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Dairy and Rural Development Foundation

Performance Evaluation
Of Phase I of Dairy Project

Draft Report

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Dairy Project Lahore, Pakistan

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0. Summary of Performance Evaluation

The Dairy Development Project of Dairy and Rural Development Foundation (DRDF) phase-1 (2011- 2014) is an integrated project for community development through livestock related interventions. The holistic integration comes in with core identification of the very large livestock sector, mostly undocumented and rural based. The farmers, farm workers and associated farming families including women plays a vital role in running livestock establishment, mostly with traditional knowledge of livestock management, feeding, breeding and farming techniques. The project brought in modern knowledge, both in terms of capacities and support assistance, to enhance the skills and knowledge of the local communities including women to engage and improve their livestock management skills and gain more in economic terms in a sustainable manner. As external consultants, including professional team members, it can be rightly assessed that the project has been a very successful to achieve its principals objectives.

In order to measure the performance of phase -1, and as per the scope of work of the performance evaluation report, the data was benchmarked with the project performance measurement plan, the project end report of phase -1 and also with the indicators and external factors from other livestock related baselines and references available in Pakistan.

The key findings as performance summary is narrated below:

Women Livestock Extension Worker (WLEWs)

Generally the rural women as part of farming families look after the dairy animals with traditional knowledge, but mostly without any direct income to women themselves, and all income generated through sale of milk or livestock related other income is part of total household income or make part of the income of the male dairy farmer. Most women in rural context are handling livestock for daily feeding, milking, basic health management etc. These women, though with some basic school education have virtually no modern knowledge of livestock management or best farming practices, and neither have any social status for handling these animals (prior to the project)- The USAID funded dairy project brings in a number of interventions for the rural women in terms of livestock extension workers (i.e. as basic animal health worker), better livestock management, and also women as small village based entrepreneurs selling animal feed and nutrition products. The project has not only provided skills and economic opportunities to women, but has also enhanced their social status in the society they live in.

The summary of Key findings of performance evaluation related to WLEW's is narrated below:-

a. Average monthly income of WLEW's recorded for active beneficiaries is Pak Rupees 1,155/- (around 12 USD), (The average is drawn out after excluding expenses on the services provided by the WELWs the average monthly income of workers from provision of vaccination services is about Rs 1,712, for De-worming services Rs. 1,207 and Rs. 980 and Rs. 747 for providing treatment of Tympani and Diarrhea respectively). The average is more than the average drawn out in the project cycle end report of year 3 of the project (which is Pak Rs 1,144). In international terms this figure may seem low but in rural Pakistan terms, a women with no personal income can have a little status and buying power- Moreover, has started to engage in an economic activity. There are various examples of some standalone WLEW's earning more than 10,000 Pak Rupees (100 to150USD) per month and which sets leading examples to the other women

b. Percentage of project-trained WLEWs providing services as self-employed extension workers is 44.80% which seems little less than the year 3 achievement of the project which was 64%. But given the recent floods in the target region of Punjab (continuous over last three years in a row), a huge agriculture are, houses and livestock was damaged- Under the circumstances 44.80% sustenance is a good achievement.

c. Percentage of WLEWs offering feed, nutrient, and other inputs for sale to farmers is 56.60%, compared to the average of 78% in year 3 end report.

d. Percentage of farmers using services of Women Livestock Extension Workers is 69.60% which is well above the previous year 3 recording of 17%. This has shown marked improvement in trust of farmers in WLEW skills and services.

e. As per WELWs around 63 % farmers consider them as a reliable source in providing animal health and nutrition services.

f. Media campaigns reached up to 56 %of the active workers

g. Overall, the consultants have an opinion that the findings reveal a good level of success for WLEW's, where most importantly a stream of modern knowledge has been inculcated

Artificial Insemination Technicians (AIT's)

Pakistan is a country, where Artificial Insemination coverage is not very high. Though the same is practiced in rural lock sector since decades, but not sufficient to cover all. More over there is lack of scientific knowledge, required skills and semen choices to farmers. The government livestock department has also run some successful programs but given the huge number of livestock, the coverage is thinly spread. More over the farmers only have traditional knowledge of breeding transferred from either their ancestors, or from a neighborhood farmer and also some from government or semen selling companies. During the project phase -1, a total of 2032 AITs were trained and established as small entrepreneurs in first three years of the project. Training included a mix of theory, demonstration and practical exercises related to insemination and safe handling and maintenance of insemination guns, liquid nitrogen cylinders for transporting semen, and other AI supplies and equipment. All 2032 AITs provided with a support kit to jump-start their businesses and improve their income. The Dairy and Rural Development Foundation also supported in capacity building to enable the AITs in maintaining and supply chain of a diversified breeding products portfolio to the Project Trained AITs.

The summary of performance evaluation of AIT's trained during phase 1 are as follows,

a) Average monthly income of an AIT from imported semen as well as from local semen is same which is more than Rs. 11,000 per month after deducting the average monthly expenses of Rs. 4,534 for provision imported semen services and Rs. 2,997 for local semen services. This income level is by enlarge very substantial, because Rs 11,000 (110 USD) per month near to home is far better than people migrating from villages to cities for small work jobs like guards, labor etc. for equal amount of salaries.

b) Register of activities and progress is maintained by 57% of the AITs

c) An average, 12.7 doses of imported and 33.8 local semen are used in a month

d) The average number of conceived cases is 9.5 which is 75% of imported semen cases. The average monthly cases conceived from use of local semen are 26.1 which is 77 % of use of local semen

e) On average, 5.7 villages with an average of 134 farmers are served by AITs

f) About 82 % of the AITs reported having a linkage with semen/LNG supplier in the area where available

g) Around 87% of AITs received training on business practices and book keeping etc

h) More than 95% farmers have trust in project trained AIT's and are using their services

i) Over 98.5% AIT's trained are working and active fully or part time as active AI service providers.

j) As compared to year 3 end report, the achievement of active AIT's was 97% and PMP target was 60% active AIT's. The project performance in this segment has been over excellent with 98.5%.

Farmers

According to agriculture and livestock census Pakistan has more than 8 Million farming families and over 67 Million animal heads, out of which, more than 60% reside in the province of Punjab. Again most farmers possess traditional knowledge of dairy farming. Some have access to modern knowledge from government run projects (which are also successful), but given the huge density of livestock farming, a full coverage of any good livestock enabling project is farfetched. A total of 9,286 farmers were trained on best dairy farm practices, improved feeding and animal nutrition, basic level animal health management, farm equipment management, shed management, and the importance of improved breeds in first three years of the project. All of the trained farmers were provided with a support kit to improve farm management practices for increased milk yield and earnings

The key findings are as follows, (calculated in reference to year 3 project report achievements, the PMP targets and some additional references from the baseline of Phase -2 and other similar projects of the same nature).

a) Overall, half of the farmers owns Pure (Sahiwal/ Cholistan) farm animals, 76% own local and 22% own cross (European) farm animals' breeds. On average, farmers own 4.7 animals of pure breed, 5.6 of local breed and 4.6 of cross breed.

b) Daily production of milk is higher during winter as compared to summer. On average, 12.4 litters of milk is produced daily during summer and 16.8 litters during winter.

c) Around 95 % of farmers rated the Dairy Development Project as good or excellent and have adopted more than three interventions (best practices).

d) About 82 % of the same number of farmers also use artificial insemination services. Every third farmers reported use of both methods of breeding. A large majority of farmers also reported having knowledge about the presence of artificial insemination technician in their area.

e) Average income increase is by 15% through milk yield increase due to project interventions. This is higher than the PMP target of 10%, higher then project reported 3rd year performance of Rs 7000/- average versus Rs 8200/- per month.

f) With project interventions, 62 % of farmers know about silage making and shed improvement as farm practices. Knowledge of other farm practices including De-worming (89%), vaccination (90%), and natural matting (86%).

g) Major investment is made to shed improvement and on an average each farmer invested Rs. 11,957 on shed improvement, Rs. 4,770 on silage making and Rs. 4,231 on arranging free water access to animals. (This way above the base line and other references from year 3 project report and PMP).

h) Average monthly income from sale of milk during winter is Rs. 19,025 which is Rs. 3,596 more than they earn during summer (This is 15% more than the baseline of Phase-2, and more than the reported average of year 3 performance).

i) About 61% have been reached and like the radio and other communication programs of the project.

j) The consultants are of the opinion that there has been a huge positive impact on farmers from the program.

It was observed and concluded that the project interventions have been highly fruitful for setting a pace for harnessing the potential of the dairy sector in the target area in an integrated manner, with a continuity as indicator for sustainability of 44.8% for WLEW's, 98.2% for AIT's and 95% for farmers. Therefore, it is recommended that the project may be continued for another period of two years with a support mechanism of provision of kits and other trade related grants to jump start work and also to sustain it in the future.

1. INTRODUCTION & BACKGROUND

The dairy and livestock sector contributes around 11 percent to the Gross Domestic Product of Pakistan. There are 7 million farming families and 67 million cattle and buffaloes in Pakistan. More than half of the dairy farmers live in the Punjab province. However, most of these farmers do not follow best dairy farming or breeding practices. Moreover, a few farmers have access to veterinary and breed improvement services. Lack of livestock related businesses only exacerbates the situation. As a result, milk yields are abysmally low in Pakistan and livestock holding has not become a source of prosperity for most of the farmers despite its huge potential for being so.

DRDF, in collaboration with the United States Agency for International Development ("USAID"), is undertaking a Dairy Project in order to foster sustainable increase in dairy and livestock productivity through adoption of best farming practices, breed improvement, availability of timely extension services and promotion of livestock.

In this context, USAID-DRDF Dairy Project was conceived to fill the above gaps by;

- ✓ Organizing the rural dairy farming in communities
- ✓ Training unemployed rural women and men in livestock services to improve access to breeding and health services; along with generating self-employment opportunities
- ✓ Raising Awareness Amongst and Training Rural Dairy Producing Households in Farming Best Practices to improve milk productivity through better management of livestock and input resources and to inspire them to utilize needed livestock breeding and health services
- ✓ To enable this activity to be sustainable beyond the funded life of the project by building the capacity of the Dairy and Rural Development Foundation to introduce and maintain rural businesses to improve the access of dairy households to inputs and continued technical guidance.

The Dairy Project's first phase ran from 2011-2014 with the following four components:

1. Training and support for dairy farmers
2. Training and support for Artificial Insemination Technicians (AITs)
3. Training and support for Women Livestock Extension Workers (WLEWs)
4. Awareness Campaigns.

In order to achieve the objectives, DRDF called for proposals to ascertain the impact of the Dairy Project, its various activities and training programs etc. on dairy rural household in general and on the trainees, farmers and cattle in particular, through conducting a Baseline and End line Surveys from independent third party evaluators.

M/S Sustainable Solutions (Pvt.) Ltd were selected as the evaluators to conduct the desired Baseline and End line Surveys. This report describes the performance evaluation of the project and is prepared as part of the baseline study.

2. OBJECTIVE & SCOPE OF WORK

2.1 Objectives

The main objective of this study is to measure the impact of the Dairy Project on various targeted aspects of the Dairy Rural Households/Farms through a performance evaluation.

- The targeted areas that were covered under the study are:
- Farm Productivity and efficiency: Milk Yield / Animal, Profitability, Milking Animals as a %age of Total Animals Milk Quality and Price Yield, Livestock Growth, Land Usage
- Sustainable availability of services: Extension, Quality Artificial Insemination, Diseases Diagnosis and Treatment
- Access to Inputs : Product Portfolio and Cost, quality of inputs, Usage
- Market Access : Supply Chain steps to market of milk, livestock, meat
- Employment opportunities for rural youth : Artificial Insemination, Health Provision, Herd Management
- Women Empowerment : Social Interaction and Respect, say in household affairs
- Community Engagement : Collective Self Extension and knowledge propagation, collective buying on scale, self-managed and arranged follow up gatherings, collective decision making and problem solving

2.2 Scope of Work

The scope of work depicts impact evaluation of the phase –II of the project. Methodology to carry out the studies is as under:

3. Methodology

Following methodology was adopted for the study:

3.1 Desk Review

Desk Review

In order to get an in depth understanding of the project following material related to the project was reviewed:

- Program Description as given in the Cooperative Agreement
- Annual Implementation Plan
- Project's Progress Reports
- Monitoring and Evaluation Activity Plan

In addition a series of consultation meetings were held with the senior staff at Dairy Project to understand the context of the project. This helped in developing evaluation methodology. The consultant interacted with the stakeholders including, but not limited to, Dairy Project's staff, staff of other projects working in the livestock sector, trainees of Dairy Project and other livestock projects and government functionaries.

A team having an in-depth knowledge of undertaking impact evaluation assignments at national level was deployed for the study. This team comprised of M&E specialists, dairy business experts and data analysts.

3.2 Sampling

The objective of the sampling strategy is to create a sample of households benefiting from Dairy Project, split into two categories i.e. treatment household and control household. In order to achieve this goal a multi-stage sampling strategy was adopted. Following steps were undertaken to conduct the baseline:

Phase 1. Defining a sampling frame; is the source material or device from which a sample is drawn. It is a list of all those within a population who can be sampled. In this scenario they are 40,000 farmers, 2,000 WELWs, 1,000 AITs and 100 Model Farms. Once the beneficiaries were identified, Simple Random Sampling (SRS) was used to identify the sampled beneficiaries.

Based on the above, the following sample was agreed:

Phase – I: Performance Survey

Name of District	Sample data collected			
	Farmers	AITs	WLEWs	Total
Bahawalpur	30	40	30	**100**
Khanewal	80	40	60	**180**
Lodhran	20	40	20	**80**
Multan	120	40	80	**240**
Muzaffargarh	20	60	20	**100**
Vehari	120	40	100	**260**
Total	**390**	**260**	**310**	**960**

Beneficiary Type	Population	Confidence Level	Confidence Interval	Sample Size
Farmers	40,000	95%	5	381
WLEWs	2,000	95%	5	322
AITs	1,000	95%	5	278
Total				**981**

3.3 Instrument Development

Both quantitative and qualitative approaches were adopted to conduct performance evaluation of Phase- I beneficiaries. These instruments were shared with DRDF Project for comments and sign-off before field testing and finalization. Later during the field staff training these tools were tested through pilot testing and mock exercise. Based on the findings these tools were improved and finalized with the project team.

The data collected was processed in SPSS for analysis. Detail process of data processing and analysis is mentioned in later section on data analysis.

3.4 Study Limitations

Some unanticipated realities that the study team had to face during the field operations were as follows: -

a) When field survey was started the team came to know about the reluctance of enumerators to take part in the field surveys for the projects financed by INGOs especially USAID due to the fear of personal safety as there had been many incidents where the field enumerators were threatened while carrying out field activities on foreign funded projects.

b) The enumerators and field workers at Union Council level were hugely engaged by Punjab government for voter's census for the upcoming local body elections.

c) During Performance Evaluation a number of identified AITs and farmers refused to talk or were not available in the given location, therefore, alternate AITs and farmers were identified for interviews/ data collection which resulted in delays.

4. Survey Execution

The survey team first undertook household listing. During this exercise the teams identified treatment and control households, obtained initial information regarding the households. This helped the survey teams to locate these households during the baseline survey and later during the end line survey.

The survey teams were hired from the targeted districts as being local the teams were well conversant with the custom-culture, demographics and local communities.

The survey teams were closely monitored at all levels. For example, each survey team was managed and supervised by the field supervisor and monitoring team. The purpose of this arrangement was to ensure quality of quantitative data collection.

The monitoring team would randomly select filled forms and re-visited household to validate the information gathered by the field enumerators.

4.1 Field Team Training

Training of field enumerators

Before the data collection exercise, a training was organized for the enumerators and field supervisors representing each district. This training covered concept development and questions understanding, mock exercise, feedback and concept rebuilding. The training was conducted at Multan on 24th may, 2015, this location was selected due to the central location and easy access for the enumerators. Training material for each session was prepared and shared with the trainees. Prior to commencement of the training sessions, detailed training plans were developed and shared with Dairy Project. The training mainly focused on the following:

1. Understanding of community data gathering Guidelines
2. Mock-up Sessions
3. Area Reconnaissance and Participant Selection

Training of Data Entry Operators

During the inception phase data entry operators and data coder was selected who participated in the training session held at Islamabad on 15th June -, the objective of the training was to impart a clear understanding of the program interventions, Survey tools and their objectives and to ensure meticulous data entry. This training workshop was managed through three modules.

Module 1: Survey Understanding

Module 2: Data Entry

Module 3: Data Cleaning

4.2 Field Team Deployment/ Data Collection

As part of the survey design phase and upon finalization of required instruments, detailed data collection guidelines for each section and question of the instrument (s) was developed and shared with the enumerators during detailed orientation/training session. These guidelines were implemented in the field by the enumerators under close supervision of field supervisors. Accompanied Visit, Spot checks and back checks for data quality assurance were performed by survey manager, regional coordinator, supervisor and project team leader. The Field Supervisors (FSs) continually trained the enumerators throughout the assignment. They were accompanied with enumerator's teams during the interview until completely confident that all members are able to handle the task on their own.

A daily debriefing session was held at each regional office at the end of each day. The field team performed data editing and data validation tasks. The teams swapped their filled instruments and cross-checked each other's work. Marked envelops having filled out questionnaires were dispatched to the centralized Data Management Hub in Islamabad, by the field supervisor.

4.3 Data Validation

Data quality assurance was insured by:

Measurement Error: As part of the Quality Assurance Mechanism, all measurement errors were be minimized through concept building exercise, mock exercise, and data collection guidelines and accompanied interviews.

Transcription Error: *Transcription error were minimized using data validation checklists. The Enumerators validated the collected information before handing it over to the Field Supervisors (FS). The FS again reviewed all questionnaires before dispatching them to the centralized Data Entry Hub. Any discrepancy in the filled instruments was adjusted using logic, predefined guidelines, enumerators' knowledge and respondents were contacted via phone and revisited for collection of missing information.*

Unrepresentative Sampling*: To avoid this error, sample was selected from each defined strata with approved proportion. Field supervisors and field monitoring teams ensured that data was collected as per the approved sampling plan and proportion.*

Survey Instrument*: Survey instrument was validated during mock exercise and pilot testing. To ensure data reliability, detailed guidelines were developed, specific instruction for each question was devised on receipt of survey questionnaire.*

4.4 Data Processing / Cleaning

A specialized data entry program was developed in SPSS in line with the quantitative form to feed in the data collected in the field. This was shared with Dairy Project to comment and finalize before the commencement of the survey.

4.5 Data Analysis - Report

The data collected in the field was randomly checked by the field supervisors for completion. This data was sent to Islamabad for data feeding and analysis. Consultants proposed SPSS for data feeding and analysis.

The field supervisor and monitors ensured cleaning of data at field level through checking completeness of forms, consistency and logical flow of information. This saved time while data feeding.

The data entry operators received clean forms to be processed in the SPSS. To ensure quality of data feeding double data entry method was adopted. Following steps were be undertaken for data analysis and report writing:

- Indexing of questionnaire
- Double data entry
- Post-entry verification
- Perform Data Analysis
- Consistency Check
- Technical review of data analysis and final datasets
- Draft report

The findings of the study are given in the section below.

5. Findings

The finding of the Performance Evaluation survey could be clubbed into three main categories:

1. Women Livestock Extension Worker
2. Artificial Insemination Technicians
3. Farmers

5.1 Women Livestock Extension Workers

Section Summary:

Under the project 5,015 WLEWs were trained in first three years to provide basic animal treatment and animal feed at farmers door step. All trainees were provided with a support kit to kick-start businesses in order to ensure better earnings. To conduct this performance evaluation a sample of 324 WELWs were selected from the total of 5015 trained WELWs as per the following distribution within districts:

Vehari	Lodhran	Multan	Muzaffargarh	Bahawalpur	Khanewal	Total
100	19	94	21	30	60	324

A summary of findings of the performance evaluation of WELWs is given as under: -

Out of the total WLEWs consulted 94 % of have completed their education at least up to middle level with majority (34%) having matriculation a few (0.3%) with higher education up to Masters.

Although marriage not being an important criteria, however, 60% of the respondents are married. Culturally the married women are more active and have less mobility restrictions as compared to young unmarried women.

As expected the age group of 20-30 years (67%) is much active being 27 years average for all the WELWs interviewed. The average household size of the respondents is 7.7 with equal number of male members of the household.

Regarding source of income of the WELWs one third the workers reported health treatment services as the main source of income whereas 28 % of the workers reported sale of animal feed as the main source. About 19% WELWs mentioned both health treatment and feed sale to be main sources of income. There are about 16 percent of workers reported no source of income.

About 78 % of the women trained as WELWs identify themselves as Livestock Extension Workers whereas 11 % as Livestock Health Workers and Livestock Business Entrepreneurs.

Less than half (45%) of the workers reported as active workers after their training and subsequent association with DRDF project. When the remaining 55%inactive WELWs were asked to express reasons as why they are not active, 32 % of the inactive workers reported that this was not a profitable business, 25% said that they got married and another 20 % mentioned social constraints as main reason for being inactive. Out of the all respondents 76% workers are maintaining records on regular basis.

More than half of the WELWs (58%) are providing services for treatment of animal diseases. At an average 6 animals are treated for diarrhoea and Tympani each every month by a single WELW whereas, de-worming services are provided to 25 animals and vaccination services to 45 animals in one month. At an average, workers are charging Rs. 218 to treat one animal for

diarrhoea, Rs. 211 for treatment of Tympani, Rs 257 for De-worming an animal and Rs 274 for vaccinating one animal with variation of rates in all the districts

Regarding expenses on different services by the WELWs, it was learnt that at an average, worker spends Rs. 828 per month on providing vaccination services and Rs. 637 on provision of De-worming services. Workers monthly expenses for providing Tympani treatment services are Rs. 405. Workers also spend Rs 382 per month for providing treatment of Diarrhoea.

After excluding expenses on the services provided by the WELWs the average monthly income of workers from provision of vaccination services is about Rs 1,712, for De-worming services Rs. 1,207 and Rs. 980 and Rs. 747 for providing treatment of Tympani and Diarrhoea respectively.

Selling animal feed is also part of the WELWs services. Almost 57 % of the active workers sell animal feed whereas 55% of active workers sell Vanda only 9% sell Mineral Mix feed. At an average, a worker sells 95 kilograms of Vanda and 101 kilograms of Mineral Mix in one day.

On an average an active worker is providing services to 1.7 villages. More than 43 % of workers do not serve any village, less than 20 percent of workers reported serving one village and 20 percent reported providing service to two villages.

Estimated number of farmers who approach WELWs for services from the villages is 84 and average number of farmers serviced by active workers is 32 in month. Almost all of the active workers reported to have developed confidence of framers regarding provision of solutions to the health issues of their animals as 63% reported that the farmers consider them as a reliable source in providing animal health and nutrition services.

All the workers have established linkages with input suppliers where ever available. Almost 74 % of workers do not have any supplier in their area, 8% have one supplier, 10 % reported having access to 2 suppliers and 8 % reported three or more suppliers. Availability of suppliers varies across districts. More than half of the workers received training on business practices and book keeping. Regarding problems faced while doing their job, 43% of workers reported that there job was not viewed with as favourable in the society. Almost 37% reported that they had restricted mobility and another 30 % had restrictions on talking to men.

Media campaign reaches up to 56% of the active workers. The main source of information on dairy farming is social mobilizers (64%) followed by radio (23%) and television (16%). Of those who got information on dairy farming through media campaign, 57 % rated it good and another 33 % rated it fair. On average, DRDF has organized 1.4 meetings, 64% workers reported that no follow-up meeting was organized by DRDF, 18% workers reported one or two meetings and 9% reported 5 or more meetings. About 63% of workers reported the existence of cluster formation in the area, 90% of active workers got the cluster membership and regularly participated in the meetings.

5.1.1 Respondent Level of Education

A large majority (94%) of WLEWs have completed at least 8 years of schooling. Educational attainment varies among districts. All of the respondents from Multan, Muzaffargarh and Bahawalpur and about 90 % from Vehari, Lodhran and Khanewal have completed at least 8 years of schooling.

Table 5.1-1: Percent Distribution of Workers by Level of Education

Level of Education	Illiterate	Up to Primary	Middle	High School	Intermediate	B.A/B.Sc	M.A/M.Sc	Total
Total	0.00%	5.90%	28.70%	34.60%	22.20%	8.30%	0.30%	100%

5.1.2 Respondent Marital Status and age

Sixty percent of the workers are married. Proportion of married workers is the highest in Muzaffargarh (67 %) and the lowest in Bahawalpur (47 %) among all districts.

It is a general perception that married women have higher mobility therefore; higher proportion of married women will be active workers. However, when monitoring data was analysed, it was learnt that marriage had no influence on the overall performance of the workers.

The average age 27 years. Workers in Vehari are older (28 years of age) and are younger in Lodhran (23 years old) among the districts.

Three in four workers are between 20 to 30 years of age. More than 84 % of workers from Lodhran are between 20 to 30 years of age which is the highest percentage among all districts.

Overall, household size is 7.7. The average number of male members and female members in a household is almost the same. While comparing household size among districts, it is clear that household size in Vehari (11.3) is the largest followed by Muzaffargarh (8.6) among all districts. On the other hand, household size in Lodhran (4.7) which is the smallest among districts.

5.1.3 Sources of Income

One third the workers reported health treatment services as the main source of income, 28 %sale of animal feed, 19% health treatment and feed sale as the main source of income. About 16 % of workers reported no source of income.

The workers who reported health treatment as the main source of income are 74 % in Lodhran. Sale of animal feed is the main source of income for 53 % of the workers in Khanewal. Surprisingly, 60 % of the workers from Bahawalpur and 38 % from Muzaffargarh had no source of income. Main sources of income in target districts is given in the below table.

Table 5.1-2: Percent Distribution of Respondents by source of income

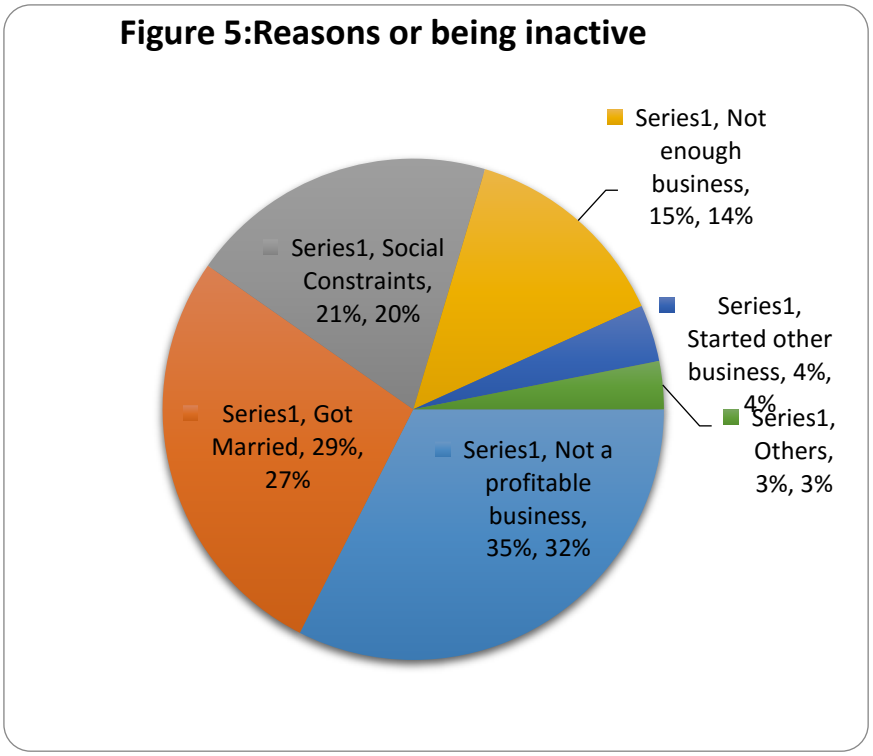
Source	Health Treatment	Feed Sale	Both	Family Income	Stitching the Cloths	No Income	Total	N
Overall	32.7	27.5	18.5	4.9	0.6	15.7	100	322

A large majority (78 %) of the workers are Livestock extension workers whereas 11 % each work as Livestock Health workers and Livestock Business Entrepreneurs.

All of the workers from Muzaffargarh and Khanewal and 90% and 94% from Bahawalpur and Multan respectively are livestock extension workers. It is interesting to note that 25% of workers in Vehari district work as Livestock Health workers and another 33% work as Business Entrepreneurs because this category does not exist in other districts. Only 45 % of the workers reported as active workers. Proportion of active workers varies substantially across districts. Proportion of active workers is the highest in Vehari (93 %) among all districts and the lowest in Multan from where only 9 % active workers are reported.

When workers were asked why they are not active, 32 percent of the workers reported that this was not a profitable business. Twenty seven percent reported that they got married and another 20 percent mentioned social constraints as main reason for being inactive.

Figure 5.1-1: Reasons for being inactive



Among active LHWs three in four workers are maintaining records on regular basis. All of the workers in Khanewal are maintaining their record however, only 45 % of workers in Bahawalpur are maintaining record.

5.1.4 Animal Treatment

About 58 % of the workers are providing services for treatment of animal diseases. All most all of the workers from Lodhran and Bahawalpur and 82 % each from Muzaffargarh and Khanewal are treating farm animal diseases. However, only 41 % of the workers are providing animal treatment services in Vehari.

About 80 % of the workers reported treatment of Tympani, 71 % are treating Diarrhoea and about 67 % each are providing de-worming and vaccination services. District level estimates are not meaningful to discuss because number of cases for this variable is negligible.

Table 5.1-3: Percent of workers who can treat diseases

Disease	Diarrhea	Tympani(Gas)	Deworming	Vaccination	Other (Injury etc.)	N
Overall	71.40%	79.80%	67.90%	66.70%	9.50%	84

On an average, 6 animals each are treated for diarrhoea and Tympani in a month. De-worming services are provided to 25 animals and vaccination services to 45 animals in a month.

Average fee charged by worker for each type of service being provided in presented in table 7. Tables which suggests that on average, workers are charging Rs. 218 to treat one animal for diarrhoea, Rs. 211 for treatment of Tympani, Rs 257 for De-worming an animal and Rs 274 for vaccinating one animal.

Workers were asked about their monthly expenses in providing treatment services to local farmers. Monthly expenses vary by type of services provided. On average, workers spend Rs. 828 in a month on providing vaccination services and Rs. 637 on provision of De-worming

services. Workers monthly expenses for providing Tympani treatment services are Rs. 405. Workers also spend Rs 382 in a month for providing treatment of Diarrhoea.

Monthly income of workers who are providing treatment services which indicate that workers are earning about Rs 1,712 per month by providing vaccination services and earning Rs. 1,207 for De-worming services. Workers also earn Rs. 980 and Rs. 747 for providing treatment of Tympani and Diarrhoea respectively.

Table 5.1-4: Average monthly income

Disease	Diarrhea	Tympani(Gas)	De-worming	Vaccination	Other (Injury etc.)
Overall	747	980	1207	1712	254

5.1.5 Animal Feed

Overall, 57 % of the active workers sell animal feed out of which 55% sell Vanda and only 9 % sell Mineral Mix feed.

Proportion of active workers selling animal feed varies from district to district. About 82 % of the active workers from Lodhran sell feed which is the highest percent among all districts. On the other hand, only 9 % of the active workers sell animal feed which is the lowest among all districts. Very few active workers sell Mineral Mix in all districts except Lodhran where 73 % of the active workers are involved in Mineral Mix sale. Percent of currently active workers who sell animal feed is presented in the table below.

Table 5.1-5: Percent of Currently active Workers selling Feed

Feed type	Vanda	Mineral Mix	Any of above	N
Overall	54.50%	9.00%	56.60%	145

Workers who are selling Vanda, were asked about the available quantity of Vanda, average daily sale and average daily income from sale of Vanda. Workers reported that on an average, 813 kilograms of Vanda is available to a worker. Quantity of Vanda available to a worker varies across districts. Workers from Vehari reported that they had 1,051 kgs of Vanda which the highest quantity available to a worker among all districts.

On an average worker sells 95 kilograms of Vanda in a day. Daily sale of Vanda does vary among districts. Average daily sale of Vanda is 329 kilograms in Lodhran which the highest daily sale among all districts and only one kilogram as reported by workers from Bahawalpur which is the lowest among districts.

Average daily income of workers from sale of Vanda is Rs. 1,388. Average daily income is Rs. 1,725 in Vehari – the highest among district and Rs. 40 in Bahawalpur which is the lowest among districts.

Workers who are selling Mineral Mix, were asked about the available quantity of Mineral Mix, average daily sale and average daily income from sale of Mineral Mix. Workers reported that on an average, 179 kilograms of Mineral Mix is available to a worker. Quantity of Mineral Mix available to a worker varies across districts. Workers from Vehari reported that they had 800 kgs of Mineral Mix which the highest quantity available to a worker among all districts.

On average, a worker sells 101 kilograms of Mineral Mix in a day. Daily sale of Mineral Mix does vary among districts. Average daily sale of Mineral Mix is 450kilograms in Multan which the highest daily sale among all districts and 2 kilograms as reported by workers from Muzaffargarh which is the lowest among districts.

Average daily income of workers from sale of Mineral Mix is Rs. 428. Average daily income is Rs. 500 each in Vehari and Khanewal and between Rs. 442 to 450 in Lodhran and Multan.

5.1.6 Extension Service Outreach

On an average, an active worker is providing services to 1.7 villages. Average number of villages served by a worker varies from district to district. In Muzaffargarh an active worker is providing services to 3.5 villages which the largest number being served among all districts.

Surprisingly, more than 43 % of trained workers do not serve any village. Slightly less than 20 % of workers reported serving one village and 20 percent reported service to two villages.

Ninety one percent of the workers in Bahawalpur and 55 % workers in Muzaffargarh do not serve any village. One the other hand, 36 % workers from Muzaffargarh provide services to 3 or more villages.

Table 5.1-6: Percent distribution of Currently Active Workers by Number of Villages served

Number of Villages	None	One Village	Two villages	Three or more	Total	Mean number of Villages	N
Overall	43.40%	19.30%	20.00%	17.20%	100.00%	1.7	145

On an average, the number of farmers from the villages is 84 and average number of farmers served by active workers is 32 in a month.

Number of estimated farmers in the area served by an active worker in Muzaffargarh is 827 which is the highest amongst all districts. On the other hand, average number of farmers served by an active worker is 31 in Lodhran which the lowest number amongst all districts.

On an average, one worker serves 32 farmers. Workers in Muzaffargarh serve 181 farmers and this is the highest number among all districts. Less than three workers are being served by an active worker in Lodhran district.

Almost all of the workers are able to develop the confidence of framers that she can provide solution to the health issues of their animals. All of the workers from Vehari, Muzaffargarh, Bahawalpur and Khanewal were approached by the farmers for consultation and advice on animal health and nutrition.

Almost all of the active workers had established linkage with input suppliers. All of the workers from all districts except Multan reported linkages with input providers. Figure 5.1-11 below give an overview of the district wise linkages.

When active workers were asked how their services were perceived by farmers, 63 % replied that the farmers consider them as a reliable source in providing animal health and nutrition services.

Districts vary substantially in this regard. Ninety one percent of workers from Lodhran mentioned that they were considered as reliable source and this proportion is the highest among all districts. Whereas only 9 percent of active workers each from Bahawalpur and Khanewal are perceived as reliable source.

About three in four active workers had no suppliers in their area. Which suggests that on average, less than one supplier exists in an active worker's area. Workers in Lodhran and Muzaffargarh reported about two suppliers in their areas and workers from Bahawalpur reported none.

Overall, 74 % of workers do not have any supplier in their area. Eight percent reported one supplier, 10 %reported two suppliers and 8 %reported three or more suppliers. Availability of suppliers varies across districts. None of the workers from Bahawalpur reported presence of suppliers in their areas. On the other hand, 82 % of workers from Lodhran reported existence of suppliers in their area.

More than half of the workers received training on business practices and book keeping. All of the workers from Bahawalpur received training on business practices and book keeping. A large majority of workers from Lodhran (91 %) and Multan (88 %) received training. However, only 27 % of workers from Muzaffargarh were trained on business practices and bookkeeping.

Active workers reported problems faced regarding their job, 43 % of workers reported that there job was not looked at favourably in the society. Thirty seven percent reported that they had restricted mobility and another 30 % had restrictions on talking to men. More than one-fifth or workers did not get fee from farmers and same percentage of workers mentioned presence of other service providers like veterinary officers etc. in the area.

A large majority of workers from Lodhran (91 %), Muzaffargarh (91 %t), Bahawalpur (82 %) and Khanewal (82 %) reported that their work was not fully acceptable in the society. Mobility related problems were commonly reported from Lodhran, Multan and Khanewal. Non-payment of services by the farmers is the highest in Khanewal and Lodhran from where more than half of the workers complained about non-payment by farmers.

Table 5.1-7: Percent distribution of Currently Active Workers by problems faced in performing their duties

Problems	Work is not looked at favorably in the society	Restrictions on mobility	Restrictions on talking to men	Other women in their *Baradri* also works	Farmers decline to pay for your services	Veterinary Officer available in your village	N
overall	42.80%	37.20%	30.30%	25.50%	21.40%	24.80%	145

Media campaigns reached up to 56 %of the active workers. All of the workers from Lodhran and Bahawalpur and 82 percent from Muzaffargarh have had seen/heard about media campaign on dairy farming. On the other hand only few from Khanewal and Vehari reported about media campaign. Figure below gives the details on access to media campaigns.

The main source of information on dairy farming is social mobilizer followed Radio and Television. All of the workers who have heard/seen media campaign in Bahawalpur and Lodhran reported social mobilizer as the source of information.

Of those who got information on dairy farming through media campaign, 57 % rated it good and another 33 % rated it fair. Khanewal is the only district where respondents rated the communication as poor.

Table 5.1-8: Workers' Perception about usefulness of program in disseminating information

Usefulness	Poor	Fair	Neutral	Good	Excellent	Total	N
Overall	0.70%	33.10%	6.90%	56.60%	2.80%	100.00%	145

On an average DRDF has organized 1.4 meetings. District variation does exist. More meetings were organized in Lodhran (5.8) followed by Khanewal (4.3) as compared to other districts. No meeting was organized in Muzaffargarh and negligible was organized in Vehari.

Three in four workers reported no follow-up meeting was organized by DRDF. Eighteen percent reported one or two meetings and nine percent reported 5 or more meetings. As mentioned, no meeting was organized in Bahawalpur. More than 77 % of the active workers from Vehari and half of workers from Multan reported no follow-up meetings.

Number of meeting organized by DRDF was on average per location was 1.4, but WLEWs meet together more than that to establish business and sensitize farmers. Workers have more follow-up meetings (3.1) than organized by DRDF (1.4). Workers had more than 7 follow-up meeting in Muzaffargarh and more than 3 meeting in Vehari.

When active workers were asked about the usefulness of these follow-up meeting, more 56 % rated these meetings as good or excellent. That suggests these are helpful and achieving the objectives. All of the active workers from Muzaffargarh and 73 % from Multan rated these

meetings as good or excellent.70% of active WLEW responded useful information was disseminated in the meetings.

Sixty three percent of workers reported the existence of cluster formation in the area. Ninety percent of active workers got the cluster membership and regularly participated in the meetings

Cluster formation is much wide spread in Lodhran and Muzaffargarh compared to other districts. It does not exist in any of the active worker's area in Khanewal.

Almost all of the workers in Bahawalpur and Vehari had membership and all members regular attend cluster meetings in Vehari and Muzaffargarh.

5.2 Artificial Insemination Technicians

Section Summary

A total of 2032 AITs were trained and established as small entrepreneurs in first three years of the project. Training included a mix of theory, demonstration and practical exercises related to insemination and safe handling and maintenance of insemination guns, liquid nitrogen cylinders for transporting semen, and other AI supplies and equipment. All 2032 AITs provided with a support kit to jump-start their businesses and improve their income. The Dairy and Rural Development Foundation also supported in capacity building to enable the AITs in maintaining and growing supply chain of a diversified breeding products portfolio to the Project Trained AITs.

For this study a total of 263 AITs were selected out of the total of 2032 with following district wise distribution:

Vehari	Lodhran	Multan	Muzaffargarh	Bahawalpur	Khanewal	Total
40	40	40	62	40	41	263

About 13 percent of AITs are graduates or above with a minimum number (1.1%) having primary education and highest (51%) completing high school followed by 29% up to intermediate and 9.5% have done graduation. Out of the all people consulted, an average of 3.4% have attended universities for education up to masters.

An average of 69 percent of AITs are married. The average age of the AITs is 29 years with 61% AITs falling in the bracket of 20-30 years followed by 36% in 30-40 years only 1% were older than 40 or below 20 years of age. The average household size is 8.5 in the project area

A Register of activities and progress is maintained by 57% of the AITs. For this evaluation the sources of information of income and expenses were) register maintained by 33 %of AITs and ii) 67 % used their memory. The record shows that on an average, 12.7 doses of imported and 33.8 local semen are used in a month. The average number of conceived cases is 9.5 which is 75% of imported semen cases. The average monthly cases conceived from use of local semen are 26.1 which is 77 % of use of local semen.

Average fee per imported and local semen case is Rs. 1,102 and Rs. 531. AITs are charging more than double free for imported case than local semen case. Average monthly income of an AIT from imported semen as well as from local semen is same which is more than Rs. 11,000 per month after deducting the average monthly expenses of Rs. 4,534 for provision imported semen services and Rs. 2,997 for local semen services.

In addition to service provision for imported and local semen, on average an AIT performs 30 pregnancy tests in a month and charges Rs. 95 for each test. Average monthly revenue from pregnancy tests is Rs. 2,269 and monthly expenses are Rs. 571.

On average, 5.7 villages with an average of 134 farmers are served by AITs. Regarding pregnancy success ratio, 8 % of AITs reported one in one (i.e., pregnancy on first attempt). About two-thirds of the AITs reported that pregnancy occurs in second attempt and an additional 24 % reported pregnancy occurs in three attempts. Almost all of the AITs reported they are considered by the farmers as a reliable service provider in the community.

About 82 % of the AITs reported having a linkage with semen/LNG supplier in the area where available. Overall, 43% of the AITs reported no suppliers in their area, 15% reported one supplier and 25 % reported two suppliers in their area and 17% of the AITs reported 3 or more suppliers.

Almost 87% of AITs received training on business practices and book keeping etc. 84% of AITs confirmed that the Media campaign reached them. The main source of information on dairy farming is social mobilizers followed by radio and television. About 78 % of AITs rated the campaign to be good and only 6 % rated it fair. On an average, DRDF has organized 6.8

meetings. Less than 14% of the AITs reported no follow-up meeting was organized by DRDF, 22% reported one or two meetings and 40 % reported 5 or more meetings. Almost 83 % rated the follow up meetings as good or excellent.

5.2.1 Level of Education

Level of education of AITS is presented in table5.2-1. Data suggest that about 93 percent of AITS have completed high school or above. There are about 13 percent of AITs who are graduates or above.

Educational attainments vary across district. Almost all of the AITs from Vehari and Muzaffargarh have completed high school or above. Proportion of AITs with higher education (Graduation or higher) is the highest in Muzaffargarh (27 percent) followed by Khanewal (19 percent).

Table 5.2-1: Respondents by Level of Education

Level of Education	Illiterate	Up to Primary	Middle	High School	Intermediate	B.A/B.Sc.	M.A/M.Sc.	Total
Total	0.00%	1.10%	5.70%	51.00%	29.30%	9.50%	3.40%	100%

5.2.2 Age Group and Marital Status

Figure 5.2-1 presents data on marital status of respondents. About 69 % of AITs are married. Proportion of married respondents varies across district. Proportion of married AITs is the highest in Multan. Sixty three percent of AITs each in Lodhran, Bahawalpur and Khanewal are married.

The average age of the AITs is 29 years. AITs from Vehari are older (31 years) and the younger (28 years) in Lodhran compared to other districts.

A large majority (61 percent) of the respondents are between 20 to 30 years of age. About 36 percent fall in 30 - 40 years age group. No variation across districts exists.

The average household size in these project districts is 8.5 with an average number of males and females per household. Household size is the largest in Muzaffargarh and the smallest in Lodhran. Figure below presents data on household size, mean number of male members and mean number of female members in a household.

5.2.3 Record Maintenance and income

Performance register is maintained by 57 percent of the AITs. Almost all AITs in Khanewal and 85 percent in Lodhran reported maintenance of register. One in tenth of AITs maintains register in Multan. Figure below gives district wise details on maintenance of record.

Data show that, on an average, 12.7% imported and 33.8 % local semen are used in a month. Average monthly use of imported semen by AITs is 16.8 doses in Lodhran which is the highest among all districts. Use of imported semen is 5.1 doses in Vehari which the lowest among all districts.

Use of local semen is the highest in Bahawalpur where, on an average AITs are using local semen in 36 cases per month which is highest among all districts. On the other hand monthly use of local semen is the lowest in Multan (11.2 cases) among the districts.

AITs were asked about average number of conceptions from imported semen. The average number of conceived cases is 9.5 which is 75 percent of the total imported semen cases suggesting that conception rate of imported semen is 75 percent. Average number of conceived case in Lodhran is 13.6 which is the largest among all districts followed by 11 cases each in Multan and Khanewal.

The average monthly cases conceived from use of local semen are 26.1 which is 77 percent of the total use of local semen. This suggests that conception rate of local semen is almost the same as imported semen. On average, 50 cases of local semen conceived in Muzaffargarh

which translate in 77 percent conception rate from use of local semen. Only nine cases were conceived in Multan.

Average free per imported and local semen case is Rs. 1,102 and Rs. 531 respectively. AITs are charging more than double free for imported semen as compared to local semen case. Fee rate for imported semen is Rs. 1,998 in Vehari which is the highest fee rate for imported semen among all districts. However AITs in Bahawalpur charge about Rs. 780 per case for imported semen.

AITs in Vehari are charging Rs.1.383 per case of local semen and this fee rate is the highest among all districts. On other hand, AITs are charging Rs. 304 for a local semen case in Bahawalpur which is the lowest among all districts.

Average monthly income of an AIT from imported semen as well as from local semen is same which is more than Rs.11,000 per month. Average monthly expenses are Rs. 4,534 for provision imported semen services and Rs. 2,997 for provision of local semen services.

Average monthly income from imported semen services is almost the same in Lodhran, Muzaffargarh and Khanewal where an AITs income ranges between Rs 12000 to 13,400. However, AITs monthly income from imported semen is less than Rs. 9,000 in Vehari and Bahawalpur.

Average monthly income from local semen is Rs. 22,800 in Muzaffargarh which is the highest earnings among all districts. On the other hand monthly income from local semen in Multan is less than Rs. 5,000.

Average monthly expenses for provision of imported semen services are Rs. 4,534 and for local semen is Rs. 571. Monthly expenses on imported semen services is 40 percent of the total monthly income from imported semen services and 27 % of the total income in case of local semen services. This suggests that there is higher profit margin for local semen compared to imported semen cases.

In addition to service provision for imported and local semen, information was also collected on average number of pregnancy tests performed, fee rate for each test and monthly income and expenses. On average an AIT performs 30 pregnancy tests in a month and charges Rs. 95 for each test. Average monthly revenue from pregnancy tests is Rs. 2,269 and monthly expenses are Rs. 571.Fee rate for pregnancy test in Multan is Rs. 288 which is the highest fee rate among all districts. Average monthly income from pregnancy test services is Rs. 3,114 in Muzaffargarh which is the highest and earn Rs. 400 in Vehari which is the lowest among all districts.

AITs performance regarding pregnancy tests varies significantly across districts. AITs in Bahawalpur performed 34 pregnancy tests in a month which the highest number among all districts. On the other hand, 12.5tests are performed by AITs in Multan.

The sources of information of income and expenses were record register (33 percent of AITs) and verbal information (67 percent).

A large majority (73 %) of AITs in Lodhran used register to provide income/expenses information whereas a large majority of AITs from Multan (88 %), Muzaffargarh (84 %) and Khanewal (83 %) did not maintain an income and expenses register and used their memory to provide the information.

Eighty one percent of the AITs reported follow up with inseminated animals for pregnancy tests. All of the AITs in Khanewal and a large majority of AITs from Bahawalpur and Multan followed up inseminated animals for pregnancy test whereas only 53 percent of AITs in Vehari district dis the same.

5.2.4 AI Outreach

On an average 5.7 villages are served by an AIT with an average 567 number of farmers out of which 134 are served by AITs.

Each AIT serves 10 villages in Muzaffargarh which is the highest number of villages served among all districts. In other districts, one AIT provides service to 4 to 5 villages.

Average number of farmers per AIT is the highest in Khanewal (2,647) and the lowest in Vehari (71). AITs provided services to 357 farmers in Khanewal which is the highest and to 35 farmers in Vehari, which is the lowest among all districts. AITs in Khanewal are providing services to 10 times more farmers than Vehari.

Table 5.2-2: Average number of Villages and Farmers served by AITs

Services	Villages served (No.)	Farmers (No.)	Farmers Served (No.)	N
Overall	5.7	566.7	134.5	263

When AITs were asked about their view on pregnancy success ratio 8 percent of AITs reported one in one (i.e., pregnancy on first attempt). About two-thirds of the AITs reported that pregnancy occurs in second attempt and an additional 24 percent reported pregnancy occurs in three attempts.

Table 5.2-3: Success ratio of Pregnancy to Insemination Procedures

Success rate	One in One	One in Two	One in Three	One in Four	One in Five	Total	N
Overall	7.60%	65.40%	24.30%	1.50%	1.10%	100%	263

Almost all of the AITs reported they are considered by the farmers as a reliable service provider in the community. This is found to be true for all districts.

AITs reported their linkages with Semen/LNG suppliers Overall, 82 percent of the AITs reported having a linkage with semen/LNG supplier in the area. These linkages are widely spread in Lodhran, Bahawalpur and Khanewal. Less than half of the AITs in Vehari reported lack of such linkages with semen suppliers.

On average there are 1.3 semen suppliers per AIT. Overall, 43 percent of the AITs reported no suppliers in their area. Fifteen percent reported one supplier and 25 % reported two suppliers in their area, 17% of the AITs reported 3 or more suppliers.

Eighty four percent of AITs from Muzaffargarh and 73 % from Khanewal reported no supplier in their areas. Availability of semen suppliers is wide spread in Lodhran, Bahawalpur and to some extent in Multan.

Table 5.2-4: Percent distribution of AITs by number of suppliers

Suppliers	None	One	Two	Three or more	Total	N
Overall	43.00%	14.80%	25.10%	17.10%	100%	263

A large majority (87 %) of AITs received training on business practices and book keeping. All of the AITs from Bahawalpur and Vehari received training on business practices and book keeping. A large majority of AITs from Lodhran (93 %), Khanewal (88 %) and Multan (83 %) received training. However, only 69 % of AITs from Muzaffargarh were trained on business practices and bookkeeping.

5.2.5 Dairy Project Infomercial for AIs

Media campaign reaches up to 84 % of the AITs. All of the respondents from Lodhran and Bahawalpur and 85% from Khanewal had seen/heard about media campaign on dairy farming. About three fourths from Vehari, Multan and Muzaffargarh had heard about media campaign.

The main source of information on dairy farming is social mobilizer followed by Radio and Television. Of those AITs who have heard/seen media campaign, all in Bahawalpur, 90 percent in Lodhran and 84 percent in Muzaffargarh reported Social mobilizer as source of information. Radio is playing important role in providing information on dairy farms in Vehari and Khanewal district.

Table 5.2-5: Sources of knowledge for Project program on Dairy Farming

Source	Social Mobilizer	Radio	TV	Street Theater	Leaflet / pamphlet	N
Overall	65.60%	30.30%	27.10%	11.80%	5.00%	221

Of those who got information on dairy farming through media campaign, 78 percent of AITs rated it good and only 6 percent rated it fair.

Table 5.2-6: AITs' Perception about usefulness of information

Usefulness	Poor	Fair	Neutral	Good	Excellent	Total	N
Overall	1.10%	5.70%	16.30%	70.70%	6.10%	100.00%	263

When asked about the usefulness of the follow-up meetings, more than 83 percent rated these meetings as good or excellent. This suggests these meetings are helpful and achieving the objectives. All of the active AITs from Bahawalpur and 90 percent from Khanewal rated these meetings as good or excellent.

The survey showed that on average, DRDF organized 6.8 meetings. District variation does exist. More meetings were organized in Bahawalpur (15.6) followed by Lodhran (7.4) as compared to other districts. Less than one meeting was organized in Vehari.

Less than 14% of the AITs reported no follow-up meeting was organized by DRDF. Twenty two percent reported one or two meetings and 40 %reported 5 or more meetings. Two in five AITs in Vehari and One in six AITs in Muzaffargarh reported no follow-up meeting organized in their districts.

Average number of follow-up meetings attended by AITs are 5.3. Number of meeting attended by AITs in Bahawalpur is 15.3 which is the highest average among all districts. AITs in Vehari only attended one meeting.

5.3 Farmers

Section Summary

A total of 9,286 farmers were trained on best dairy farm practices, improved feeding and animal nutrition, basic level animal health management, farm equipment management, shed management, and the importance of improved breeds in first three years of the project. All of the trained farmers were provided with a support kit to improve farm management practices for increased milk yield and earnings

To conduct this evaluation a number of 392 trained farmers were selected out of the total with following district wise distribution:

Vehari	Lodhran	Multan	Muzaffargarh	Bahawalpur	Khanewal	Total
118	24	120	20	30	80	392

Out of the total farmers interviewed about 9 percent of the farmers have never been to school and 24 % completed primary level. Two thirds of the farmers have completed middle or higher level education.

Overall, almost three in four farmers were married with average age of 32 years, only 4% of the farmers are of 20 years or younger. Slightly more than half of the farmers are between 20 to 30 years of age. There are only 3% of the farmers who are 50 years or older.

Household size in these districts is 7 with almost equal male to female ration in each household. On average, farmers cultivate 6.3 acres of agricultural land out of which more than two acres of land is used to grow fodder. Regarding training opportunities almost 40% received two days training, more than half received four days training and 5 % received training of at least one month.

Overall, half of the farmers owns Pure (Sahiwal/Cholistan) farm animals, 76% own local and 22% own cross (European) farm animals breeds. On average, farmers own 4.7 animals of pure breed, 5.6 of local breed and 4.6 of cross breed.

During summer season, 96 % of the farmers are using cultivated fodder for farm animals. The second most commonly used fodder is dried fodder which is used by 63 % of farmers. More than half of the farmers used 'Khal' (53 %) and vanda (52 %) as fodder during summer season. One in six farmers also rely on grazing during summer. Of those farmers who reported use of Vanda as fodder, 86 % purchase it from open market and 11 % grow their own. Only less than 3% reported project assisted WLEWs as source of vanda.

Daily production of milk is higher during winter as compared to summer. On average, 12.4 litters of milk is produced daily during summer and 16.8 litters during winter. Similarly, more milk is consumed during winter as compared to summer. On average a farmer consumes 5.2 litters of milk in a day during winter and 4.1 litters during summer.

About 63 % of farmers rated the Dairy Development Project as good or excellent. However, few (8%) were not happy with project's services. About 63% percent of the farmers sell milk to Gawala and only one percent sell milk to processing industry. One in nine farmers does not sell milk.

Between 27 to 42 % of farmers reported having good knowledge about animal diseases. On the other hand, 25 % of farmers reported poor knowledge about animal diarrhoea, parasitic infestation, and mastitis and ND vaccination. Framers reported that on an average 3.7 animals of pure breed, 2.2 animals of local breed and 2.4 animals of cross breed got vaccinated during last one year. Foot and Mouth has been the common disease among all types of animal breeds.

Natural as well as artificial insemination breeding methods are equally popular among farmers as 67% of the farmers reported using artificial insemination and 66% of the farmers are using natural insemination method. Every third farmers reported use of both methods of breeding.

A large majority of farmers also reported having knowledge about the presence of artificial insemination technician in their area.

As farmers' knowledge of AIT s i.e. 82 % the same number of farmers also use artificial insemination services.

The main reason for not using artificial insemination services, is the non-availability of AI services in the area. A large majority of farmers preferred local semen for breeding purposes. Farmers who used services of AITs are satisfied with these services as 89% of the farmers showed satisfaction.

Almost all of the farmers reported knowledge of De-worming and Vaccination of animals. A large majority of farmers had knowledge of artificial insemination usage of imported and local semen, natural matting, animal's free access to water, and use of vanda as fodder.

About 62 % of farmers know about silage making and shed improvement as farm practices. Knowledge of other farm practices including De-worming (89%), vaccination (90%), and natural matting (86%).Similarly, vanda feeding, artificial insemination through usage of imported and local semen is practiced by 70 to 75 % of farmers. However silage making is practiced by 10 %, shed improvement by18% and data recording of farm animals by 27 % of farmers. Major investment is made to shed improvement and on an average each farmer invested Rs. 11,957 on shed improvement, Rs. 4,770 on silage making and Rs. 4,231 on arranging free water access to animals. Consultation with silage making technician is only 16 percent.

The large part of monthly income during summer as well as winter comes from sale of milk as farmers are earning more from sale of milk during winter as compared to summer. Average monthly income from sale of milk during winter is Rs. 19,025 which is Rs. 3,596 more than they earn during summer. Similarly, expenditure on milk during winter is Rs. 7,064 which are Rs. 1,222 more than in summer. Farmers earn RS. 2,818 during summer and earn Rs. 3,500 during winter from sale of butter. Expenses incurred in production of butter are Rs. 500 during summer and Rs. 1,000 during winter. The increase in monthly income after receiving training is less than Rs. 1000 for 39 percent of the farmers and Rs 3,000 or more for 33 percent of the farmers.

A large majority of farmers have heard about media campaign. The main source of information on dairy farming is social mobilizer followed television and radio. Of those who got information on dairy farming through media campaign 68 % of farmers rated it good or excellent and on the other hand, 24 % rated disseminated programs as poor to fair.

DRDF has organized 3.1 meetings at an average in all districts which were rated as good or excellent by 66% of farmers. That suggests these were helpful and achieved the objectives.

5.3.1 Farmer's Level of Education

During the survey it was revealed that 9 % of the farmers have never been to school and 24 % completed primary level. Two thirds of the farmers have completed middle or higher level education. Farmers' educational background varies among districts, in Vehari, 18 % of the farmers have never been to school. All of the farmers from Muzaffargarh and 89 % in Khanewal have completed at least middle level schooling.

Table 5.3-1: Percent Distribution of Farmers by Level of Education

Level of Education	Illiterate	Up to Primary	Middle	High School	Intermediate	B.A/B.Sc.	M.A/M.Sc.	Total
Total	9.20%	23.70%	36.50%	21.70%	3.80%	4.10%	1.00%	100%

5.3.2 Marital Status, age group and family size

Overall, almost three in four farmers are married. Proportion of married farmers is the highest in Multan (91 %) and the lowest in Khanewal (38 %).

Average age of farmers in the target districts is 32 years. Older farmers are reported from Multan (34 years) and younger farmers are from Khanewal (26 years). Only 4 percent of the

farmers are of 20 years or younger. Slightly more than half of the farmers are between 20 to 30 years of age. There are 3 % of the farmers who are 50 years or older.

Proportion of very young (up to 20 years of age) farmers is the highest (8 %) in Lodhran and is the lowest (none) in Muzaffargarh and Bahawalpur. Older farmers (50 years or above) are more prevalent in in Bahawalpur among all districts.

Figure 5.3-2 presents data on household size, mean number of male members and mean number of female members in a household. Household size in these districts is 7. Household size is the largest in Vehari and the smallest in Muzaffargarh. Distribution of males and females in a household is almost the same.

5.3.3 Land Available for Cultivation & Reserved for Fodder

On average, farmers cultivate 6.3 acres of agricultural land. Agricultural landholding size slightly varies across districts. Farmers in Muzaffargarh cultivate more land (8.4 acres) compared to others districts. Farmers in Vehari, Bahawalpur and Khanewal reported smaller landholding size.

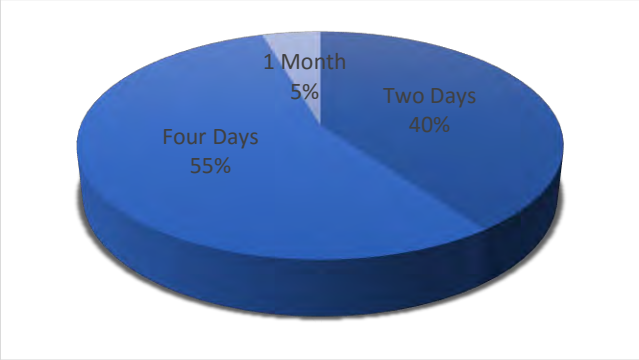
On average, more than two acres of land is used to grow fodder. This is the highest in Multan (3.1 acres) ad lowest in Khanewal (1.4 acres).

5.3.4 Trainings of Farmers

When farmers were asked about type of training they had received, 40 % replied that they received two days training. More than half received four days training and 5 %t received training of at least one month.

A large proportion of the farmers in Bahawalpur, Muzaffargarh and Multan received 4 days training. Two days training was more commonly reported from Khanewal and one-months training from Lodhran.

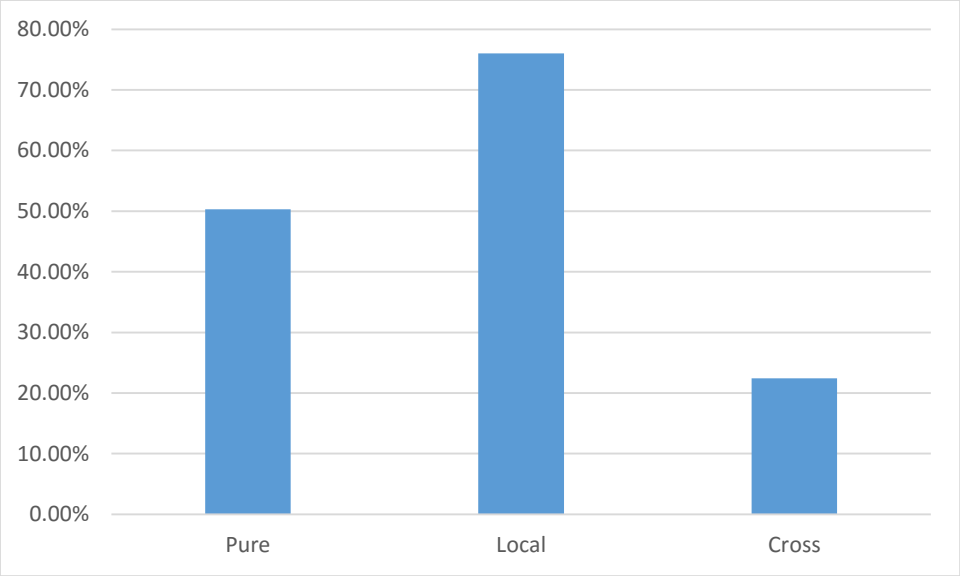
Figure 5.3-1: Farmers by type of training received



5.3.5 Animal Ownership

Overall, half of the farmers own Pure (Sahiwal/Cholistan) farm animals, 76 % own local and 22 % own cross (European) farm animals. Ownership of type of farm animals varies among districts e.g. ownership of pure (Sahiwal/Cholistan) animals is much higher in Muzaffargarh (85 %) and Khanewal (84 %) whereas ownership of Desi farm animals is more prevalent in Multan (97 %), Lodhran (88 %) and Vehari (85 %). Farmers in Lodhran have large proportion of all three types of animals i.e. pure (79 %), local (88 %) and Cross (83 %) of farm animals.

Figure 5.3-2Type of animal ownership by percentage of farmers



Those farmers who reported ownership of each type of animals, were asked about the number of animals owned by the farmers. On average, farmers own 4.7 animals of pure breed, 5.6 of local breed and 4.6 of cross breed. Farmers in Bahawalpur own 8.8 animals of pure breed, 11.9 animals of local breed and 17.4 animals of cross breed. Number of animals for each breed owned by the farmers in Bahawalpur is the highest number among all the districts.

About two animals each of pure and local breed are for milk purposes and 1.7 cross animals are for milk purposes.

5.3.6 Fodder Used

A large majority of farmers reported feeding animals according to the weight of the animal. All farmers from Bahawalpur and Khanewal reported this practice. However, only 55 percent of farmers from Muzaffargarh fed their animals according to animals' weight.

During summer season, 96 % of the farmers are using cultivated fodder for farm animals. The second most commonly used fodder is dried fodder which is used by 63 % of farmers. More than half of the farmers used 'Khal' (53 %) and vanda (52 %) as fodder during summer season. One in six farmers also relies on grazing during summer.

District variation exists in use of fodder type during summer. All of the framers from Lodhran, Multan, Bahawalpur and Khanewal reported use of cultivated fodder whereas 87 percent farmers in Vehari are using it. Use of khal as fodder is also much higher in Bahawalpur (100 percent), Khanewal (99 percent) and Lodhran (79 percent) compared to other districts. Use of Vanda is the highest (93 percent) in Bahawalpur and the lowest (21 percent) in Khanewal.

There is no variation is use of fodder between summer and winter seasons.

Table 5.3-2: Type of Fodder usage in summer, winter and both

Fodder Type	Cultivated Fodder	Collected Fodder	Purchased Fodder	Grazing	*Khal*	*Vanda*	Silahe/Hay	Nutrition Mix	Dried Fodder
Summer	95.70%	4.10%	8.70%	16.30%	53.10%	51.50%	5.10%	6.60%	62.50%
Winter	95.40%	2.80%	8.70%	12.00%	57.40%	50.30%	5.40%	7.40%	62.20%
Both seasons	95.90%	4.30%	9.90%	17.60%	60.50%	54.10%	5.90%	8.70%	62.20%

Of those farmers who reported use of Vanda as fodder, 86 percent buy it from open market and 11 percent grow their own. Only less than 3 percent reported project assisted WLEWs as source of vanda. Almost all of the farmers in Vehari (98 percent), Muzaffargarh (100 percent)

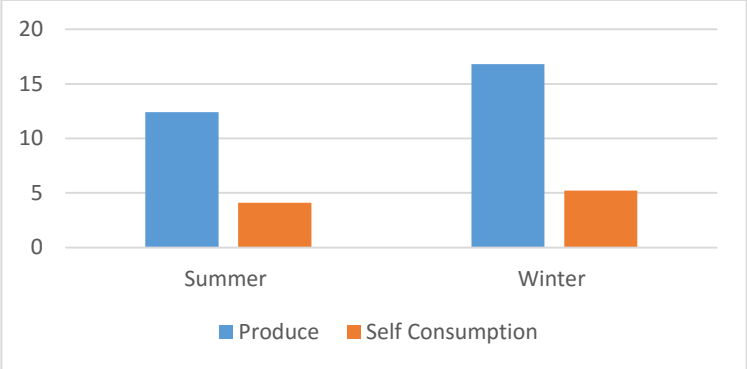
and Bahawalpur (96 percent) purchase vanda from open market. However, 64 percent of the farmers in Lodhran produce their own vanda. WLEWs are the source of vanda supply for 24 percent of farmers in Khanewal.

5.3.7 Milk Production, Selling & Self Consumption

Data suggests that daily production of milk is higher during winter compared to summer. On average, 12.4 litters of milk are produced daily during summer and 16.8 litters during winter. Similarly, more milk is consumed during winter as compared to summer. On average, a farmer consumes 5.2 litters of milk in a day during winter and 4.1 litters during summer.

Districts differ in daily production and consumption of milk. Farmers from Bahawalpur reported 20 litters of milk produced in a day during summer and 28 litters during winter. The daily production of milk during summer and winter in Bahawalpur is the highest daily production among all districts.

Figure 5.3-3 Average quantity of milk produced and consumed in summer and winter in Kgs



5.3.8 Milk Selling

Sixty three percent of the farmers sell milk to *Gawala* and only 1% sells this milk processing industry. One in nine farmers does not sell milk.

Table 5.3-3: Places where Farmers sell milk

Places	Processing Industry	Gawala	At Home	Not Selling	Total	N
Overall	1.30%	62.80%	24.70%	11.20%	100.00%	392

5.3.9 Knowledge about Animal's Basic Health

Farmers were asked about level of knowledge regarding animal diseases, 27 to 42 percent of farmers reported having good knowledge about animal disease. On the other hand, 25 percent of farmers reported poor knowledge about animal diarrhoea, parasitic infestation, and mastitis and ND vaccination.

5.3.10 Livestock Common Diseases

On average, one animal each from pure and local breed and less than one animal from cross breed suffered from disease during the last one year. The variation among districts is minimal.

Framers reported that 3.7 animals of pure breed, 2.2 animals of local breed and 2.4 animals of cross breed got vaccinated during last one year.

Data suggest that the most common disease among animals of all breeds is foot and mouth disease. Analysis of data suggests that 81 percent of sick animal of pure breed and 76 percent of the sick animals of local breed suffered because of foot and mouth disease.

5.3.11 Breeding Practices

Natural as well as artificial insemination breeding methods are equally popular among farmers. 67 percent of the farmers reported using artificial insemination and equal percentage (66 percent) of the farmers are using natural insemination method. Every third farmers reported use of both methods of breeding.

Use of breeding methods varies across districts. Use of both breeding methods is much more common in Muzaffargarh, Lodhran and Vehari. Farmers in Khanewal are predominantly rely on artificial method and farmers in Multan are mostly use natural insemination method.

Table 5.3-4: Farmers by Breeding Practices

Breeding Method	Natural Insemination	Artificial Insemination	Both	Total	N
Overall	32.40%	34.20%	33.40%	100.00%	392

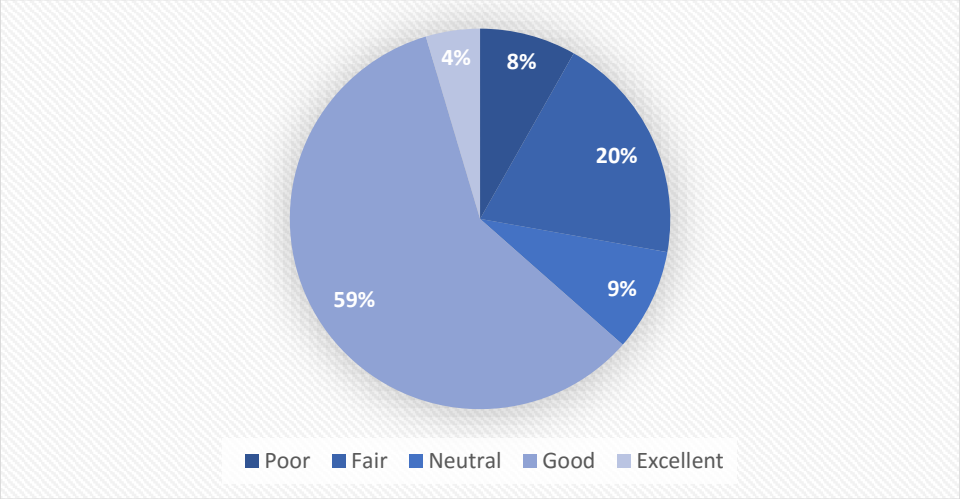
5.3.12 Access to WLEW Services

Seventy percent of farmers reported access to WLEWs services. All of the farmers from Bahawalpur and Khanewal reported access to WLEWs services. Only 30 percent of farmers from Muzaffargarh and 39 percent from Vehari had access to WLEWs services.

When farmers were asked to rate DRDF services, 63 percent of farmers rated as good or excellent, however, few (8 percent) seems not happy with DRDF services.

All of the farmers from Bahawalpur and 96 percent from Khanewal enjoyed DRDF services and rated as good to excellent. However, farmers in Vehari seem less happy because only one-third of the farmers rated DRDF services as good or excellent.

Figure 5.3-4 Rating of DRDF services



5.3.13 AIT Service Availability

A large majority of farmers know about presence of artificial insemination technician in the area. All of the farmers from Bahawalpur, Khanewal and Multan reported availing services of AIT in their area. However, 40 and 45 percent of farmers from Vehari and Muzaffargarh respectively did not know about artificial insemination services in the area.

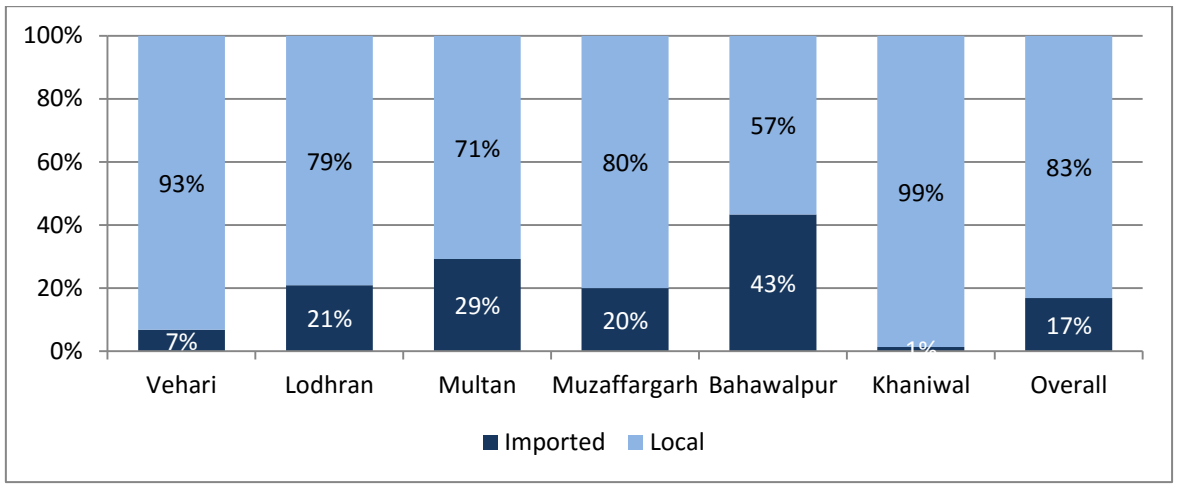
Similar to farmers' knowledge of AIT services, a large majority (82 percent) of farmers used artificial insemination services. Use of these services are universal in Bahawalpur, Khanewal and Multan districts. Use of AI services is also low in Muzaffargarh.

The main reason for not using artificial insemination services, is the non-availability of AI services in the area.

5.3.14 Preference regarding Local or Imported Semen

A large majority of farmers preferred local semen for breeding purposes. However, this preference varies among districts. Almost all of the farmers from Khanewal and 93 percent from Vehari preferred local semen for breeding. However, preference for imported semen also exists in Bahawalpur (43 percent) and 20 to 29 percent in Multan, Lodhran and Muzaffargarh.

Figure 5.3-5: Percent distribution of Farmers by Preferred Semen



Farmers who used AIT services were very satisfied with these services. A total of89 percent of the farmers mentioned that AITs services are satisfactory and useful. All of the workers from all districts except Vehari were satisfied with the AI services received. Two in three farmers reported that AI services they received are satisfactory and useful.

5.3.15 Knowledge regarding farm practices

Farmers' knowledge about most of the farm practices as is quite high. Almost all of the farmers reported knowledge of de-worming and vaccination of animals. A large majority of farmers had knowledge of artificial insemination using imported and local semen, natural matting, animal's free access to water, and use of vanda as fodder.

About 62 percent of farmers knew about silage making and shed improvement as farm practices. Farmers from all districts except Muzaffargarh are knowledgeable about farm practice.

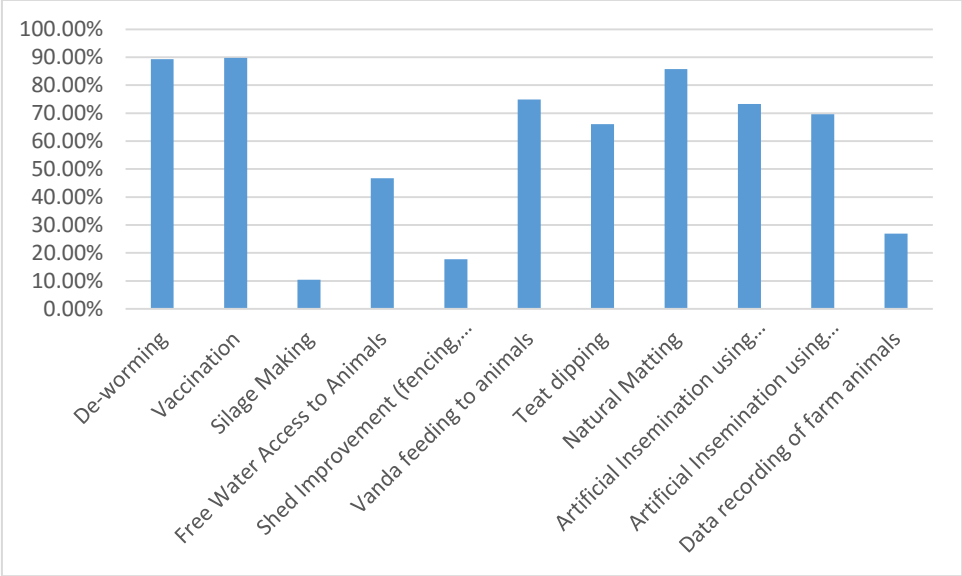
5.3.16 Types of Farm Practices Currently in use

Use of farm practice is also widespread. The farm practices which are used by large majority of farmers are; de-worming (89 percent), vaccination (90 percent), and natural matting (86 percent).

Similarly, vanda feeding to animals, artificial insemination using imported semen and local semen is practiced by 70 to 75 % of farmers. However a few practice silage making (10 percent), shed improvement (18 percent) and data recording of farm animals (27 percent).

Use of farm practices varies across districts e.g. de-worming and vaccination is reported by all of farmers from Lodhran, Bahawalpur, Khanewal and Multan. However, de-worming and vaccination is practiced by about three fourths of the farmers in Vehari and 67 percent and 54 percent of farmers respectively in Muzaffargarh.

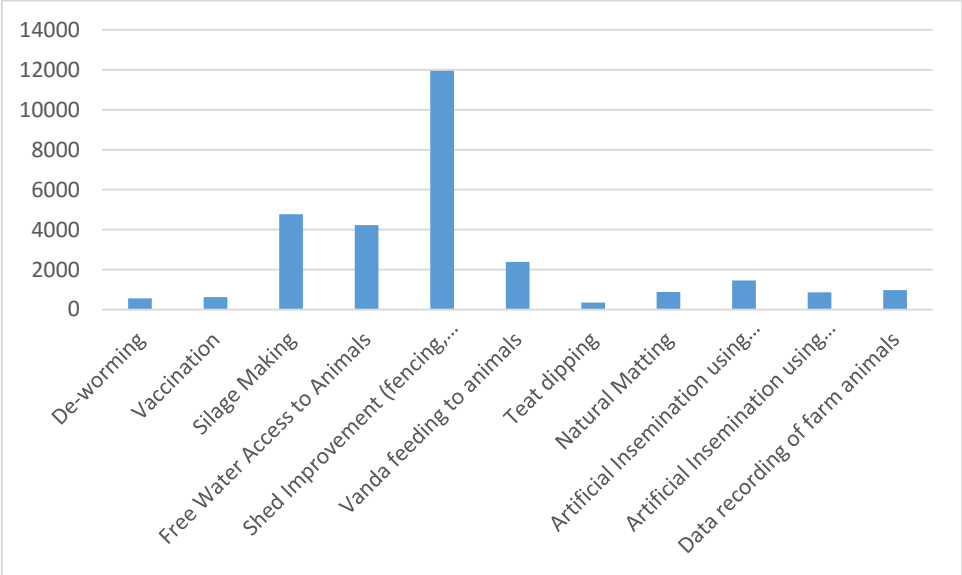
Figure 5.3-6 Types of Farm Practices



The major investment is done on shed improvement. On average, farmer invested Rs. 11,957 on shed improvement. Framers spent Rs. 4,770 on silage making and Rs. 4,231 on arranging free water access to animals.

Investment vary by type of practice and district. On average, farmers in Khanewal spent Rs. 35,637 on shed improvement and Rs. 12,257 on providing free water access to animals in district Vehari.

Figure 5.3-7 Average investment by type of Farm Practices



High cost of farm practices is the main impediment in its use. For example, 61 percent of farmers are not using de-worming because it is too costly. High cost is mentioned as main reason for non-use of vaccination service (59 percent), silage making (52 percent), vanda feeding (69 percent), not use of imported semen (74 percent) and local semen (56 percent).

The main reason mentioned by farmer for not recording data of farm animals is the shortage of time available with the farmers.

5.3.17 Silage Practices

More than half of the farmers participated in silage shows. Farmers' participation in silage show is much higher in Khanewal as compared to other districts. Only 31 percent from Vehari and 43 percent from Multan participated in silage show.

Consultation with silage making technician is only 16 percent. This consultation is 53 percent in Bahawalpur and 38 percent in Lodhran. Only 7 percent of farmers in Multan and 9 percent in Khanewal consulted silage making technician.

Though a small proportion of the farmers have used services of silage making technician but almost all of the farmers are satisfied with the silage service received. This satisfaction level is reported by all farmers in Bahawalpur, Muzaffargarh and Lodhran. Only half of the farmers who consulted silage making technician are not satisfied with the services.

5.3.18 Increase in Income after Dairy Project Training

When farmers were asked about increase in their income after receiving training in dairy farming, 63 percent replied affirmatively. Almost all of the farmers in Khanewal and 87 to 88 percent from Bahawalpur and Lodhran reported increase in income after receiving training in dairy farming. One in four farmers from Muzaffargarh and 44 percent from Multan reported increase in income after training.

5.3.19 Current Dairy Income & Expenses

The large part of monthly income during summer as well as winter comes from sale of milk. Data on income and expenditures show that farmers are earning more from sale of milk during winter as compared to summer. Average monthly income from sale of milk during winter is Rs. 19,025 which is Rs. 3,596 more than income during summer. Similarly, expenditure on milk during winter is Rs. 7,064 which is Rs. 1,222 more than expenditure on milk during summer.

Farmers earn RS. 2,818 during summer and Rs. 3,500 during winter from sale of butter. Expenses occurred in production of butter are Rs. 500 during summer and Rs. 1,000 during winter.

Higher income is reported from sale of milk during winter compered to summer from all districts. Average income from sale of milk is much higher in Muzaffargarh compared to other districts. Income from sale of milk is much lower in Multan compared to other districts.

Table 5.3-5: Monthly Income and Expenditures of Dairy Products

Season	Summer			Winter		
Produce	Income	Expenditure	Profit	Income	Expenditure	Profit
Milk	15,429	5,888	9,541	19,025	7,064	11,961
Butter / Ghee	2,818	500	2,318	3,500	1,000	2,500

5.3.20 Increase in Income Before & After training

Framers were asked how much monthly income increased after receiving training in dairy farming. The increase in monthly income after receiving training is less than Rs. 1000 for 39 percent of the farmers and Rs 3,000 or more for 33 percent of the farmers.

Table 5.3-6: increase in Monthly Income after Training

Increase in Income	Up to Rs. 1,000	1,000 – 2,000	3,000 – 4,000	4,000 – 5,000	More than Rs 5,000
Over all	38.80%	22.40%	15.30%	12.80%	5.60%

5.3.21 Dairy Project Infomercials for Farmer

A large majority of farmers from all districts except Vehari and Muzaffargarh had heard about campaign on dairy farming. Campaign knowledge is low among farmers in Muzaffargarh from where only 35 percent reported having heard about campaign.

The main source of information on dairy farming is social mobilizer followed television and radio. Farmers who have heard/seen media campaign through social mobilizers are 100% from Bahawalpur and Lodhran and 80 % in Multan. Television is playing important role in providing information on dairy farms in Muzaffargarh, Lodhran and Khanewal. Radio is source of information for 86 percent of farmers in Muzaffargarh district.

Table 5.3-7: Source of Farmers' knowledge about Project programs on Dairy Farming

Source	Social Mobilizer	TV	Radio	Street Theater	Leaflet / pamphlet	N
Over all	69.50%	39.00%	21.70%	16.40%	6.20%	341

Of those who got information on dairy farming through media campaign, 68 percent of farmers rated it good or excellent and on the other hand, 24 percent rated disseminated programs as poor to fair.

These programs are much more liked and enjoyed by farmers in Bahawalpur, Khanewal, and Multan therefore highly rated. Farmers in Vehari seem unhappy or dissatisfied with the media campaign because 58 percent of farmers rated it as poor to fair.

5.3.22 Follow-up

Number of follow-up meeting organized by DRDF and attended by farmers is presented in figure 5.3-13. It is evident that on average, DRDF has organized 3.1 meetings. District variation does exist. More meetings were organized in Lodhran (5.3) followed by Khanewal (4.0) as compared to other districts. On average, one meeting was organized for farmers Muzaffargarh.

Average number of follow-up meetings attended by farmers is 2.4. Number of meeting attended by farmers in Lodhran is 3.4 which is the highest average among all districts. Farmers Muzaffargarh only attended one meeting.

When farmers were asked about the usefulness of follow-up meetings, more than 66 percent rated these meetings as good or excellent. That suggests these are helpful and achieved the objectives. All of the farmers from Bahawalpur and 96 percent from Khanewal rated these meetings as good or excellent.

6. Conclusion

The evaluators are of the opinion that the dairy project has been a story of success in adding value to communities engaged with the livestock sector, both in terms of knowledge transfer / skills development and creating economic opportunities. The consultants have found the dairy project successful due to following findings

a) About 95% target farmers adopting more the three best practices, increasing 15% milk yield and approx. 15% income on milk sale (compared to project target of 10% and even 5 % more than the year 3 achievement)

b) Around 69% farmers using services of WLEW's and 82% using services of AIT's (shows the good and trustworthy establishments of WLEW's and AIT's by the project)- The statistics of performance is much higher in comparison to PMP targets set at 60% and year 3 reporting of 60% both for WLEW's and AIT's

c) The average income of AIT's has been Pak Rs 11,000/- which is off course higher than the baseline of (zero) as no AIT's existed before; and is much higher than the Target set in PMP for Rs 3000/- per month for AIT's.

d) The AIT's who are still active and working are 98.2 % which is a highly satisfactory (The comparative target set in PMP was 60%) which is more than well achieved

e) The WLEW's who are active are 44.8 % which are slightly less than 64% reported achievement recorded in year 3 reporting- But the same has causes beyond control due to social issues of girls married and migrated to other villages, floods in the area for consecutive 3 years in a row restricting women to concentrate in their household- But the will and knowledge transfer has been well received and seed for transformation of change has been placed.

f) The project communication ions and follow up is well received by the target beneficiaries to the tune of between 60% to 72% which is again highly satisfactory in the rural and wide spread context of the target area.

7. Way Forward

The project interventions have been highly fruitful for setting a pace for harnessing the potential of the dairy sector in the target area in an integrated manner, with a sustainability rate of 44.8% for WLEW's, 98.2% for AIT's and 95% for farmers. The income and milk yield level of AIT's, farmers and WLEW's also shows a trend of more than 15% average increase. Keeping these indicators, it is recommended that the project may be continued for another two years for ensuring the sustainability etc. the target population being trained and engaged in phase -2 of the project. The support mechanism of provision of kits and other trade related grant has helped the target beneficiaries to jump start their work and also to sustain it in the future.

More importantly, projects like this as pilot (in smaller scale) has been launched earlier as well benefitting smaller population, but this particular project has made a difference by virtue of its size, support mechanism and integration of all segments including farmers, AIT's and WLEW's across the rural dairy value chain. Immediate stoppage of this project can hamper sustainability –The project team and donors must find a solution to continue the support mechanism and may be a smaller training segment with DRDF to continue this project (even in a smaller scale) for at least two more years.