# Factors Determining Credit Need Assessment of Dairy/Livestock Farmers


Planning and Research Department

Zarai Taraqiati Bank Ltd. ZTBL

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# ACKNOWLEDGEMENT

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I am also very thankful to **Mr. Shahalam Khan**, Manager, ZTBL Fateh Jung Branch, and **Mr. Shahid**, MCO, ZTBL, Fateh Jung Branch for facilitating the data collection process in the Field.

**Muhammad Fakhar Imam**
OG-II, R&PU
Planning & Research Department
ZTBL, Head Office, Islamabad

# 1. INTRODUCTION

## 1.1.Value of livestock/Dairy sector in food security:

Livestock/Dairy production remains one of the most important sectors across the globe, concerning food security. Livestock/Dairy products provide an important source of nourishment for billions of rural and urban households. Livestock contributes to food for people, in the form of milk, meat, and eggs. Livestock directly contribute to nutrition security. Milk, meat, and eggs, the "animal-source foods," though expensive sources of energy, are one of the best sources of high quality protein and micronutrients that are essential for normal development and good health.

## 1.2. Role of livestock/Dairy sector in Socio-Economic:

Livestock/Dairy Sector play multiple roles in supporting livelihoods. One of the most important is as a source of household income. Dairy/livestock sector provides income and employment for producers and others working in, sometimes complex, value chains. These socio-economic roles and others are increasing in importance as the sector grows because of increasing human populations. Although livestock ownership is often seen as a sign of wealth – household typically move up the 'livestock ladder' from poultry to goats or sheep, to cattle/buffalo. Livestock's share of income was highest in the poorest income quintile, which shows that they are important to the poor as well. The growth in demand for milk and meat, mainly driven by urban consumers in developing countries, has been increasing in the last few decades and is projected to double by 2050. This rising demand for milk, meat, fish and eggs has generated jobs all along the livestock value chain, from input sales through animal production, trading and processing to retail sales.

## 1.3.Significance of livestock in Pakistan's Agriculture:

Agricultural sector is the backbone of Pakistan's economy. Agriculture sector having a lion share in country's GDP and contributes about 19.2 percent. This sector provides employment to around 38.5 percent of the labor force. More than 70 percent of the Pakistani population directly or indirectly depends upon agriculture for subsistence/livelihood. (Economic Survey of Pakistan, 2021-22).

> The livestock sector in Pakistan contributes about of 60.07 percent in agriculture and nearly 11.53 percent contribution in Agricultural Gross Domestic Product (AGDP) also achieved a growth of 3.06 percent. However, Pakistan is ranked fourth in milk production worldwide after China, India and USA. The share of livestock in the agriculture sector is significant due to its overall contribution. It plays a vital role in poverty reduction strategies, and this sector may be developed very quickly as all required inputs for this sector are available in adequate quantities in the country. More than 8 million rural families are engaged in livestock production and deriving more than 35-40 percent of their income from this source. Gross value addition of livestock increased to Rs 1,505 billion (2020-21) from Rs 1,461 billion (2019-20), an increase of 3.0 percent. (Economic Survey of Pakistan, 2021-22).

Furthermore, the livestock sector employs about 30 million people, the vast majority of whom live in the rural areas of the country. But, as population and urbanization increase, the

demand for livestock products will also increase; thus, it will be difficult to meet this demand over the next few years.

The national herd population of livestock for the last three years is given in Table given below:

| **Table 1: Estimated Livestock Population** | | | (Million Nos.) |
|---|---|---|---|
| **Species** | **2018-19** | **2019-20** | **2020-21** |
| Cattle | 47.8 | 49.6 | 51.5 |
| Buffalo | 40.0 | 41.2 | 42.4 |
| Sheep | 30.9 | 31.2 | 31.6 |
| Goat | 76.1 | 78.2 | 80.3 |
| Camels | 1.1 | 1.1 | 1.1 |
| Horses | 0.4 | 0.4 | 0.4 |
| Asses | 5.4 | 5.5 | 5.6 |
| Mules | 0.2 | 0.2 | 0.2 |

1: Estimated figure based on inter census growth rate of Livestock Census 1996 & 2006

Source: Ministry of National Food Security & Research

The position of milk and meat production for the last three years is given in Table 2.22.

| **Table 2: Estimated Milk and Meat Production** | | | (000 Tonnes) |
|---|---|---|---|
| **Species** | **2018-19** | **2019-20** | **2020-21** |
| **Milk (Gross Production)** | **59,759** | **61,690** | **63,684** |
| Cow | 21,691 | 22,508 | 23,357 |
| Buffalo | 36,180 | 37,256 | 38,363 |
| Sheep[2] | 40 | 41 | 41 |
| Goat | 940 | 965 | 991 |
| Camel[2] | 908 | 920 | 932 |
| **Milk (Human Consumption)[3]** | **48,185** | **49,737** | **51,340** |
| Cow | 17,353 | 18,007 | 18,686 |
| Buffalo | 28,944 | 29,805 | 30,691 |
| Sheep | 40 | 41 | 41 |
| Goat | 940 | 965 | 991 |
| Camel | 908 | 920 | 932 |
| **Meat** | **4,478** | **4,708** | **4,955** |
| Beef | 2,227 | 2,303 | 2,380 |
| Mutton | 732 | 748 | 765 |
| Poultry meat | 1,518 | 1,657 | 1,809 |

1: The figures for milk and meat production for the indicated years are calculated by applying milk production parameters to the projected population of respective years based on the inter census growth rate of Livestock Census 1996 & 2006.

2: The figures for the milk production for the indicated years are calculated after adding the production of milk from camel and sheep to the figures reported in the Livestock Census 2006.

3: Milk for human consumption is derived by subtracting 20 percent wastage (15 percent faulty transportation and lack of chilling facilities and 5 percent in suckling calf nourishment) of the gross milk production of cows and buffalo.

4: The figures for meat production are of red meat and do not include the edible offal's.

Source: Ministry of National Food Security & Research

Pakistan is endowed with diverse livestock genetic resources. In fact it is postulated that one of the centers of animal domestication lay in this part of the world. Pakistan has a large livestock population, well adapted to the local environmental conditions. Current population of farm animals in Pakistan consist of 23.34 million buffaloes, 22.42 million cattle, 24.24 million sheep, 49.14 million goats and 0.77 million camels. Pakistani buffaloes are riverine type and belong to two breeds i.e. Nili-Ravi and Kundi. Nili-Ravi is the best dairy buffalo breed of the world. There are ten distinct breeds of cattle found in Pakistan. However, these breeds probably only make up 30 percent of the population and the rest of the population is generally classified as non-descript. Cattle breeds of Pakistan are Sahiwal, Red Sindhi, Cholistani, Dhanni, Tharparker, Bhagnari, Djal, Lohani, Rojhan and Kankrej. There are 30 local breeds of sheep in the country. Important sheep breeds are Bucchi, Lohi, Thalli and Salt Range in Punjab; Bumbi, Kachhi and Kooka in Sindh; Balkhi, Damani and Kaghani in KPK and Baluchi, Bibrik, Harnai and Rakhsani in Balochistan. For goats, 37 breeds have been described. The important goat breeds include Beetal, Dera Din Panah and Teddy in Punjab, Barbari and Kamori in Sindh, Kaghani and Jatal in KPK. and Khurassani, Lehri and Pahari in Balochistan. Twenty one breeds of running, baggage and dairy camels have been described. Based on unique geographical location, Pakistan`s potential of livestock business is enormous with a friendly business environment. All these are the encouraging factors that favor the country to serve as an economic gate way for China, Russia, South Asia and East Asia especially after the China Pakistan Economic Corridor (CPEC). The nature has abundantly gifted the Pakistan with variety of livestock resources. Our livestock and poultry industry is progressing gradually and playing a key role towards economic growth. (Talib, 2016)

Eid al-Adha is one of the most important Muslim festivals celebrated worldwide. Muslims traditionally slaughter animals such as sheep, goats, buffalo, cattle, and camels on a sacred day to commemorate the mercy of Allah, who spared Prophet Ibrahim from having to kill his son, Ishmael. Muslims around the world gather on Eid al-Adha to sacrifice their livestock. This observance culminates in the Hajj, and every household who has financial ability sacrifices a male domestic ruminant (such as a yearling ram) in honor of Ibrahim and as a demonstration of obedience to Allah. Three days of celebration and feasting follow Eid al-Adha.

The Eid al-Adha period has a significant impact on the supply of and demand for small ruminants. Two weeks before the Eid al-Adha celebration, some people begin selling livestock on the roadside, although they do not normally sell livestock. These individuals are called roadside livestock sellers or roadside traders. The roadside is chosen for its strategic position to display their livestock. The stalls are usually opened in urban or peri-urban areas. To the best of our knowledge, no previous study examined the characteristics and behavior of roadside traders on religious festival. Such trade activities have come to constitute local wisdom over a period of time and support the need for sacrificial animals, especially in areas dominated by Muslims. Research on the characteristics and patterns of the marketing adopted by livestock traders may help regulate this market and achieve higher collective benefit. The research results can be used

as a basis for the implementation of social marketing strategies to improve food safety awareness. Production, procurement, and sales of livestock in the most favorable conditions guarantee better access to inputs (proximity to the market, and higher income) and technical information (health and production). Marketing chains can be used as tracers of the livestock distribution, which is essential for the regulation of animal movements and animal trafficking. Pakistanis sacrificed around 5.8 million animals worth $1 billion on the Muslim festival of Eid Al-Adha this year, 28 percent lower than previous year 2020 because of covid pandemic. Besides of all sacrifices Pakistan never found any decline in animal production because of genetic, breeding traits and favorable environment and habitat conditions for the local breeds of cows and goats. According to the Pakistan Economic Survey 2016-17, goat production increased to 77.8m in 2016-17 from 68.4m in 2015-14 and 66.6m in 2014-13. Cattle production rose to 42.8m in 2015-16 from 41.2m in 2013-14 and 39.7m in 2013-14, followed by 36.6m buffalo production in 2015-16 as compared to 35.6m in 2014-15 and 34.6m in 2013-14. Live animals and meat are the major livestock export commodities of Pakistan. Pakistan Exports of live animals was US$8.92 Million during 2021, according to the United Nations COMTRADE database on international trade.

Meat is a major livestock product which provides high nutrient content; it is considered an essential human food. Owing to the traditional ways of production, there has been no significant rise in meat production, and there are no incentives for the manufacturers to sell quality livestock due to established traditions. Problems are due to a deficiency of proper services, ancient traditional slaughterhouses which have non-hierarchical distribution systems, and meat distribution with no price structure. Furthermore, animal leather and hides are used to provide income. Hides and skins have an important place in the local and export markets. However, in Pakistan, due to scant and outdated strategies and marketing, livestock producers are facing problems associated with skin processing and sorting. According to the studies of many by-products, including leather products, wool products, fat and butter, play a significant role in Pakistan's ability to earn foreign exchange.

Livestock production has value in Pakistan because of the increasing number of animals that do not produce variations. Under the current conditions, more and more agricultural livestock interest is caused by demand, but because of the advantages of traditional production, the structure has not changed. Similarly, supported growth in the livestock sector encourages the reduction in poverty, and the food supply of small producers has implications for public health and the environment which must be addressed under the supportability implications. The livestock sector is the backbone of the agriculture sector and plays a vital role in the Pakistan economy by pro- viding draught power, valuable organic animal proteins and its by-products (bones, mohairs, hides, skin, manure, wool, etc). Manure and draught animal power provided by the animals enhance the supply of organic matter to improve land fertility and aid productivity, respectively. More than 10 million animals are involved in agricultural activities and events. The alternative, mechanization, requires economic support equivalent to 5.12B rupees. Due to the increasing population growth, increasing demand and the inadequate supply of livestock are obstacles to developing improved agricultural resources and management policies. In developing countries, such as Pakistan, sustainable growth has been difficult to attain under the current monetary and environmental policies because they do not improve and emphasize food safety and resources.

Moreover, livestock production contributes to the national economy as an employer of poor and landless people in small farming families. Women also play a significant role in the

livestock subsector and are employed in domestic activities. Milk, eggs, butter, meat and oils are main sources of nourishment that are enormously important to the good health and adequate nutrition of both the rural and urban populations. Similarly, animal fat, vegetable oil and butter supplies are important sources of nutrition. Many products derived from livestock, such as wool products, leather products and animal hides, are exported and contribute significantly to the acquisition of foreign exchange.

Due to socioeconomic issues, the condition of livestock in developing countries is dissimilar as far as situation existed in other developed countries. Majority of livestock is held by small farmers, and mass production is not encouraged because of high transport costs, inadequate infrastructure and other expenses. Also, ancient, outdated methods, limited resources, limited access to land and research and development are less supportive of change when compared to the situation in developed countries. Similarly, poor marketing services and resource shortages do not aid in the generation of effective agricultural resource practices. Monetary policy needs to support the young landholders and to be reorganized into new investments that contribute to a range of activities from the purchasing to the marketing of their products. Development of a sustainable growth system in livestock production is currently not given the attention it deserves because the main focus has been on improving livestock production, not quantity and quality production procedures.

In Pakistan Agricultural Research Stations are doing honorable research for the development of the Agricultural sector and doing an excellent job but unfortunately the research work is not being disseminated to the end users because of following reasons:

- Lack of linkages between Agricultural Research and Agricultural Extension
- Limited Agricultural Extension Services
- Lack of affordability of the poor farmers

### 1.4.Importance of Agricultural Credit in Agricultural Development:

Agricultural research is a key player for achieving Sustainable Development Goals (SDGs) for sustainable development. In order to achieve these goals, agriculture is progressively moving from the traditional method of farming to modern technologies for more production (Chandio *et al.*, 2017, Jan *et al.*, 2017; Saqib *et al.*, 2018).

Agricultural production cannot be enhanced without adoption of research based modern technology/innovative agricultural technologies and inputs. Agricultural credit has vital role and is a major tool in attaining latest modern technology for the development of agricultural sector. Therefore, agriculture credit has huge demand in the agricultural sector increase crops and livestock production. However, credit access from formal sources is frequently a problem for the smallholder farmers because of the undersupply and shortage of qualified collateral or other circumstances (Hussain and thapa, 2012, Jan and Khan, 2012; Nouman *et al.*, 2013). Formal agricultural credit is an important farm input along with modern technologies are playing a very important role for improved crops yield and speeding up agricultural modernization and economic development (Anang *et al.*, 2015). According to (Dube *et al.* 2015) studies, the welfare of households is affected by access to credit and eliminating the capital constraints during the vegetation growth and planting season of crops, thereby increasing the capabilities of those with low or no savings to meet their financial needs for crop production. The formal agricultural loan is not only required for the small and medium-scale farmers for survival, but also required for large-scale farmers can get benefit to improve farm income with minimal savings. (Ahmad,

2011) illustrated the key role played by smallholder farmers in Asia and sub-Saharan Africa in terms of agricultural development, poverty reduction, livelihood and food security by using credit to enhance agricultural productivity.

The formal credit institution has been established in the rural areas of Pakistan in order to finance the agricultural and rural economy development. In the rural areas of Pakistan, commercial banks also helping the community to provide the agricultural loan for the up-gradation of agriculture sector, and formal institutions also provide agricultural loan for the specific purposes to fulfill the rural households' requirements. In the developing countries such as Pakistan, governments have long program to promote agricultural development by initiating several policies to facilitate productive resources in rural households. In these consequences, agricultural credit has vital role to promote small farmers' development.

## 2. REVIEW OF LITERATURE

Researchers findings from ( Kokoye *et al.* (2013); Saqib *et al.* (2016); Afrin *et al.* (2017); Chandio *et al.* (2018); Silong and Gadanakis (2019) and other scholars identified formal agricultural credit as an effective tool for capitalizing farm households in order to spend further and introduce new technology for agricultural production to increase agricultural efficiency. Various scholars from various parts of the world including (Abate *et al.*, 2014; Chandio *et al.*, 2017b; Duy *et al.*, 2015) hadreported that credit enhances the living conditions of people by raising their agricultural productivity, gaining profits and well-being, ultimately leading towards livelihood development and poverty alleviation.

Ajagbe (2012) studied the choice of credit by small-scale enterprises of 350 respondents in Nigeria. With the use of multinomial logit model, the findings of the study concluded that the availability of different sources of credit has a positive impact on demand for credit. The study also suggested that improved linkages would allow banks to benefit from informal agents' outreach and local awareness, increasing financial savings mobilization and credit distribution and enhancing the financial system's overall efficiency and profitability.

Using a linear regression analysis to demonstrate the linkage between various socioeconomic characteristics of the farmers and their rate of accessibility to the agricultural credit, Etonihu *et al.* (2013) found in his research that the formal education, distance to formal financial institutions and types of credit source were significant factors prompting smallholders' accessibility to credit in Nigeria. Determinants of access to formal credit by smallholder tobacco farmers in Makoni District, Zimbabwe, were investigated by Dube *et al.* (2015) by utilizing survey data of 77 smallholder tobacco farmers. The results of logit regression model revealed that improved access to credit usage information by extension programs is expected to have a significant effect on the attitudes of farmers about credit risk, which in turn will reduce the concerns associated with structured credit sources. The results further examined that motivating farmers to protect both their crops and loans against crop failure can reduce the risk affiliated with formal credit sources.

In Mardan district of Pakistan, Saqib *et al.* (2016) examined the differences in access to and utilization of agricultural credit among smallholder farmers in Pakistan by using survey data collected from 87 farmers. The study revealed that farmers with large acres of land had more access and utilization, and the years of schooling, farming experience and landholding size were

significant factors that affected accessibility on credit. The results also showed that farmers with the small acres of land were the most vulnerable, so in order to protect their rights, credit policy needs to be updated.

Fecke *et al.*, (2016) investigated the influencing factors of loan demand in agriculture in Germany. With the use of an ordinary least square (OLS) regression, the findings of the study concluded that the interest rate, grace periods and farmers' perceptions have a significant impact on the market for loans in agriculture. The study also suggested that the interest rate has a major negative impact, and the aspirations of farmers have significant positive effects on the demand for loans.

The research of Agbodji and Johnson (2019) conducted the research on the impact of credit on cereal crops productivity in Togo. The results revealed that credit has a significant positive impact on these productivities. This general result varies depending on the type of credit; however, in kind credit has a significant positive impact on maize and sorghum productivity, but no significant impact on rice productivity.

## 3. NEED FOR THE STUDY:

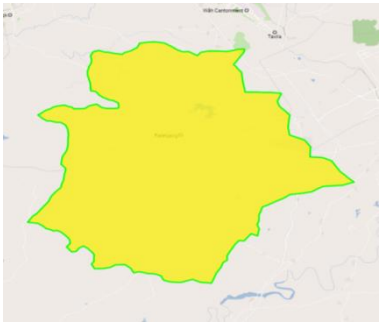
It has been reported in different research studies conducted by research institutes and academia on DFI's and found that most of financial products/loaning are none performing or having very limited portfolio, results reported that one of the major reason reported for none performing of a loaning/financial product is its approach for product development. If a product is developed on Top-Bottom/ bureaucratic approach without the consent of the end users majority of times it will not perform well. Therefore there is a dire need to conduct a research based on the Credit Need Assessment of the farmers on the aspects of Dairy/livestock sector.

## 4. RESEARCH OBJECTIVES:

- To determine the demographic attributes of farmers
- To check awareness level of farmer's regarding existing loaning products of ZTBL
- To discuss the latest innovations in Dairy and Livestock with farming community
- To identify the Dairy/Livestock credit needs of farmers.

## 5. RESEARCH METHODOLOGY:

### 5.1.Area of the Study:



The research was conducted in Attock District of Punjab Province. The Sample date was collected from Tehsil Fateh Jung. It is located 40 km (25 mi) from Attock City, and nearly 40 kilometers (25 miles) southwest of Islamabad, Pakistan's capital. Fateh Jung Tehsil has an area of about 1,249 km². The city is located in between mountain ranges of Kala Chitta Range and Khairi Murat Range. The main reasons to select the area for research as "Fateh Jung tehsil having high trends of livestock, and existence of large number of animals including best cow and goat breeds in Pakistan. Dhani is the famous cow breed of the area locally known as

fatehjungi. Livestock research institute Kheri murat is also located in the tehsil".

### 5.2. Research Instruments:

Research instrument in the form of structured interview schedule was prepared for the purpose of data collection and validated by the researchers from Department of Agriculture Extension, PMAS-Arid Agriculture University Rawalpindi, Department of Agriculture Extension and Education, Ghazi University and Department of Agriculture Extension, University of Sargodha. The Purpose of the validation was to integrate research work with academia/educational institutions to keep it as an agricultural social sciences research. Interview schedule was prepared in English but discussions were made with the respondents in their native/local language for proper understanding of the respondents.

### 5.3. Data Collection:

The data was collected from the respondents via simple random sampling statistical technique. A sample of about 25 farmers covering both male and female was collected. Data sample was collected from only those farmers who were the clients or prospected clients of ZTBL and owned livestock and involved in livestock business.

### 5.4. Data Analysis:

The collected data was analyzed through Statistical Package for Social Sciences/Ms Excel in which frequency distribution and graphs were made. On the basis of the analyzed data conclusions was drawn, and suggestions were made.

Pir Meer Ali Shah
ARID AGRICULTURE UNIVERSITY RAWALPINDI
*Department of Agricultural Extension*
*Muree Road, Shamsabad, 46300, Rawalpindi, Pakistan*
*Tel. +92-51-9292129* *http:www.aaur.edu.pk*

No. PMAS-AAUR/AE/ 991 Dated: 17-05-2022

Head
Planning and Research Department
ZTBL, Islamabad

Subject: **VALIDATION OF RESEARCH INSTRUMENT**

Reference to letter No. P&RD/Res/22(5)/2022/202, dated 12-05-2022 on the subject cited above.

Kindly find attached here with requested instrument entitled "**Factors Determining Credit Need Assessment of Farmers**"after feedback on hard copy of the instrument. I hope you and your organization will be satisfied with the efforts, and I hope in future, we will extend our cooperation with each other in similar kind of matters.

Sincelerly

**(Dr. Badar Naseem Siddiqui)**
Chairman

17/5/2022

OG II (R&P)

DEPARTMENT OF AGRICULTURAL EXTENSION
Faculty of Agriculture

No. UOS/CA/AEXT/2022-47
Dated: 20-05-2022

**Head of P & RD**
**Zarai Taraqiati Bank Limited, Islamabad**

**Subject: Validation of Research Instrument**

Reference to your office letter bearing number P&RD/ Res/ 22(5)/2022/203 dated 12.05.2022

Kindly see attached research instrument titled "Factors determining credit need assessment of farmers" with suggested changes using track changes. Hope it would be helpful for collecting desired data in the field and good luck for smooth and successful conduction and completion of this research.

Regards

20/5/2022

**(Dr. Ejaz Ashraf)**
**Chairman/ Associate Professor**

Mr. M. Fakhar Iqbal (OG II) 24/5/22

0323-5004155 UAN 111 867 111 | extension.agriculture@uos.edu.pk | www.uos.edu.pk | University of Sargodha, Lahore-Khushab Bypass Sargodha 40100, Pakistan

# GHAZI UNIVERSITY, DERA GHAZI KHAN

Date: 18-05-2022

Head,
Planning and Research Department,
ZTBL, Islamabad.

Subject: **Validation Report of Research Instrument**

Reference to letter number P&RD/Res/22(5)/2022/201, dated 12 May,2022 on the subject cited above.

Kindly find the requested instrument feedback attached, entitled "Factor Determining Credit Need Assessment of Farmers'. I hope your organization will be gratified with this effort. I am also hoping for mutual collaboration in the future.

Dr. Nisar Hussain

Head,
Department of Agri. Extension & Education,
Ghazi University, Dera Ghazi Khan.

M. Fahman Imam
OG-II (R&PU)

## RESULTS & DISCUSSIONS

**Table1: Distribution of respondents regarding their Gender:**

| Gender | Frequency | Percentage |
|---|---|---|
| Male | 22 | 88 |
| Female | 03 | 12 |
| Total | **25** | **100** |

The **Table 1** shows that the data is collected from both male and female respondents. An over whelming majority of the respondents (88 %) were male and about (12%) were female.

**Table 2: Distribution of Respondents regarding their age:**

| Age (Years) | Frequency | Percentage |
|---|---|---|
| Young (up to 35) | 06 | 24 |
| Middle Medium (>35-50) | 10 | 40 |
| Old (>50) | 09 | 36 |
| Total | **25** | **100** |

**Table 2:** represents that 40% of the respondents were belonged to middle age (35-50 years), 36% of the respondents fall under old age (>50 years) category and 24% of the respondents were young (up to 35 years).

**Table 3: Distribution of respondents regarding their land holding:**

| Land Holding (acres) | Frequency | Percentage |
|---|---|---|
| Small (up to 12.5) | 20 | 80 |
| Medium (>12.5 to 25) | 03 | 12 |
| Large (>25) | 02 | 08 |
| Total | **25** | **100** |

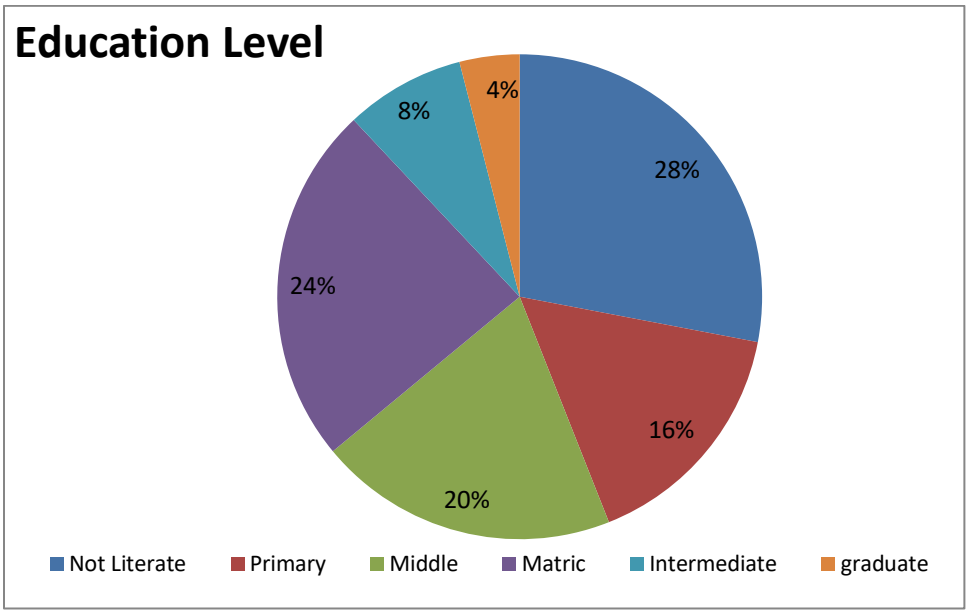
The **Table 3:** shows that majority (80%) of the respondents i.e. had small land holding (up to 12.5 acres), while 12% of the respondents having medium land holding (>12.6 to 25 acres) and 08 % of the respondents had large land holding (i.e. more than 25 acres).

**Table 4: Distribution of Respondents regarding their area under fodder cultivation in percentage of total land holding:**

| Area under fodder cultivation (acres) | Frequency | Percentage |
|---|---|---|
| up to 25% of total land holding | 13 | 52 |
| >25-50% of total land holding | 11 | 44 |
| >50-75% of total land holding | 01 | 04 |
| >75-100 of total land holding | 00 | 00 |
| **Total** | **25** | **100** |

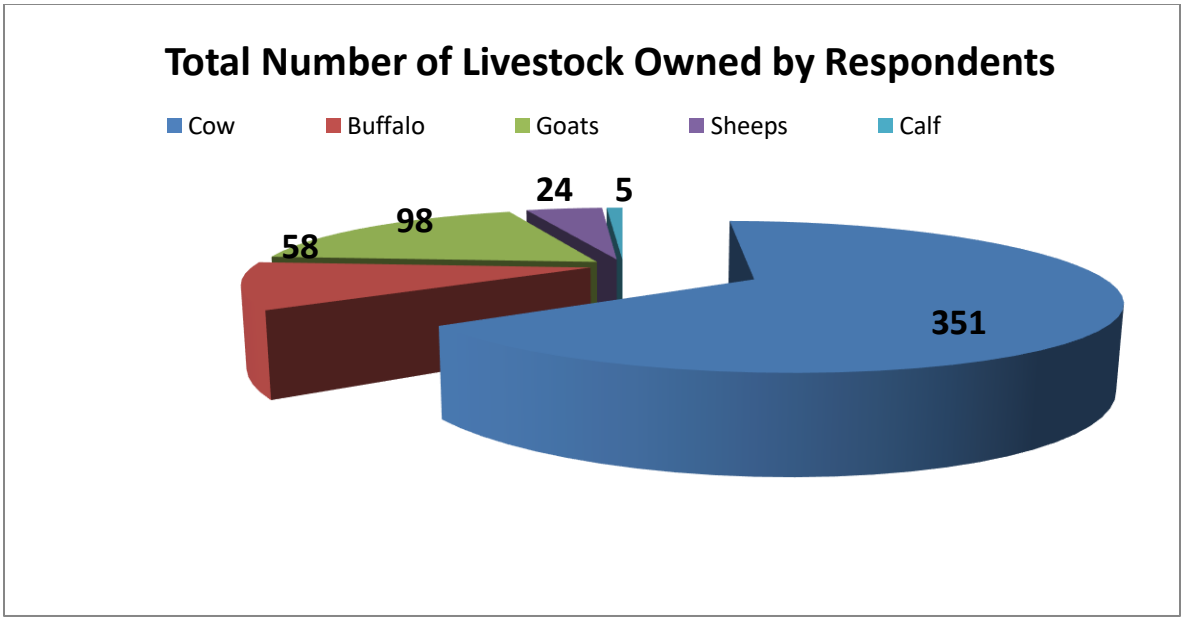
**Table 4:** shows that 52% of respondents cultivate fodders up to 25% of total land holding, 44% of respondents cultivate fodders up to >25-50% of total land holding 4% of respondents cultivate fodders up to >50-75% of their total land holding.

**Fig. 1. Distribution of respondents based on their education level:**



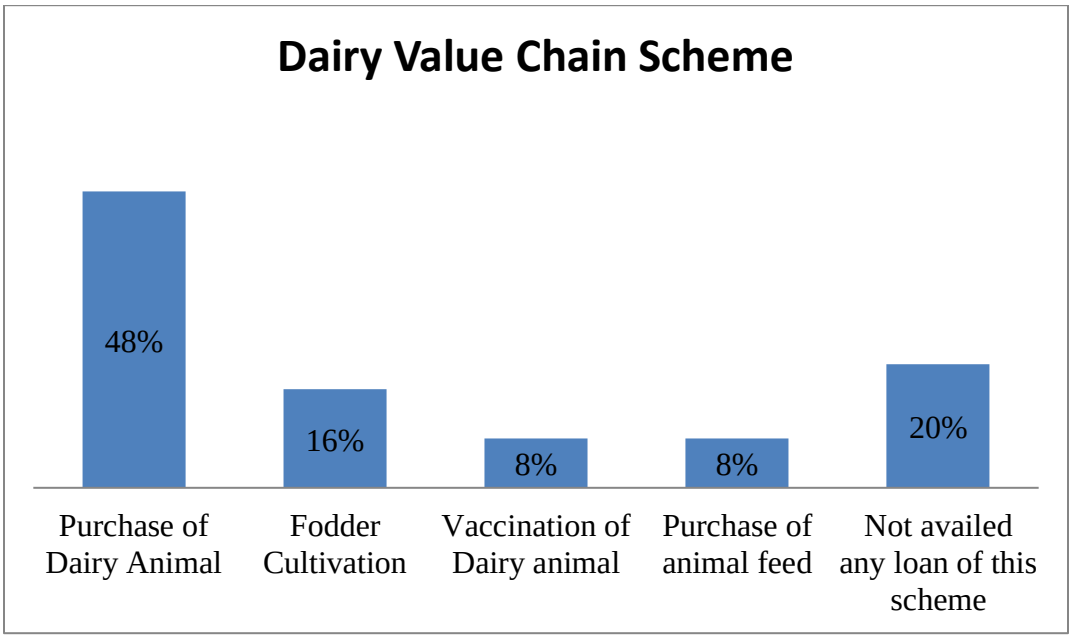

The **Fig 1 :** shows that most (28%) of the respondents were not literate, (24%) of the respondents were literate up to Matric level and one fifth 20% were middle, (08%) of the respondents had education up to intermediate and only 4% were graduate.

**Fig 2. Total number of livestock owned by the respondents**




The **fig 2** shows the data was collected from the respondents regarding livestock owned by them the results shows that all the respondents were involved in livestock business, 536 livestock owned by 25 respondents including 351 cows, 98 goats, 58 buffalos, 24 sheep's and 5 calf's.

**Fig 3. Performance of ZTBL Loaning Schemes for livestock**




The **fig 3** shows that the data regarding all livestock schemes of ZTBL has been collected from the respondents. Only 2 schemes having portfolio in the area Dairy value chain scheme and Red Meat Financing Scheme. Under Dairy livestock scheme 48% of the farmers got loan for Purchase of Dairy animals, nearly 16% of the respondents got credit from ZTBL for Fodder cultivation. 8% of the respondents got loan for vaccination of Dairy animals and Purchase of

animal feed and only 2 respondents got loan Under Red Meat Financing Scheme for goat and sheep farming. Other livestock schemes of ZTBL Including Establishment of Silage Unit, Black Austerlorp chicken farming, Golden/Misri Chicken Poultry Farming and White Revolution Scheme were not performing in the study/research area.

**Table. 5. Awareness of Farmers Regarding Innovative Research Based Livestock Technologies**

| | | | | | Total | |
|---|---|---|---|---|---|---|
| **Awareness of Farmers** | **Yes** | **Percentage** | **No** | **Percentage** | **F** | **%** |
| **TMR Wagon** | 2 | 8 | 23 | 92 | 25 | 100 |
| **Showering Fans** | 13 | 52 | 12 | 48 | 25 | 100 |
| **Milking Parlor/Milking Machine** | 16 | 64 | 9 | 36 | 25 | 100 |
| **Scraper Machine for cleaning of sheds** | 10 | 40 | 15 | 60 | 25 | 100 |
| **Fodder Harvester** | 8 | 32 | 17 | 68 | 25 | 100 |
| **Silage Machine** | 7 | 28 | 18 | 72 | 25 | 100 |
| **Vaccine storage Refrigerator** | 4 | 16 | 21 | 84 | 25 | 100 |

**Table 5** shows that mostly farmers were not aware from the modern research based livestock technologies. An over whelming majority of farmers nearly 92% were unaware from TMR Wagon to mix animal feed and distribute fodder. 84 % of respondents were not aware of vaccine storage refrigerator, 72% of the respondents were not aware of silage making machine. 68% of respondents were not aware of fodder harvester, 60% of the respondents were not aware of scraper machine of cleaning of sheds. Nearly half 48% of respondents were not aware of showering fans and 36% of the respondents were not aware of Milking Parlour/ Milking Machine.

**Table 6: Level of awareness of farmers regarding innovative research based livestock technologies**

| Awareness Level | Not at all aware | | Slightly aware | | Somewhat aware | | Moderate Aware | | Extreme Aware | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** |
| **TMR Wagon** | 23 | 92 | 02 | 08 | 00 | 00 | 00 | 00 | 00 | 00 | 25 | 100 |
| **Showering Fans** | 12 | 48 | 09 | 36 | 01 | 04 | 02 | 08 | 01 | 04 | 25 | 100 |
| **Milking Parlor/ Milking Machine** | 09 | 36 | 10 | 40 | 03 | 12 | 02 | 08 | 01 | 04 | 25 | 100 |
| **Scraper Machine** | 15 | 60 | 07 | 28 | 01 | 04 | 01 | 04 | 01 | 04 | 25 | 100 |
| **Fodder Harvester** | 15 | 60 | 06 | 24 | 02 | 08 | 01 | 04 | 01 | 04 | 25 | 100 |
| **Silage Machine** | 18 | 72 | 03 | 12 | 3 | 12 | 01 | 04 | 00 | 00 | 25 | 100 |
| **Vaccine storage Refrigerator** | 21 | 84 | 03 | 12 | 01 | 04 | 00 | 00 | 00 | 00 | 25 | 100 |

**Table 6:** shows that 40% of the respondents are slightly aware with Milking Parlor/Milking Machine, 36% of the respondents are slightly aware with showering fans, 28% of the farmers are slightly aware with Scraper Machine for cleaning of sheds. 24% of the respondents were slightly aware with Fodder Harvester, 12% of the farmers were slightly aware with Silage Machine and Vaccine Storage Refrigerator. Furthermore, 12% of the respondents are somewhat aware with

silage Machine and milking parlor/milking machine. 08% of the respondents were moderate aware with showering fans and milking parlor/milking machine. Only 4% of the respondents have full knowledge about milking parlor/milking machine, Scraper Machine for cleaning of sheds, showering fans and fodder harvester.

**Table 7: Hurdles in adoption of Technologies:**

| Hurdles in Adoption of New Technology | Responses | | Percent of Cases |
|---|---|---|---|
| | N | Percent | |
| Financial problem | 15 | 34.09 | 60.00 |
| Lack of awareness/knowledge | 18 | 40.91 | 72.00 |
| Lack of skills | 3 | 6.82 | 12.00 |
| Lack of Agri. Ext. Staff | 3 | 6.82 | 12.00 |
| Non-availability of technology | 1 | 2.27 | 4.00 |
| Not taking risk to adopt | 4 | 9.09 | 16.00 |
| Total | 44* | 100.00 | 176.00 |

* The columns count are not hundred percent due to multiple responses of the respondents

**Table 7:** represents that 72% of the respondents don't adopt innovative technologies because they were unaware about these technologies and have no knowledge. 60% of the farmers don't adopt new technologies because of financial problem. 16% of the farmers said they are reluctant to take risks to adopt new technologies, 12% of the respondents told that lack of skills and Lack of agricultural extension technologies are the main hurdles in adoption of new technologies and only 4% of the respondents said that they find hurdles in adopting innovating technologies because of non availability of machines/technology in their local area.

**Table 8: Credit needs Assessment of farmers**

| S.No | Credit Needs of Farmers | F | Percentage |
|---|---|---|---|
| 1 | Water Pond | 4 | 16 |
| 2 | Milk Chilling Unit | 2 | 8 |
| 3 | Fodder Chopper Machine | 1 | 4 |
| 4 | Purchase of Animal | 3 | 12 |
| 5 | Milking Machine/ Milking Parlor | 14 | 56 |
| 6 | Showering Fans | 8 | 32 |
| 7 | Scraper Machine for Cleaning of Sheds | 5 | 20 |
| 8 | Fodder Harvester | 2 | 8 |
| 9 | Silage Making Machine | 4 | 16 |
| 10 | Vaccine Storage Refrigerator | 6 | 24 |
| 11 | Sheep Shaver | 1 | 4 |
| | Total | 50 | 200 |

* The columns counts are not hundred percent due to multiple responses of the respondents

**Table 8.** Explains that 56% of the respondents demands for finance for Milking Machine/Milking Parlor. 32% of the farmers need credit on showering fans to protect their animals from heat stress. 24% of the farmers need finance for vaccine storage refrigerator. 16% of the respondents need financial services for silage making machine to make the fodder available in off seasons and water pond. 12% of the farmers need financial assistance for purchase of animal as it is already the financial product so this scheme needed to be continued in

the study area. 8% of the farmers demand credit scheme for Milk chilling unit and fodder harvester. Only 4% of the respondents need credit for Fodder chopper Machine and sheep shaver.

## 6. CONCLUSIONS:

One the basis of the analysis of the data following conclusions has been made:

- Majority (80%) of the respondents i.e. had small land holding (up to 12.5 acres), while 12% of the respondents having medium land holding (>12.6 to 25 acres) and 08 % of the respondents had large land holding (i.e. more than 25 acres).
- Little more than half 52% of respondents cultivate fodders up to 25% of total land holding, 44% of respondents cultivate fodders up to >25-50% of total land holding 4% of respondents cultivate fodders up to >50-75% of their total land holding.
- The data was collected from the respondents regarding livestock owned by them the results shows that all the respondents were involved in livestock business, 536 livestock owned by 25 respondents including 351 cows, 98 goats, 58 buffalos, 24 sheep's and 5 calf's.
- The data regarding all livestock schemes of ZTBL has been collected from the respondents. Only 2 schemes having portfolio in the area Dairy value chain scheme and Red Meat Financing Scheme. Under Dairy livestock scheme 48% of the farmers got loan for Purchase of Dairy animals, nearly 16% of the respondents got credit from ZTBL for Fodder cultivation. 8% of the respondents got loan for vaccination of Dairy animals and Purchase of animal feed and only 2 respondents got loan Under Red Meat Financing Scheme for goat and sheep farming. Other livestock schemes of ZTBL Including Establishment of Silage Unit, Black Austerlorp chicken farming, Golden/Misri Chicken Poultry Farming and White Revolution Scheme were not performing in the study/research area.
- Mostly farmers were not aware from the modern research based livestock technologies. An over whelming majority of farmers nearly 92% were unaware from TMR Wagon to mix animal feed and distribute fodder. 84 % of respondents were not aware of vaccine storage refrigerator, 72% of the respondents were not aware of silage making machine. 68% of respondents were not aware of fodder harvester, 60% of the respondents were not aware of scraper machine of cleaning of sheds. Nearly half 48% of respondents were not aware of showering fans and 36% of the respondents were not aware of Milking Parlor/ Milking Machine.
- About 40% of the respondents are slightly aware with Milking Parlor/Milking Machine, 36% of the respondents are slightly aware with showering fans, 28% of the farmers are slightly aware with Scraper Machine for cleaning of sheds. 24% of the respondents were slightly aware with Fodder Harvester, 12% of the farmers were slightly aware with Silage Machine and Vaccine Storage Refrigerator. Furthermore, 12% of the respondents are somewhat aware with silage Machine and milking parlor/milking machine. 08% of the respondents were moderate aware with showering fans and milking parlor/milking machine. Only 4% of the respondents have full knowledge about milking parlor/milking machine, Scraper Machine for cleaning of sheds, showering fans and fodder harvester.
- Results show that 72% of the respondents don't adopt innovative technologies because they were unaware about these technologies and have no knowledge. 60% of the farmers don't adopt new technologies because of financial problem. 16% of the farmers said they are reluctant to take risks to adopt new technologies, 12% of the respondents told that

lack of skills and Lack of agricultural extension technologies are the main hurdles in adoption of new technologies and only 4% of the respondents said that they find hurdles in adopting innovating technologies because of non availability of machines/technology in their local area.

- 56% of the respondents demands for finance for Milking Machine/Milking Parlor. 32% of the farmers need credit on showering fans to protect their animals from heat stress. 24% of the farmers need finance for vaccine storage refrigerator. 16% of the respondents need financial services for silage making machine to make the fodder available in off seasons and water pond. 12% of the farmers need financial assistance for purchase of animal as it is already the financial product so this scheme needed to be continued in the study area. 8% of the farmers demand credit scheme for Milk chilling unit and fodder harvester. Only 4% of the respondents need credit for Fodder chopper Machine and sheep shaver.

## 7. SUGGESTIONS:

On the basis of the conclusions following suggestions were made these are given as under:

- ZTBL Credit Division may design the credit products using bottom up approach based on the needs of the farmers.

- Respondents are unaware from the innovative agriculture/livestock technologies because of less literacy rate in rural areas, lack of awareness about modern technologies, lack of agricultural extension services and lack of technical skills. The research results indicate that the Credit products should only perform or build a portfolio in rural population with the technology transfer and demonstration. Therefore there is need to bring that study results in the notice of higher management/policy makers of ZTBL and strengthen Agriculture Technology Department to disseminate the research based agricultural technologies with the rural population.

- Based on the results of the study following credit products should be designed
  1. Milking Machine/Milking Parlor
  2. Showering fans to protect their animals from heat stress
  3. Vaccine Storage Refrigerator
  4. Silage Making Machine
  5. Water Harvesting Pond
  6. Milk Chilling Unit.
  7. Fodder Harvester
  8. Fodder cultivation
  9. Fodder Chopping Machine
  10. Scraper Machine for cleaning of sheds
  11. Sheep Shaver

- Credit Division may continue financing on Dairy value chain scheme as this scheme is performing well in the study area.

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**Author of the study:**
Muhammad Fakhar Imam, OG-II, R&PU, P&RD, ZTBL, H.O. Islamabad

# RESEARCH INSTRUMENT/ INTERVIEW SCHEDULE

**FACTORS DETERMINING CREDIT NEED ASSESSMENT OF DAIRY/LIVESTOCK FARMERS:**

1. Name _____
2. Age _____ (in years)
3. Gender _____
   a) Male b) Female
4. Education _____ (schooling years)
5. Land holding (in Acres) _____
6. Area under fodders cultivation (in Acres) _____
7. Number of livestock owned

| S.No | Livestock | Number |
|---|---|---|
| 1 | Cows | |
| 2 | Buffalo | |
| 3 | Goats | |
| 4 | Calf's | |
| 5 | Heifers | |
| 6 | Camels | |
| 7 | Poultry | |
| 8 | Any other: _____ | |
| _____ | | |

8. What type of livestock loan availed from ZTBL?

| S. No | Name of Scheme | Loan Availed | |
|---|---|---|---|
| | | Yes | No |
| | **DAIRY VALUE CHAIN** | | |
| 1 | Construction of shed | | |
| 2 | Purchase of Dairy Animal | | |
| 3 | Milk chilling unit/tank | | |
| 4 | Water tanks | | |
| 5 | Feed grinder machine | | |
| 6 | Feed/milk containers | | |
| 7 | Pump | | |
| 8 | Fodder cultivation | | |
| 9 | Purchase of animal feed | | |
| 10 | Vaccination of Dairy Animal | | |
| 11 | Medication of Dairy Animal | | |
| | **WHITE REVOLUTION SCHEME** | | |
| 12 | Milk cooling tanks | | |
| 13 | Purchase of milking animals | | |
| | **RED MEAT FINANCING** | | |
| 14 | Rearing of sheep's | | |
| 15 | Rearing of goats | | |

| | | | |
|---|---|---|---|
| | **GOLDEN/MISRI CHICKEN POULTRY FARMING** | | |
| 16 | Meat purpose | | |
| 17 | Egg purpose | | |
| | **BLACK AUSTRALORP CHICKEN FARMING** | | |
| 18 | Meat purpose | | |
| 19 | Egg purpose | | |
| | **ESTABLISHMENT OF SILAGE UNITS** | | |
| 20 | Construction of silage unit | | |

9. Awareness level of farmers regarding modern Livestock Technologies?

| | | | Level of awareness | | | |
|---|---|---|---|---|---|---|
| Technologies | **A** | **N.A** | **25%** | **25-50%** | **50-75%** | **75-100%** |
| TMR Wagon | | | | | | |
| Instruments to save the animals from heat stress | | | | | | |
| Milking Parlour/ Milking Machines | | | | | | |
| Scraper Machine for cleaning of sheds | | | | | | |
| Fodder Harvester | | | | | | |
| Showering Fans | | | | | | |
| Silage Machine | | | | | | |
| Vaccine storage Refrigerator | | | | | | |
| Cattle Crush | | | | | | |

A= Aware, N.S= Not Aware

10. Credit needs assessment of farmers regarding livestock technologies?

_____
_____
_____

11. What hurdles you face in adoption of new technologies?

_____
_____
_____

**(Thanks for your time and interest)**