. In many places, farmers bulk the milk in order to share transport costs to the MCC. Exotic breeds are more profitable and viable than local breeds (Table 7).

Table 7: Gross Margin for a cow in lactation

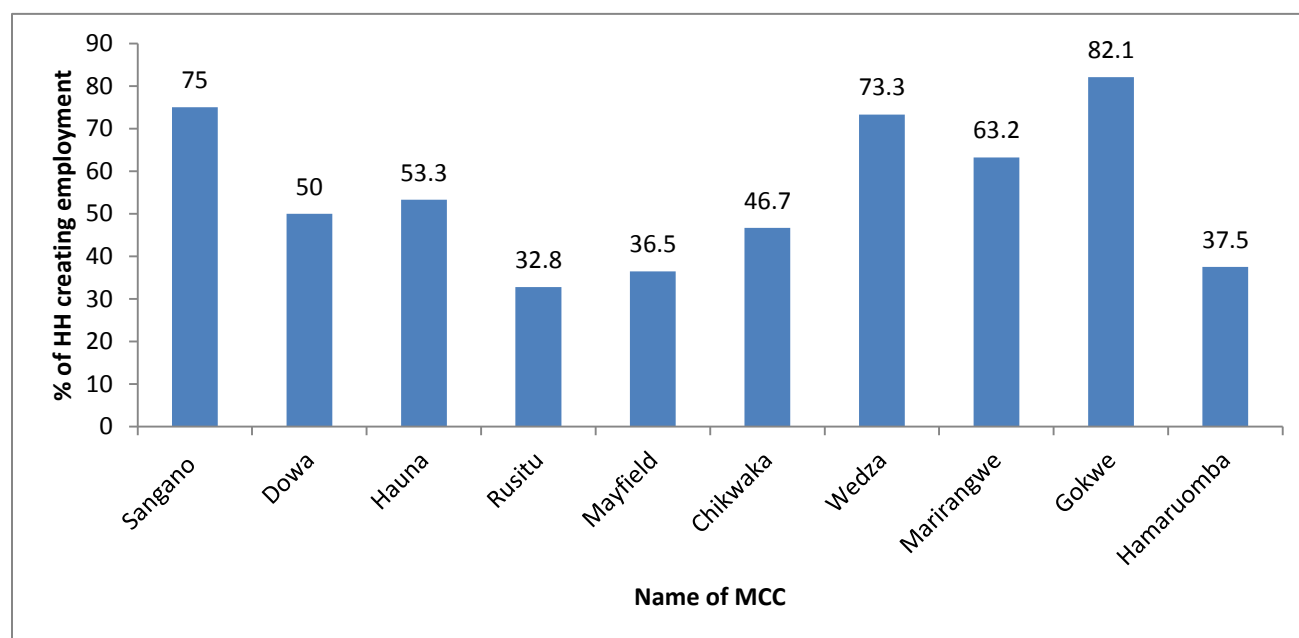
EXOTIC / MIXED BREED		INDIGENOUS BREED	
ITEM	Amount (USD)	ITEM	Amount (USD)
INCOME(300 @USD0.5/Liter)	150	INCOME(90 @USD0.5/Liter)	45
LESS EXPENSES		LESS EXPENSES	
Dairy meal (50kg)	24	Dairy meal	-
Silage (maize, banagrass, etc)	15	Silage (maize, banagrass, etc)	10
Dipping chemicals (100mls)	5	Dipping chemicals	1
Cleaning material	1	Cleaning material	1
Dry cow therapy (1 set)	1	Dry cow therapy	1
Casual Labor	10	Casual Labor	10
Transport	9	Transport	3
Total Variable Costs (TVC)	65	Total Variable Costs (TVC)	26
Monthly Gross Margin (Income less VC)	85	Monthly Gross Margin (Income less VC)	19

2.2.8 Employment Creation

The evaluation also assessed the number of jobs that were created under the ZDL project. This indicator measures the program's progress in creation of sustainable employment and related income. The program is addressing this through provision of assets in the form of dairy cattle for the farmers to improve milk productivity which in turn increases milk volumes at MCCs, thus increasing employment at farm level and MCC level. On average 60% of the farmers reported hiring at least one person on a full time basis after the launch of the ZDL project. Although such laborers sometimes assist with other duties at the farm, their main duty is to assist with the dairy enterprise including milking the cow, feeding the cow, caring for the calf and transporting milk to the MCC (Fig 10). This is in addition to several people who were hired on a short time basis for other enterprises. Employment was

also created at MCCs formally closed and now operating. The number of people employed by each MCC has also slightly increased from an average of two to the current average of three. As expected, more jobs are created in areas where farmers are getting more returns per dollar invested i.e. Gokwe (82.1%) and Sangano (75%).

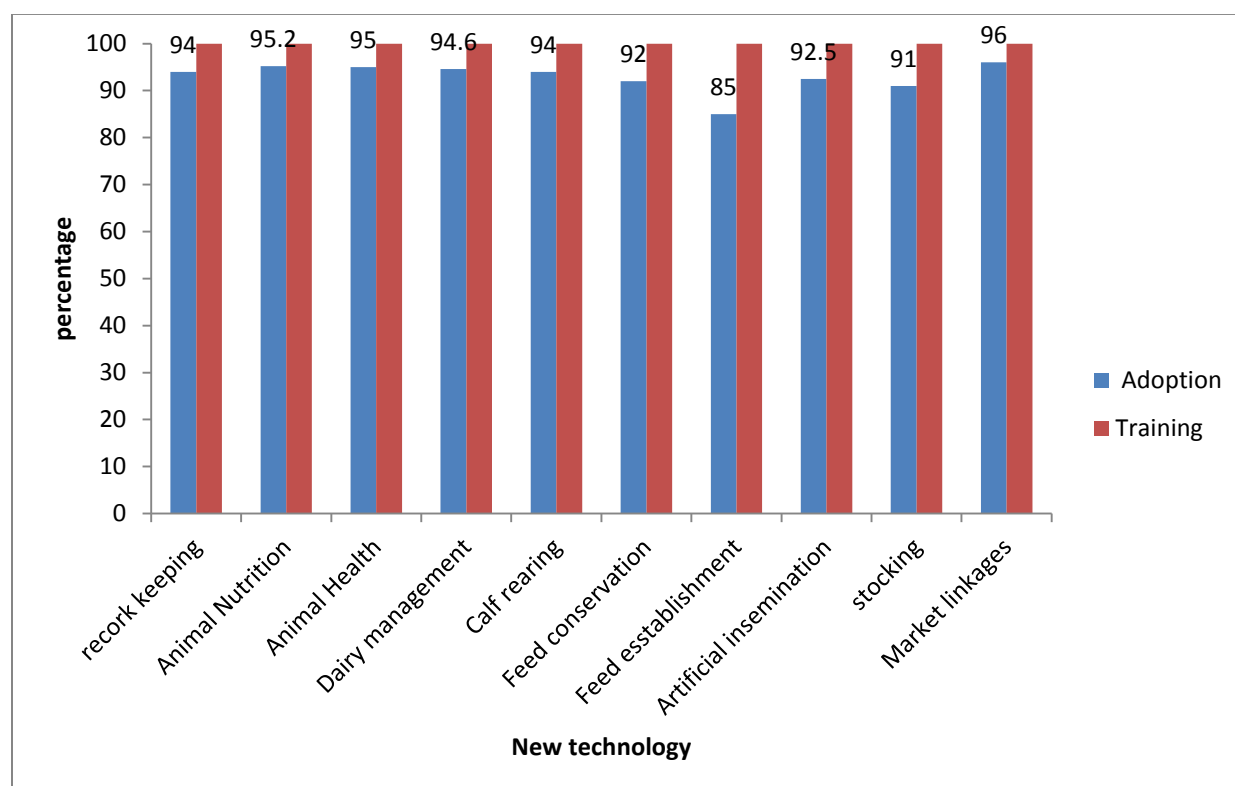
Figure 10: Percentage of households that created employment after the ZDL project.



2.2.9 Adoption of new technologies

All the households interviewed acknowledged that they were trained several times on the use of new/improved technologies by Land O'Lakes, NADF or the Livestock Production Department (LPD). The trainings covered a number of subjects including record keeping, calf rearing, nutrition management, fodder production, dairy management, Artificial Insemination (AI), and animal health. More than 90% of the farmers have proceeded to adopt the trained technologies on their farms (Fig 11). This was made easier by the presence of Community Livestock Workers (CLWs) who complement the government and NGO extension systems in delivering livestock related extension. Adoption of AI is still low relative to other new technologies that are considered to be very critical for the dairy business. It is through the adoption of technologies such as AI that the purity of dairy breeds among smallholder farmers can be improved. The ZDL project has trained and commissioned community livestock workers that were trained to implement AI. Many farmers claim that previous attempts to use AI have not produced the expected results; therefore some farmers are not confident in the use of the technology. As long as improved pure breeds are allowed to mix with other animals, chances are very high that the purebred characteristics will eventually be lost.

Figure 11: Proportion of farmers trained in and adopting new technology



2.2.10 Access to savings clubs and loans

Every farmer interviewed (100%) acknowledged to have access to the Cattle Bank Facility as well as other savings clubs at the MCC/MPAs such as cans and buckets loans, feed loans etc. However, generally, farmers in most of the places visited do not have access to savings clubs other than the CBF and other facilities at MCCs. Whilst places like Dowa, Gokwe and Hamauroomba have no access such savings clubs at all, the same savings clubs are more visible in Chikwaka (36.7%) and Sangano (31.3%). Surprisingly, some farmers in areas with no formal savings clubs still access loans though at lower scale (Table 8).

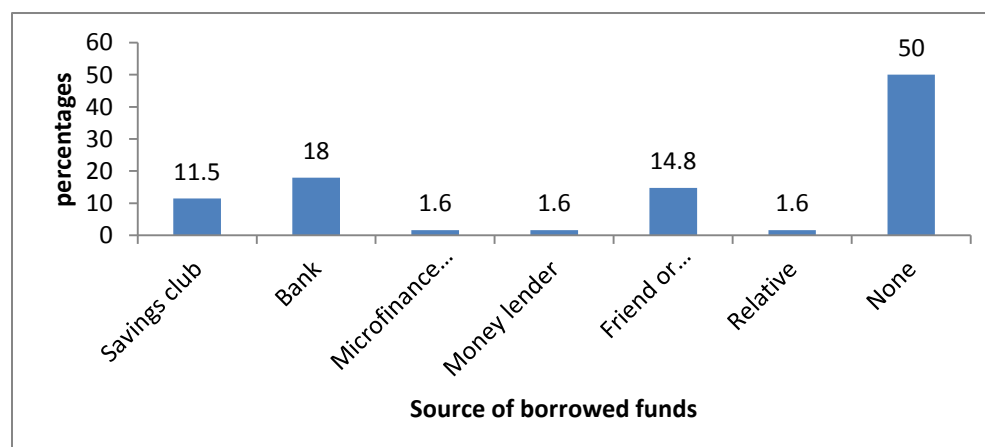
Table 8: Percentage of farmers with access to savings clubs other than those managed by MCCs

Name of MCC	Percentage of households with access to a savings club	Percentage of households that borrowed money in the last 12 months
Sangano	31.3	31.3
Dowa	0	8.3
Hauna	3.3	3.3
Rusitu	5.3	10.5
Mayfield	11.5	10.7
Chikwaka	36.7	26.7
Wedza	6.5	3.3
Marirangwe	5.3	0
Gokwe	0	0
Hamaruomba	0	0

2.2.11 Sources of borrowed funds

Half (50%) of the farmers do not have access to funds through borrowing (Fig 10). Farmers who access loans normally get them from banks (18%), friends / neighbor (14.8%), and savings clubs (11.5%). Loans through sources such as micro finance institutions and relatives are not very common among the project areas. Savings clubs are not as popular as expected though they have a potential to improve the business status of dairy farmers countrywide. The recent macro-economic instability of 2000 – 2008 is one of the reasons why people are not confident with the savings clubs.

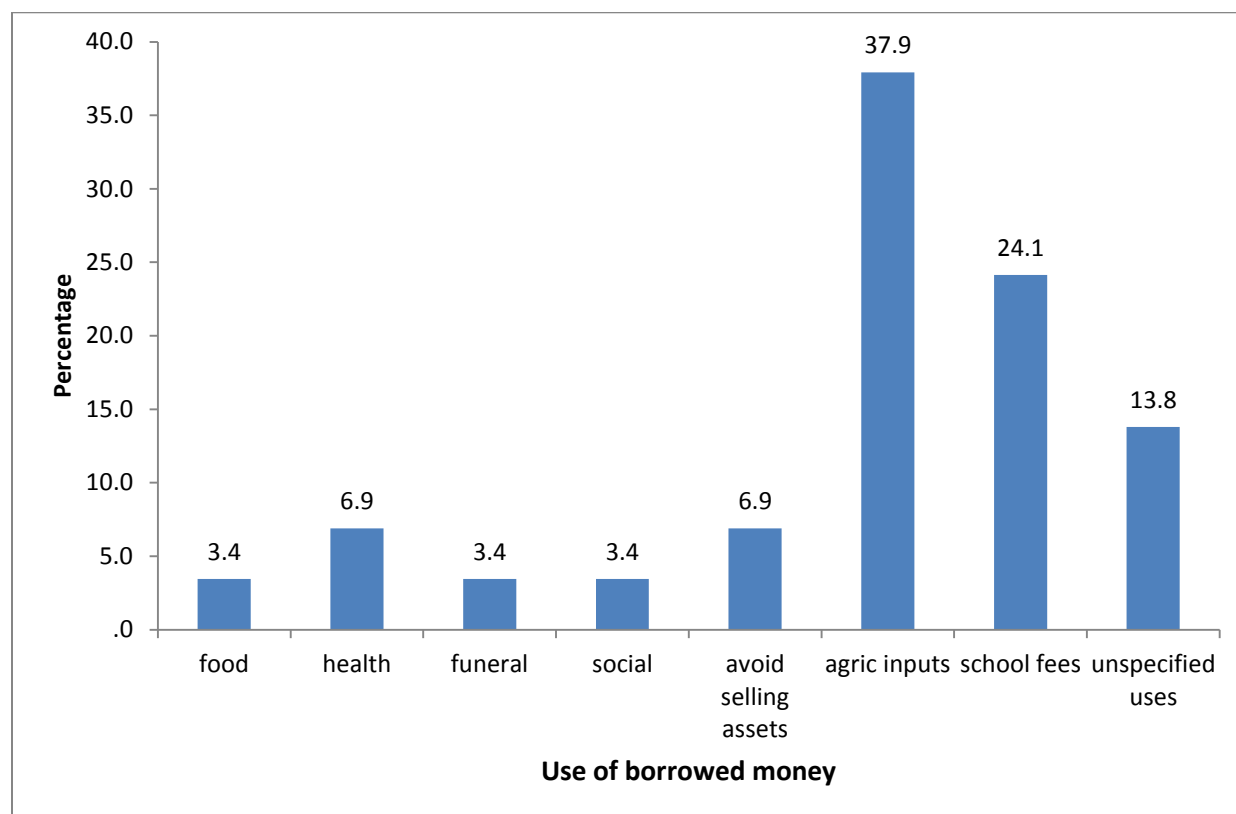
Figure 12: Sources of borrowed funds.



2.2.12 Uses of borrowed funds

Borrowed funds are mainly used for purchasing agriculture inputs (37.9%) and paying school fees (24.1%). People do not normally borrow money for social and luxury reasons (Fig 13).

Figure 13: Uses of borrowed money

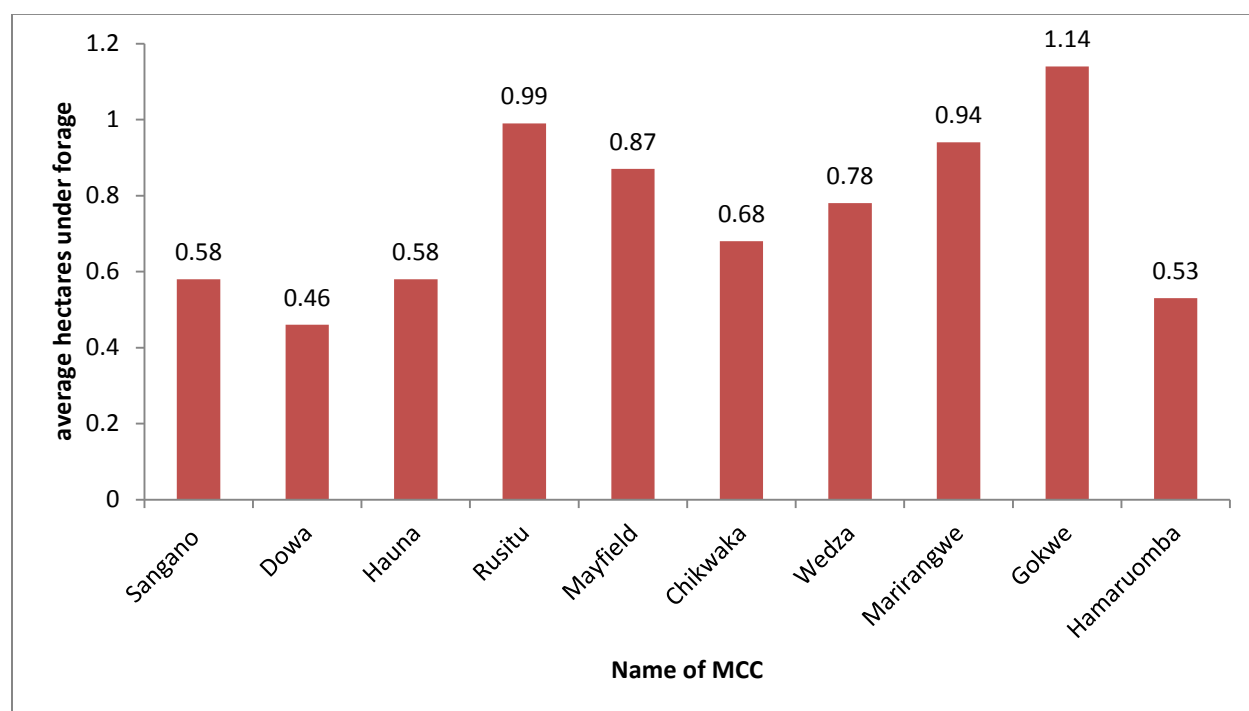


2.3 Preventative Animal Health and Rangeland/Fodder flow Management

2.3.1 Fodder production

Although none of the beneficiaries reported growing fodder crops at baseline, findings from the survey indicate that farmers across different sites grow an average of 0.7 ha of fodder (Fig 14). Highest averages were recorded in Gokwe (1.14 ha), Marirangwe (0.94 ha) and Rusitu (0.99 ha) whilst lowest figures were reported in Dowa (0.46 ha), Hamauromba (0.53ha) and Hauna (0.58 ha). This indicator tracks successful adoption of technologies and management practices in an effort to improve agricultural productivity, agricultural water productivity, sustainability, and resilience to climate impacts.

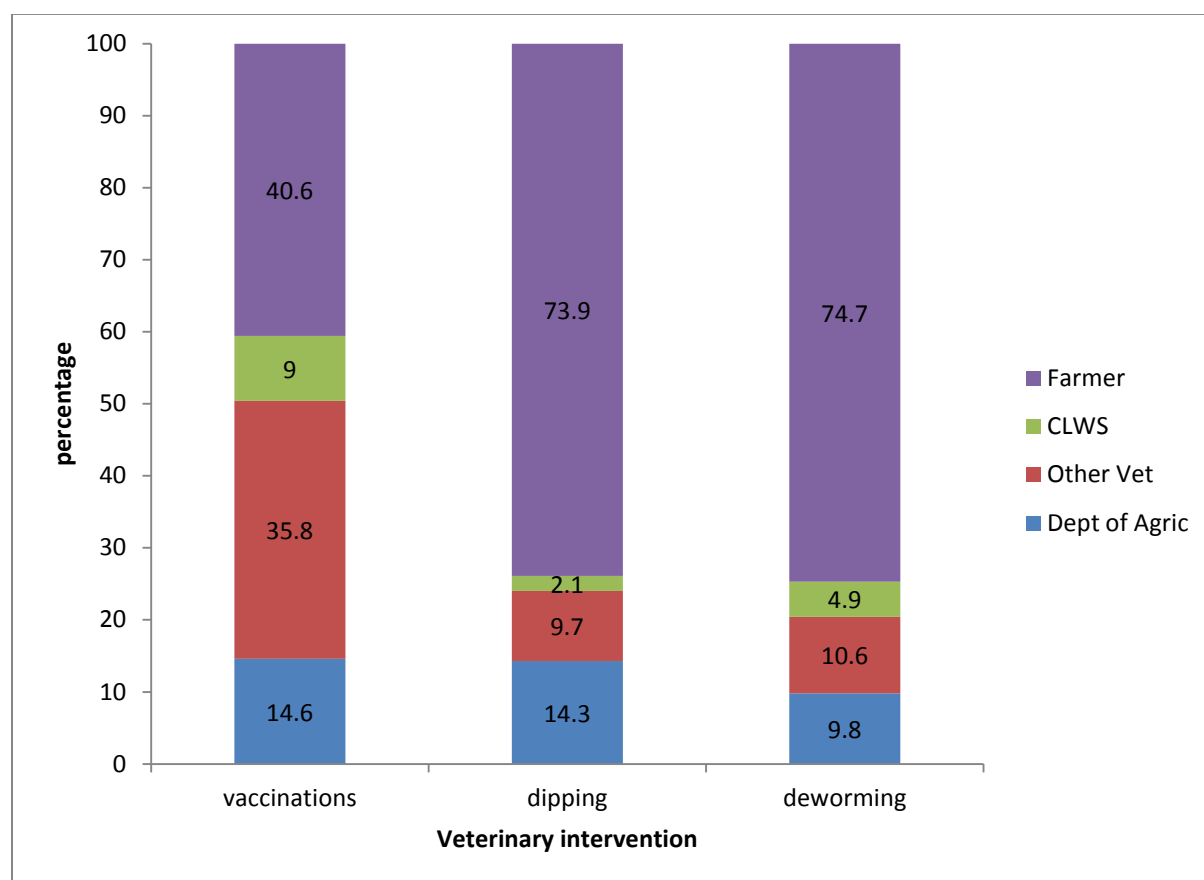
Figure 14: Average area (in Ha) under fodder production per farmer



2.3.2 Veterinary Intervention

Every farmer interviewed acknowledged that they are using better veterinary intervention methods than before the ZDL project. Although there are several sources of veterinary extension advice which include the government departments, NGOs, Community Livestock Workers (CLWs) and private veterinarians, many farmers (more than 60%) are treating their animals on their own (Fig 15). There is a general shortage of livestock and dairy related extension support in Zimbabwe; therefore many dairy farmers have resorted to providing their own support. CLWs are proving to be a reliable supplement to government extension but when it comes to specialized interventions, many farmers are still skeptical about their ability to execute the job efficiently. Land O'Lakes has gone a long way in reducing the impacts of staff shortages by training and recruiting more CLWs.

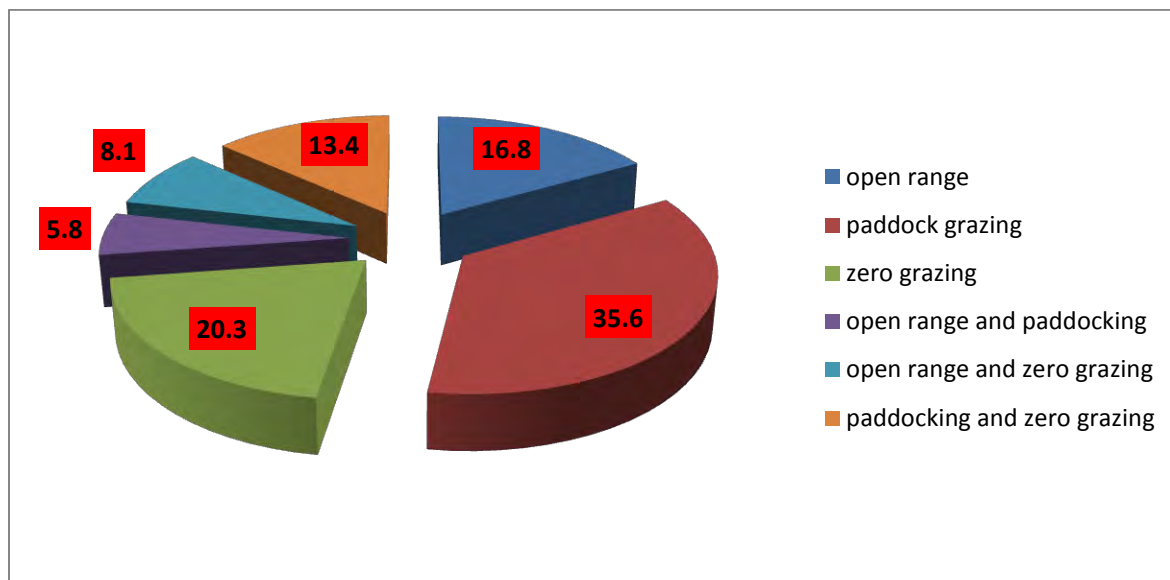
Figure 15: Sources of Veterinary Intervention for HH.



2.3.3 Grazing of dairy cows

Farmers use a mixture of grazing methods for feeding their dairy cows; the most common being paddock grazing (35.6%), followed by zero grazing (20.3%), and open range (16.8%). Paddock grazing was more common within the small-scale commercial farmers in areas such as Marirangwe, Hamauromba, Sangano and Dowa where farmers have access to larger pieces of land than their counterparts in the communal areas. Farmers in the communal areas generally use communal grazing systems. Across all the areas, efforts were being made to restrict improved dairy breeds to zero grazing. This will minimize the chances of being impregnated by breeds which are not dairy animals. Fig 16 below summarizes the methods of grazing dairy cows used by the project beneficiaries.

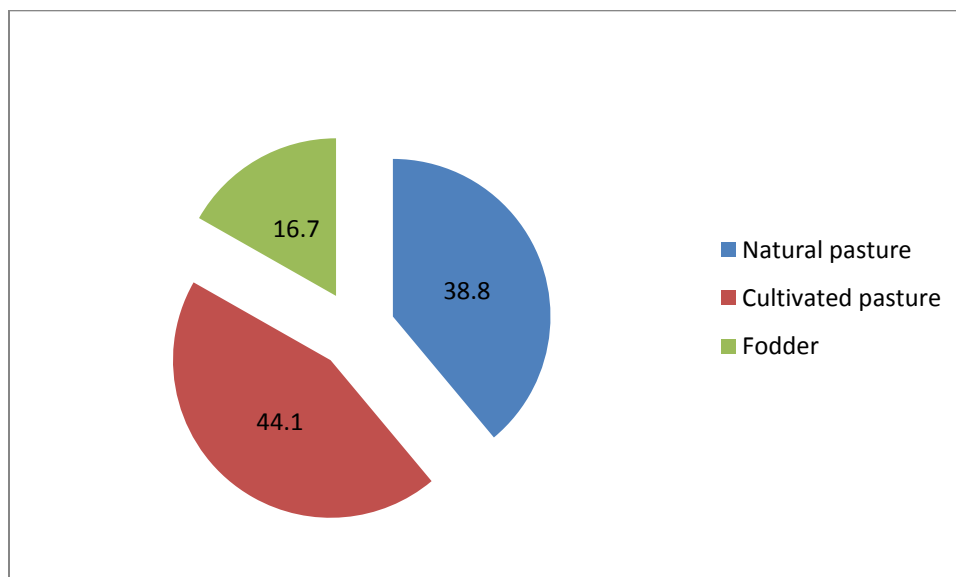
Figure 16: Methods of grazing dairy cows



2.3.4 Type of grass used for feeding dairy cows

Almost half of the farmers (44.1%) use cultivated pastures while a significant number (38.8%) use natural pastures and only 16.7% use fodder for feeding their dairy cows (Fig 17). Fodder is mainly used for feeding improved breeds while natural pastures are used for local breeds.

Figure 17: Type of grass used to feed dairy cattle - %



2.4 Donkey Traction and Transport

2.4.1 Transportation of milk to the MCC

Farmers use different modes of transport to carry milk from their farms to MCCs, ranging from cars, public transport, scotch carts, bicycles and donkeys. The mode of transport used depends on the distances travelled, the quantity of milk to be carried and cost. Farmers who travel long distances (more than 20km) find it expensive and sometimes uneconomic to transport their milk to the MCC, especially if quantities are low. Whist dairy cows are usually milked twice per day (morning and afternoon), farmers living farther than 15 km from the MCC usually fail to supply milk in the afternoon, thereby reducing the subsequent farmer pay-out.

Figure 18: Use of donkeys for milk transportation



Land O'Lakes has been promoting the use of donkeys to transport milk to the MCCs. Although farmers acknowledged that using donkeys to transport milk to the MCCs was both cheaper and sustainable, only 6.2% (**Table 9**) of the farmers were actually using donkeys for milk transportation. Using donkeys becomes a challenge if distances are farther than 10 km. If a farmer decides to deliver milk twice per day, it means one donkey has to travel a distance of up to 40 km per day which is may not be practically possible.

Table 9: Farmers with access to donkey/bicycle transport

	% of total
Yes	6.2
No	93.8
TOTAL	100

2.4.2 Gross margin per donkey in traction

The evaluation also made attempts to calculate the profitability and sustainability of using donkeys to carry milk to the MCC. The maximum that a good donkey can carry per day is 40 litres, which translates to USD40 /month at an average price of USD0.04 for transporting a litre /day. Although this translates to a positive Gross Margin, the transaction does not justify a viable business transaction. Assuming that the person who travels with the donkey to the MCC is paid a salary of say USD60 per month, there may not be profit from this transaction (Table 10).

Table 10: Gross Margin /donkey per month

	Amount (USD)
Income / month (25 days x 40 litres/day x USD0.04/liter)	40
Cost (Maintenance, chemicals /labor)	10
Gross Margin	30

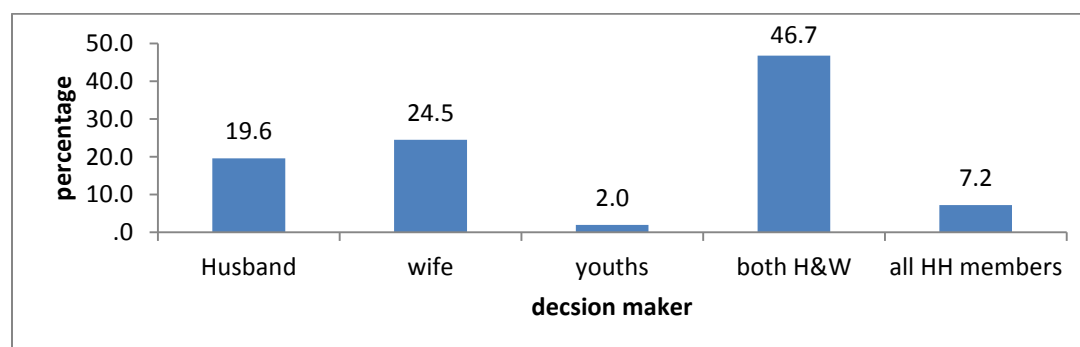
2.5 Gender Considerations

The evaluation also assessed the gender issues that may affect the successful implementation of the ZDL project. The successful integration of people-centered considerations in the ZDL project depends most on who participates in decision-making. The involvement of women and children in key activities will help guarantee that project outcomes are sustainable. The gender analysis outlines the basic questions that are relevant in the integration of gender considerations.

2.5.1 Purchase of dairy inputs

In many cases decisions about the purchase of dairy inputs are generally made by both husband and wife (46.7%), wife alone (24.5%) and husband alone (19.6%). In rare cases such decisions are made by every household member (7.2%) and in very rare cases (2%) are such decisions made by the youth (Fig 19).

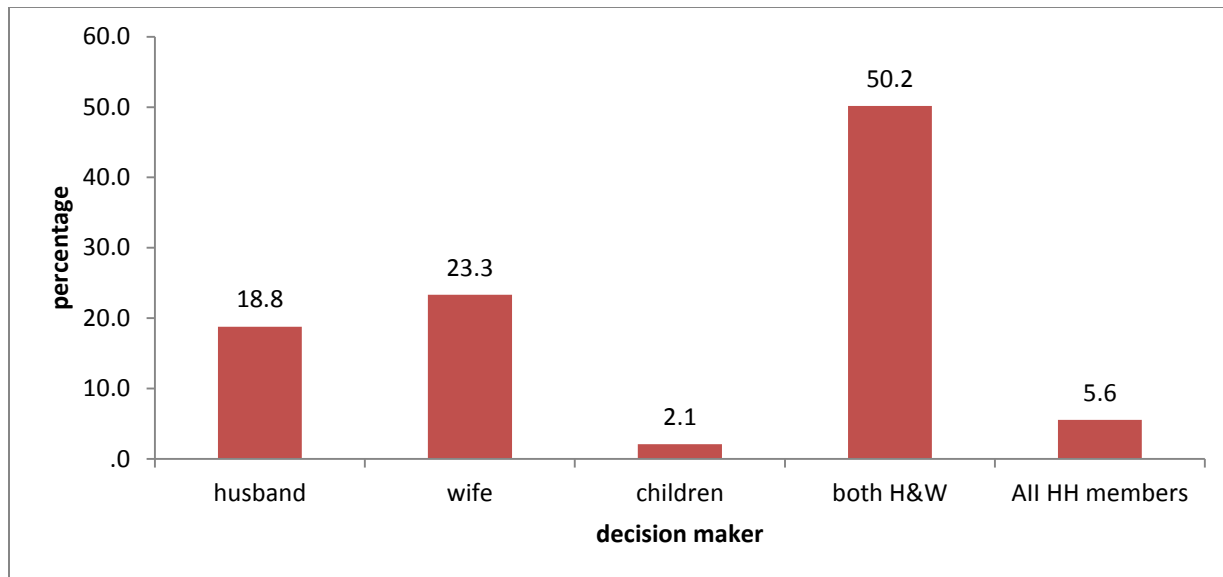
Figure 19: Decision making in the purchase of dairy cows



2.5.2 Decision about using income

Decisions about using money from milk sales are generally made by both male and females together (50.2%). Surprisingly women are more involved (23.3%) in the decision making process than men (18.8%). Children and other household members are rarely involved (less than 10%) in the decisions about money (Fig 18). Women who are not married (single) parents are more involved in decision making on their own than women that area married. However some men that are married still make certain decisions alone.

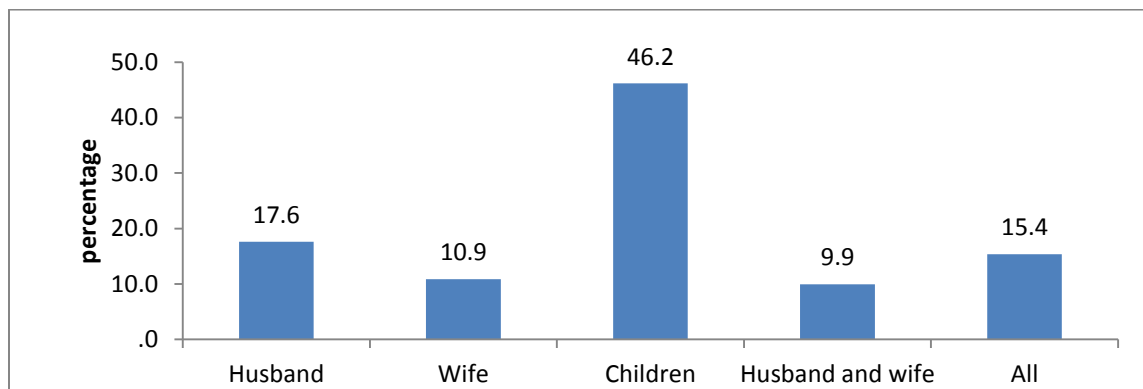
Figure 20: Decision making on the use of income from dairy cows.



2.5.3 Gender relationship in herding cattle

Children are more involved in cattle herding than other household members with 46.2% of surveyed households indicating the duty is reserved for them. In some cases, men (17.6%) and women (10.9%) are also involved with cattle herding (Fig 21).

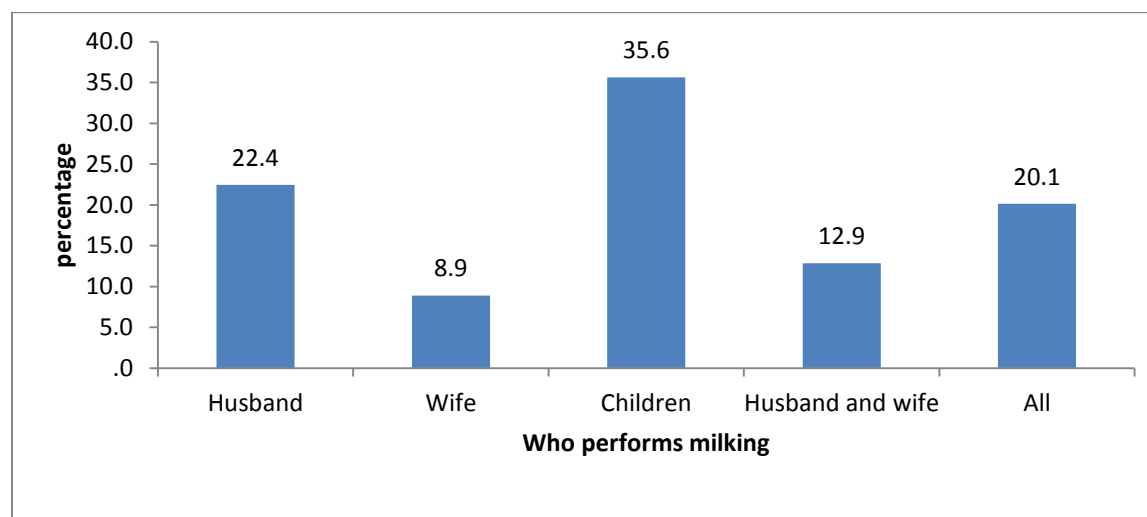
Figure 21: Gender responsibility on herding cattle



2.5.4 Gender relationships of family members in milking cattle

In many families, milking is generally carried out by children (35.6%) and adult males (22.4%). Women are generally not involved in such roles (10.9%). This is mainly because cows may be violent especially to women.

Figure 22: Gender roles in milking cows



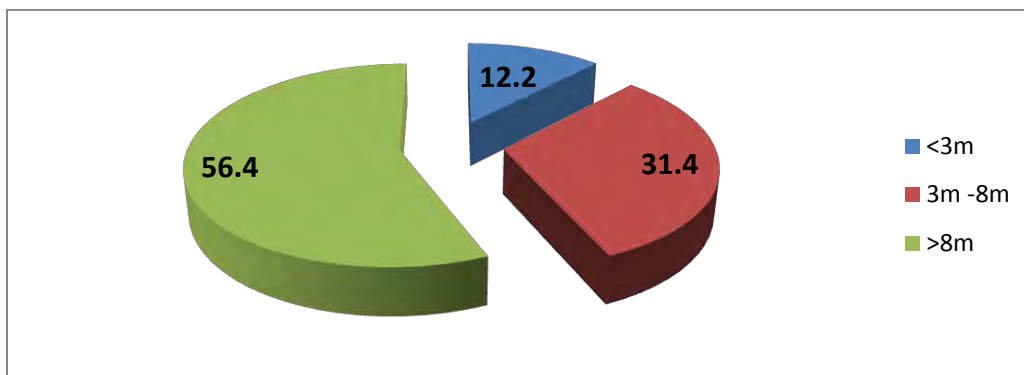
2.6 Environmental consideration in the ZDL project

Dairy projects have the potential to cause damage and harm to the environment since a lot of chemicals and equipment are disposed into the ecosystem. This evaluation assessed the distance between cow shades and water sources, distances of composts from water sources as well as the methods that were used to dispose waste chemical substances.

2.6.1 Drainage systems and water sources

If cow shades and milking parlors are located closer to water sources, there is potential for contamination. A distance of at least 8 m is recommended. This evaluation assessed the distances between the shades and the water source at each household. Most of the shades (56.4%) are located more than eight meters from the water sources, some 31.4% are located between 3 – 8 meters from the water sources whilst only 12.2% are located within three meters from the water source (Fig 23).

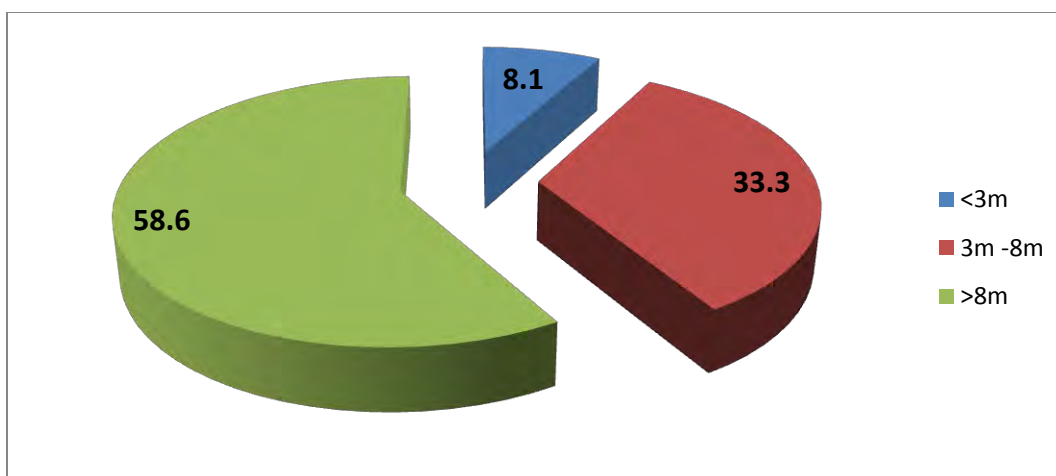
Figure 23: Percentage of Households with cow shades of a certain distance from the water source



2.6.2 Composts locations and water sources

The ZDL project encouraged farmers to prepare composts for use in fodder production. However, if the composts are located too close to the water source, this may cause contamination of the water, resulting in environmental and health hazards. Although this may vary with terrain and soil type, a distance of at least 8 m is recommended. A significant amount of people (58.6%) located their composts at a distance of more than eight meters from the water source while some 33.3% were located within a distance of 3 – 8 meters from the water source. A minute (8.1%) of the composts were located with a distance of 3 meters from the water source (Fig 24).

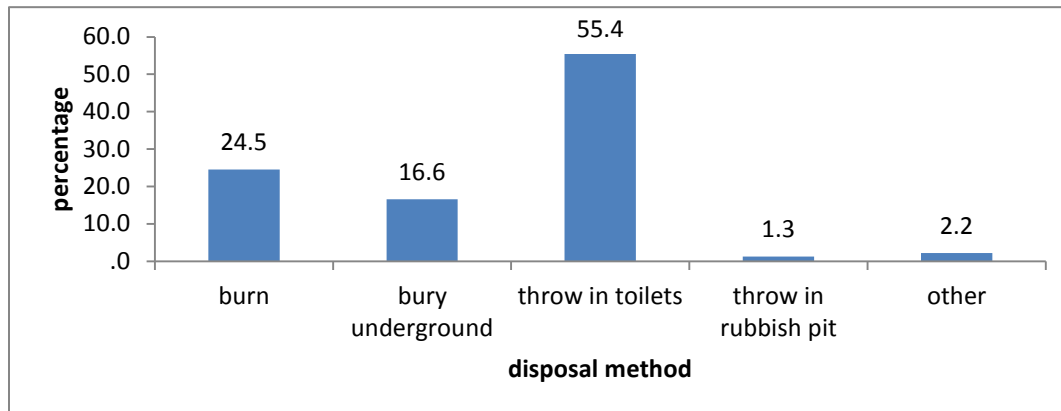
Figure 24: Distances of compost from the water source - %



2.6.3 Disposal of chemical waste products

Dairy projects results in the disposal of several waste products. These include the dipping chemicals, vaccination chemicals and materials such as the dry cow therapy. Most of the waste chemicals are either thrown in the toilets (55.4%), burnt (24.5%), or buried under ground (16.6%). Only 1.3% is thrown onto the open ground (Fig 25). It is not recommended to dispose them into the open ground.

Figure 25: Chemical disposal methods



2.7 Cost benefit Analysis

The evaluation also carried out a cost benefit analysis of the ZDL project. This is a systematic process for calculating and comparing benefits and costs of a project, decision. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much. For this evaluation two cost benefit analysis methods were applies i.e. payback period and benefit cost ratio.

2.7.1 Payback period

This refers to the period of time required for the return on an investment to "repay" the sum of the original investment. For this assignment, the evaluation assessed the period of time required by a farmer who received a dairy cow under the Cattle Bank Facility (CBF) to recover the money initially invested.

The formula to calculate payback period of a project depends on whether the cash flow per period from the project is even or uneven. In case they are even, the formula to calculate payback period is:

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Cash Inflow per Period}}$$

When cash inflows are uneven, we need to calculate the cumulative net cash flow for each period and then use the following formula for payback period:

$$\text{Payback Period} = A + \frac{B}{C}$$

In the above formula,

A is the last period with a negative cumulative cash flow;

B is the absolute value of cumulative cash flow at the end of the period A;

C is the total cash flow during the period after A

Specifically, the evaluation assessed how long it takes for the project to "pay for itself." According to the calculations, it takes **18 months (1.5 years)** for a farmer who receives a dairy cow to accumulate benefits (both the milk and the cow) that are equal to the cost incurred. All else being equal, shorter payback periods are preferable to longer payback periods. Payback period is widely used because of its ease of use despite the recognized limitations. The cost is equivalent to the value of purchasing the cow and the cost of maintaining the cow (feed, vaccines, labor and general upkeep) whilst benefits refers the value of milk produced and the value of calves produced within a given period.

2.7.2 The Benefit Cost Ratio

The MTE also calculated the benefit-cost ratio (BCR) of the ZDL project. The BCR is an indicator, used in the formal discipline of cost benefit analysis, which attempts to summarize the overall value for money of a project or proposal. A BCR is the ratio of the benefits of a project or proposal, expressed in monetary terms, relative to its costs, also expressed in monetary terms. Below is the mathematical formula for calculating the BCR.

$$\text{Benefit Cost Ratio} = \frac{\text{Discounted Benefits}}{\text{Discounted Costs}}$$

$$= 8.9$$

- ✓ Benefit = milk produced by the cow in 5 years + value of four calves and their babies produced within that period)
- ✓ Cost = Initial cost and cost of feed, vaccines, maintenance, labor etc.
- ✓ Though one cow can last for about 8 years, within 5 years the cow can bring more than 8 times the cost of acquiring and maintaining it

All benefits and costs should be expressed in discounted values. Benefit cost ratio (BCR) takes into account the amount of monetary gain realized by performing a project versus the amount it costs to execute the project. The higher the BCR the better the investment. General rule of thumb is that if the benefit is higher than the cost the project is a good investment.

Section 3: Evaluation of Project Design, Implementation and Achievements

3.1 Project Design

The ZDL project was designed to build upon an existing initiative in smallholder dairy improvement by ARDA Dairy Development Programme (DDP) and the recent Stabex 95 project which was being funded by the European Union (EU). The ZLD project was designed and structured in such a manner as to allow for training and empowerment in its early stages with technical support, followed by support in sustaining independent business

development and allowing farmer access to markets for the sale of milk and other dairy products as well as supporting the purchase of inputs for dairy production. Unlike donor-funded humanitarian projects, the ZDL project was designed to promote long term development and self-sufficiency. Farmers are encouraged to pay for every activity rather than expect handouts. Under this project, all the cows, feeds and chemicals that farmers receive are to be paid back in the form of revolving funds. Training of CLWs in AI is also a sustainable way of improving the purity of dairy breeds in the medium to long term.

Although community members were not involved in the actual design of the program, they were involved in the planning and implementation of the project. All the MCCs developed constitutions, with farmers directly involved, which was a participatory process where communities ultimately decided what should be in the document. Management committees were selected by the farmers at each MCC and their roles and responsibilities collectively decided. The beneficiaries were satisfied with their level of participation. Local delivery partners were also engaged right from the identification of prospective beneficiaries. AGRITEX, LPD and NADF played a critical role during project planning. During implementation, AGRITEX and LPD officers played a key role of providing technical support. All key stakeholders were satisfied with the level of participation in the program.

To a larger extent, the design of the project was relevant to the needs of the target population. However, the time frame of the project suits more to a short-term relief than a long-term development project. Farmers require much longer time to build a sustainable dairy herd and therefore if the project is allowed to operate for less than five years, it may not be technically feasible to quantify and justify the impacts. The project also made much progress in empowering the producer/farmer level. Whilst this may go a long way in enhancing the performance of the sector, there may also be need to provide mentoring and capacity building to other value chain actors such as input producers, agro dealers, secondary milk producers and processors such as DZL and Nestle Zimbabwe. If farmers' capacities are increased without looking at other value chain actors, the benefits of such growth may be short-lived.

3.2 Project Implementation

At each site, stakeholders facilitated the formulation of a constitution and establishment of management committees. All the farmers interviewed were aware of the constitution and its importance. Some were able to quote some parts of the constitution. This clearly indicated that the constitution formulation process was highly participatory and the beneficiaries had ownership of the document. The program also facilitated the formation of committees responsible for management of MCCs. Although there were slight variations per site, generally, the committees formed per site included a management and marketing subcommittee. Each site had between five and seven committees responsible for the operations of the site. Initially, it appeared as if there were too many committees. However, visits to the successful old sites revealed that they had even more committees than the new sites. What the evaluation concluded was that the number of management committees does not matter as long as their roles and responsibilities are clear and do not overlap in function.

Capacity building of the management committees should be encouraged in order to equip the committee members. By the end of the program, the committees should have clear guidelines on how they should carry out their duties. The program should continue emphasizing on the culture of record keeping at both MCC/MPA and household level. All committees should have recorded minutes. In addition to ensuring that a record of the operations of the committee is maintained, the minutes will help to assess the effectiveness of the committees, as the speed with which they address MCC issues can be followed up. Land O'Lakes and NADF facilitated and negotiated with cow sellers on behalf of the farmers. Whilst this central negotiation lessened some of the challenges, it could also be better if farmers are just given the loan and allowed to buy cows from a supplier of their choice. It could also be better if farmers were given more than one choice of suppliers.

3.3 Project Achievements as of 30 September 2012

Projects of this nature usually require longer time than allocated to realize tangible results. It takes up to five years for a farmer to be able to master the key concepts, build a sizeable herd of cows and realize meaningful proceeds. However, below are some of the achievements realized by the project as at 30 September 2012.

Table 11: Project Achievement as at 30 September 2012.

Output	Achievements		Comment
	Target	Achieved	
Number of jobs attributed to FTF implementation	382	429	For this indicator, the project has so far surpassed its target. Judging from the current progress, there are very high chances that more jobs will be created within the remaining period.
Number of hectares under improved technologies or management practices	1500	875	For this indicator, the project is way below its targets. People still debate between planting fodder and the staple maize.
Number of farmers and others who have applied new technologies or management practices	800	887	For this indicator, the project is on course as to the achievement of its targets. Chances are high that the targets will be reached.
Value of incremental sales attributed to Feed The Future (FTF) implementation	840,000	978,142	Increased incomes, better dairy management systems and more milk volumes marketed through formal markets
Number of producer organizations that applied new	15	15	The project is on course on this indicator since farmers from all the MCCs/MPAs are applying new

technologies or management practices			technologies.
Number of firms (excluding farms) or Civil Society organizations (CSOs) engaged in agricultural and food security related manufacturing services	10	15	All the MCCs operating are managing to meet the basic operating costs and paying farmers for the milk delivered.
Increase in income of vulnerable households (\$)	1885	2640	The project has thus far exceeded its target on this indicator. Chances are high that by the end of the project, the target will be exceeded.
Number of rural households reporting increased incomes from program intervention	800	887	The project has so far surpassed its target on this indicator and chances are high that the same trend will continue up to the end of the project.
Gross margin per dairy cow in lactation	961.7	895	This indicator has fallen slightly lower than the target. Most of the cows including those that were bought on credit are producing below target. This is likely a management challenge which can improve with increased training and mentoring.
Number of food security private enterprises (for profit), producer organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	15	15	All the targeted MCCs are receiving assistance from the project as planned. Chances are high that more groups may be reached by the end of the project.
Number of rural households benefitting directly from USG interventions	800	1075	So far the project has benefited more people than planned. Chances are high that by the end of the project, it will have surpassed its target by far.
Value of agriculture and	480000	233713	This indicator has fallen well

rural loans (\$)			below target. The numbers of organizations offering loans in the farming areas are very few. Many people are generally skeptical of loaning in Zimbabwe because of the challenges that were experienced during the macro economic challenges of 2000 – 2008.
Number of MSMEs receiving business development services from USG assisted sources	15	15	All the targeted MCCs /MPAs are receiving business development services from the project as planned. Chances are high that more groups may be reached by the end of the project.
Total volume of milk produced per household each month	240	550	For this indicator the project has exceeded its target and with more cows expected to be milked, chances are high that this targeted will be surpassed.
Number of households producing milk for collection by MCCs	700	407	Fewer people are producing milk for collection by MCCs than planned. Chances are high that the target will not be reached. It takes longer time to develop a meaningful herd size therefore there may be need for more time before the target is reached.
Value of milk collected by MCCs each month	690000	873624	In terms of value, the MCCs have collected more milk than anticipated. Chances are high that this indicator will be surpassed by the end of the project.
Number of MCCs collecting milk from producers	15	15	All the targeted MPAs are delivering milk to the MCCs as planned
Number of individuals who have received USG supported short-term agricultural sector productivity or food security training	800	970	The project has reached more people with the trainings than anticipated. This indicator is likely to be exceeded by the end of the project-
Gross margin per donkey in traction business	623	90	Donkeys are used by fewer people than planned and they are paying less than anticipated. Chances are high that this target

			will not be reached. The use of donkeys to carry milk becomes a challenge when distances are longer than 10 km which is normally the case.
The number of households contracted with trained service providers for land clearing, ploughing and/or transportation	200	56	This indicator is way below target. Chances are high that the target will not be reached. There is need to increase awareness on this indicator.

Source: Mid-term Evaluation, October 2012

Section 4: Evaluation of processes that affect achievement of project outputs

The evaluation of the ZDL project also involved evaluation of the processes which affect achievement of the major project outputs. These processes include, among other things, assessing the MCC/MPA methodology, the revolving fund, CLWs, linkage with private sector, beneficiary training in business management, adoption of new technologies and market linkages and the level of milk hygiene at both the farmer and MCC levels.

4.1 The MCC / MPA Methodology

The ZDL project employed the MCC / MPA methodology where small-scale milk farmers are grouped into an association and jointly work together to access inputs and market the milk. This approach helps farmers not only to procure inputs at lower prices, but also to access markets that would otherwise be difficult to reach individually. This methodology also allows farmers manage their own businesses rather than being managed by some external agents. In this project, Land O'Lakes and NADF only provide technical guidance whilst the committees manage the project, making it easier for the outputs to continue even beyond the life of the project.

Whilst useful to a larger extent, this approach benefits more those milk producers who live closer to the MCC, farmers whose farms are more than 10 km away from the MCC find it difficult to deliver afternoon milk. Under commercial conditions, a dairy cow is milked thrice per day; once, in the morning, in the mid afternoon and in the late afternoon.

4.2 The Revolving Fund

Unlike other donor funded projects that give free handouts to the so-called vulnerable households, the ZDL project employed the revolving fund approach where every item received by farmers had to be paid back into a fund, in turn benefiting other deserving and interested members. People generally place more value to resources that they paid for compared to free handouts. The revolving fund approach allows dairy farmers not only to access better dairy cows but also to access inputs such as dairy feeds and chemicals on credit. Although not much time has been allowed to assess this component; many farmers

have so far made efforts to pay back the loans they have taken from the revolving fund. These also include farmers whose cows have not yet produced any milk for delivery. Most of the people who are struggling to pay back the loans are those whose cows are producing low daily milk yields regardless of the efforts to feed them adequately.

The revolving fund is not enough to cater for every farmer's needs. There may be need for the project to link MCCs with more private sector players such as commercial banks.

4.3 Community Livestock Workers (CLWs)

The ZDL project trains and equips Community Livestock Workers (CLWs) who have proved to be very helpful, especially considering that there is a general shortage of livestock-based extension, particularly for dairy. There is a trained AI technician at each MCC. All the CLWs have been trained in AI, making them strategically positioned to improve the quality and purity of future dairy breeds. CLWs perform all their duties for a fee; though they tend to be cheaper than private veterinarians.

However, their efficiency is yet to be ascertained. Some of the farmers expressed doubt as to whether the CLWs can be relied upon to provide meaningful extension. There may be need for the project to educate the communities about the effectiveness of the CLWs. A further analysis of this approach showed that in previous projects, not much effort was made to recruit and train competent people who would then effectively deliver. The ZDL project however, was more thorough in that regard. The ZDL project made attempt to train people with previous experience in the dairy sector and who have at least been involved with the dairy cows.

4.4 Linkage with the private sector

The approach linked to milk processors (ZDL and Nestle), input service providers. The approach also involves linking farmers to private financial institutions such as Micro king. Apart from allowing farmers to access better services, such links allows project outputs to be more sustainable in the long run.

4.5 Beneficiary training in business management

The ZDL project involved a business development approach where farmers are trained in various business management topics such as record keeping, marketing and planning. So far, every beneficiary farmer had been trained, and more than 90% have adopted at least 80% of the trainings in their business operations. The trainings have also allowed the beneficiary farmers to explore better markets and make more informed decisions. The project could also consider trainings that are specifically for MCC /MPA leadership.

4.6 Beneficiary selection

Unlike other donor funded projects which targeted the vulnerable members of the society with limited access to productive resources and provided them with free handouts, the ZDL project targeted people not because of their wealth status but because of their willingness and ability to participate in the project. Before they could benefit from the cows on credit, a beneficiary farmer has to raise a USD300 deposit, prepare an acceptable milking parlor,

prepare an acceptable quantity of hay bales and prove beyond any doubt that once (s)he receives the cows, (s)he will be able to take good care of them. This approach is more sustainable in the long run. However, the project could also consider building the capacity of those vulnerable members of the society who are committed the cause of the project. Some of these people may not afford to raise the deposits required.

4.7 Linkage with the National Dairy Farmers Association

The ZDL project also involves a strong linkage with the National Dairy Farmers Association (NADF). Several capacity building initiatives have been implemented including but not limited to improving the capacity of NADF to monitor and assist farmers by improving the provision of technical advice.

Section 5: Evaluation of sustainability of project outcomes

Assessment of sustainability hinges on an analysis of the mechanisms and systems that the program has put in place to ensure both the sustainability of the project outcomes and the intended benefits that are derived from project. The evaluation identified and examined a number of conditions that were necessary for the achievement of sustainable implementation of dairy projects the medium to long term. In addition, factors that threaten the sustainable development of dairy programs were also highlighted.

5.1 Conditions necessary for sustainable use of the assets

The following conditions were identified as being necessary if sustainable development of dairy projects was to be achieved in the medium to long term. These were:

- Ensuring ownership of the project by communities
- Linkages to government departments and programs
- Ensuring environmental sustainability of the project

5.1.1 Ensuring ownership of the project by the communities

Ownership is the acknowledgement or acceptance of a project as one's own. The individual or MCC has exclusive rights over the project, and enjoyment of benefits that are derived from that project. Outsiders wishing to benefit from the project have to seek permission from the designated owners. Enjoyment of benefits from the project comes at a price – that of maintenance and upkeep of project assets to ensure a sustained flow of benefits. In order to ensure sustainable use, project assets should be regularly maintained – a responsibility that rests on the owner.

Community participation at all stages of the project cycle is now widely accepted as a key pre-requisite for success and sustainability. Participation allows communities space to conceptualize their own challenges and develop their own ways of dealing with them in order to ensure ownership and long term sustainability. The evaluation noted that the program put a lot of effort into ensuring effective and appropriate participation of

beneficiary communities in most stages of the project cycle. Beneficiary communities were directly involved during program implementation.

It was clearly evident that the level of beneficiary participation achieved by the program was the basis for the high degree of ownership expressed during the evaluation. Overall, all respondents to the household survey acknowledged that the infrastructure, equipment and buildings at the MCCs belonged to all the members of the MCC.

Ownership is not only about acknowledging belonging – it is also about taking responsibility for maintenance of the project assets so as to continue enjoying benefits from them. The committees provide the required leadership that ensures continued use of the project assets at the MCCs.

The evaluation noted that although MCC management committees have been set up at each site, they still require further capacity building to ensure that they were fully aware of their roles and responsibilities.

5.1.2 Linkages to government departments

When a program contributes to the overall national objectives and development plans of a country, subsequent continuity of project outcomes is more likely to be assured if there is government support. The infrastructure constructed / rehabilitated under the ZDL program was part of the rolling plans of the ARDA DDP which did not have sufficient funds to support these activities. Efforts were made by the ZDL project to ensure that relevant government departments (LPD and AGRITEX) were the drivers of the program providing training, supervision and extension support. Under this arrangement, sustainability would be more likely as government would be better placed to continue support to the communities after termination of program support. However, sustained support by government will, of course be dependent on the resources that government would be able to access. Currently availability of resources severely limits the provision of government support to beneficiaries after termination of project.

5.1.3 Project to be implemented in an environmentally sustainable approach

The ZDL project should be environmentally sound – the natural resource base should be maintained to produce benefits over the long term without reducing its productive capacity. Programming should ensure that during continued implementation of the project, natural resource utilization is rational so that what is taken from the environment equals the rate of renewal or restoration of that resource. It is critical that resources be used to the maximum yield that can be maintained through generations. Overall, the ZDL program had a significant environmental conservation / protection emphasis. Disposal of objects that could be harmful to the environment was discouraged.

Environmental degradation is a real threat to the sustainable implementation of the ZDL program. Consequently, the program staff should put more emphasis on natural resource conservation for the remaining period of project implementation. The adoption of zero grazing reduces the pressure on rangeland and thereby reducing land degradation. The natural resource management activities should be implemented as per the set technical

guidelines. Programming for natural resource management should therefore ensure the availability of adequately qualified technical staff to support the community in natural resource management activities.

5.2 Conditions that threaten sustainability of development projects

The ZDL programs support people to rebuild build their dairy businesses, however the influences of external structures and processes ultimately determine whether the interventions are able to support the desired livelihood outcomes that the program aims to achieve. Many of these factors are beyond the program's immediate control, but this does not mean that they should be ignored. The implication is to emphasize the importance of an outward-looking perspective when implementing the program so that internal and external factors affecting sustainability are well linked. Some of the external factors that may affect sustainability of the ZDL project include:

- Provision of extension support services
- Access to markets
- Political instability

5.2.1 Provision of extension support services

Agricultural activities (dairy management, animal health, and AI) promoted by the ZDL program require on-going support from agricultural extension advisers on appropriate inputs, improved cultivation techniques, disease and pest control and access to markets. In agricultural production, lack of access to improved quality inputs has the potential to be a major constraint to project sustainability. For the ZDL program, long-term extension support is to be obtained through AGRITEX/LPD/DVS extension workers.

Availability of extension support to the project beneficiaries appears to be a major threat to the sustainable development of the project. Access to quality, long-term extension appears to be the greatest challenge to the sustainability of the agricultural interventions in the MCC sites. The challenges of extension support include the following:

- Although the coverage of AGRITEX extension staff has improved to at least 2 – 3 extension staff per ward, the extent of coverage is still minimal as many of the extension staff lack adequate experience in dairy management.

Clearly, the lack of quality extension support to the project beneficiaries will continue to threaten the sustainable impacts of the project. To improve access to extension, the project could consider the introduction/strengthening of Farmer Field School in the MCC sites. Another alternative would be to increase the number of community livestock workers (CLW) in an area and helping the community to accept them as alternative sources of extension. The concept focuses on promoting dispersed, active and locally accountable community livestock workers who can work in a range of activities, addressing services which are needed very quickly and are best delivered locally. CLWs are essentially volunteers, selected from the community in which they live, trained to render a specific task, supported and supervised by a facilitating agent which may be either an NGO or government entity. In previous programs, their recruitment has not been thorough and most of their attempts to

inseminate cows artificially have not been very successful therefore the general population has not been satisfied by what they are able to deliver. Although the current approach has hired more competent people and exposed them to thorough trainings, the number of people to be saved by one technician can be reduced if more people are hired. It may be important to train every farmer who is interested in AI.

5.3.2 Access to markets

Production of high quantities of milk will not make much sense if farmers will not access better markets. In order for the beneficiaries' access better markets, it is essential that they be equipped with adequate marketing training and organization for collective marketing. The pinnacle activity of the marketing training should be an investigation of the local markets and completion of a "market study". Effective market training should result in beneficiaries with an understanding of basic marketing concepts that could help them establish prices for their produce, find buyers and plan their production to meet local demand. There is also need to consider the whole value chain rather than concentrating on the farm level and MCC level alone. The project can consider assisting other value chain actors and linking them up with MCCs. Success at the farm and MCC should be complemented by success at other levels of the value chain such as distributors and processors.

5.3.3 Macroeconomic environment

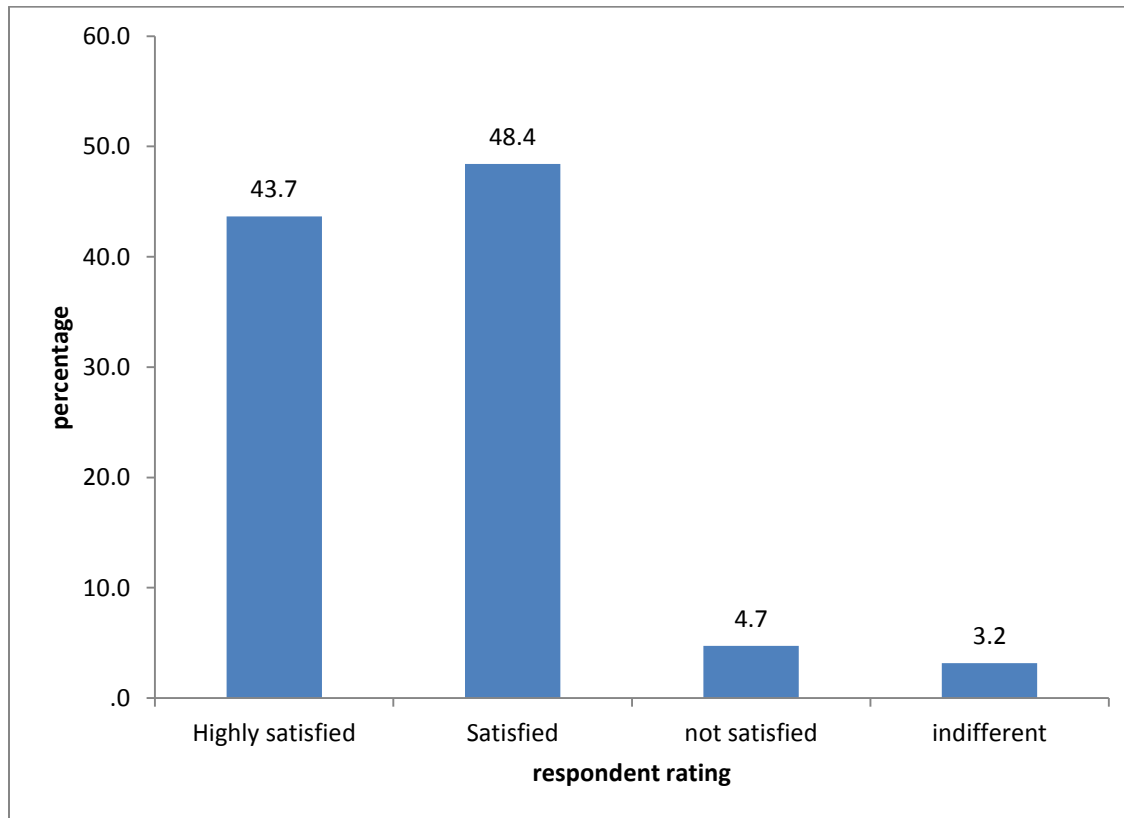
The problems of macroeconomic instability play a critical role in the sustainability of all development programs. The dairy sector in Zimbabwe significantly depreciated when macroeconomic conditions were unfavorable for economic productivity. This was especially witnessed in 2008.

Section 6: Beneficiary rating of the project

92.1% of the respondents were at least satisfied with the project whilst 4.7% was not satisfied. Another 3.2% was indifferent about the project implementation processes (Fig 24). Respondents cited the following reasons for their dissatisfaction:

- High cow prices
- High initial deposits for obtaining cattle
- Lack of farmer and Land O'Lakes bargaining power along the value chain to influence milk prices (farmers are price takers)
- Lack of viability of the milk business under the current arrangement since farmers are receiving only one cow; if it goes dry, the farmer suffers.
- Absence of Land O'Lakes extension services in some instances, especially in Dowa.
- Low milk productivity for some of the cows received through revolving fund

Figure 26: Respondents rating of the program



Section 7: Lessons Learnt

The ZDL program has provided a learning opportunity for Land O'Lakes and partners. Following are some of the major lessons learnt;

1. **Viability of the dairy business at the farmer level.** In order for the dairy business to be viable at the farmer level, it is important that a given farmer be given sufficient time to grow the dairy herd to up to three cows. Farmers with one or two cows have cash flow challenges when the cows are dry. In addition, when the cows are few, the financial benefits of the project are such that they may not be sufficient to meet all the households' financial needs if the farmer was to forego other livelihood activities. Also more milk per farmer makes milk transportation to the MCC more cost effective.
2. **Viability of MCCs.** Whilst MCCs are a potentially viable method of commercializing small scale milk production, the MTE found that some of the centers require more time to achieve this objective. The location of some centers is such that linking them

to private buyers may not guarantee a viable business in the short run. As a result such centers are only able to supply the current market. Other centers were also established for humanitarian and or social reasons which evidently require more time to convert a social institution into a business empire.

3. ***Inclusion of young people.*** Inclusion of the young people (less than 35 years) in development programs is crucial if future sustainability is to be enhanced. The MTE found that many of the beneficiaries of the project and MCC committee members are elderly people (50 – 70 years).
4. ***Flexibility of the project components.*** The MTE found that it is very crucial for the donors to allow a degree of flexibility on the Implementing partners to come with other innovative ways that would benefit the project. In this case, the Zim Pasteurizer to cope with erratic power supply was a viable option though not part of the initial plan.
5. ***Involvement and empowerment of women.*** The MTE found that MCCs where females were more involved in the committees had better quality milk than MCCs which were male dominated. This shows that empowerment of women is not only good for the females involved but also for the community as a whole.
6. ***Linkages with other programs and the private sector.*** The MCCs were actively linked with the National Association of Dairy Farmers (NADF) as well as other private sector players like banks and input service providers. To be sustainable, dairy programs must not sit in isolation but should be part of a wider framework that seeks involves linkages with other value chain actors and the private sector.
7. ***Beneficiary Targeting.*** The ZDL project can benefit the economically active farmers but not the most vulnerable. The project tends to exclude the absolute poor who may be interested in the project because they either do not have cattle or cannot afford the huge deposits required to access cows on credit through the revolving fund.
8. ***Project ownership.*** The MTE found that ownership appears to be one of the most important determinants of sustainability of projects. For all the MCCs farmers were highly committed to see the project being successful because they knew that it was their project. Instilling project ownership will lead to improved maintenance and long term sustainability of the program. Community driven programming is essential to ensure that ownership of the projects is built resulting in long-term benefits.
9. ***Cross cutting issues.*** The project paid particular interest on cross cutting issues. Cross cutting issues such as gender and environment need to be considered when selecting the projects to be supported to ensure long term sustainability. Social and economic development need to be underpinned by environmentally sound practices.

10. ***The field offices.*** The ZDL project was made successful by the field offices which were adequately staffed and resourced with all field officers who have access to motor bikes, laptops and internet access. It is critical that field offices are adequately staffed and resourced so that they can operate efficiently.
11. ***The business approach to dairy.*** The quality trainings in business management enhanced the success of the ZDL project. Such an approach encouraged the farmers as well as MCC to operate dairy farming as a business which keeps track of all expenses, recording profits and accessing better markets.

Section 8: Conclusion and Recommendations

Based on progress to date, the ZDL program is highly likely to achieve and in some cases exceed most of its targets by the end of the program. The program has successfully revived all the Milk Collection Centers that had either closed down or struggled due to a number of factors. Significant progress has been made in building the business capacity of beneficiary members and linking milk producers to better markets. The program however, remains with a considerable amount of capacity building and training to be completed in the remaining period of implementation. The capacity building includes:

- i. Capacity building of stakeholders along the whole value chain such as transporters, input providers, private extension systems (veterinarians) and processors
- ii. Improved awareness raising on natural resources conservation
- iii. Cascading of dairy farming as business training to the rest of the community members.

Following are recommendations for the current implementation period and future programming:

1. A community based planning approach should continue to be used to establish the most appropriate interventions to support. Land O'Lakes should continue to institutionalize a highly participatory community based approach so that it is part and parcel of the ZDL programming. To ensure sustainable development, there should be a comprehensive capacity building for community based management systems (CBM).
2. The business approach to dairy farming should be strengthened. Land O'Lakes and partners should continue to develop and refine a competitive business approach to dairy farming.
3. The project should consider carrying out a further study on present and alternative transport systems especially for farmers who are located at a distance from the MCCs at a cost. This will allow more milk to be delivered to the MCC. Currently many farmers are only supplying their morning production to the MCC yet dairy cows have

a potential to be milked thrice per day. This study should also assess the suitability of donkeys in all areas.

4. Land O'Lakes and NADF should make efforts to further explain the characteristics and purity of some of the cows that were purchased by farmers on credit. Some of the farmers did not quite understand the behavior of the mixed breeds which they got.
5. Land O'Lakes should consider employing new ways of encouraging farmers to pay back the revolving fund. This may include some strict measures such as not paying those who would have defaulted on this cause.
6. The project could also consider the expansion of the Community Livestock Worker (CLW) concept. The concept focuses on promoting dispersed, active and locally accountable community workers who can work in a range of livestock activities, addressing services which are needed very quickly and are best delivered locally. More dairy farmers could be trained to be Community Livestock Workers. The project should also consider training more people on AI than just the few CLWs. If more people are trained, understanding is enhanced. The other alternative is to have more CLWs on one MCC.
7. In order that the beneficiaries continue to access expanded markets, it is recommended that the project carry out an investigation of the local markets and completion of a "market study". The study may involve mapping out processor routes and linking such to the MCCs that are located throughout the country.
8. The project should also consider new options of encouraging expansion of the area that is under improved technology. Such an approach would reduce the cost of feed and thereby increase the annual gross margin per dairy cow in lactation.
9. Involvement of women and young people should be further encouraged both as beneficiaries and committee members. Although the current proportion of women benefitting is around 33%, efforts should be made to ensure that women beneficiaries and committee members be at least 50%. Efforts should also be made not only to encourage young people to join MCCs but to create a suitable environment for them.
10. Projects like the ZLD obviously require more time than allocated to be able to achieve the anticipated benefits. If possible, the donor should consider increasing the lifespan of the project to about 5 years. This will allow Land O'Lakes and the beneficiaries to realize meaningful impacts. Some of the centers have been recently introduced. More time will also allow farmers to increase the herd size, something that cannot be done within three years.

Annexes

Appendix 1: Terms of Reference (TOR)

Background

Since January 2010, Land O'Lakes has been implementing the *Rebuilding Livelihoods and Resiliency in Zimbabwe (ZDL) project*, in Manicaland, Mashonaland East, Masvingo, Midlands and Matabeleland South Provinces of Zimbabwe. This USAID-funded project aims to build the livelihoods and promote food security of farmers through interventions in the livestock and dairy value chains. Livestock were once an important pillar of Zimbabwean households' food production capacity and livelihood asset base, but herds and productivity have been decimated as households sold off whatever livestock and other assets they have at whatever price is offered to buy staple foods. The livestock and dairy sectors, and the Zimbabweans that depended on them, are in dire straits.

Organized under four program components, program activities will focus on assisting vulnerable households, particularly women-lead households, to increase milk production; rebuild the goat, cattle and dairy herds through pass-on schemes; improving rangeland/fodder flow management and preventative animal health services, stimulating market linkages between value chain actors, and promoting use of donkey draught power in dairy production. A crosscutting focus on building profitable livestock and dairy businesses and stimulating market linkages between value chain actors will promote the sustainability of the interventions. The program has been implemented in two phases with roughly the same activities: January 2010-April 2011 (16 months); May 2011 – May 2013 (24 months).

The proposed strategies and activities aimed to produce concrete results for vulnerable Zimbabwean households and make contributions to USAID's IR 3.2.1: Improved Livelihoods, Income Generation, and Employment, including:

- Distribution of 40 donkeys to 20 vulnerable households to test the use of donkeys for contract animal traction services;
- Linking households receiving dairy cattle and their dairy farmers to high-value milk markets;
- Increasing access to animal health services for farmers through training of Community Animal Health Workers;
- Increasing capacity of rangeland/fodder flow management; and
- Promoting the use of donkeys for animal traction services and milk collection for 1,200 farmers.

Assignment Objective

The purpose of the mid-term evaluation is to critically and objectively review the project activities, the implementing environment and assess whether targeted beneficiaries are receiving services as expected, and that the project is on track to meeting its stated goals and objectives. Furthermore, the mid-term evaluation is an opportunity to document lessons and discuss necessary modifications to effectively and efficiently meet the stated goals and objectives. Both qualitative and quantitative data will be used to examine the following key areas:

Evaluation of project progress: Has the program achieved its targets to date? If not, why not? Are established targets reasonable given the current program context? If not, how do they need to be

modified? As defined and measured, do the performance indicators provide useful and reliable data on program progress and impacts? Are M&E data collected and reported regularly and in a timely fashion?

Evaluation of project design, implementation and achievements, including changes in context and review of assumptions (relevance): Do the framework, assumptions and design match the local conditions and evolving needs of target beneficiaries? Is the problem clearly identified and addressed? Are planned activities appropriate for the stated problems? What internal and external factors have influenced the ability project staff to meet projected targets? Which interventions are most effective in achieving project objectives? What are the unexpected but important benefits to document (if any)? What are the negative impacts that should be documented (if any)?

Evaluation of processes that affect achievement of project outputs (behavior change and capacity strengthening): Are beneficiaries adopting desired practices or behaviors? Are there certain groups with lower rates of adoption and if so, why? Which practices have beneficiaries been more inclined to adopt and why? Is the frequency of contact adequate for the type of behavior change envisioned? Are training materials appropriate for participants, and if not, how can they be improved?

Evaluation of sustainability of project outcomes: Are project impacts and outcomes sustainable? Is there likelihood that farmers will continue the proposed activities after the project is completed? What can be done to increase sustainability? Does the project have a well-developed exit and sustainability strategy? If so, has the project staff moved to initiate some aspects of those strategies? Has the program effectively collaborated with local administrative bodies? Is the program actively developing capacity of counterparts and/or partners; if not, how can the design be or implementation be altered to improve capacity strengthening? Is the project building capacity within local institutions?

Evaluation of beneficiary rating of project services: What are the beneficiary perceptions on quality of service provision, transparency and general performance of the project? Are there omissions in service delivery? How can the project improve upon service delivery? Are there knowledge gaps of the community members regarding the project and how it is implemented? What strategies can be used to fill these gaps?

Review Methodology

The Consultant shall collaborate with Land O'Lakes M&E staff to develop an appropriate survey design, including using statistical techniques to estimate the optimum sample size and random selection of survey participants, survey tools and methodology for conducting the evaluation. The Consultant will then be expected to take the primary lead in providing local expertise in the design phase, data analysis and interpretation, and support in drawing conclusions regarding the efficacy of the selected process and the results of the assessment. The Consultant will provide labour on data collection using own Enumerators.

The selected firm will implement the following activities:

Stage 1: Review Existing Documentation

Undertake review of the program documents and other relevant documents including, but not limited to the following:

- Approved agreements

- Progress reports
- Performance Management Plan (PMP)
- Activity work plans
- Any other program documents to get acquainted with the program activities and indicators

Stage 2: Refinement of Review Methods

During this stage, the evaluator will review necessary survey and data collection tools that will provide information on indicators relevant to the evaluation (quantitative and qualitative as required), and in close collaboration with the Land O'Lakes team, decide on the methods and instruments to be used during field visits.

Stage 3: Field Data Collection

The Consultant will conduct key interviews for the qualitative and quantitative collection of data at the field using own Enumerators.

Stage 4: Data Entry, Analysis and Reporting

During this stage, the evaluator will complete the following critical tasks:

- Enter, clean up, synthesize, analyze, and interpret data from both the quantitative surveys, if any, and the qualitative study.
- Prepare an evaluation report addressing the objectives of this mid-term evaluation as outlined in this Scope of Work, including feedback from the presentation and recommendations on the overall Land O' Lakes ZDL program.
- Develop a Power Point presentation of evaluation findings, present and submit to Land O'Lakes and stakeholders.
- Fully address the concerns, comments, and issues raised during the presentation of the mid-term evaluation report.
- Submit clean and final English versions of quantitative data sets in Excel formats and qualitative transcripts, field and interview notes in Word to Land O'Lakes.
- Produce pictures of the process.

Relationship and Responsibilities

The consultant shall perform the tasks described above with the support of Zimbabwe Chief of Party, the Land O'Lakes Zimbabwe M&E Specialist, and the field team. During the evaluation, the consultant is also expected to work with the Land O'Lakes Headquarters and Regional M&E teams, in which case, he or she will be available for questioning and inquiry.

Logistics and other Land O'Lakes Obligations

The consultant will provide own field transport and an agreed charge. In addition to providing information as may be required by the bidder to complete the study, Land O'Lakes shall,

- Provide the Bidder with specific and detailed relevant information concerning the study;
- Provide all information and access to project personnel;
- Print and photocopy all relevant survey tools upon finalization;
- Appoint relevant staff who shall arrange any access to its information and staff required by Bidder for its performance under the contract, if agreed and required.

Timeline

ACTIVITY	GOAL/OUTCOME	Expected Date of Activity completion(2012)
Lead personnel to be available for inception meetings with Land O'Lakes Zimbabwe and Headquarters Staff for up to three full days. Discuss protocol, which includes methodology and implementation plan that lays out how the consultant envisions conducting the program evaluation (sample size, tools, methodology, schedules and responsibilities)	Final work plan with milestone dates, time guideline, and logistical arrangements	5 September
Undertake a literature review of the program and other relevant documents including, but not limited to the documents mentioned in Section Error! Reference source not found. above	To contextualize and aid in development of data collection tools and report	10 September – 14
Drafting data collection tools (questionnaires for quantitative data, FGD/interview guidelines, for all levels of data collection). Conduct pre-test with Land O'Lakes in program areas in Zimbabwe	Final version of data collection tools	10 – 14 September
Train the survey supervisors and enumerators. Conduct pre-test with Land O'Lakes in program areas in Zimbabwe		17-28 September
Data collection - Carry out the fieldwork to collect quantitative and qualitative data, including engagement with key program staff, beneficiaries, government officers, other relief agency partners, private sector partners, other stakeholders, and other community members as needed to collect qualitative information for the evaluation. Quantitative and Qualitative: evaluator should propose a sample size large enough for robust evaluation. Data entry	A bullet point preliminary presentation of key trends found from quantitative and qualitative data collection which will serve as the basis of preliminary and final drafts An electronic version of all qualitative notes format, including quotes that summarize the impact of the project on beneficiaries One electronic copy of finalized, clean data in Microsoft Excel format One electronic folder of any applications, modules, and scripts developed to organize, process, and analyze the data.	8-17 October

ACTIVITY	GOAL/OUTCOME	Expected Date of Activity completion(2012)
	20-25 high quality photographs (minimum 300 dpi resolution photos) of some program evaluation data collection activities, i.e.; survey; interviews; focus-group discussions burned onto a CD-ROM disc and delivered to Land O'Lakes Pre-report draft (electronic version, including data) using outline below	
Analysis and report writing	First draft of report due to Land O'Lakes that includes: Introduction; Protocol, Methods and Tools; Findings; Recommendations; Executive Summary; an introduction containing the objectives of the SOW and a brief description of the program. Actionable recommendations to improve the implementation of this and similar future projects, including data limitations; lessons learned, best practices and/or best principles and appendices that include: • SOW • Composition of the team • List of sites visited • List of key informants • Literature reviews • Data collection tools • References Other appendices that document or support previous sections	By 27 October
Receive feedback from Land O'Lakes reviewers	Feedback received	6 November
Final report writing, including changes integrated into report to fully address the concerns, comments, and issues raised by Land O'Lakes on the draft evaluation report	Two bound copies of the final comprehensive evaluation report with an electronic copy on a CD-ROM or thumb drive Electronic files of all clean raw (final) quantitative and qualitative data collected. These files should be delivered in MS-Excel format for quantitative data and Word for qualitative transcripts and notes. One (1) electronic folder of any applications, modules, and scripts developed to organize, process, and analyze the data. One final report presentation given to Land O'Lakes, and one electronic/hardcopy version each of the presentation In-person presentation of key findings from the evaluation to Land O'Lakes, donor and other stakeholders	15 November

Expected Deliverables

- Final Work Plan with milestone dates, time guidelines and logistical arrangements
- Final version of data collection tools
- Electronic version of all qualitative notes format, including quotes that summarize the impact of ZDL on beneficiaries
- High quality pictures of process and some survey participants (electronic form)
- Preliminary summary of data analysis based upon trends of data analyzed that will be used to develop the pre-report draft
- Pre-report draft (electronic) following outline in Scope of Work
- First draft of report following outline in Scope of Work
- Final report (one hard copy, one electronic copy in Word)-see section 8 below for content detail
- One (1) electronic copy of finalized, clean data in Microsoft Excel format
- Final report presentation to Land O'Lakes, donor and stakeholders, including electronic and hard copy version of each presentation

Expected Output in the Report

The output for the assessment will be a report with the following focal points:

- Efficiency and relevance of assistance to the target beneficiaries
- Sustainability of the project
- Analysis of objectives and outcomes against the activities
- Challenges, gaps and learning's from implementation

Appendix 2: List of Persons and Organizations Consulted

A. Land O'Lakes staff

No	Name	Position
1.	Cathrine Mashayamombe	Monitoring & Evaluation Specialist
2.	Ozias Mombo	Monitoring & Evaluation Assistant
3.	Spencer Ngoma	Administration & Finance Manager
4.	Mr William Mudzingi	Field Officer/ABS Accounting System, Land O'Lakes
5.		

B. Key informants

No	Name	Position
6.	Mr Richard Wiskot	NADF Field Officer, Masvingo
7.	Mr Sibanda	MCC Chairperson, Marirangwe
8.	Mathew	AI Technician/CLW, Marirangwe
9.	Mr Christopher Gono	MCC Chairperson, Hamaruomba, Masvingo
10.	Mr Tinashe Chirume	Dairy Production Officer, LPD, Gokwe
11.	Mrs Flora Chingura	MCC Centre Administrator, Gokwe
12.	Mr Simon Mubvumbi	MCC Committee Member, Gokwe
13.	Mr Mujuru	MCC Vice Chairperson, Hamaruomba, Masvingo
14.	Mr Elias Chiweshe	MCC Vice Chairperson, Gokwe
15.	Ms Binonia Matumbu	MCC Committee Member, Gokwe
16.	Mr Sharp Mazivanhanga	NADF Field Officer, Wedza

Appendix 3: Household questionnaire

THE ENUMERATOR MUST READ AND INTERPRET THE PASSAGE BELOW TO THE RESPONDENT PRIOR TO THE INTERVIEW

Dear Respondent,

You have been selected randomly from the many persons who are being assisted by Land O' Lakes intervention in this area. The purpose for the interview is to help us understand your current situation so that in future we plan the right activities together and measure performance of this project. Please note that this survey will have no impact on whether this household will or will not receive any assistance offered by **LAND O' LAKES ZIMBABWE** in the future. The information collected from this household will be combined with the information collected from other respondents and used to improve future related interventions. Each household's responses will be kept confidential.

IDENTIFICATION PARTICULARS

Province Name/Code:|_|_|

District Name/Code:|_|_|

Ward Name/Code|_|_|

Village Name/ Code:..... |_|_|

Household Number |_|_|

Name of MCC:

Name of Milk Producing Association (MPA):

ASSIGNMENT RECORD:

E-Code	Name of Enumerator	Signature	Date Interview Completed

S-Code	Supervisor's Name	Signature	Date Checked

A. Household Demographics		
A.1	What is the sex of the respondent?	1 = male 2 = female
A.2	What is the age of the respondent?	 Years
A.3	What is the sex of the household head?	1 = male 2 = female
A.4	What is the marital status of the household head?	1=married 3= Widowed 5=Separated 2=divorced 4= Single
A.5	What is the age of the household head?	 Years
A.6	Is anyone in your household been consistently sick for the past three months?	1= Yes 0 = No
A.7	What is the current occupation of the Head of the Household?	1=Formally employed 2=Farmer 3=Trader 4 = Both formally employed and Farming 99= Other specify...

B: Household Dietary Diversity Score - HDDS):

Now I would like to ask you about the types of foods that you or anyone else in the household consumed yesterday and the day before yesterday? *NOTE: Firstly establish that these days were normal or usual days and not Special days*

B.1. FOOD CODE	FOOD TYPES	B.2. Did your household <u>consume</u> these food types Yesterday	B.3. Did your household <u>consume</u> these food types the day before Yesterday
		1=Yes, 0=No	1=Yes, 0=No

A	Sadza		
B	Any potatoes, yams, manioc, cassava or any other foods made from roots or tubers?		
C	Any vegetables?		
D	Any fruits?		
E	Any beef, pork, lamb, goat, rabbit, wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats?		
F	Any eggs?		
G	Any fresh or dried fish or shellfish?		
H	Any foods made from beans, peas, lentils, or nuts?		
I	Any cheese, yogurt, milk or other milk products?		
J	Any foods made with oil, fat, or butter?		
K	Any sugar or honey?		
L	Any condiments, coffee, tea?		
M	Other(specify)		

C. Month of Inadequate Household Food Provisioning – MIHFP

Now I would like to ask you about your household's FOOD supply during different months of the year. When responding to these questions, please think back over the last 12 months. (*FOOD supply refers to food that may have been produced, purchased, gifted etc...*)

	QUESTIONS AND FILTERS	CODINGS	SKIP
--	-----------------------	---------	------

C.1.	In the past 12 months, were there months in which you did not have enough FOOD to meet your family's needs? 1=Yes 0=N0	 _	IF NO GO TO D
C.2.	DO NOT READ THE LIST OF MONTHS. PLACE A ONE IN THE BOX IF THE RESPONDENT IDENTIFIES THAT MONTH AS ONE IN WHICH THE HOUSEHOLD DID NOT HAVE ENOUGH FOOD TO MEET THEIR NEEDS. If yes, which were the months (in the past 12 months) in which you did not have enough FOOD to meet your family's needs?		
A	June 2012	A..... _	
B	May 2012	B..... _	
C	April 2012	C..... _	
D	March 2012	D..... _	
E	February 2012	E..... _	
F	January 2012	F..... _	
G	December 2011	G..... _	
H	November 2011	H..... _	
I	October 2011	I..... _	
J	September 2011	J..... _	
K	August 2011	K..... _	
L	July 2011	L..... _	

D. LIVESTOCK PRODUCTION

D.1 Has your household ever received any dairy animal from Land O'Lakes? 1= Yes 0= No. go to D3.

D.2 How many animals (heifers and or bulls) have you received from Land O'Lakes so far?

D.2A. Heifer /Bull name/ Tag number		D.2B. Date received (MM/YYYY)			D.2C. Recipient in household 1=Male 2=Female	D.2D. Pregnancy status at receipt 1=in-calf 2=not pregnant 3=Already with calf	D.2E. Are you currently milking this heifer 1=Yes 0=No
		Month	Code	YEAR			
NAME	No.						
Heifer							

Bull							
------	--	--	--	--	--	--	--

D 3. Do you own any other livestock? (Yes =1, No =0)

(If answer is 'Yes' please fill in the Table below, if 'No' skip to question 3.3)

Livestock Species		D.4 Number owned by the household (total)	D.5 Number owned by male	D.6 Number owned by female	D.7 Number owned jointly	D.8 Total Value sold in the past year USD (Oct2011-Sept 2012)	D.9 Price per livestock type sold Oct 2011 – Sept 2012	D.10 Total cost of transport, labour, levies, permits, slaughter fees, herding while awaiting slaughter incurred during selling in the year (USD) (Oct 2011-Sept 2012)
Dairy Cattle	Local							
	Pure							
	Cross / exotic							
Beef	Local							

cattle								
	Cross / exotic							
Goats	Local							
	Cross/ exotic							
Sheep	Local							
	Cross/ exotic							
Poultry	Local							
	Cross/ exotic							
Pig	Local							
	Cross/ exotic							
Donkeys/Horses								
Rabbits								
Other, specify								

E. Dairy Management

E.1 What is the area that has been put under forage production in ha (this past season)

.....

E.2 What is the method of grazing the dairy animals.....

1=Open range 2=Paddock grazing 3=Zero grazing 4 = 1 and 2 5 =1 and 3 6 = 2 and 3
99=other, specify

E.3 What type of grass do you mainly feed the dairy cattle on?

1=Natural pasture 2=Cultivated pasture 3=Fodder 99=Other, Specify

E.4 How many times are the dairy cattle fed with supplements per day.....

1=Once 2=2 times 3=3 times 4=More the 3 times

E.5 How many times have your cattle (if any) been vaccinated or treated for any disease or received any known and approved veterinary intervention in the last 12 months?

E.5a Veterinary intervention	Number of times the animals benefitted			
	E.5 .b By the Department of Agriculture	E.5 c By other veterinarians	E.5.d By CLWS	E.5 .e By yourself
Vaccinations				
Dipping				
De-worming				

E.6 How many of your cattle (if any) have been treated for any disease or received any known and approved veterinary intervention in the last 12 months?

E.6 a Veterinary intervention	Number of animals which benefitted			
	E.6.b By the Department of Agriculture	E.6 c By other veterinarians	E.6.d By CLWS	E.6.e By yourself
Treatment for disease				
Artificial insemination				
De-worming				
De-horning				
Castration				
Any other veterinary intervention				

E.7 LIVESTOCK SUPPORT & OTHER INFRASTRUCTURE

3.4.7a Structure	3.4.7.b Number/Kg owned
Livestock drinking trough (#)	
Cattle kraal (#)	
Milking parlor	
Livestock feeding trough (#)	
Feeding paddocks (#)	
Livestock sheds (#)	
Barns (#)	

Stock feed stored (Kg)	
Sprayer (for ticks and others)	
Donkey equipment e.g. saddles	
Other, specify:	

E.8 ACCESS TO WATER, FEED & DIPPING SERVICES

	E.8a Immediately accessible =1	E.8 b Takes a few hours (1 to 2 hours) = 2	E.8c Takes several hours (more than 2 hours) =3	E.8d Not accessible in this community =4
E.8.1 How do you rate access to water for livestock?				
E.8.2. How do you rate access to pasture for livestock?				
E.8.3 How do you rate your access to dipping services?				

E.9 Gross Margin for the heard average.

Now I would like to find out specific information about the performance of your average dairy herd.
(Enumerator: please note that if the farmer has more than one cows, try to extract specific information that an average cow produces per year

			UNIT COST /	TOTAL COST /
ITEM	QUANTITY	UNIT	VALUE (\$)	VALUE (\$)
RECEIPTS				
Milk Marketing				
Milk Sales				
Other Income				
Total Gross Income				

LESS: EXPENSES				
Variable Costs				
Dairy meal				
Maize Silage/Banner				
Pature production costs for 1ha				
Casual Labour				
Milk Transport				
Dips (Pour-on type)				
Blue guard (teat dip)				
Sanitisers (Striclean)				
Dry Cow Therapy				
Lactating cow therapy				
Anthelmintics				
Total Variable Costs				
Other Costs				

E.10 Total Milk Production

	Liters of milk produced during the wet season per month (Nov – April)	Liters of milk produced during the dry season per month (May – October)
Cost of feed / supplement per month		
Cost of vaccines per month		
Cost of labor per month		
Other costs per month (specify)		
Total cost per month		

F: LABOUR ACTIVITIES FOR LIVESTOCK

F.1 Now I would like to find out about labour for your Livestock rearing activities during the last 6 months: (Enumerator: Note that if the respondent says YES in F.1.a, continue with the rest of the questions, otherwise go to the next labour activity)

F.1.a. Labour Activity	F.1.b. Did the household use any labour for 1=Yes 0=No	F.1.c. Labour type	F.1.d. Number of Males who provided labour for this activity	F.1.e. Number of female who provided labour for this activity	F.1f Cash payment/Value of in kind payment for hired labor in the past 6 months
1=Construction of Parlous/Kraals					
2=Milking					
3=Forage production					
4=Feed Preparation					
5=Calf rearing					
6=Veterinary Services					
7=Transportation/ Marketing					

Codes for F.1.c

1=Household labour/members

2=Hired labour for in kind payment

3=Hired labour for cash payment

4= Permanent workers

99=Other (Specify)

F.2 How many permanent workers supporting the dairy sector do you have?.....

F.3 How much do you pay each permanent worker per month (USD)?

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G: HOUSEHOLD INCOME & ACCESS TO SAVINGS AND CREDIT

G.1. HOUSEHOLD INCOME

Source of income	Total income (USD) from current season (October 2011 to September 2012)
All field crops sold	
All garden crops & citrus fruits sold	
Livestock sold	
Milk and other dairy products	
Labor/Employment	
Remittances	
Small Business/Trade	
Other sources of income (gifts, piece works, trading in non agriculture, etc)	
G.2. ACCESS TO CREDIT AND SAVINGS	
G.2.1 Do you belong to any savings and /or lending scheme	1 = Yes Specify----- 2 = No
G.2.2 During the past 12 months, did you or any of your household member borrow money	1 = Yes 2 = No , go to G3
G.2.3 If you or any of your household member borrowed money, from whom did you borrow	1 = Savings club, 2 = Bank, 3 = Microfinance institution, 4 = Money lender, 5 = Friend/Neighbor, 6 = Relative, 7 = Burial society, 8 = other specify
If you borrowed money, what were the reasons for borrowing?(see codes below)	1 =Food, 2 =Health, 3 = Funeral, 4 = Social event, 5 = Avoid selling assets, 6 = Agric inputs, 7 = School fees, 8 = Other specify

G.3 DAIRY PRODUCTION, SALES AND CONSUMPTION (Answer if 4.1.2- Dairy Cattle=yes)

Please tell me more about the COWS your household is currently raising and their milk production during the dry season (May – October 2012) and Rainy season (Nov 2011 – April 2012).

G.3.1. Dairy animal Type	G.3.2 Total number of cows	G.3.3. Number of lactating cows during dry	G.3.4. Average liters per day during dry season	G.3.5. Number of lactating cows during wet season	G.3.6 Average liters per day during wet season	G.3.7. 3 Biggest problems in raising animals (See codes below)
--------------------------------	-------------------------------------	--	---	---	---	--

		season				
1)Traditional Breed						
2) Cross Breed						
3)Pure Breed						

Codes for G.3.7.

0=None

1=Animal Diseases

2=Poor nutrition and Pasture A.I.)

Management

3=Limited Grazing Land

4=Water access

5=Poor Milk production techniques

6=Lack of market for Milk

7=Low milk price

8=Poor infrastructure (roads, water supply, electricity)

9=Unavailable supporting services (veterinarian, A.I.)

10=Unavailable finance (operating capital)

11=High input costs (feed, medicines, equipment, other)

12=High labor costs

13=Unavailable land for feed production

14=Unavailable information on markets

15=Unavailable information on production issues

99= Other

G.5. How much milk has your household currently produced during the last 7 days?

G.5.1. Date	G.5.2. Number of cows milked	G.5.3. Litres produced	G.5.4. Liters sold to MCC	G.5.5. Litres sold within village/locality
1)				
2)				
3)				
4)				
5)				
6)				
7)				

G.6. From 5.5. (Litres unsold), what did you do with the unsold milk?

G.6.1. Usage	G.6.2. 1=Yes ; 0=No	G.6.3. Litres per day
1) Household consumption		
2) Used to feed calves		
3) Given to other households		
99) Other-Specify		

G.8. How many litres did the household deliver to the MCC and how much money was received for the delivered milk at the last monthly payment from the MCC?

G.8.1. Last month of delivery		G.8.2. Liters sold	G.8.3. Amount(USD)
Month Name	G.8.1.Code		

G.9 How has your milk sales changed from before the project has been launched?

1 = Increased, 2 = Not changed, 3 = Decreased

G.10 How has your milk consumption changed from before the project has been launched?

1 = Increased, 2 = Not changed, 3 = Decreased

G.11. What are the 3 most important things you use your dairy income on?

5.10.1=

5.10.2=

5.10.3=

CODES:

1=Purchase of staple food

2=Purchase of non staple foods

3=Purchase of household goods (e.g. radios, TVs, e.t.c.)

4=Education/school fees

5=Marriage

6=Savings/Banking

7=Purchase of clothing

8=Travel

9=Agricultural Inputs

10=Medicines for animals

11=Farm implements

12=Groceries (e.g. soap, colget, sugar, e.t.c)

99=Other Specify

G.12. Who decides how to use the proceeds from the milk sales?

1= Male Head of Household

2= Female Head of Household

3= Both male and female

99= Other

H: Milk Transportation, and Donkey management

H.1 Do you have access to donkey/bicycle traction and transport (yes =1, No =2, go to section F).....

H.2 If your answer is yes, did you receive this donkey/bicycle from Land O'Lakes ((yes =1 specify the date of receipt....., No =2 Specify the source.....))

H.3 What other activities that the donkeys are used for in the order of importance

Activity	Level of importance
Ploughing	
Milk transport	
Commodity Transport	
Donkey trading	

H.4 What feeding practices do you use for your donkeys?

1= Grazing 2= Straw feeding 3= Grain feeding 4= Anything available 5= Household waste
6 = Fodder supplements 99 = Other specify

H.5 How many hours are spent by donkeys working on an average day?

Summer	Winter

How many times have your donkeys (if any) have been vaccinated or treated for any disease or received any known or approved veterinary intervention in the last 12 month?

Veterinary intervention	Number of times the donkeys which benefited		
	By the department of agriculture	By other veterinarians	By yourself
Treatment for disease			
Castration			
Any other intervention			

H.6 How many of your donkeys (if any) have been vaccinated or treated for any disease or received any known or approved veterinary intervention in the last 12 month?

Veterinary intervention	Number of donkeys which benefited		
	By the department of agriculture	By other veterinarians	By yourself
Treatment for disease			
Castration			
Any other intervention			

H.7 Did any of your donkeys experience any health related problems in the last 12 months (Yes =1, No = 2) ☐ ☐

H.8 If your answer is yes, what problems were experienced by the animal?

1= Coughing, 2 = nasal discharge, 3 = weight loss, 4= leg sores, 5= back sores, 6= sudden death, 7= Abortion, 8 = skin disease, 99= other specify.

H.9. Which areas are sores most frequently identified on donkeys ☐

= On the back, 2 = Hind quarters, 3 = Stomach, 4= Shoulders, 5= Neck/head, 6= Others specify.....

H.10 What are the causes of sores on donkeys? (More than one answer allowed)

1= Inappropriate saddle design, 2= Overloading, 3 0 Poor feeding, 4 = Lack of Vet care, 5 = Inappropri ☐
harness design, 7 = cannot afford better harness, 8 = Don't know, 99 = Other specify..... ☐

H.11 How can sores be reduced on donkeys? ☐

1= Stop working the animal, 2= Reduce loads carried, 3= Improve feeding, 4 = Improve saddle/harness design, 5 = Change the type of donkey, 6 = Seek veterinary help, 7= Increase the number of donkeys you use, 8 = Don't know, 99 = Other specify.....

H.12 What are the ways in which you treat sores on your donkeys?

1 = Use traditional remedies, 2 = Just rest the animal, 3=Purchase drugs ☐ vet advice, 4 = Do nothing, 5 = Purchase drugs from vendor, 99= Other specify

H.13 What are the major sources of income from donkey owners?

Source of income	Total income from donkeys per month (USD)
Land preparation and cultivation	
Milk Transport	
Transport of farm produce	
Donkey trading	
Petty business	
Other specify	

H.14 Now, I would like to know the exact details of one donkey in the past 30 days

Source of income	Total income per month (USD)	Cost	Amount in (USD)
Land preparation and cultivation		Veterinary cost	
Milk Transport		Feed supplements (If any)	
Transport off farm produce		Labour	
Donkey trading		Other specify	
Petty business			
Other specify			

H.15 Bicycle transport gross margin

What are the major problems you have experienced in donkey use and management?

1= Feed shortage, 2 = Health problems, 3 = lack of veterinary services, 4 = Housing and implements, 5 =Reproductive related, 99= Other specify.....

I: EXTENSION SERVICES

I.1. I would like to ask you about the Land O'LakesLand O'Lakes technical assistance services that you or any other member of your household have received in the past 6 months

I.1.1. Service	I.1.2. Did someone in the HH receive technical assistance on .	I.1.3. Have someone in the HH used/ applied this technical	I.1.4. Do you and your family members think the	I.1.5 Other Main source of this technical assistance 1=AREX

	.. ? 1=Yes 0=No	assistance? 1=Yes 0=No	technical assistance is useful? 1=Yes 0=No	extension officers 2=NGO (specify) 3=Private (e.g. vets) 4=Veterinary services 99=Other (specify)
1) Record Keeping				
2) Animal Nutrition				
3) Animal Health				
4) Dairy Management				
5) Calf Rearing				
6) Milk Handling and Hygiene				
7) Dairying as a business				
8) Feed establishment				
9) Feed Conservation				
10) Artificial Insemination				
11) Stocking				
12) Market Linkages (Selling Milk to MCC)				
Other specify				

I.2. How have the Land O'Lakes Technical Assistance been useful in improving your dairy income?
(Could you provide an example?)

- 1.....
2.....
3.....

I.3 What challenges have you encountered working with the Land O'Lakes Program?

.....
.....
.....

I.4. Is there anything else you want to say about the Land O'Lakes extension services provided?

J: New technologies

Did you or anyone in the HH use any of the following new technologies during from Land O'Lakes.....?

New Technology	1 = Yes, 2 = No
Hay bailing using pit bailing	
Hay bailing using box bailing	
Silage making using plastics	
Cutting silage using hand choppers	
Zero grazing	
Milking Parlous	
Donkey transportation of milk	

K: GENDER IN DAIRY PRODUCTION, MARKETING AND ON FARM PROCESSING

K1. Please indicate division of labor in performing the following dairy related activities

Activity	Performed by:				
	Husband (H)	Wife (W)	Children	Both H & W	All members of household
Herding					
Feed collection					
Construction of cattle shed					
Feeding					
Forage production					
Cleaning cattle shed					
Medical provision					
Milking					
Milk transportation					

Marketing					
Processing					
Other (Specify)					

K2. Who makes the following decisions in your household?

Decision to:	Decision made by:				
	Husband (H)	Wife (W)	Youths	Both H & W	All members of household
Buy dairy cattle					
Borrow money					
Rent land					
Sell land					
Purchase of dairy inputs					
Employ labor on farm					
Sell dairy cattle (culls, heifers, calves)					
Sell milk					
Quantity of milk to be sold					
Quantity of milk for home consumption					
Process milk					
Other (Specify)					

K3. Who controls income from sale of dairy animals, milk and milk products?

Income from sale of:	Controlled by:				
	Husband (H)	Wife (W)	Children	Both H & W	All Members of household
Dairy cattle					
Milk					

Dairy products					
Manure					
All dairy income					

L: Environmental Management

L.1 How far is the drainage system of your cow shed away from the water source?

1) > 3m 2) 3m-8m 3) <8m

L.2 How far is the compost site away from your water source?

1) > 3m 2) 3m-8m 3) <8m

L.3 How do you dispose syringes and other hazardous materials including inoculants, pesticides, fertilizers?

Burn 2) Bury underground 3) throw in the toilets 4) throw in the rubbish pit 5) other

L.4 Do you use any protective clothing when using hazardous materials 1 Yes 2 No

L.5 If yes which protective clothing do you have in your HH?

1) Gloves 2 Overall 3 Gumboots 3 Work suit 4 Rain suit 5 Face mask 6 other (specify)

M. Conclusion

M.1 What is your overall rating of the Land O'Lakes project

1 = Highly satisfied 2 = Satisfied 3 = Not Satisfied 4 = Indifferent

M.2 Do you have any question and or comment on the Land O'Lakes project

Appendix 4: Key Informants' Guidelines

ASSIGNMENT RECORD:

E-Code	Name of Enumerator	Signature	Date Interview Completed

S-Code	Supervisor's Name	Signature	Date Checked

IDENTIFICATION PARTICULARS

1. Province: _____
2. District: _____
3. Administrative Post: _____

Fodder production and grazing management

A.1 Can you tell me about the land that is used for grazing dairy cows? (probe: communal, size, paddocks etc)

A.2 What options do people have for feeding dairy cows in the dry season

A.3 Do people in this area plant fodder crops for feeding dairy cows

A.4 What are the general challenges of fodder management in this area?

A.5 What support do community leaders give in ensuring effective rangeland practices?

MCC / MPA level

B.1 In your own opinion are the MCCs / MPAs achieving the desired purpose?

B.2 Are the MCCs properly managed in terms of efficiency, effectiveness and accountability of funds?

B.3 What are the general challenges of the MCC / MPA methodology?

B.4 What could be done to improve the efficiency, effectiveness and accountability of MCCs?

Animal Health

C.1 What are the common livestock pests and diseases which affect dairy cows in this area?

C.2 How has the Land O'Lakes Intervention assisted the community in dealing with livestock health related problems?

C.3 What roles do community members play in the administering of veterinary treatment?

C.4 To what extent do community members support the development of Community Livestock Auxiliaries or other Village Based Trainers?

What is your opinion on the roles of government, Land O'Lakes and paravets in offering livestock in general and dairy in particular extension?

Management of dairy cows

D.1 How do you compare indigenous and exotic breeds in term of their milk production and business viability?

D.2 How has the Land O'Lakes project impacted on the dairy business e.g. are people selling more milk, getting more money , living better lives etc?

D.3 What are the major challenges experienced by dairy producers in this area?

What could be done to improve the viability of dairy farming in this area?

Milk Transportation

E.1 What kind of a road network exist in the area?

E.2 What kind of transport is typically used to carry milk to the market?

E.3 How efficient are donkeys as a mode of carrying milk to the market?

General livelihoods

F.1 How do the people earn income for their day to day living?

F.2 What are the income generating activities that are common in the area?

F.3 Are there any off farm enterprises in the area?

F.4 What type of credit and savings exist in the target communities?

F.5 How does the community perceive informal lending schemes (if any) within the community?

F.6 Do credit and savings schemes play any role in mitigating effects disasters?

F.7 How do credit and savings schemes contribute (if at all) to building people's resiliency to disasters?

Milk marketing

What are the markets that your household sells milk to in the area (Probe for milk markets other than the MCCs)

How do you compare alternative prices with MCCs?

Extension Services

H.1 What types of places or to which people have you gone for dairy farming advice or instruction? (Probe for: cooperatives, other farmers, agricultural sales staff, extension agents, etc.)

H.2 Do they each have a different role and do farmers go to them at different times or use them differently? Why is this person/organization trusted?

H.3 There is also a less formal “help” network, that is, people known who will help with the farm activities- vaccinations, planting, or with inputs. Can you describe some of these networks? Do you ever provide this type of support for or to other farmers?

H.4 What could be done to teach farmers about improved dairy management practices?

Land O'Lakes Partners (NADF)

I.1 What is your assessment of the partnership between Land O'Lakes and NADF?

I.2 What opportunities have you realized as a result of partnering with Land O'Lakes in this project?

I.3 What are the major limitation / challenges of partnerships?

I.4 What could be done to improve the partnership between Land O'Lakes and NADF?

Challenges and recommendations

J.1 What do you think are some of the biggest challenges or problems related to dairy farming in this area?

J.2 What are farmers doing to address these challenges or problems?

Appendix 5: Focus Group Discussion Guide

Thank you for coming today to this discussion about farming in this community. My name is _____ and I am an independent consultant hired by Land O'Lakes International Development and I will be guiding the discussion. My colleague is _____, and he/she will be taking some notes about our conversation because what you share is very important and we do not want to miss anything you say.

Today we will be talking about your experiences being a farmer in this community. We are also interested in learning about your experiences with the Land O'Lakes Project. We encourage you to be open and honest in sharing information. Your answers to the questions should not be considered "right" or "wrong". Some of you may have differing opinions or thoughts, so please understand that it is okay to disagree. All of our experiences and stories are equally important. Please be assured that all your responses are confidential and our summary report will make no references to names. Before we begin, let's go around the room and introduce ourselves. But instead of telling us just your name, why not tell us your name and what types of activities you do at your farm.

Interviewer:..... **Recorder:**.....

Ward / Location:..... Date:.....

<i>Topic</i>	<i>Issue</i>				
FGD Participants	<i>Who participated</i>	<i>FGD Respondents</i>	<i>Age</i>	<i>Female</i>	<i>Male</i>
Understanding the ZLD project					
How has the ZDL project progressed so far? What activities have been done so far					
What has been the role of different stakeholders? DLPD, Vet, AGRITEX, NDAsetc					
What is the progress with MCCs ,MPAs					
How the beneficiaries are selected Who was involved					
Are there any Community Structures to manage the project? Explain.					
Has the impact been positive or negative					
Dairy Management (MCCs and MPAs)					
What are the general issues at the MCCs Are the MCCs and MPAs working?					

How is milk transported to the MCCs? Probe for donkey usage	
How are the payments done? How long does it take before the milk is collected?	
Who determines the prices? How does it compare with other alternative markets	
How are the passes on project and loan schemes operating?	
How efficient are donkeys as a mode of carrying milk to the market?	

Technology management and change stories	
What kind of trainings did the MPA members receive? Probe for - Record keeping and other management related concepts	
What is your perception about new technologies such as AI	
How do you compare fodder production and normal grazing and food security	
What other new technologies have you gained from the project	
What has been the overall impact of the project on the household and community livelihoods	
Extension Services	
What types of places or to which people have you gone for dairy farming advice or instruction? (Probe for: cooperatives, other farmers, agricultural sales	

staff, extension agents, etc.)	
Do they each have a different role and do farmers go to them at different times or use them differently? Why is this person/organization trusted?	
There is also a less formal “help” network, that is, people known who will help with the farm activities- vaccinations, planting, or with inputs. Can you describe some of these networks? Do you ever provide this type of support for or to other farmers?	
What could be done to teach farmers about improved dairy management practices?	
What do you think are some of the biggest challenges or problems related to dairy farming in this area?	
What are farmers doing to address these challenges or problems?	