Safe Meat & Dairy Product Market Development

Baseline Study Report

Safe Meat & Dairy Product Market Development Sub-project

Palli Karma-Sahayak Foundation (PKSF)

PKSF Bhaban

Plot: E-4/B, Agargaon Administrative Area
Sher-e-Bangla Nagar, Dhaka-1207

Submitted to

Eco-Social Development Organization (ESDO)

Head Office, Collegepara, Gobindanagar, Thakurgaon, Bangladesh

Submitted by

Professor S. M. Harun Ur Rashid, PhD
Lead Consultant
Bangladesh Research Institute for Development (BRID)

Collegepara, Gobindanagar, Thakurgaon, Bangladesh

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Conducting the baseline survey on the '"Safe Meat & Dairy Product Market Development Sub-project"' is a prestigious work for us, particularly as a lead consultant of the Bangladesh Research Institute for Development (BRID). This work would not have been possible without the help and cooperation of many individuals and Institutions like IFAD, DANIDA, Palli Karma-Sahayak Foundation (PKSF), and Eco-Social Development Organization (ESDO). BRID team also do acknowledge those persons who have made this work successful. At the very outset, we are expressing our profound gratitude to ESDO for taking such an initiative in response to working in the meat and dairy sub-sector. We are grateful to all staff, from senior management to field staff of ESDO, for their cordial cooperation and assistance in facilitating the data collection process and ensuring data collection maintains quality. It could have never completed this survey without the active support and collaboration of the team of BRID. It's our pleasure to acknowledge the generous support of the project focal person and project coordinator of the surveyed project of ESDO for their cordial support and guideline in conducting this survey. On behalf of the Baseline team, we would express our gratitude to the Executive Director of ESDO for his extensive support in reviewing, editing, and providing feedback to ensure the baseline data reflect the ground reality.

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Professor S. M. Harun Ur Rashid, PhD

Lead Consultant

Bangladesh Research Institute for Development (BRID)

Collegepara, Thakurgaon-5100, Bangladesh

Date: August 31, 2022

Thakurgaon

Executive Summary

Introduction

At Thakurgaon Sadar, Ranishankail, and Pirganj in Bangladesh's Thakurgaon District, ESDO is carrying out the sub-project titled "Safe Meat and Dairy Product Market Development." Under the Palli Karma-Sahayak Foundation's (PKSF) Rural Microenterprise Transformation Project (RMTP), IFAD, DANIDA, and this sub-project are all contributing funding. Through effective production techniques and robust market linkages, the sub-project will enable rural producers to expand sustainable micro-enterprises, which will be implemented for the overall business development of small entrepreneurs. The initiative offers assistance in producing and distributing secure dairy and meat products in accordance with Global GAP and HACCP guidelines. For the branding of dairy and meat products, traceability and certification of such items will be introduced. This will give participants a useful commercial tool for maintaining product quality. Through value chain operations, the sub-project aims to improve the income, food security, and nutritional status of marginal, small farmers, and small business owners in the project region. ESDO has now taken the initiative to carry out a baseline survey on project beneficiaries for safe meat and dairy products in the project area. Hence, the consultant of BRID and its team has conducted the said survey and prepared a report on the basis of findings from field levels of the project.

Major objectives of the survey

The main objective of the baseline study was to collect data and information from a representative sample of project participants to gain a clear picture of their pre programme socio-economic status to allow for project management to measure improvement/ change of their status at the middle and at the end of the project based on the baseline information.

- to measure current perception, attitude, knowledge and behaviour
- study will further explore existing support system and linkage of the beneficiaries with local government institute and service providing agencies
- the study will serve the purpose of ensuring that the project indicators are SMART (specific, measurable, achievable, relevant, and targeted) and can be used for the study as well as future project monitoring and learning
- The baseline data will consider various socio-economic indicators including income, gender, nutrition etc. as per project log-frame.

Methodology

The methodology of data collection was both qualitative and quantitative in nature, and has included information gathered on the outcome and project goal indicators on knowledge, attitudes and practices. The baseline study has been done in project area. All data, qualitative and quantitative, collected through the assessment was disaggregated by age, sex, ethnicity, poverty and wherever appropriate as per project design. Finally, the research team has adopted a suitable methodology for carrying out the work and fulfil the objectives of the study. The methodology was adhered to the ethical standard, but bidders are free and encouraged to be as creative as possible in arriving at a suitable methodology that ensures that the objectives of the study are fully met in a timely and efficient way. Precisely, 378 survey respondent has been selected by simple random sampling. The number of samples has been determined by using known sampling formula. A total of 03 FGDs consecutively in Thakurgaon sadar, Pirganj, and Ranisankail has been conducted. Moreover, 12 Key Informant Interviews (KIIs) have been conducted with different categories of stakeholders including local services providers and local government and non-government officials related to the project.

Key Findings

A total of 378 respondents were interviewed in this study of whom the majority were female (85%). Among the respondents, the vast majority (39.7%) can signature only while 26.2% of the respondents completed primary education. However, only 0.3% of the respondents were highly educated in the study area. Nevertheless, most of the respondents (62.2%) are involved in cattle rearing for more than 10 years while the smallest possible number of the fraction, which was 6.6%, was found in less than one year.

The outward presentation of farms and animal houses reveals that around 246 houses were constructed by the tin shade basement (65.1%) while 12.7% were made of thatch and 20.6% brick made. However, most of the producers (87.6%) follow the conventional method of cattle rearing while 11.6% adopted advanced and only 0.8% adopted modern system of animal husbandry.

The majority of the responders were operating their businesses from their own property while only a small portion is doing it on rented land. However, there were several kinds of professional backgrounds of the respondents. However, the major portion constitute agricultural farmer and the second largest portion (32.5%) constitute housewife.

The majority of respondents (70.9% of the total 268) earned between 10,000 and 12,000 tk on a monthly basis while the rest earn less than the aforementioned amount. The largest portion of the producer themselves look after their animals while a small portion appointed labor for this.

On the basis of farming production system of animal husbandry, most of the producers (45.8%) are engaged in beef fattening while the second largest portion is involved in milk production. The largest portion of the producers do not produce dairy or milk products commercially. However, a large number of the producers (98.4%) do not have registration for it.

A significant number of participants (49.2%) are rearing both native and hybrid animal while 25.7% rear native cow. However, it is found that approximately 40.7% of the respondents consume between 2 and 10 liters of water on a daily basis while there is no production of milk at 207 farms, which accounted for 54.8% of the total number of farms that took part in the study.

On the basis of selling purpose of the animal husbandry production such as cow, buffalo, and goat, a major number (95.8%) of producers sell on local market or local meat dealers while 4.2% of them sell on larger markets or to companies such as megacity of exported commodities.

The study revealed that, on the basis of agricultural milk output, 52 of our respondents had swapped their milk for Gowala or Ghosh while a significant portion of the local community's residents (85.2% of the total) have made regular purchases of milk from the farms, whereas only 1.1% of the total has been obtained by the remaining businesses.

The majority of the 318 respondents have earned between 10,000 and 100,000 taka on an annual basis through farming while 12.7% earn between 100,000 and 200,000 while the remaining earns of above 200,000 annually.

The study found that a significant portion of the respondents (52.9%) believe that meat production on the other hand beef fattening is more profitable than production of milk (47.1%). However, a major portion of the producers (44.7%) believe that they make least profit from their animal husbandry while a significant portion make a fair profit from it.

When asked about the level of satisfaction 70.6% of the respondents reacted negatively on the basis of the sale price of their products while only a small percentage of individuals (29.4%) provided a positive response.

The study revealed that a significant number of the producers (84.4%) didn't receive any training while a small number of the producer received husbandries related professional training. However, the number of respondents who got training they have trained up by various government (54.8%) and non-government organizations (15.3%). The level of taking professional training course of the respondents revealed, most of them fairly (9.5%) opined of the training course.

Status of receiving any financial grant/ assistance shows that, a majority percentages of the respondents would not get any types of incentives (94.4%) while a small percentage (5.6%) took some incentives by the NGOs. Those who received incentives, received it for purchase of livestock (95.24%) and incentives to artificial insemination (4.76%).

A significant portion the producers (81.3%) feed straw to their animals while a small portion use ready feed as a source of nutrition for their animals. However, the rest use grass, husk and other items.
Concerning nutrition and eating, 10.84% opined positively on the degree of awareness about animal nutrition and taking nutritious food by family members (11.90%) while the rest were negative (88.10%).

Our field report exemplified prevalent farm/household cattle diseases. One hundred sixty-two farms had Pneumonia, FMD, Fever, Botulism, Acidosis, Anthrax, and food poisoning, and the black quarter with the lowest contamination (0.3%).

We looked at several ways to treat farm animals. Quacks treat most farms (79.4%). 17.5% of veterinary doctors worked in private or paravets, and 3.2% at government animal hospitals.

A majority of respondents (56.6%) had a favorable opinion of the quality of veterinary service providers (LSPs). Extremely high and very low, however, include roughly 3.7% and 2.4%, respectively.

Farm animal husbandry and milk production had issues. The biggest obstacles were lack of financial services/support (79.4%). Lack of advanced and modern animal husbandry (7.1%), quality food, and green grass (11.4%).

In terms of farm management, modern machinery, and ICT use, 84.70% of the total participants provided a negative answer (enough space, light and air, paved and clean floors, nutritious feed, suitable treatment, etc.). Telemedicine, animal databases, nutritional testing systems for animal feed, etc.) were seen positively by 2.40 percent and negatively by 97.60 percent.

75.70% of respondents were unfavorable to the availability of any livestock service providers offering training, vaccination, deworming, artificial insemination, and other services, while

95.20% were pessimistic about animal husbandry instruction. 12.70% of the population gets regular vaccinations, deworming, and AI.

Most respondents (98.4%) are dissatisfied with the accessibility of product producers, fortifiers, certifiers, packagers, branders, and outsourcers in their region, while only 1.6% are satisfied.

The presence of BSTI- and HACCP-certified meat processing plants demonstrated that a large proportion of people (99.2%) governed their region in a way that prevented such operations. And only a small percentage of respondents, 0.8%, have provided a positive response.

25.9% of respondents were satisfied with the availability of veterinary 'telemedicine' in these areas, while 74.1% were dissatisfied. This is because of telemedicine and online business. Online buying and selling livestock (cows, goats, and sheep) indicates 98.90% unfavorable comments.

Concerning feeding raw grass and ready-made feed to cattle, our field research findings indicate that the vast majority of respondents (93.10%) believe that a negative impact is caused by regularly feeding the animals on their farm ready-made feed. In addition, giving animals a consistent amount of raw or green grass received positive feedback from 74.30% of respondents while receiving negative feedback from 25.70% of respondents.

A very small percentage of respondents (1.9%) agreed that businesses use nutrition technology, while the remaining 98.1% gave a very unfavourable evaluation.

The majority of responders, 59.00%, do not know how to develop and grow nutrient-rich grass, and 59.80% do not comprehend the optimal balanced feed for animals. Additionally, 41.0% of respondents and 40.20 percent of respondents are knowledgeable about producing high-quality grass for animals and balanced animal food.

Key Words: Agriculture, Dairy, GGAP, Meat, Products

Abbreviation

KII	Key Informant Interview
FGD	Focus Group Discussion
ESDO	Eco-Social Development Organization
PKSF	Palli Karma-Sahayak Foundation
DANIDA	Danish International Development Agency
IFAD	International Fund for Agricultural Development
BRID	Bangladesh Research Institute for Development
LSP	Local Service Provider
DLO	District Livestock Officer
ULO	Upazila Livestock Officer
DTO	District Training Officer
VO	Veterinary Officer
HSTU	Hajee Danesh Science and technology University
GGAP	Global Good Agricultural Practice
HACCP	Hazard Analysis and Critical Control Point
BGAP	Bangla Good Agricultural Practice
RMTP	Rural Micro-enterprise Transformation Project
FMD	Food and Mouth Diseases
LSD	Lumpy skin disease
PPR	Peste Des Petits Ruminants

Definition of the local terms

Bdt	Bangladeshi Taka
Lac	One hundred thousand
Matir	Made by soil
Paka	Made by concrete or brick and cement
Taka	Bangladeshi currency
Tin	One kind of sheet made of metal materials used as the roof or shed of a house
Upazila	It is a sub-district formerly called Thana is an administrative region in Bangladesh, functioning as a sub-unit of a district

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Introduction

One of our greatest problems in the future decades will be to feed the globe sustainably. A key factor in this is meat. For many people all around the world, meat is a crucial source of sustenance. The supply of meat has more than tripled in the previous 50 years, and there is an increasing demand for its worldwide. More than 340 million tonnes are produced globally each year.[1] However, the production of meat has a significant negative impact on the environment, increasing freshwater usage, agricultural land use, and greenhouse gas emissions. To produce and consume meat, dairy, and other protein products in a way that has minimal negative effects on the environment is one of the world's most urgent concerns.[2] At Thakurgaon Sadar, Ranishankail, and Pirganj in Bangladesh's Thakurgaon District, ESDO is carrying out the sub-project titled "Safe Meat and Dairy Product Market Development." Under the Palli Karma-Sahayak Foundation's (PKSF) Rural Microenterprise Transformation Project (RMTP), IFAD, DANIDA, and this sub-project are all contributing funding. Through effective production techniques and robust market linkages, the sub-project will enable rural producers to expand sustainable micro-enterprises, which will be implemented for the overall business development of small entrepreneurs. The initiative offers assistance in producing and distributing secure dairy and meat products in accordance with Global GAP and HACCP guidelines. For the branding of dairy and meat products, traceability and certification of such items will be introduced. This will give participants a useful commercial tool for maintaining product quality. Through value chain operations, the sub-project aims to improve the income, food security, and nutritional status of marginal, small farmers, and small business owners in the project region. ESDO has now taken the initiative to carry out a baseline survey on project beneficiaries for safe meat and dairy products in the project area. The main objective of the baseline study was to collect data and information from a representative sample of project participants to gain a clear picture of their pre programme socio-economic status to allow for project management to measure improvement/ change of their status at the middle and at the end of the project based on the baseline information. The methodology of the survey for data collection was both qualitative and quantitative in nature, and has included information gathered on the outcome and project goal indicators on knowledge, attitudes and practices.

Background of the Study

Safe Meat and Dairy Product Market Development is being implemented in Thakurgaon Sadar, Ranishankail, and Pirganj in Thakurgaon district by the ESDO. As part of the Palli Karma-Sahayak Foundation's Rural Microenterprise Transformation Project (RMTP), this sub-project is being sponsored in partnership with IFAD and DANIDA. The sub-project will help rural producers to grow sustainable micro-enterprises via efficient production techniques and strong market linkages, which will be applied to the overall development of small entrepreneurs. The project's goal is to help dairy and meat producers adhere to the Global GAP and HACCP food safety standards. For the branding of dairy and meat products, traceability and certification of such items will be offered, which will provide participants with a significant commercial tool for product quality compliance. Increasing the income, food security, and nutritional status of marginal farmers and small enterprises in the project region is the goal of the sub-project. The

[1] https://ourworldindata.org/meat-production#milk-production-across-the-world

[2]

project's chain operations will progressively improve the income, food security, and nutritional status of marginal, small farmers and small businesspeople. Sub-project execution is expected to raise the revenue of 60 percent of the businesses by at least 50 percent, and 30 percent of the project participants will be able to include healthy food in their daily diets.

There are plans to help out around 25,000 people from ultra-poor families to those who are transitioning from poverty to entrepreneurship via this sub-project. For the purposes of evaluating the success of the project, the baseline survey has compiled data on a wide range of socioeconomic variables. Women has been made up 55% of the participants in this study. There was an 11.24 percent objective for participants aged 18 to 35 in the programme. Gender and youth coverage has been examined in the baseline research. The sub-success project's in improving the nutritional status of its participants is measured by a set of specified metrics. The sub-project will contribute to the national goal of reducing poverty by providing self- and wage-based employment and developing microenterprise opportunities. A total of 25,000 entrepreneurs are expected to embrace ecologically friendly and climate-resilient technology with the help of this program. To assess the overall existing conditions of the targeted participants, this baseline study design has been prepared by the Bangladesh Research Institute for Development (BRID).

Justification of the selection

The creation of jobs About 14,000 persons are directly involved from the input market of meat and dairy to the forward market or end market. As a result, the dairy subsector has generated distinctive job prospects along the whole value chain, particularly in the pro-poor sector. Lack of employment opportunities in various market segments or roles, such as processors, service providers, input sellers, sales agents, collectors, quality controllers, transport service providers, etc., makes poverty eradication impossible. Enterprise Development the Thakurgaon region is home to roughly 25,000 dairy farmers who practice traditional meat and dairy production methods. 700 more households work in the milk and meat processing industries. By adopting and upholding sectoral standards and superior management practices, these independent producers and processors offer unique chances for social companies to emerge. These businesses' output may be subject to certifications like Global GAP or HACCP, which will only improve the quality and grades of the dairy products, assist them in reaching out to upscale markets, and ultimately boost the value of their dairy-based output.

The dairy sub-sector was well suited for growth and expansion due to the high market demand for milk and meat and the favorable business climate. Both the public and commercial sectors are boosting their investments in this product category. By making high-quality inputs accessible through a variety of sales and distribution channels, these sectors want to improve the production of milk and meat by promoting high-yielding types. As an alternative distribution model to seize new market opportunities, many private sectors, including Grameen Danone[3] and JITA Social Business Ltd.[4], are interested in adopting the Last Mile Distribution Model. In addition, the urban population's increased demand for "Safe Meat" and "Ready-to-Cook" meat products presents opportunities for product diversification and supply chain improvement. Additionally, the growth of the dairy sub-sector may be aided by the emergence

[3] https://www.danonecommunities.com/grameen-danone-foods-ltd/
[4] https://jitabangladesh.com/

of e-commerce and the usage of digital mobile applications for engaging directly with customers. Farm production will grow many times, if not double, as a result of farm mechanization, the construction of new processing facilities, and the implementation of cold chain management in the dairy supply chain.

Market Potential and Linkage Opportunities (Local, Regional, National) Dairy already have a developed market network that extends from the local to the regional to the national levels. As long as there is demand, selling products is both manageable and profitable. But because of market competition, buyers are now required to purchase things through middlemen at a negotiated price. If the subcontracting or contract farming model is used to replace this procedure, then purchasers can purchase products directly from dairy producers at prices set by the industry. Additionally, it will guarantee fair prices for the producers. The dairy market has a sizable number of different market actors, such as chilling plants and dairy processors, but there is still a lack of connection and product standardization. This is where there is room for improvement. Value Enhancement Given that the producers or dairy enterprises can do better branding, packaging, and marketing, it has already been established that the meat and dairy market offers the most varied and wide range of value addition. Many processors present "value addition" prospects, but they lack the necessary qualifications, marketing expertise, and product certification. Included in society No matter a person's race, religion, or gender, the production and sale of meat and dairy products (milk in particular) is largely approved by the community. From the acquisition of inputs through the marketing of products at the forward market, the value chain provides equality and inclusivity for men, women, and young people.

Theoretical framework

Meat and Dairy sector

Meat

In the past, many cultures considered meat a luxury that could only be enjoyed on special occasions or certain days of the week, while today it is a staple that can be found in nearly all restaurants and many kitchens all over the world. The market value of the meat industry is expected to rise from 838 billion U.S. dollars in 2020 to over one trillion dollars by 2025. In 2021, the United States saw the highest revenue from meat products and sausages, nearly twice as much as the second largest meat market in the world, Germany with a created revenue of over 28 billion U.S. dollars. Russia, France, and Brazil are finishing the top five countries with the biggest revenue from processed meats. [5]

Leading producers

As the demand for meat rises worldwide, so must the production of meat. Most of the world's meat is produced in Asia, which generated 136 million metric tons of meat. Some of the largest meat production companies in the world include Tyson, Hormel Foods, and National Beef.
In addition to producing the highest revenue from meat sales, the United States is also a major producer and exporter of meat, especially beef. The trade value of the U.S. beef industry amounted to about 6.6 billion U.S. dollars in 2020. Brazil is also a major exporter of meat, both in the form of broiler chickens and beef.[6]

Meat market in Bangladesh

Bengal Meat Processing Industries Ltd. is the only export-oriented meat processing company in Bangladesh. The company provides fresh, hygienic and Halal meat. Bengal Meat has been regularly exporting cattle and goat to Kuwait and Dubai with a high degree of success over the past few years. Bengal Meat is also a regular supplier of beef and mutton to five-star hotels in Dhaka city.[7]

Meat processing in Bangladesh

Meat slaughtering and butchering
Slaughterhouses cannot be found everywhere in the country. More than 80% animals are slaughtered outside the slaughterhouses of city government with very poor means of meat safety. The rest of the animals are being slaughtered inside the slaughterhouses managed by local government. In Bangladesh, animals are slaughtered using the Halal method, by a munshi or imam of a mosque. Bleeding is performed in the drainage pit or ground. Flaying of cattle is done on the ground with sharp knives. Cows or buffaloes are first hit on the ground and cut by their throats to dry the blood. Then the skin is removed from the body. Butchers use buckets filled with water to wash the meat and clean the blood-stained floor. The blood of the animal is discharged directly into the sewer through a groove. Animal waste (such as the stomach or other organs) is often thrown directly onto the ground, mixed with hides and uncleaned blood, or thrown directly into nearby garbage dumps.
Most of the slaughterhouses are lacking basic amenities such as light, ventilation and water. Due to the scarcity of water, butchers cannot wash carcasses and clean slaughterhouses properly. They often clean carcasses manually carrying water in a bucket. They clean the

[5] Global meat industry - statistics & facts
[6] Global meat industry - statistics & facts
[7] Bengal Meat Processing Industries Ltd.

stomach in the pond resulting in huge water contamination. The slaughtering and carcass-dressing processes are performed in open areas in highly unhygienic conditions and the meat is sold with little or no veterinary inspection. Carcasses are prepared in unhygienic conditions in local slaughterhouses. In rural and urban areas, towns and even in cities, the slaughtering of animals is still done by unauthorized butchers in fields, bushes, backyards or roads, where killed animals are eviscerated and dressed. In the case of goats, it is usually performed by hanging. Blood, ruminal and intestinal contents are either left where the slaughter has taken place or washed down to drain which eventually ends up in a pond or a watercourse.
In Bangladesh, there is no organized system of animal slaughter facilities in terms of lairage, flaying of carcasses, carcass washing, meat inspection, etc. Inside Dhaka, there are only 3-4 slaughterhouses in operation, managed by the City Corporation. Some are mainly served for Qurbani and some are now under construction to be upgraded. However, in general, these slaughterhouses are largely far beyond the demand. Every day around 500-700 cows are slaughtered in Dhaka city but only 200-300 are slaughtered inside an abattoir. In a few slaughterhouses, the city corporation is mainly in charge of the waste treatment. Due to a lack of enforcement of the Slaughtering Act, food animals of different ages are killed indiscriminately without giving due consideration to the microbiology or the hygienic quality status of meat supply to consumers which may lead to potential health hazards. Butchers are not trained to manage by products in the slaughterhouses. They flay hides in a traditional method with a sharp knife which causes damage to the hide during the operation. Thus, the price of hides decreases by up to 15%.

Industrial processing

Meat processing in industrial plants is a very recent addition to the food processing industry in Bangladesh. Bengal Meat Processing Industries, situated in Sathia (Pabna District, Bangladesh) are the only modern beef and mutton processing facility in operation. Combined, these facilities process less than one percent of total Bangladeshi meat production. The processing capacity of Bengal Meat is 6000-8000 cattle, 50,000 to 70,000 goats and 1,800,000 to 2,000,000 chickens per year[8]. They do, however, process meat into ready-to-cook nuggets, sausages, and other prepared products. Bengal Meat used to export meat but since 2014 the export failed due to its low-price competitiveness. The company then shifted its attention to the domestic market and currently only keeps 10% of total sales targeting oversea markets, such as Maldives, Qatar and UAE. Cattle slaughtered in modern slaughterhouses, then processed and packed directly in factories, is finally marketed through fast food shops, superstores and convenience stores. Regarding the geographical dispersion, Bengal Meat targets 70% in urban and 30% in rural areas.
The biggest challenge for industrial processing is the difficulty in reducing production cost. High duty fees constrain the company to invest more capital to purchase modern facilities like sausage filler, smoke houses, ice flake machines, MAP packaging systems, etc. Meanwhile the high rates for electricity creates additional costs. Due to its high production costs, the sale price is much higher compared to the raw meat in wet markets. Therefore, the targeted consumers are often limited to the middle and upper classes, those with higher income.

Waste in meat industry

The meat industry is one of the largest producers of organic waste in the food processing sector and forms the interface between livestock production and a hygienically safe product for use in both human and animal food preparation.

[8] Data comes from the interview with Bengal Meat

The first stages in meat processing occur in the slaughterhouse (abattoir) where a number of common operations take place, irrespective of the species. These include holding of animals for slaughter, stunning, killing, bleeding, hide or hair removal, evisceration, offal removal, carcass washing, trimming and carcass dressing. Further secondary operations may also occur on the same premises and include cutting, deboning, grinding and processing into consumer products.[9]

The European Union produces about 18 million tons of waste from meat industry per year.[10] The majority of waste generated is in the slaughterhouse. During the slaughtering process, the waste consists of parts of a slaughtered animal that cannot be sold as meat, like bones, tendons, skins, offal, blood and contents of the gastrointestinal tract, etc. it's no longer practical to dispose of the waste from the slaughterhouse as it is economically feasible that products be recycled and converted into an item of higher value. Slaughterhouse waste can be used as feed supplements for poultry, fish, or pets like dogs and cats.[11]

Dairy industry

According to the Department of Livestock Services of the Government, milk production in Bangladesh amounted to 10.68 million metric tons in the 2019-20 fiscal year. Between 2010 and 2020, the domestic production of milk has grown five times, with a CAGR of 16.25%.[12]

Product Variants and Derivatives

While the primary product in the market is liquid milk, various milk derivatives including cheese, milk and cream, milk oils and fats, curdled milk and cream, butter, ice cream, yogurt, etc. constitute the market. There are different variants within the liquid milk segment as well. Flavored milk is one of the popular variants in the market, which largely depends on imported ingredients to be processed.

Availability and Value Chain

Despite the increase in production, the industry has not been able to fulfill the domestic requirement yet. Currently, the per capita availability of milk stands at 175.63 ml/day whereas the minimum recommended daily intake is 250 ml. As opposed to the current supply of 106.80 lakh metric tons, the demand for milk in the market stands at 152.02 lakh metric tons.[13] This shortfall implies that self-sufficiency in the dairy sector is still outlying.

The value chain in the Bangladesh Dairy industry can be primarily divided into two models: the informal Traditional Markets Model and the Formal Processed Market Model.[14] The dairy sector in Bangladesh is making its shift towards achieving scale through the growth of industrial processors of dairy products. However, the lion's share of the total domestic production of milk is channeled through informal trades. As IFCN reported in 2019, the industrial processors can collect only 9% of total milk production, and 91% is traded informally.[15] In the informal portion of the market, the milk directly goes to consumers from farmers. In the formal division of the market, various models are followed including the

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[9] https://www.environmentalpollution.in/waste-management/meat-industry/how-to-treat-waste-in-meat-industry/5201

[10] A model of the meat waste management

[11] https://www.outlookindia.com/outlook-spotlight/how-waste-materials-and-by-products-are-utilized-by-meat-processing-industries-in-india-news-44847

[12] Department of Livestock Services

[13] http://www.dls.gov.bd/site/page/22b1143b-9323-44f8-bfd8-647087828c9b/Livestock-Economy

[14] http://www.fao.org/3/i0588e/I0588E03.htm

[15] http://www.lrrd.org/lrrd32/5/moham32081.html#:~:text=Figure%203%20shows%20that%20milk,%25%20self%2Dsufficiency%20in%202030.

cooperative model where the farmers contribute to the cooperatives that channel the milk to industrial processes to ultimately reach the consumers.

The dairy sector in Bangladesh has experienced steady growth in the last few decades despite constant challenges. From its humble beginnings as a cottage industry not too long ago, the dairy industry in Bangladesh has evolved with the emergence of multiple home-grown industrial processors. In the context of an economy that is still dependent on agriculture at large, the dairy sector can add great value in terms of creating employment opportunities, establishing food security, and supplying protein to the meals of people. Although Bangladesh is yet to reap the benefits of a mature industry from this sector, it holds immense potential to contribute to creating economic value at the national level.

However, the industry is still riddled with problems that are holding it back from realizing its full potential. In terms of per capita milk consumption, Bangladesh stands near the bottom of the global list. Regionally, per capita milk consumption in South Asia is one of the lowest in the world. As it combats a perpetual supply deficit in the market, the dairy industry in Bangladesh looks to advance towards self-sufficiency.[16]

The first evidence of dairy consumption dates back over six thousand years, and today dairy products are enjoyed all over the world. Over the past couple millennia there has been an incredible amount of creativity and innovation when it comes to processing, fermenting, and consuming dairy products. In 2021, the value of the dairy market worldwide was estimated to be about 871 billion U.S. dollars, which is projected to grow to 1,128 billion dollars by 2026.

Profitability

Currently, the overall scenario in the industry is not very profitable for industrial processors. According to Milk Vita, the entity is incurring higher costs per liter than what they can charge for it. Despite the high demand in the market, the financial attractiveness of formal dairy farming is not there, primarily because of the high processing costs.

Major Challenges in the Industry

Despite the huge demand and growth potential, the advancement of the industry is impeded by several challenges in the ecosystem:

Inadequate Funding

Although the livestock and poultry sector as a whole received a bigger allocation of the Government Budget of FY 2020-21 than the previous ones, the sector is still not getting enough attention. Issues like a shortage of medicine and feed for the cattle, and inadequate training of staff due to lack of necessary funds are ultimately resulting in poor product quality and low dairy production.

High Cost of Production and Inadequate Prices

One of the major problems that riddle the dairy industry is that the farmers are being deprived of fair prices for their produce. According to Milk Vita, the largest industrial processor in the country, a farmer is offered only 35-40 taka for a liter of milk depending on the fat level, whereas the cost of production is on average 43 taka a liter, driven by cost pressures such as increasing prices of fodder and raw feed ingredients. Insufficient prices act as a deterrent to farmers to produce milk for industrial processors and maintain the quality of the milk.

[16] Light Castle Analytics Wing

Low-Quality Production

As the informal segment of the industry is dominated by small farmers and market intermediaries, quality control processes are inadequate or non-existent. As a result, the quality of milk is not being ensured. In addition to that as farmers do not get the fair price for their produce, they are often tempted to adulterate milk to increase quantity to cover their costs. In a study conducted in the Barishal district, it was observed that 100% of the samples collected were adulterated with water. Apart from that, other adulterants present in the samples were cane sugar (26%), powdered milk (14%) and starch (12%).[5]

Low Production

As a result of some of the problems mentioned earlier, the domestic production of milk is still too low to realize its full potential. One of the main reasons behind low production is the absence of high-yielding breeds in the country. As most of the produced milk comes from marginal farmers who rear low-yielding local breeds, the bottleneck in the supply chain is slowing down the growth in the sector. To put it into context, an average local breed cattle's yield is around one-twentieth of that of a cross-breed of local and 62.5% HF.[17]

Import Dependence

As the domestic production is not yet sufficient to cover the demand for milk in the country, the market is still heavily dependent on imports. Despite the growth in domestic production, the import quantity of milk and milk derivatives has increased over the decades. According to International Trade Center, powdered and solid milk products worth $365.87 million were imported in the year 2019.[18]

Milk market outlook

In terms of production, the vast majority of dairy products are made with cow's milk. India tops the list with the greatest number of milk cows of any country, at 58 million cows, while the leading producer of cow milk in the world is Europe, followed by the United States and India. Although East Asian countries do not have a long history of milk consumption, in recent years China has increased its domestic milk production volume by six million in the last ten years.

International trade

One of the many consequences of globalization is that dairy products are now consumed all across the world, and every year massive quantities of milk and cheese and other dairy products are traded between countries. In 2021, over 63 billion U.S.D worth of dairy products were exported, a significant increase from about 39 billion dollars in 2015. The European Union, with countries like France, Ireland, and Germany which are renowned for their cheese and butter, controls a 38 percent share of the global dairy product export market, the largest of any world region. Germany alone exports about 4.8 billion USD worth of cheese in a year.[19]

Top global dairy producers

As charming as they were, the days of small family-owned dairy farms are long gone, and now enormous corporations such as Dairy Farmers of America and Fonterra control significant shares of the global dairy market. Nestlé Group, one of the largest food and drink companies

[17] https://www.unido.org/sites/default/files/files/2019-05/Bangladesh%20dairy%20and%20beef%20vc%20report%20%28Wei%27s%20final%20version%29%20.pdf
[18] https://www.intracen.org/country/bangladesh/
[19] Global dairy industry - statistics & facts

in the world, earned about 11 billion Swiss francs from milk product sales in 2021, making dairy the fourth-largest product category for the multinational giant.

Safe meat and Meat products

Meat from animals reared following Global Good Agricultural Practices (GGAP) protocols is safe. Safe meat can be produced by selecting progeny that is not harmful to human health before the animal is born, providing the animal with tested safe balanced feed, water, disease prevention, and suitable housing during pregnancy and after birth. It must be certified by GGAP. But in the case of frozen/processed meat, it will be required to be approved by BSTI and have HALAL and HACCP certificates. In case of such a certificate, the logo of the mentioned organization will be on the cover.

Safe dairy products

Products produced following the HACCP protocol from milk produced by cows reared following the Global Good Agricultural Practices (GGAP) protocol are safe dairy products. HACCP is a modern method of ensuring product quality and food safety.

Basic issue related to food science

Thousands of people suffer from food-borne illnesses every year after eating contaminated or poisoned food, which usually manifests as difficult diarrhea, vomiting, and abdominal cramping. Many incidents are not traced. Among the victims, especially the very young, the elderly, and the frail die. It is important to strictly enforce the existing laws on food hygiene. But this alone is not enough to prevent food poisoning. Carelessness and ignorance are usually the cause of food poisoning. That is why food health experts feel that the only way out of the current sorry state is to provide proper education to those who work with food.

Dietary hygiene is not just about cleanliness; This includes a variety of functions, such as: preventing contamination of foodstuffs from harmful microbes, toxins, and unknown contaminants; not allowing microorganisms present in food to grow to such an extent that the eater may become ill or spoil the food, and thoroughly sterilizing or otherwise destroying harmful microorganisms in food. Thus, compliance with the strictest health science practices leads to satisfaction, reputation, and increased business. Compliance with the law increases confidence and creates a good working environment. Employees work with satisfaction and enthusiasm, resulting in increased productivity.

Relevant considerations

Partnerships: Each intervention may have one or more partners for implementation. Here the partner means the private sector. The private sector is of two types namely - institutional and non-institutional. Prana, Arang, ACI Godrej etc. Institutional Private Sector. LSPs, artificial inseminators, cows etc. Informal private sector. For example, Arang or Pran can be a partner in selling raw milk. ACI companies or Lalati can be partners for providing IVF services in the backward market. It should be noted that intervention partners are understood by many to be cooperative organizations, which is not correct.

Facilitation: Emphasis will be placed on intervention facilitation rather than sub-project implementation. Each intervention will be implemented at the field level through a private sector partner rather than implementing the respective activities. Facilitation method will benefit the main members of the sub-project i.e., the farmers by mobilizing the private sector's own activities. That is, deworming campaigns organized by the concerned companies and LSPs without being organized by the project, organized by the concerned companies and LSPs without organizing and conducting training by the project staff, linkages with buyers or sub-

buyers without being involved in the purchase and sale of produced products by the sub-project. -Creating contracting etc.

Value Addition: Active role in increasing demand and price of products through value addition to goods and services by the respective private sector at each level of the value chain. Value addition here refers to the transformation of the product from one state to another or the enhancement of service quality, such as pasteurization of raw milk, use of loose packaging, certification from BSTI, etc. Again, adding different flavors and aromas to pasteurized milk, making ghee from milk etc. will come under value addition. The mentioned sub-projects will focus more on processing. Institutional and non-institutional private sector will play an effective role in increasing the price and demand of the product through value addition in dairy products as a result of which the demand, production and price of milk produced by the farmers in the project area will increase.

Crowding in: Implementation of every intervention has institutional and non-institutional partners. Partner project members benefit by providing services. In this situation, homogeneous market actors come to the project area to sell their products and services, thus increasing the number of human service providers - this situation is called 'crowding in'. If a business environment is created in the facilitation of the project, the supporting functions will be more active resulting in crowding in. Work will be done to sustain the sub-project intervention by developing a competitive service market by connecting institutional buyers, institutional input suppliers, institutional service providers etc. as far as possible in the work area.

Creating a Business-Friendly Environment: There are various policy issues to enhance transactions among market actors, overcoming these issues is a part of facilitation. For example, there is no uniform toll for milk and grass in the markets in the project area, the toll is higher in certain areas. In this case local producers will be financially benefited by helping to determine the most favorable tolls in these markets. Again, BSTI does not issue cheese certification, so lobbying with them is part of the facilitation to introduce certification in Bangladesh.

Embedded services: Value chain projects mainly serve to sustain the service market. Every service provider in the value chain needs to facilitate projects to enable embedded services. If the embedded service is introduced, the core members of the project will benefit. For example, if Global Trade sells ghee making machines to an entrepreneur and provides training to processors on machine installation and operation, both will benefit. In this case, machine installation and training are an embedded service. His sales for embedded services will increase, if sales increase, technology transfer will occur, if technology transfer will allow low-cost processors to produce more.

Supply Chain Network: From the time the product is produced until it reaches the consumer intact, various hands change hands. The change of hands from producer to consumer is like a chain, this chain is called supply chain. For example, since the supply chain of the processors and rural Danone in the project area does not extend to the villages, the local people are not getting dairy products easily, resulting in malnutrition among children and the elderly. On the other hand, as the supply chain network of processors and rural Danone does not extend to the villages, sales of dairy products are low, resulting in low demand for milk produced by farmers, resulting in low prices.

B2B: Linkage between the two private sectors will be made in carrying out each activity. For example, farmers will be trained in artificial insemination. Let's say Lalteer has a partnership with the project for artificial insemination, development of training modules through Lalteer to provide such training, training of artificial inseminators on the module, and training of farmers by artificial insemination. The project has worked to carry out this entire process, but in every aspect of the implementation, the business has been linked. For example, farmers, artificial inseminators, and breeders are all traders.

Exit Strategy: Exit strategy is considered during project design. Various time incentives are provided from the project during intervention facilitation. The incentive should be reduced to zero during the project period. For example, in the vaccination program, LSP pays a service charge of Tk 5 per cow in the first six months, Tk 2.5 in the second six months, Tk 1 in the third six months and after that the program will continue even if no incentive is given - this is vaccination. Exit strategy in action.

Sub-contracting: The project will increase the production and sales of products by regularly increasing the number of sub-contractors. For example, Mina Bazar entered into an agreement with Akbaria for the purchase of 1 ton of ghee per month, in which case Akbaria's production is 500 kg per month. So Akbaria can purchase from local small processors to supply another 500 kg, but in this case, Akbaria will keep the small processors under regular monitoring to maintain the quality of its products. Emtabasta created a sub-contract of small processors with Akbaria. Facilitation is required from the project to carry out the entire process. The more sub-contracted the project, the more sustainable the intervention.

Virtual Marketing: Linking processors with virtual market actors to increase product value. For example, curd, ghee, etc. produced by local processors are sold through the company's e-commerce platform 'Parmida.com'. The online banking process is facilitated by virtual marketing and projects to create the entire system.

Sustainability of Interventions: The sub-project consists of 5 interventions. An intervention will be sustainable if 'crowding in' is visible in any of the interventions during the first two years of the three-year sub-project. In this case, no further expenditure will be incurred on this intervention for the following year. If any intervention is not sustainable during the project period, an effective role will be played in making the said intervention/interventions sustainable by extending the project period.

Bangladesh perspective analysis

In Bangladesh, the livestock subsector is largely comprised of dairy and beef products. They have a significant role in the economy of the country because they primarily supply dairy and beef products, which are excellent sources of nourishment. In addition to these, cattle can provide raw materials in the form of bones, hoofs, horns, hides, and skins. Cow dung can be utilized to produce biogas and organic fertilizer. The demand for milk and meat is rising as a result of the population growth that is happening quickly, the spread of education, the expansion of the economy, and the growing understanding of nutrition. There was only about 50ml/h/d of milk available ten years ago, but milk production has changed significantly since then. Due to this, the current availability has increased to 175ml/h/d compared to the 250m/h/d suggested consumption. In the meantime, industrial dairy processing capacity has also greatly

increased. More than a dozen milk processors currently process over 20 lakh liters of fresh milk every day, which is more than double the volume they could produce ten years ago.

Bangladesh has always been a meat-eating nation when it comes to beef production, but the government did not proclaim self-sufficiency in meat production until 2018 (With a production of 72.6 Lakh Metric Ton against 72.14 Lakh Metric Ton of demand).[20] The supply of meat goats appears to be rather elastic, therefore an increase in prices would eventually lead to a significant increase in the number of meat goats produced. Goat supplies are currently rising as a result of rising demand and greater producer profit potential. Bangladesh had 25.44 million goats in FY2013–14, and the average amount of goat meat produced was 0.2 million MT.[21] In Bangladesh, goat meat makes up roughly 5% of all meat produced. Bangladesh's milk production is dynamic and varies from one district to the next. The Pabna-Sirajganj region, which includes some of the project locations, is the main milk zone and is distinguished by high-yield crossbred cattle, greater access to markets and services, and extensive industrial dairy penetration. Major urban cities receive raw milk produced in this region through a variety of methods. More and more milk production zones are establishing themselves, even in suburban regions like Gazipur and Tangail, as a result of the government's emphasis on the importance of dairy development in its Seventh Five-Year Plan. Smallholders still control a sizable portion of cattle farming in rural areas, though.

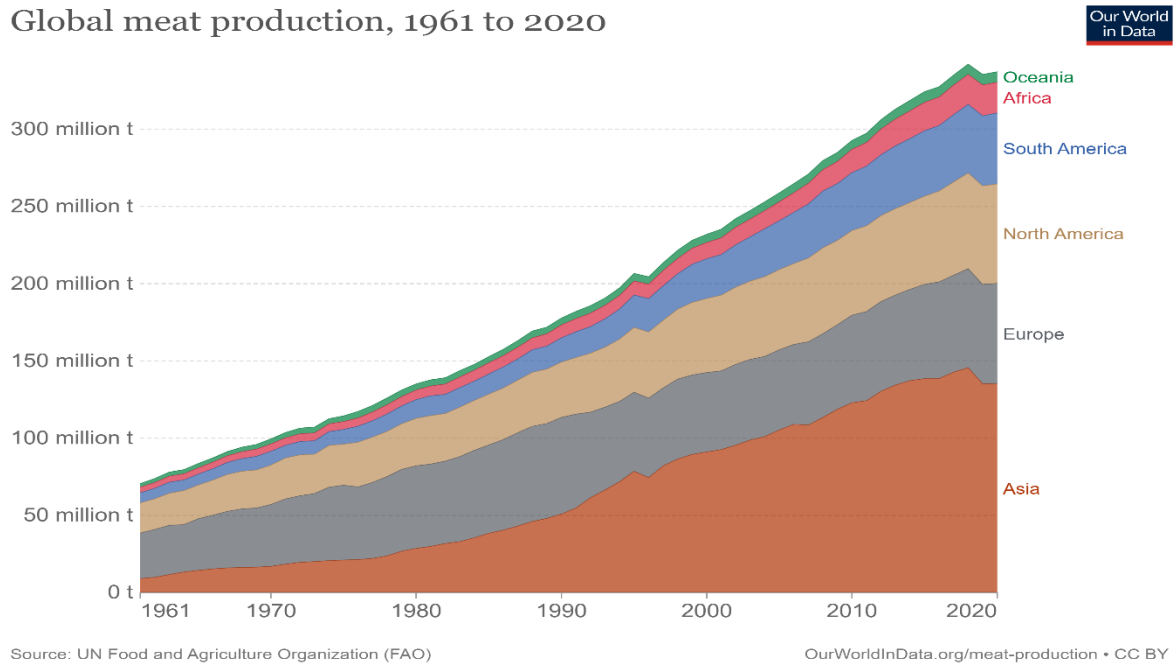
The rapid expansion of industrial dairies, which includes not only the top companies but also small and medium-sized business owners, is a current development in the dairy value chain. Through retail stores and supermarkets, consumers in large cities have easier access to a variety of processed dairy products such as yogurt, pasteurized and UHT milk, flavored milk, etc. The traditional processors of sweetmeats are typically family-based businesses that focus primarily on local consumers as opposed to the expansion of industrial dairies. The milk-based sweetmeats are so well-liked that the entire sweetmeat industry consumes over 75% of the total raw milk supply in order to manufacture hundreds of variations. The national cultural and religious history of Bangladesh is deeply entwined with the country's meat intake. The value chain for beef is substantially shorter and simpler than the one for dairy. The vast majority of cattle are butchered and sold in a traditional manner, with little influence from the beef industries. The most popular venue to purchase meat is at wet markets. Although the value chain for beef is quite simple, it is as important to consider the byproducts. The procedure of butchering and slaughtering produces the majority of the byproducts. Animal byproducts such as hides, bones, and cow dung are gradually being entirely collected or utilized, however, a significant amount of animal blood is utterly disregarded and discarded. Precisely, both the dairy and meat value chains typically begin with small-scale cattle rearing producers and then exhibit extremely distinctive characteristics.

[20] Livestock Economy at a Glance (2017-18), DLS
[21] DLS 2015

Contextual analysis

Meat production

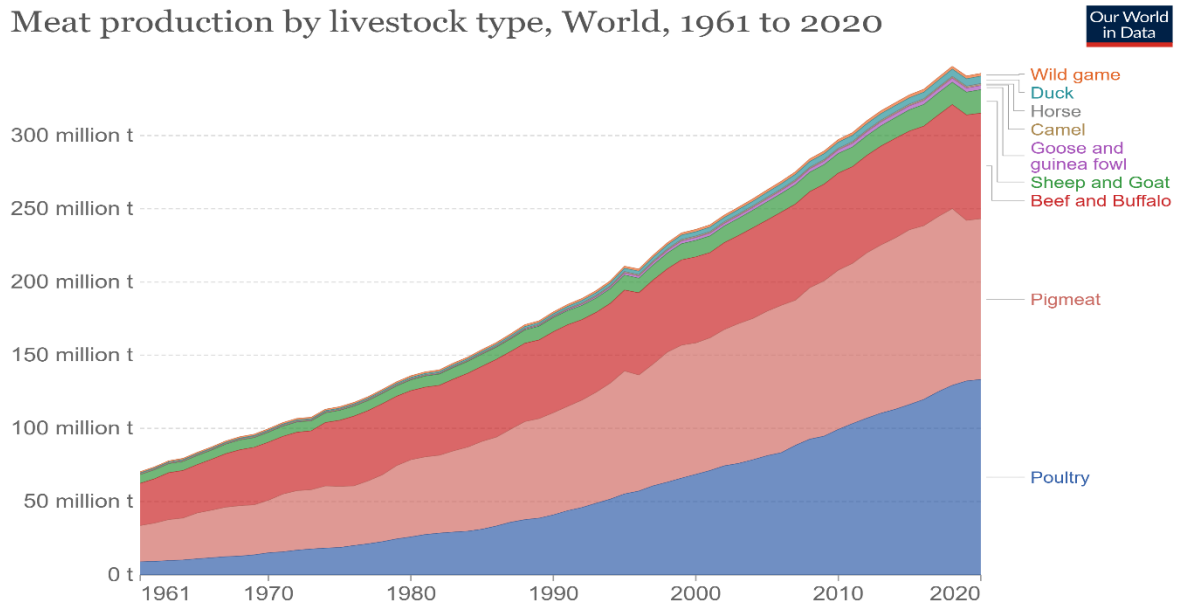
The production of meat has expanded significantly worldwide during the past 50 years; as can be shown, since 1961, overall production has more than quadrupled. The map displays regional meat output across the world in tons. In terms of regional production, Asia accounts for between 40 and 45 percent of all meat production. In recent decades, there has been a major change in this regional distribution. Europe and North America produced the most of the meat in 1961, contributing 42 and 25%, respectively. Asia contributed only 13% of global output in 1961. The shares of Europe and North America have decreased to 19 and 15%, respectively, by 2013. Despite a significant rise in production in absolute terms—output Europe's of meat has about doubled during this time, while North America's output has expanded by 2.5 times—this decrease in production share occurred. However, output growth in Asia has been astounding, with a 15-fold rise in meat production since 1961. Production has increased significantly across, with the exception of the Caribbean, where it nearly tripled, and has increased more than five times over this time span.[22]



Meat production by animal

We may observe that, on a global scale, the most common livestock species are chickens, cattle (which includes beef and buffalo meat), pigs, and, to a lesser extent, sheep and goats. However, the distribution of different meats varies greatly around the world; in some nations, the production of other meats such wild game, horse, and duck can make up a sizeable portion of the total. The output of all main meat types has been rising in absolute terms, but over the past 50 years, there has been a considerable change in the relative share of different meat types worldwide. Poultry meat's contribution of the world's meat production was only 12% in 1961; by 2013, it has more than tripled to almost 35%. In contrast, the proportion of beef and buffalo meat in all meat production has decreased by around half, today making up about 22%. The proportion of pigment has been relatively stable at 35–40%.[23]

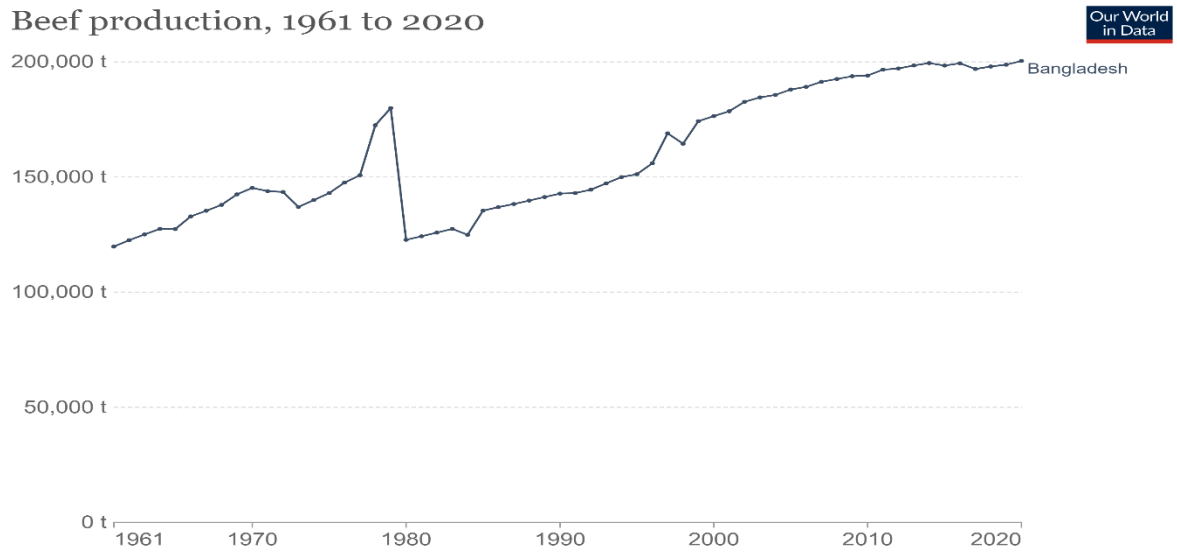
[22] https://ourworldindata.org/meat-production#milk-production-across-the-world
[23] https://ourworldindata.org/meat-production#milk-production-across-the-world



Source: UN Food and Agricultural Organization (FAO) OurWorldInData.org/meat-production • CC BY
Note: Total meat production includes both commercial and farm slaughter. Data are given in terms of dressed carcass weight, excluding offal and slaughter fats.

Beef and buffalo (cattle) meat production

The global production of beef and buffalo meat is shown in the graph. Since 1961, the amount of cattle meat produced worldwide has more than doubled, rising from 28 million tons annually to 68 million tons in 2014. In 2014, the United States produced 11–12 million tons of beef and buffalo meat, making it the top producer in the world. Argentina, Australia, and India are the next four largest producers, followed by Brazil and China.[24]



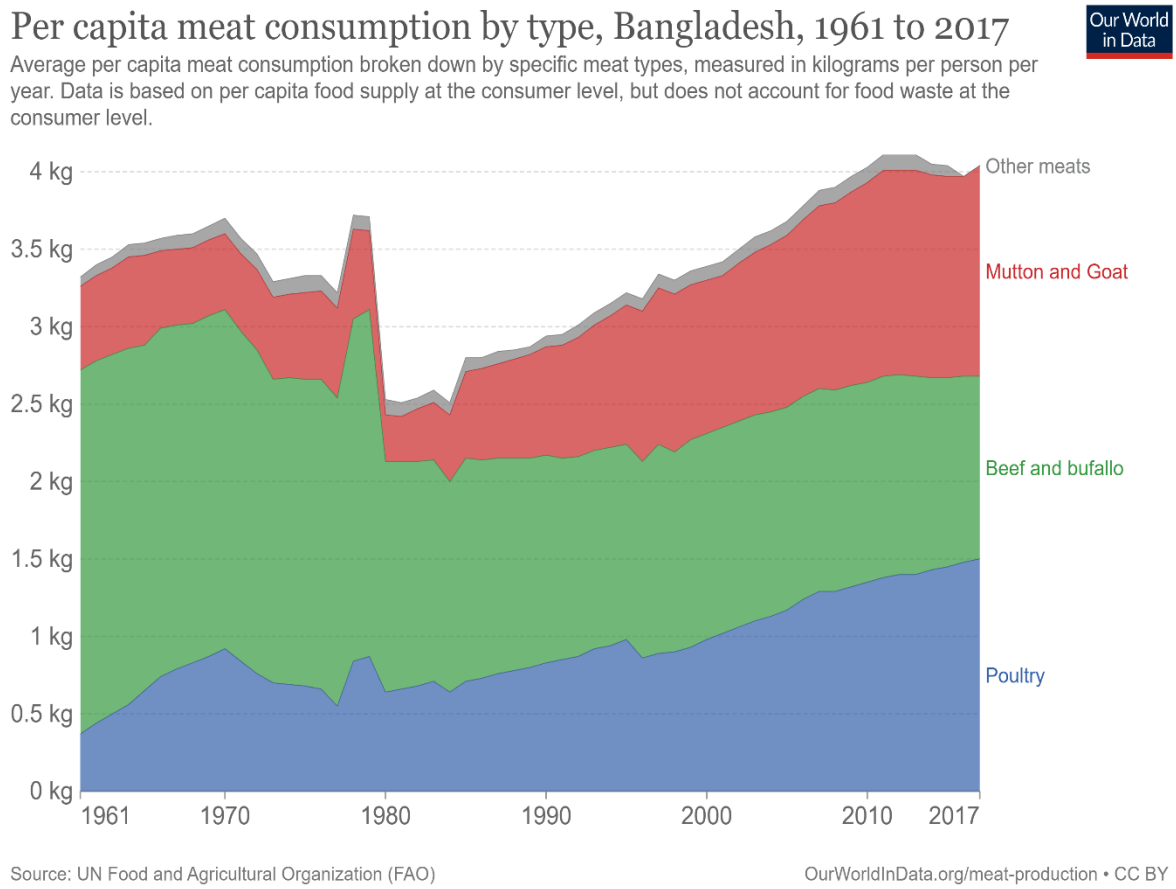
Source: UN Food and Agricultural Organization (FAO) OurWorldInData.org/meat-production • CC BY
Note: Beef and buffalo (cattle) meat production from both commercial and farm slaughter. Data are given in terms of dressed carcass weight, excluding offal and slaughter fats.

Which countries eat the most meat?

We may anticipate the quick increase in total meat production discussed in the sections above because of the rapid expansion in world population, particularly in the latter half of the 20th

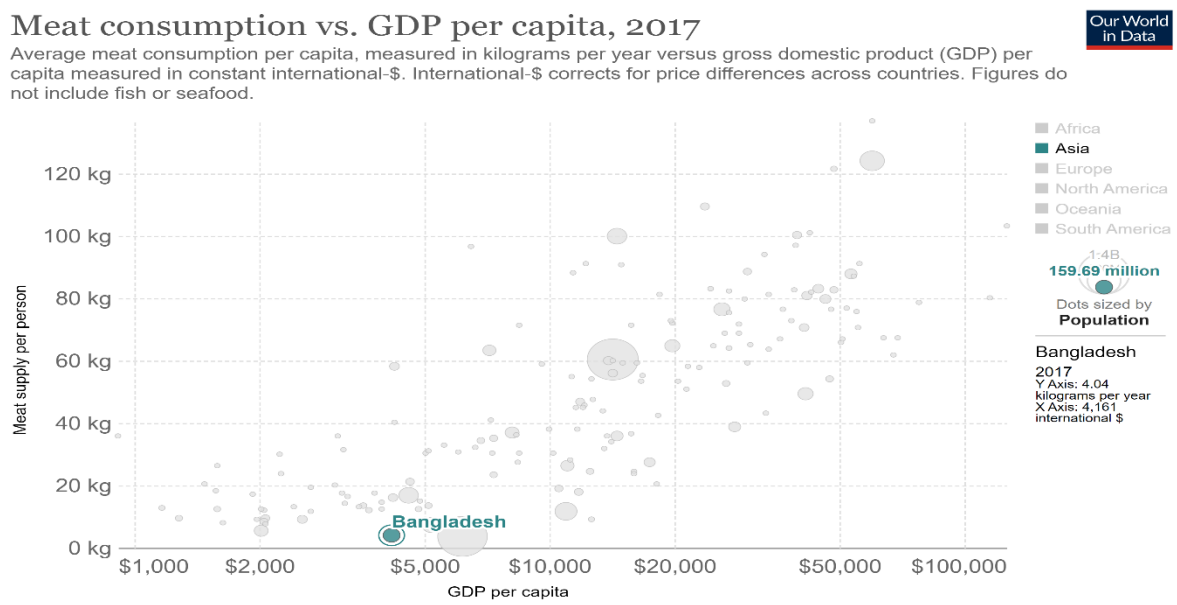
[24] https://ourworldindata.org/meat-production#milk-production-across-the-world

century. But how has per-capita meat consumption changed? The map shows the annual kilogram intake of meat (excluding seafood and fish) per person around the world. The "chart" tab also allows you to visualize these trends as a time-series. Since 1961, the average person's consumption of meat has climbed by almost 20 kilograms globally; in 2014, this average was about 43 kilos. The overall amount of meat produced has been increasing far more quickly than the pace of population expansion, according to the rising per capita meat consumption trends. The direction and rate of change have varied greatly amongst nations. The increase in per capita meat consumption has been most pronounced in nations that have experienced a significant economic transformation. For example, since 1961, per capita consumption in China has increased by about 15 times, while rates in Brazil have almost quadrupled. The main exception to this trend has been India, where the prevalence of lactovegetarians means that per capita meat intake in 2013 was less than 4 kilograms, virtually precisely the same as in 1961.[25] High-income nations have the highest meat consumption (with the largest meat-eaters in Australia, consuming around 116 kilograms per person in 2013). The typical North American and European consumes more than 110 kilograms and close to 80 kg, respectively. High-income nations have experienced far slower changes in consumption, with most seeing stagnation or even declines over the past 50 years. Africa's consumption patterns vary widely; some nations eat as little as 10 kg per person, or around half the average for the continent. Higher-income countries like South Africa consume 60 to 70 kg of food per person.[26]



[25] Rammohan, A., Awofeso, N., & Robitaille, M. C. (2011). Addressing Female Iron-Deficiency Anaemia in India: Is Vegetarianism the Major Obstacle?. *ISRN Public Health*, *2012*.

[26] https://ourworldindata.org/meat-production#milk-production-across-the-world



Source: Food and Agriculture Organization of the United Nations, Data compiled from multiple sources by World Bank
OurWorldInData.org/meat-production • CC BY

Meat consumption tends to rise as we get richer

How wealthy a person is is one of the key factors in determining how much meat they consume. At least when we compare countries, this is accurate. The scatterplot shows the association between average per-capita GDP and per-capita meat supply (on the y-axis) (on the x-axis). What we observe is a clear positive correlation: the average person eats more meat on average in wealthy nations. On the interactive chart, you can see the trajectory of each nation over time by pressing the "play" button. Globally, nations are moving upward and to the right, becoming wealthier and consuming more meat.[27]

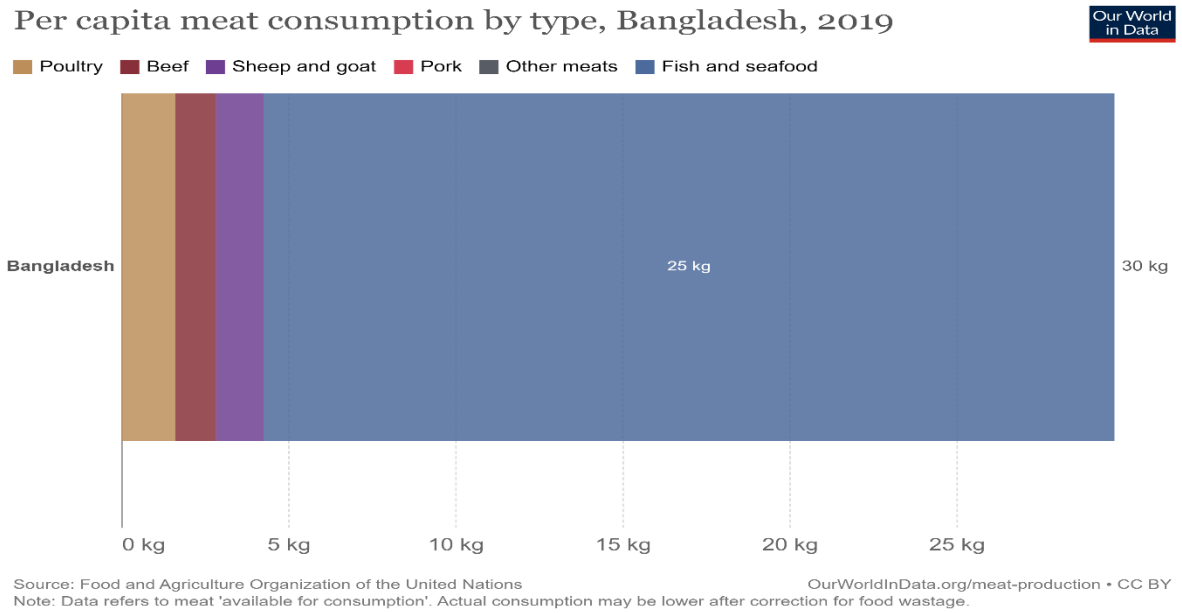
Source: UN Food and Agriculture Organization (FAO) OurWorldInData.org/meat-production • CC BY
Note: Data excludes fish and other seafood sources. Figures do not correct for waste at the household/consumption level so may not directly reflect the quantity of food finally consumed by a given individual.

What types of meat do people eat?

What preferences do we have when it comes to eating different kinds of meat? Pig meat consumption per person is the highest of all meat products on a global average; in 2013, the

[27] https://ourworldindata.org/meat-production#milk-production-across-the-world

average person consumed about 16 kilograms of pig meat, followed by 15 kilograms of poultry, 9 kilograms of beef/buffalo meat, 2 kilograms of mutton and goat meat, and only a small number of other meats. Global consumption patterns differ greatly from one another. Pork makes up almost two-thirds of the meat consumed per person in China. More than half of the meat consumed in Argentina is beef and buffalo meat. Compared to the typical person worldwide, New Zealanders prefer mutton and goat meat far more.[28]



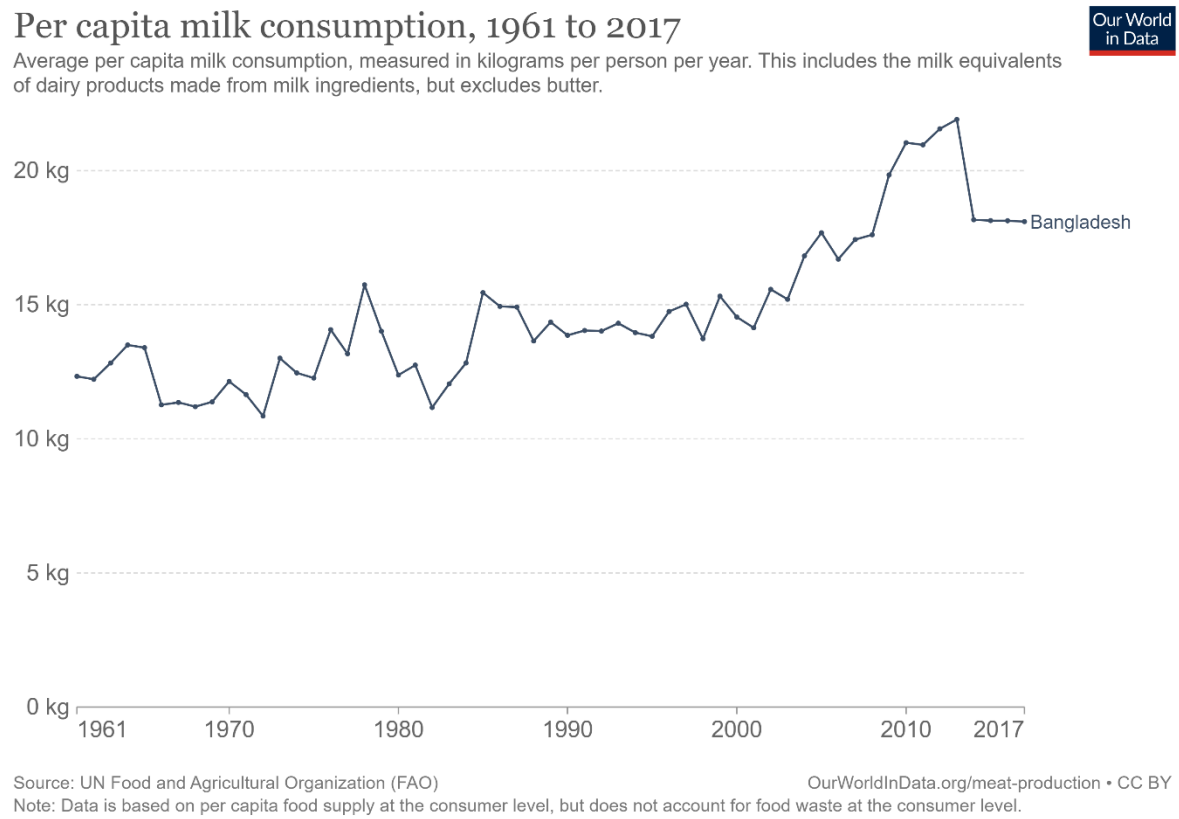
Number of animals slaughtered

the quantity of animals killed for meat production (which does not include those use primarily for dairy or egg production which are not eventually used for meat). According to estimates, 302 million cattle, 574 million sheep, 479 million goats, 1.5 billion pigs, 656 million turkeys, 69 billion chickens, and 1.5 billion sheep and goats were all murdered in 2018 for their meat.[29]

[28] https://ourworldindata.org/meat-production#milk-production-across-the-world
[29] https://ourworldindata.org/meat-production#milk-production-across-the-world

Milk production

As items made from live animals, we also include milk, eggs, honey, and beeswax. Along with fibres of vegetable and animal origin, wool and silk are examples of fibres originating from animals. dairy products, such as milk. The following three ideas are mentioned in country-reported estimates of milk output. Milk output plus milk consumed by young animals is referred to as gross production. Net production is defined as total output less milk provided to animals, milk farmers keep for food and feed, milk sold directly to customers, and farm waste. Net milk production is related to the FAO term. Data should be recorded in terms of whole milk and by weight for each type of milking animal (cow, sheep, goat, etc.). Only 5 to 10 percent of whole milk is used directly for human consumption in the majority of developed nations. The majority of milk output is either made into products like cream, butter, cheese, evaporated and condensed milk, milk powder, casein, yogurt, ice cream, etc. before being marketed as liquid milk (e.g., standardized, pasteurized, skimmed, etc.). About 70% of whole milk is processed into dairy products; the leftovers (such skim milk, buttermilk, and whey) are either utilized as feed or turned into other dairy products like low-fat cheese and dry skim milk. Vitamins, minerals, and other additions are frequently added to processed milk and dairy products. The following list from FAO includes 50 milk and dairy product items, five of which are primary goods. The FAO does not separately classify all milk-containing foods; examples include eggnog, sherbet, malted milk, and chocolate milk.[30]



[30] https://ourworldindata.org/meat-production#milk-production-across-the-world

Objectives of the study

The main objective of the baseline study is to collect data and information from a representative sample of project participants to gain a clear picture of their pre-program socio-economic status to allow for project management to measure improvement/ change in their status in the middle and at the end of the project based on the baseline information. Besides the main objectives, there are two other specific objectives of this study:

- To measure current perception, attitude, knowledge, and behavior
- To explore the existing support system and linkage of the beneficiaries with local government institutes and service-providing agencies
- To serve the purpose of ensuring that the project indicators are SMART (specific, measurable, achievable, relevant, and targeted) and can be used for the study as well as future project monitoring and learning
- To consider various socio-economic indicators including income, gender, nutrition, etc. as per the project log frame.

The study has served the purpose of ensuring that the project indicators are SMART (specific, measurable, achievable, relevant, and targeted) and can be used for the study as well as future project monitoring and learning. The baseline data has been considered various socio-economic indicators including income, gender, nutrition, etc. as per the project log frame.

Methodology of the study

In order to go in line with the main objective of the study which seeks to gather information and provide a complete picture of the project participants in the project implementing areas, this study has followed a mixed methodology where a questionnaire survey has been used for quantitative data including information gathered on the outcome and project goal indicators on knowledge, attitudes, and practices and KIIs, FGD, and systematic non-participatory observation has been followed for collecting qualitative data. All data, qualitative and quantitative, has been disaggregated by age, sex, ethnicity, poverty, and wherever appropriate as per project design. The approach has involved wide-ranging and sequenced discussions with project professionals and officials related to knowing the prevailing situation of the targeted project participants.

Quantitative data collection

BRID has designed the questionnaire for the quantitative survey based on the logical model. This has been finalized by incorporating feedback from ESDO including pretesting. The survey is an appropriate method for understanding people's opinions, perceptions, and levels of improvement through the application and decoration of the Likert scale, questions with many of measurement variables along with indicated values, and so on. Besides quantitative intrusion, a pre-settled questionnaire for understanding existing realities will add the strength of this study about a general statement. The data collection modality was mobile based but exemption might be allowed in consultation with ESDO.

Qualitative data collection

BRID has used qualitative approaches, such as focus group discussions and key informant interviews. The following should at least have been done in each selected community:

- # FGD with producers
- # FGD with processors
- # FGD with LSPs and Backward market actors
- # FGD with Input dealers and others
- # KII with GoB officials
- # KII with Paiker/Private sector/Forward market actors
- # KII with Business Management Organization
- # KII with AVCF/VCF
- # KII with others (Those who are involved in business enabling environment and carrying out/supporting rural microenterprises/support, function actors)

In a group setting, all of the participants could develop their opinion about an event or program and develop recommendations as in a group setting one comment can trigger another comment. Furthermore, talking with key informants capacitate the study to interpret the overall situations in line with policy and structural definitions. Besides these methods, participatory exercises and approaches have been used for observing the situation. Researchers have comprehended the overall working environment and many other issues objectively through participatory observations.

Sample size determination

The baseline study has drawn conclusions that are valid for Thakurgaon Sadar, Ranishankail and Pirganj under Thakurgaon District of Bangladesh. Following the project proposal and log

frame, the VCD sub-project is being implemented in different sub-districts among 25,000 participants considering the potentiality of the business cluster of dairy and meat sub-sector.

Considering the above, the sample size has been calculated following the standard sample size calculation rule proposed by Daniel, (1999). The formula for sampling distribution is $n = \frac{\mathrm{N}\times\mathrm{X}}{(\mathrm{X}+\mathrm{N}-1)}$

Where, $X = \frac{Z_{\frac{a^2}{2}} \times P \times (1-P)}{MoE^2}$

$Z_{\frac{a}{2}}$ = Critical value of the normal distribution at $\frac{a}{2}$ (e.g., for confidence level of 95% a is 0.05 & the critical value is 1.96. See Z score in Daniel, 1999).

MoE = Margin of Error

P = Sample proportion

N = Population size

In this study population structure and the value, we have taken are:

MoE= 5% or 0.05

P= 50% or 0.5

N= 25000

Z= 95% (Confidence level) or 1.96

Where,

$$X = \frac{Z_{\frac{a^2}{2}} \times P \times (1-P)}{MoE^2}$$

$$X = \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.05)^2}$$

$$X = \frac{3.8416 \times 0.5 \times 0.5}{0.0025}$$

$$X = \frac{0.9604}{0.0025}$$

$$X = 384.16$$

Hence,

$$n = \frac{25000 \times 384.16}{384.16 + 25000 - 1}$$

$$= \frac{9{,}604{,}000}{25{,}383.16}$$

=378.36

=378

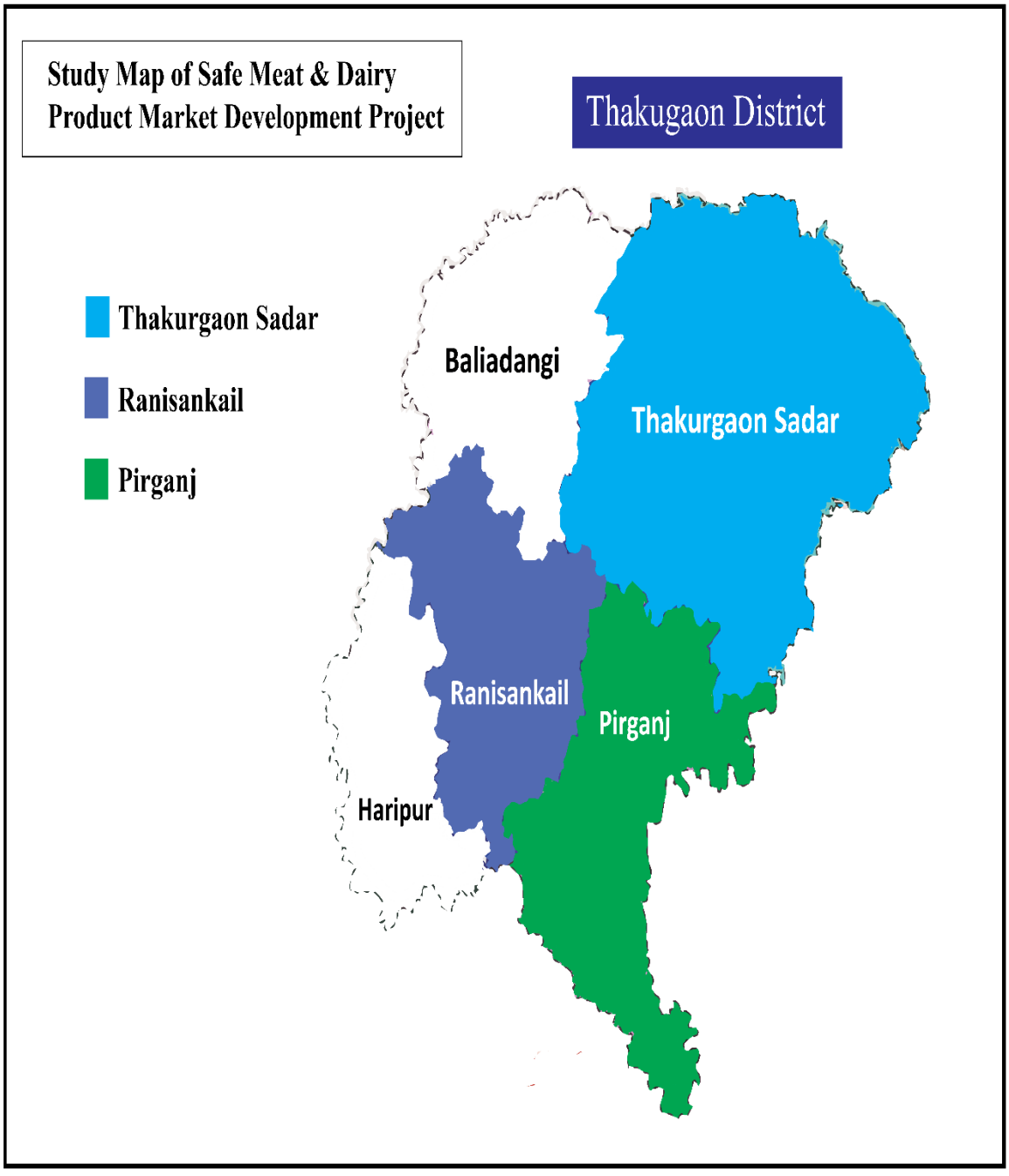
As the targeted beneficiaries has been listed and documented appropriately, this study has followed stratified random sampling methods during the field work for data collection ensuring representation of sub-sectors, gender, age group and poverty.

Table: *Number of targeted project participant under the sub-project*							
Upazilla	Branch's Name	Total		Female (N=378, 55%=208)		Male (N=378, 45%=170)	
		Male	Female	Total	Youths (11.24%=23)	Total	Youths (N=170, 11.24%=19)
Thakurgaon Sadar	Santinagar	110	695	6	1	10	1
	Gobindanagar	170	1150	10	1	15	2
	Salandar	170	1691	15	2	15	2
	Begunbari	380	2250	20	2	35	4
	Shibganj	150	1815	16	2	14	2
	Ruhia	70	1322	12	1	6	1
	Munishihat	80	1266	11	1	7	1
	Collegepara	115	1170	11	1	10	1
	Goreya	35	1134	10	1	3	0
	Ashrampara	70	1150	10	1	6	1
	Sarkarpara	40	1350	12	1	4	0
	Farabari	30	900	8	1	3	0
Ranishankail	Ranishankail	30	860	8	1	3	0
	Nekmorod	50	1050	9	1	5	1
	Moharajarhat	35	899	8	1	3	0
	Bachore	60	850	8	1	5	1
Pirganj	Pirganj	150	1245	11	1	14	2
	Jaborhat	60	1130	10	1	5	1
	Lohagara	65	1203	11	1	6	1
3	**19**	**1870**	**23130**	**208**	**23**	**170**	**19**
				Total Sample size: 208+170=378			

For the participants of FGD and KII, tentative respondent was purposively selected following the consultant of the project's managerial personnel and field level personnel. There were four FGD, each of which has been consisted at least 8-12 persons. Systematic participant observation has been conducted by the project (study) core personnel.

Coverage of study

The baseline study has been conducted in three geographical areas of Thakurgaon district such as Thakurgaon Sadar, Ranishankail and Pirganj. The baseline study has applied a standard sample design procedure.


Study Map of Safe Meat & Dairy Product Market Development Project
Thakugaon District
Thakurgaon Sadar
Ranisankail
Pirganj
Baliadangi
Thakurgaon Sadar
Ranisankail
Pirganj
Haripur

Analytical Framework of the Study

Descriptions	Methods of Verification	Targeted Respondents	No. of Respondents
Gain a clear picture of project participants preprogram socio-economic status	KAP survey	Considering various socio-economic indicators including income, gender, nutrition etc. as per the stated details of the participants	378
	FGD	▪ FGD with producers ▪ FGD with processors ▪ FGD with LSPs and Backward market actors ▪ FGD with Input dealers and others	4 FGD (7-10 participants in each)
Measure current perception, attitude, knowledge and behavior	KAP survey	Considering various socio-economic indicators including income, gender, nutrition, etc. as per the stated details of the participants	378
	FGD	▪ FGD with producers ▪ FGD with processors ▪ FGD with LSPs and Backward market actors ▪ FGD with Input dealers and others	4 FGD (7-10 participants in each)
Explore existing support system and linkage of the beneficiaries with local government institute and service providing agencies	FGD	▪ FGD with producers ▪ FGD with processors ▪ FGD with LSPs and Backward market actors ▪ FGD with Input dealers and others	4 FGD (7-10 participants in each)
	KII	▪ KII with GoB officials ▪ KII with Paiker/ Private sector/Forward market actors ▪ KII with Business Management Organization ▪ KII with AVCF/VCF ▪ KII with others (Those who are involved in business enabling environment and carrying out/supporting rural microenterprises/support function actors)	12
	Participant Observation	In the project areas with targeted participants	One in each upazilla

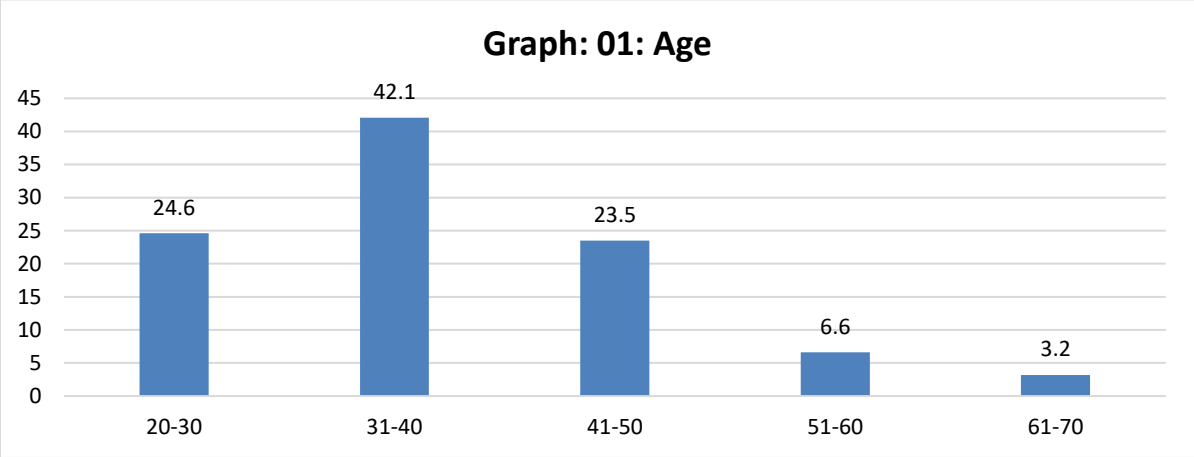
Data collection method

To develop a fundamental image of the economic activities of the livestock producers, data have been collected and assessed through desk research about each region and nation's livestock activities, production, and other economic scenarios. To supplement the field data, articles and statistics from the Bangladesh Bureau of Statistics, Department of Agricultural Extension, Department of Livestock Services, etc., were examined. Through FGDs, a variety of producers in the meat and dairy sub-sectors were questioned to provide an indicative picture of the current practices in animal production, post-harvest, processing, and marketing. Each FGD featured participation from 8–12 producers. Additionally, producers responded to problems and opportunities associated with the production of dairy milk and meat.

Individual interviews with beneficiaries and stakeholders, such as service providers, fodder sellers, meat and dairy producers, milk collectors, feed suppliers, seed sellers, local dairy processors (sweetmeat makers), cow buyers, restaurant owners, laborers, and transport service providers, were conducted as part of the sub-sector assessment. The goal was to comprehend market actor- or function-based scenarios and pinpoint the underlying causes of various constraints brought to light or indicated by producers during FGDs. Key informants are typically described as someone with extensive expertise in a certain industry or field. To learn more about the livestock economic activities in the surveyed regions, in this case, one-on-one interviews were conducted. Officials from pharmaceutical firms, chilling plants, certifying organizations, local associations, equipment suppliers, and feed corporations made up the primary informants. Along with these sources of information, the assessment also conducts interviews with representatives from the government, including those from the LSP, Youth Development Centers, institutional buyers, and other input companies. To verify data gathered through various channels, a stakeholder validation workshop was held with important Meat and dairy sub-sector market participants and government authorities. This also helps to establish a reason for the selection of dairy milk and meat sub-sectors from the Thakurgaon District.

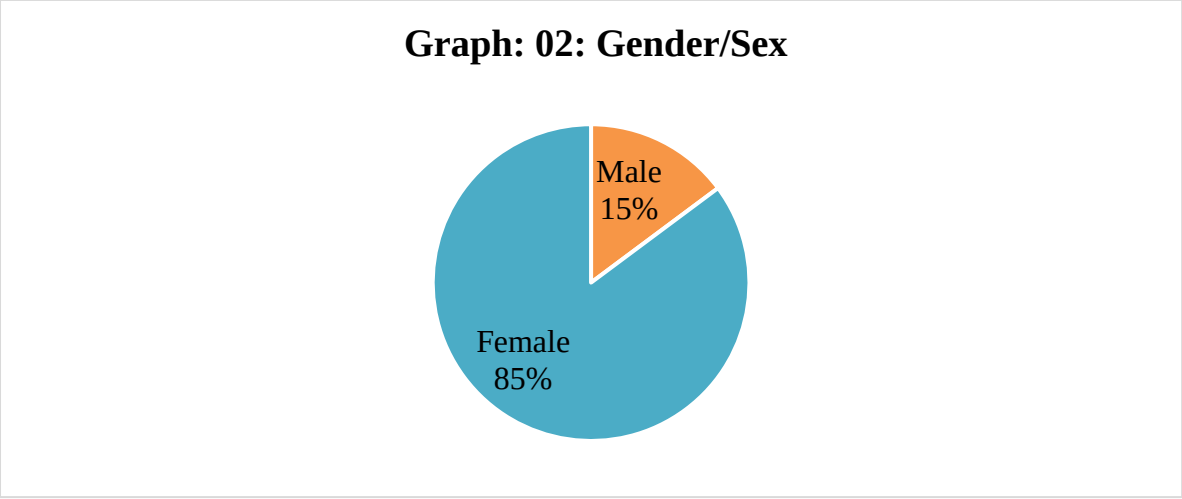
Data analysis section

Age variation



A person's age is not just biologically determined by how many years they have lived or by the physiological changes their body goes through as they age. It is also a result of the social expectations and standards that are relevant to each period of life. Age is a representation of the variety of life experiences that have shaped who we are.[31] However, in this survey, it seen that respondent's age had variation ranging from 20 years to 70 years while major portion of the them were below 50 years. Precisely, only 9.8% of the respondents were above 50 years. Based on the table 01, it could be said that most of the people involved in producing meat and dairy products had age below 50 years in the study areas.

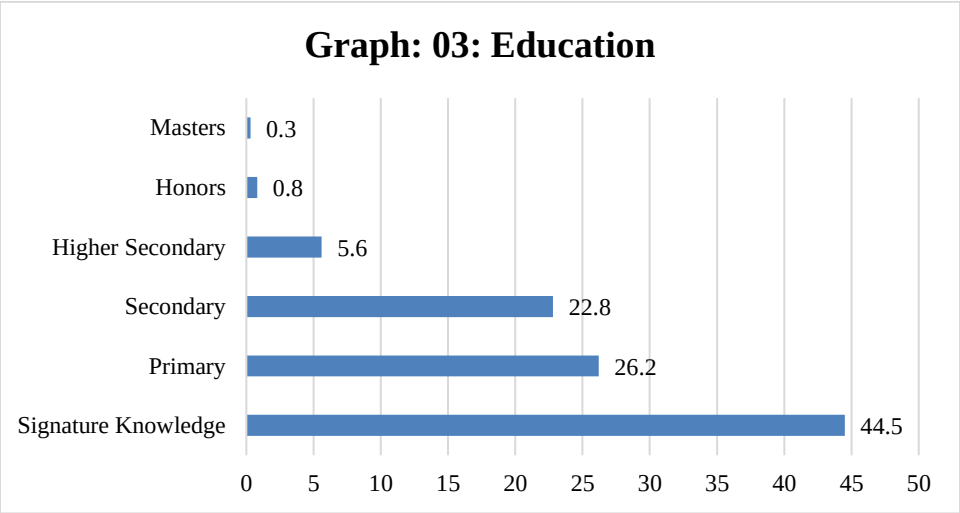
Table: 02: Gender variation



The first section provides demographic and professional information of the respondents. The vast majority (85%) of the 378 participants in this study were female, whereas only 15% were male. On the basis of the profile of respondents, the highest age distribution was found in the age group of 31 to 40 (42.1%), while the age group of 61 to 70 had the lowest ratio (3.2%).

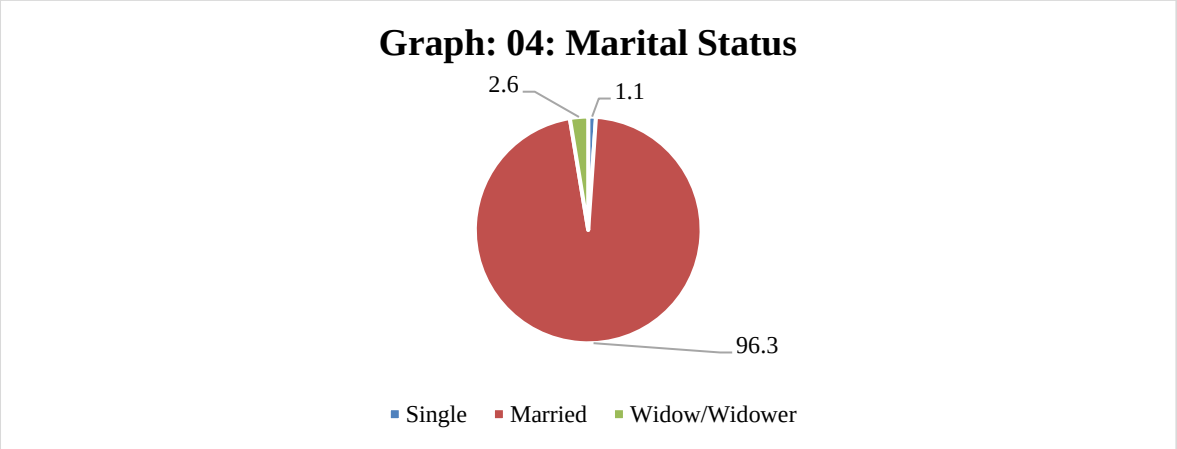
[31] *Introduction to Sociology – 1st Canadian Edition* was adapted by William Little from the OpenStax College textbook, *Introduction to Sociology*. Available at- https://opentextbc.ca/introductiontosociology/chapter/chapter13-aging-and-the-elderly/#:~:text=Age%20is%20not%20merely%20a,that%20shape%20whom%20we%20become.

Educational Qualification



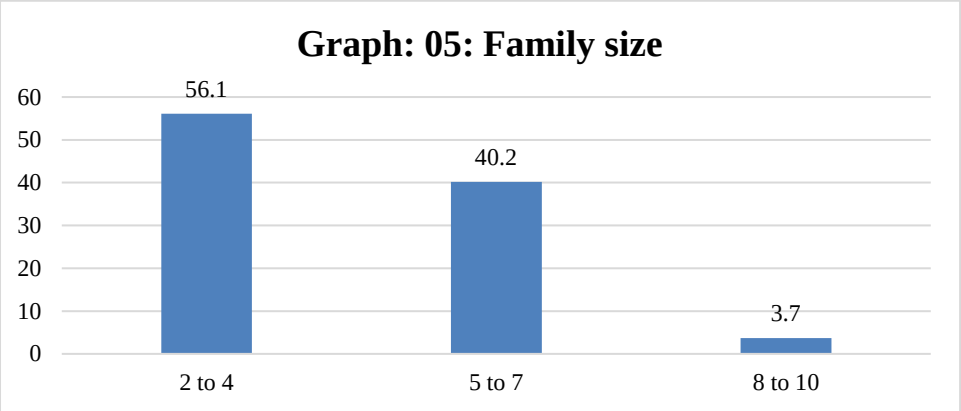
Among the respondents, the vast majority (39.7%) have at least some familiarities with signatures, with 26.2% having completed primary school and 22.8% having completed secondary school. In terms of educational attainment, it was found that just a small fraction of respondents (0.3%) had obtained a master's degree.

Marital status



The demographic characteristics of all 378 participants demonstrate that the vast majority of respondents were married (96%), 3% contained widowers, and only a small percentage (1%), belong to the single portion. Findings indicated that people who were involved in meat and dairy products production sector were married in the study area.

Family size



Family is the basic unit of the society. in every society, family play elementary and inevitable role to form and functions of the society. human being born and live in family environment in our culture. The size of the family depends on the members who entitled with a family. However, this study found that about 97% of the family had 2 to 7 family member which indicated to a joint or medium-large family size. Precisely, 56.1% of the respondents had 2 to 4 family members in the study area.

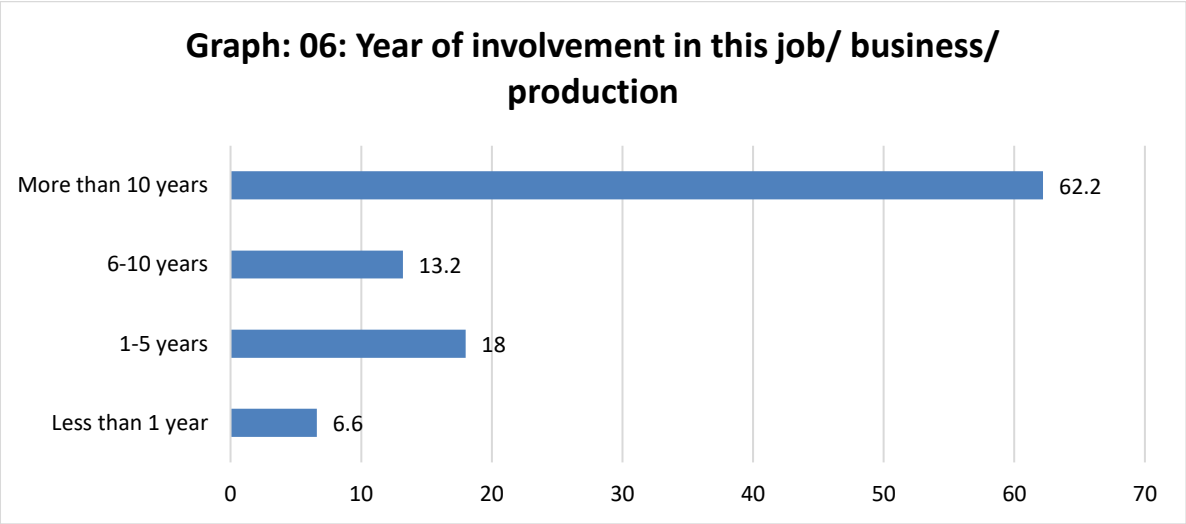
Number of animals and setting capacity

Table 01: Sitting Capacities of the Enterprise

Types	Frequency	Percent
Total Cattle		
2 to 10	340	89.9
11 to 20	1	0.3
21 to 30	15	4
31 to 40	22	5.8
Total	378	100
Cow		
No Cow	127	33.5
1 to 5	245	64.7
6 to 10	5	1.5
11 to 15	1	0.3
Total	378	100
Bull/ Ox		
No Bull	209	55.3
1	93	24.6
2	56	14.8
3	15	4
4	5	1.3
Total	378	100
Goat		
No Goat	86	22.7
1 to 5	246	65.1
6 to 10	39	10.3
11 to 15	7	1.9
Total	378	100

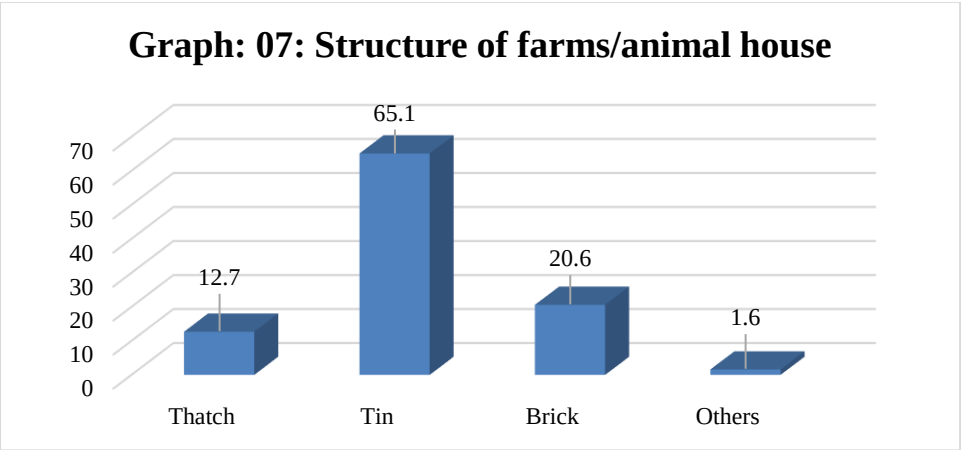
When we evaluate the sitting capabilities of the enterprises, our field data shows that the cow 1-5 range accounts for the majority of the percentages (64.7%). Additionally, goat belongs to 1-5 at 65.1% of the total sitting enterprises, while no bull accounts for 55.3% of the whole sitting enterprises.

Year of involvement



This table displays the respondents' level of business participation on a given year in their production. It was discovered that having more than ten years of experience in the business sector appears to be the highest experiences, which obtained 62.2% of the total productions. On the other hand, the smallest possible number of the fraction, which was 6.6%, was found in less than one year. Therefore, it is safe to say that more years spent actively participating in the economic world have resulted in the accumulation of more experience, which has led to an increased number of productions.

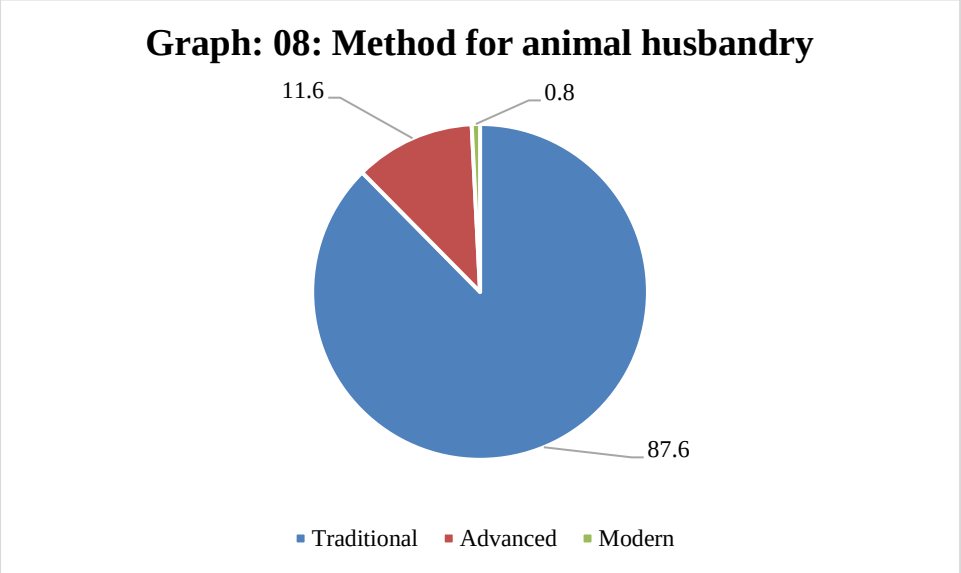
Infrastructure of the farm



The outward presentation of farms and animal houses reveals that around 246 houses were constructed by the tin shade basement (65.1%). In addition, other types of physical

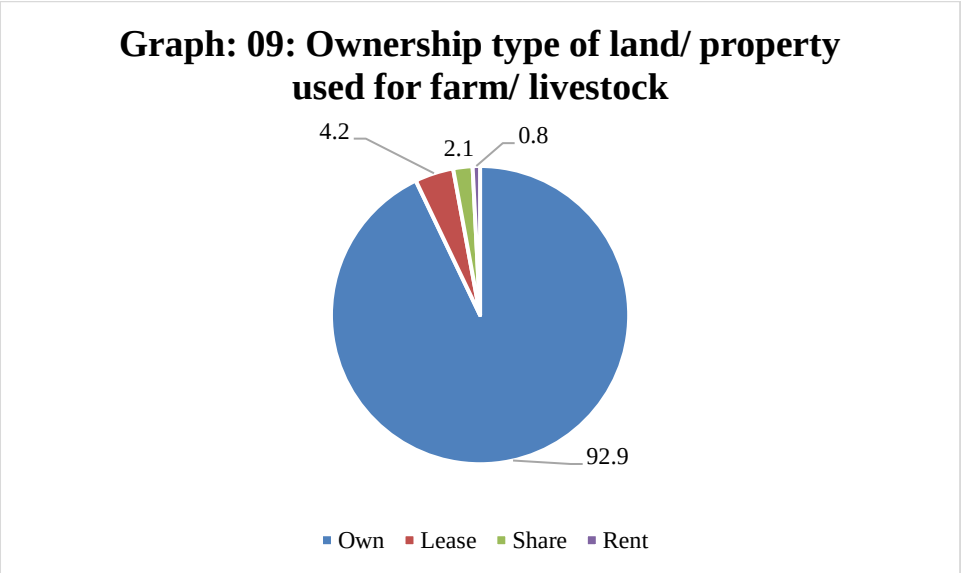
constructions include thatch (12.7%), brick (20.6%), and the remainder were built using other types of equipment such as tin roof and concrete wall and concrete floor and tin roof, which accounts for the remaining 1.6% of the total structures.

Methods of animal rearing and husbandry



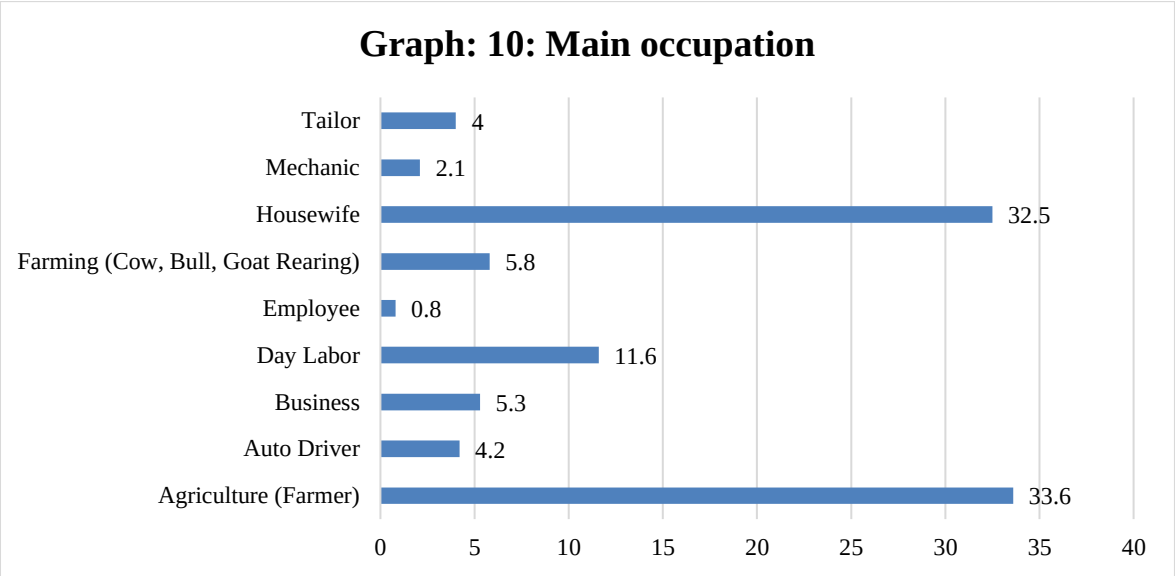
The procedures that were supposed to be followed for animal husbandry were controlled by a variety of formulas. The results of our field research indicate that the vast majority of the 331 people who took part in this study followed the conventional method of caring for the animals (87.6% of the total). The prevalence of traditional methods of animal husbandry in Bangladesh is primarily seen in the country's more rural and less developed regions. Because of developments in technology, a significant number of conscientious business owners have adopted advanced (11.6% of them) and modern (0.8%) systems.

Type of ownership



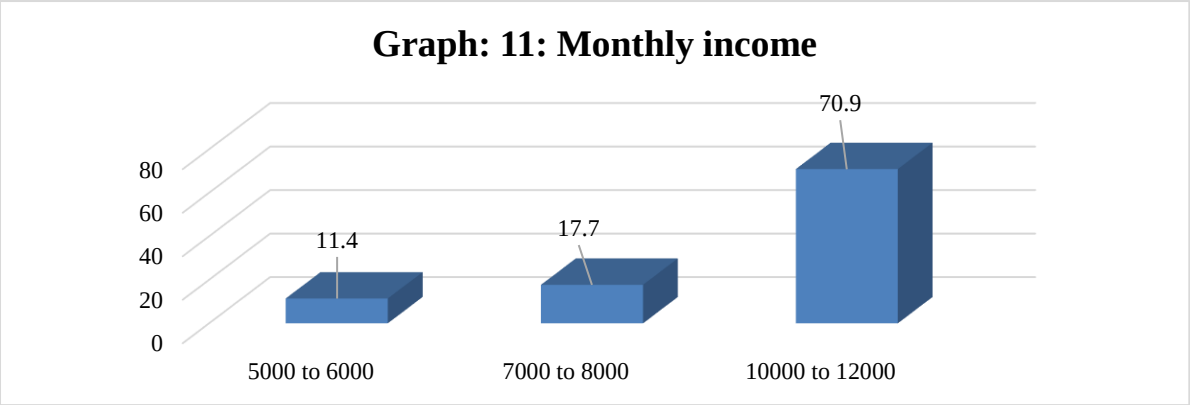
The ownership type of land or property that was used for farming or raising livestock was managed by a variety of different kinds of systems. The majority of responders, which totaled more than 350 people, were operating their businesses from their own property (92.9%). In addition, the remaining ones were maintaining livestock on the basis of a lease (4.2% of the total systems), a share (2.1%), or rent (0.8% of the total systems).

Occupation variation



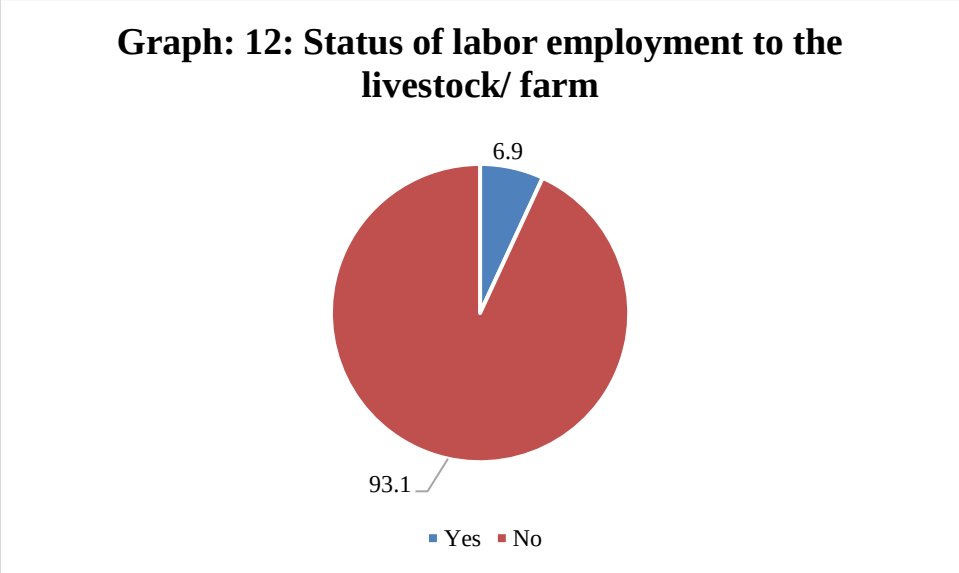
The results of our field research show that several kinds of professional backgrounds were disclosed by the individuals who were chosen as responders. Remarkably, almost one third of the people who took part in the worked in agricultural settings (33,6%); they were farmers. In addition, our research identified a number of additional occupational groupings, including car drivers (4.2%), businessmen (5.3%), day laborers (11.6%), employees (0.8%), and others. These figures are all shown as a percentage of the total. Surprisingly, a higher proportion (32.5% of the total participants) was comprised of housewives who, in addition to their other responsibilities, managed to keep both their families and small-scale animal husbandry farms running smoothly.

Income variation



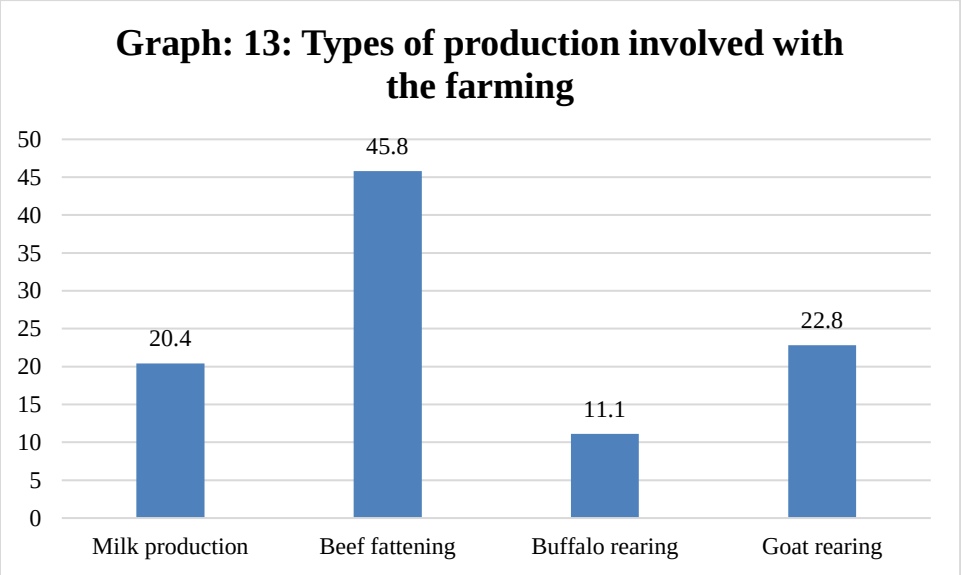
According to the results obtained by analyzing the respondents' income levels, it was discovered that the majority of respondents (70.9% of the total 268) earned between 10,000 and 12,000 money on a monthly basis. In addition, the remaining ones earned an income range of 5000 to 6000, and 67 of them have earned an income between 7000 and 8000. The remaining ones 5000 to 6000 make up 11.4% of the total.

Labour status



According to the raw data that we collected from the field, it was discovered that the laborers or employees who were asked if they were responsible for looking after the livestock or farms gave a resounding 93.1% negative response. In addition, the rest of the respondents only made up a small portion of those who answered "yes" (6.9%).

Category of production



On the basis of farming production system of animal husbandry, it was revealed that respondents were involved various kinds of productions. Most of them a large scale of participants engaged in beef fattening (45.8%), and rest pf them involved milk production (20.4%), buffalo rearing (11.1%) and goat rearing (22.8%).

Commercial production of dairy or milk products

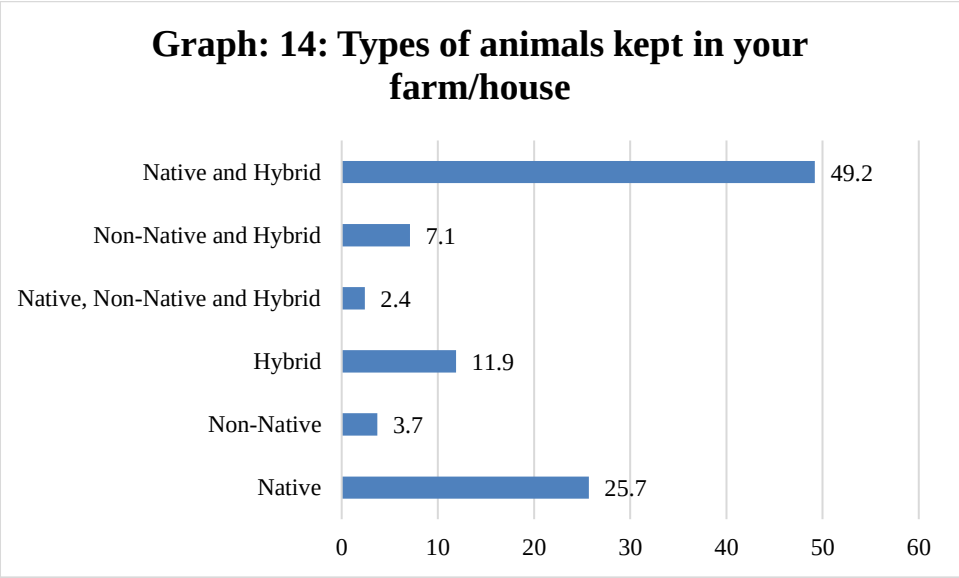
Table :02: Commercial production of dairy or milk products		
	Frequency	Percent
Status of commercial production of dairy or milk products		
Yes	75	19.8
No	303	80.2
Total	378	100
If yes, is there any registration?		
Yes	6	1.6
No	372	98.4
Total	378	100

The results of our field findings reported whether or not the participants had manufactured their goods for sale on a commercial basis. The vast majority of them (80.2% of them) have given a negative response, stating that they could not take their items in a business setting. And the rest of them (19.8%) have come to the conclusion that the answer is yes based on the productions marketing method.

Regarding the question that was asked before about whether or not the participants had produced their own goods for the purpose of selling them on a commercial level. It was

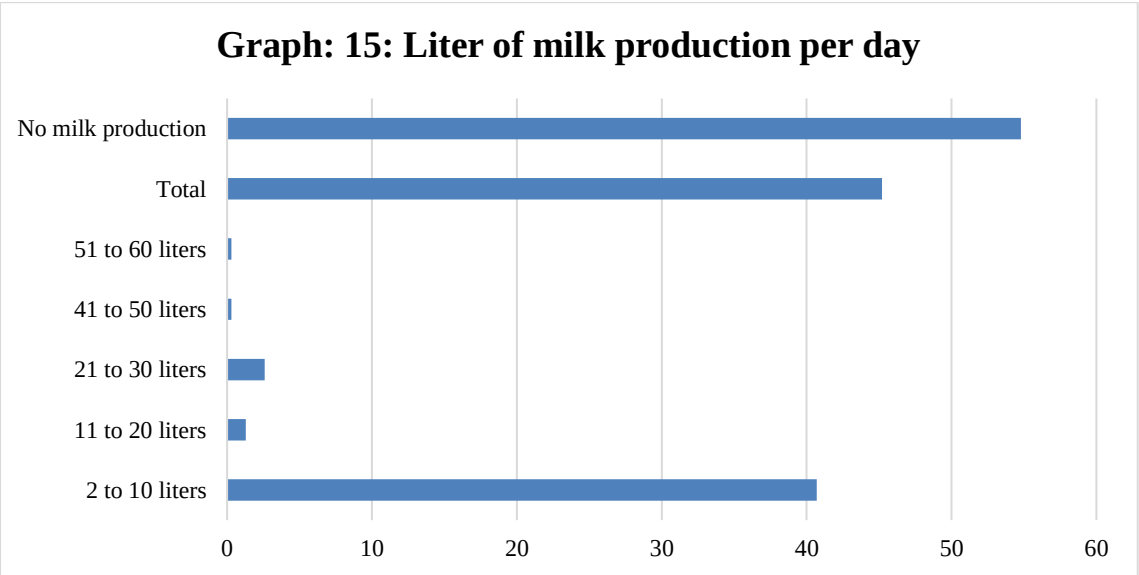
revealed that the bulk of the participants in the percentage do not intend to operate their husbandry farms on a commercial basis. Therefore, there is no official registration for them. There were approximately 372 respondents who gave a negative response (98.4%), and the remaining respondents gave a favorable response (1.6%).

Animal diversification



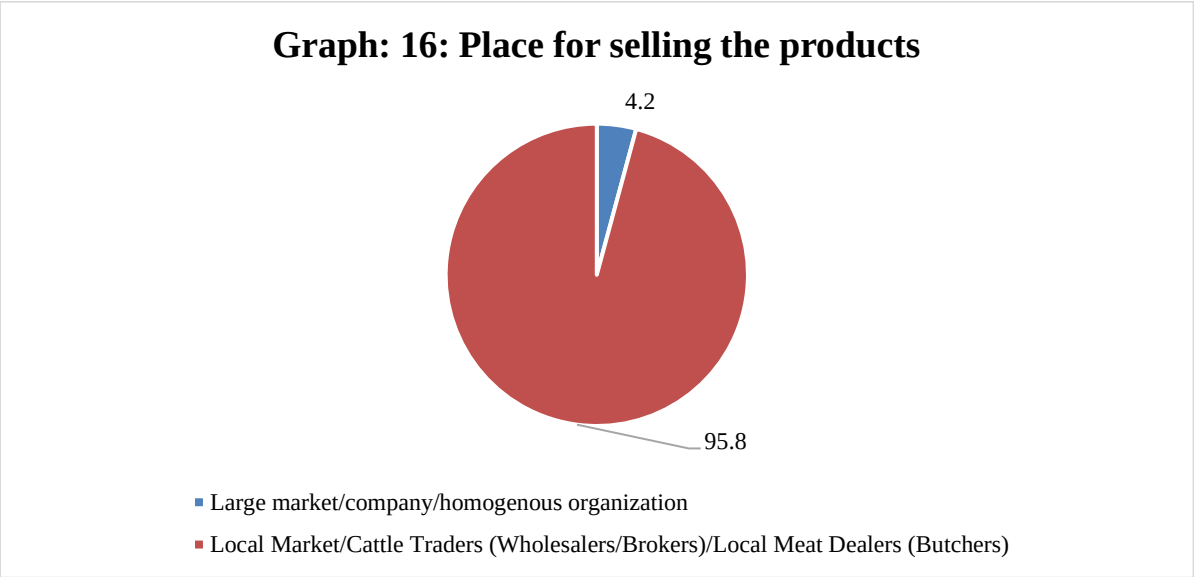
Concerning the animals that respondents keep on their farm or in their residence, it was found that a significant number of participants (49.2%) are breeding both native and hybrid animals for the purpose of their business. In addition, our field data demonstrated a diverse array of animal raising practices. One of them is native, and the other is not native, and they posed roughly 25.7% and 3.7% respectively. And the remainder of them include non-native hybrids, which account for 7.1% of the total participants.

Milk production



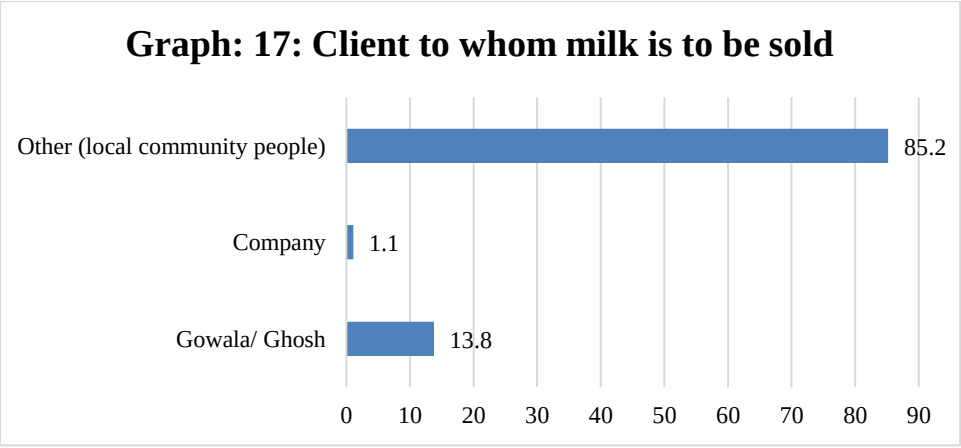
When it comes to the amount of milk that is produced each day on each farm, the amounts that are produced are significantly diverse. It was found that approximately 40.7% of the respondents consume between 2 and 10 liters of water on a daily basis. This was the most common finding. In addition, there was no production of milk at 207 farms, which accounted for 54.8% of the total number of farms that took part in the study. Another answer that came as a surprise was the revelation that, out of a total of 378 individual farms, only 171 were involved in milk production, while the remaining farms did not.

Place for selling the products



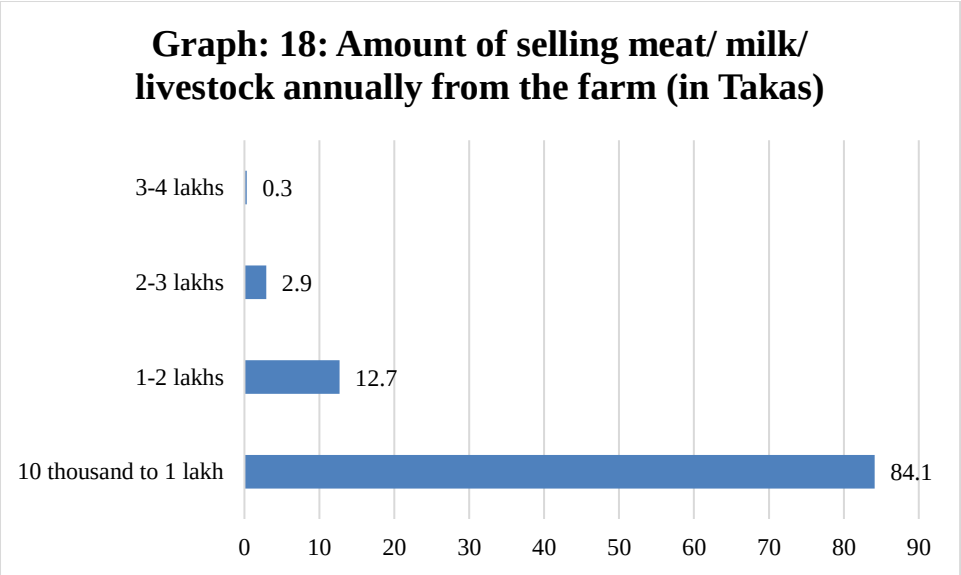
On the basis of selling purpose of the animal husbandry production such as cow, buffalo, and goat, it was disclosed that a major number (95.8%) of farming farmers had sold on local market or local meat dealers. And the other ones (4.2% of them) were sold on larger markets or to companies such as megacity of exported commodities.

Client to whom milk is sold



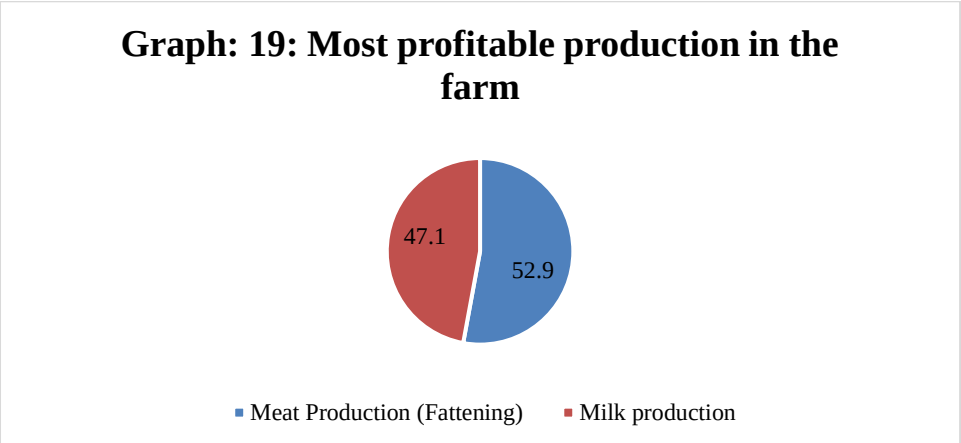
Our field report data have revealed that, on the basis of agricultural milk output, 52 of our respondents had swapped their milk for Gowala or Ghosh using some amount of hand cash in a measurement. In addition, the findings of our research indicate that a significant portion of the local community's residents (85.2% of the total) have made regular purchases of milk from the farms, whereas only 1.1% of the total has been obtained by the remaining businesses.

Amount of selling



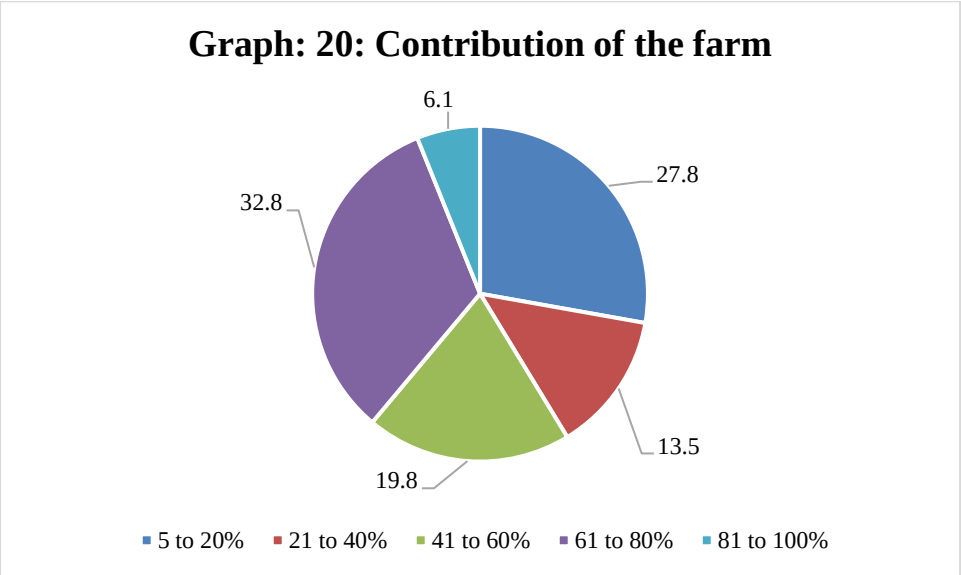
The annual farming system of earning revenues was investigated, and it was discovered that the majority of the 318 respondents have earned between 10,000 and 100,000 taka on an annual basis through farming. On the other side, between 200,000 and 200,000 individuals have a fortune of around 12.7%, while the remaining individuals have fortunes of above 200,000 annually.

Profitable production sector



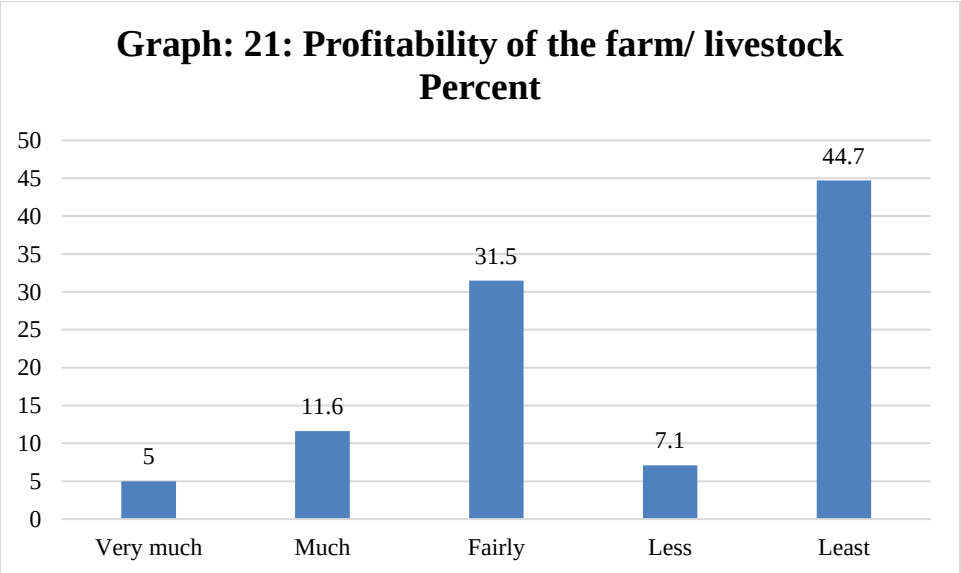
During the process of data collection, we posed a query to the individuals who provided it, inquiring as to whether kind of production—meat or milk—is more lucrative. After that, it came to light that, according to the opinions of 200 people surveyed, the production of meat is significantly more lucrative (52.9%) than the production of milk (47.1%).

Contribution of the farm



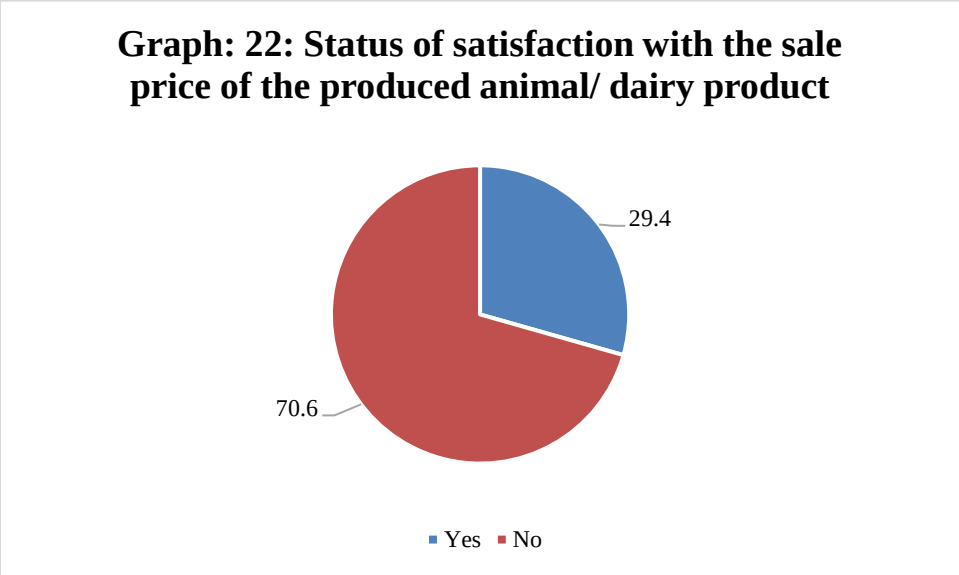
Contribution factors of ranging shown that around 61 to 80% have benefitted from 32.8% participants. Another ranging formation have explored to 13.5% in 21 to 40%, 41 to 60% in 19.8% and rest of them contains 81 to 100% (6.1%).

Level of profitability



The profitability of the farm/livestock were shown in this segment. Such type of likert scale revealed that around least marking respondents response 44.7%, which is the larger among all participants. And moreover fairly answer revealed 31.5%, very much 5% and less 7.1%.

Status of satisfaction



When asked about the level of satisfaction they had with their farming business, it was discovered that more than two thirds of the respondents, or 70.6%, reacted negatively on the basis of the sale price of their products. And among the remainder of them, just a small percentage of individuals (29.4%) provided a positive response.

Status of receiving any training in animal husbandry

Table: 03: Status of receiving any training in animal husbandry		
	Frequency	Percent
Yes	59	15.6
No	319	84.4
Total	378	100
If so, what subjects did you receive training on?		
Technical and Management Training	15	4
Training on Global GAP	13	3.4
Training on Grass Cultivation and Grass Market Development	9	2.4
Training Workshop on Farm Mechanization	2	0.5
Training on contract farming development	1	0.3
Nutrition training	16	4.2
Training in production and product marketing	2	0.5

Total	58	15.3
Sources of gaining the training		
Government	18	4.8
NGOs	39	10.3
Others	1	0.3
Total	58	15.3
Level of learning from the training received		
Very Much	2	0.5
Much	20	5.3
Fairly	36	9.5
Total	58	15.3

This table explains about status of receiving any training in animal husbandry by the animal husbandry farming farmers. It was shown that, around 84.4% individuals negatively answers and rest of them 15.6% were the positive to taking any types of husbandries related professional training. Moreover, the number of respondents who got training they have trained up by various government (54.8%) and non-government organizations (15.3%). The level of taking professional training course of the respondents revealed, most of them fairly (9.5%) opined of the training course.

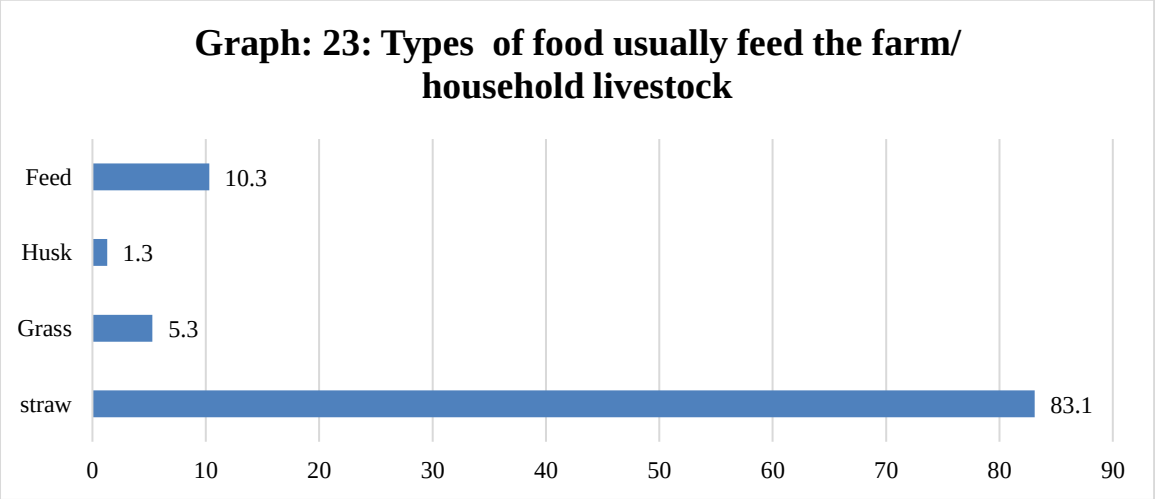
Status of receiving any financial grant/ assistance/ incentive for cattle rearing/ milk production/ farm management

Table: 04: Status of receiving any financial grant/ assistance/ incentive for cattle rearing/ milk production/ farm management

	Frequency	Percent
Yes	21	5.6
No	357	94.4
Total	378	100
If yes, from which source?		
NGOs	21	100
Total	21	100
Types of financial grants/ assistance/ incentives have you received		
Financial assistance for purchase of livestock	20	95.24
Incentives to artificial insemination	1	4.76
Total	21	100
Level of contribution from these assistance		
Very Much	3	14.29
Much	6	28.57
Fairly	12	57.14
Total	21	100.00

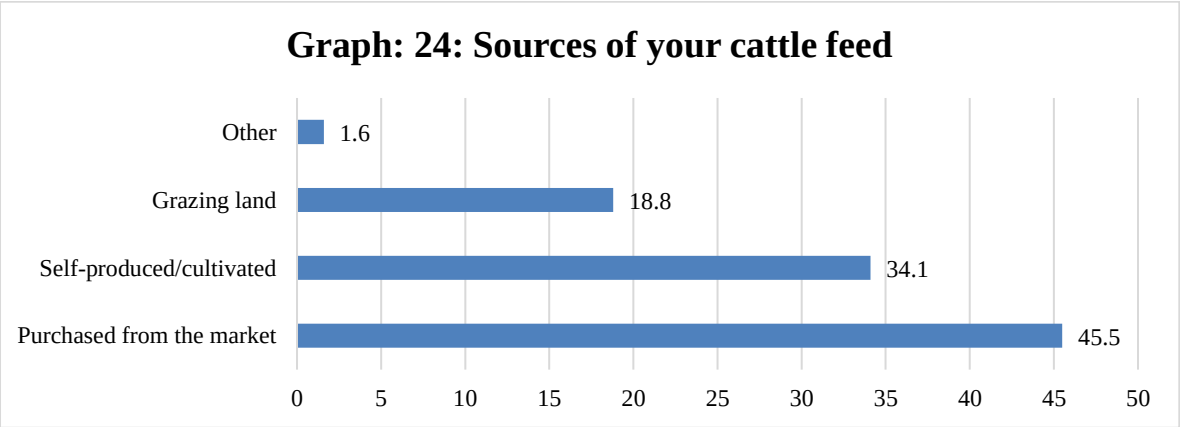
Status of receiving any financial grant/ assistance shows that, a majority percentages of the respondents would not get any types of incentives (94.4%) and a minimal number of participations took some incentives (5.6%) by the NGOs (all of them around 20 individuals). In terms of NGOs incentives those respondents got financial assistance for purchase of livestock (95.24%) and incentives to artificial insemination (4.76%). It also revealed that half of respondents fairly (57.14%) have supported the assistance.

Types of food feed to animal



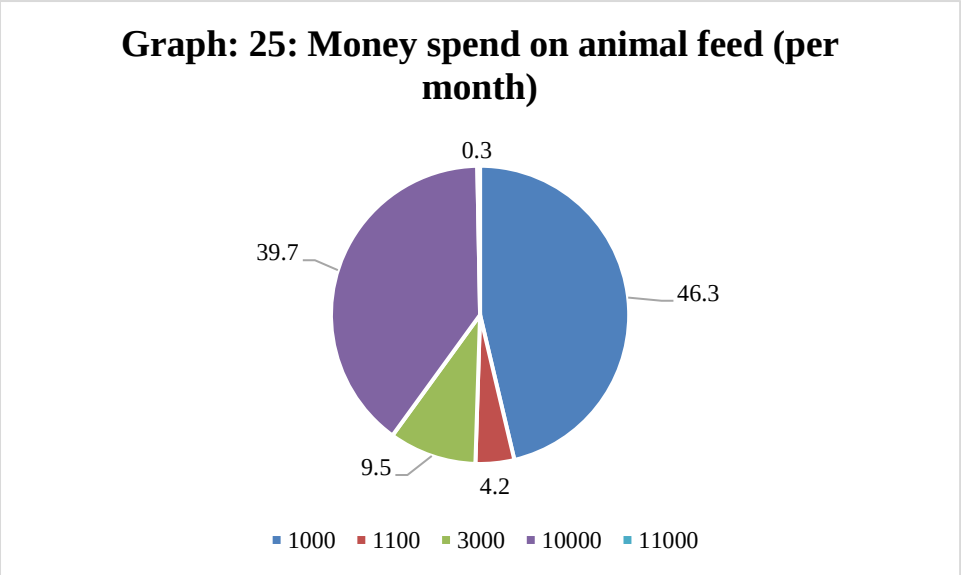
This part has demonstrated the various forms of food that are typically used to provide the nourishment that the farm animals and household pets require on a regular basis. On 83.1% of the farms, the primary source of nutrition for the animals was straw. And hence, a supply of other foods as well.

Sources of cattle feed



Regarding sources of cattle feed and others supply it was revealed that around half of the feed was purchased from the local market (45.5%). Additionally, self-cultivated crops obtained (34.1%) and rest of them grazing lands (18.8%).

Feeding expenditure



Our field data explored that spend money on animal feed (per month) were required almost 1000 taka by the 46.3% participants. Apart from this, 150 individuals have spend money 10000 takas in a monthly basis.

Animal Nutrition and Testing

Table: 05: Animal Nutrition and Testing		
Types	Yes	No
Feeding nutritious foods to the animal/s	10.84%	89.16%
Status of own system for nutritional testing of animal feed	4.30%	95.70%

The researchers also measured the food supply as well as the nutrition system of animals, specifically cattle. It was discovered that 10.84% percent of respondents have a favourable attitude toward providing animals with nutrient-rich diets to promote growth and improvement in cattle. In addition, 4.30 percent of respondents had a favourable opinion regarding the status of their own system for nutritional assessment of animal feed, while 95.70 percent of respondents had a negative opinion.

Awareness about Nutrition and Eating

Table: 06: Awareness about Nutrition and Eating		
Types	Yes	No
Status of awareness about animal nutritious	10.84%	89.16%
Status of taking nutritious food by the family members	11.90%	88.10%

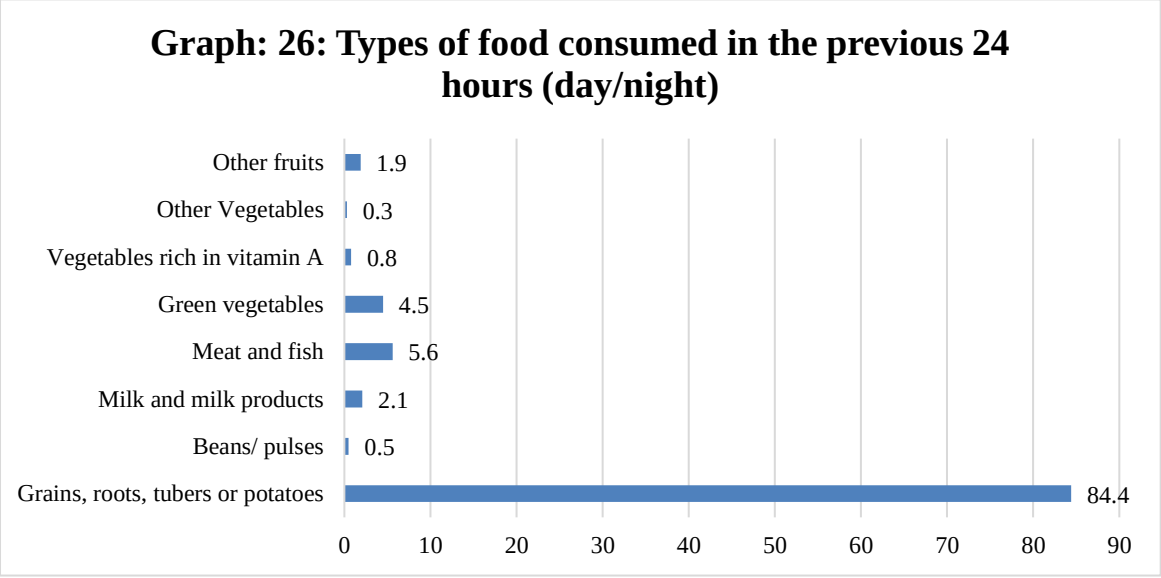
Regarding awareness about nutrition and eating it have shown that, around 10.84% opined positively on the basis of status of awareness about animal nutritious and rest of them taking nutritious food by the family members (11.90%) and rest of them were negatively examined their opinion (88.10%).

Status of drinking milk regularly by the family members

Table: 07: Status of drinking milk regularly by the family members		
Type	Frequency	Percent
Yes	93	24.6
No	285	75.4
Total	378	100
If yes, then frequency of taking-		
Daily	46	49.46
Once in a week	2	2.15
Twice in a week	14	15.05
Occasionally	31	33.33
Total	93	100.00

Concerning the matter of the status of regularly consuming milk by members of the family, it was demonstrated that 285 respondents gave a negative response in accordance with their helpful feedback, and the remaining individuals were 93 people who were favorably vive. The respondents who responded with a positive answer on the basis of once every week (2.15%), once per day (49.46%), and occasionally (33.33%), respectively.

Food consuming last 24 hours



The amount of feed that has been consumed by the cattle throughout the course of the preceding twenty-four hours (day and night) is also measured in this section. Consumption of cereals, roots, tubers, and potatoes was approximately 84.4%, although consumption of milk products was just 2.1%, while consumption of meat and fish was 5.6%, and consumption of green vegetables was only 4.5%.

Common diseases in the farm/ household livestock

Table: 08: Common diseases in the farm/ household livestock		
	Frequency	Percent
Alopecia, Pyometra, Diarrhea	34	9
Botulism, PPR, Black quarter	3	0.8
Bovine ephemeral fever, Acidosis	16	4.2
Diarrhea, Wound	31	8.2
Fever, Botulism, Acidosis, Bloat, Ind	24	6.3
fever, Diarrhea, bloat	1	0.3
FMD, Anthrax, Acidosis, Black quarter	8	2.1
FMD, Anthrax, food poisoning	1	0.3
FMD, Black quarter	1	0.3
FMD, Anthrax	1	0.3
Food poisoning, Anthrax	39	10.3
Milk fever, Bloat, Indigestion	12	3.2
Parasitic, Anthrax, PPR	1	0.3
Pneumonia, FMD, Fever, Anthrax	44	11.6
Pneumonia, FMD, Fever, Botulism, Acid	162	42.9
Total	378	100

Regarding the Common diseases in the farm/ household livestock were exemplified that a various numbers of diseases found in our field report. The significant disease contains Pneumonia, FMD, Fever, Botulism, Acid were found in 162 farms. In addition, FMD, Anthrax, food poisoning, FMD, Black quarter have the lower contamination (0.3%) of cattle health risks.

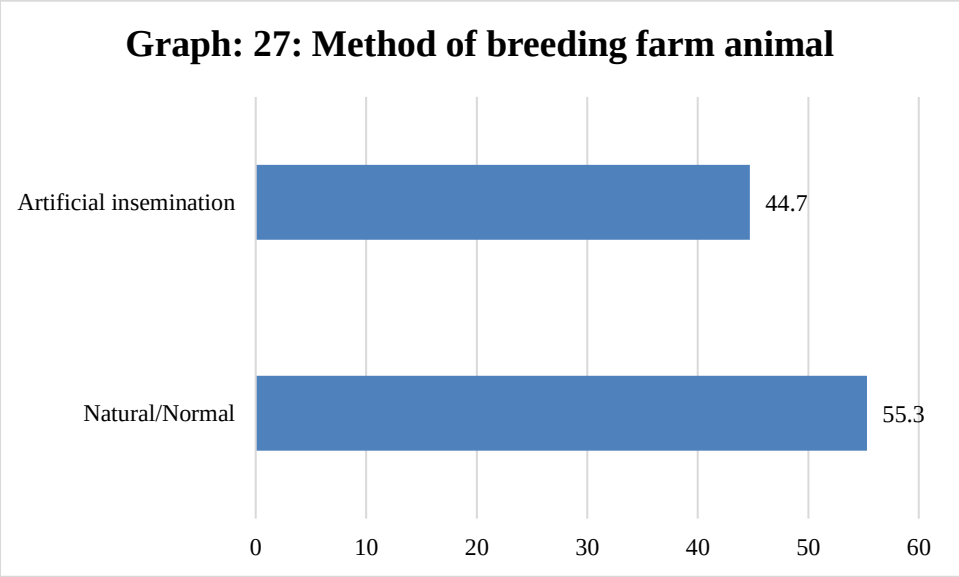
Status of regular vaccination of animal

Table: 09: Status of regular vaccination of animal		
Type	Frequency	Percent
Yes	104	27.5
No	274	72.5
Total	378	100
Types of vaccine taken for the animal		
Spasm/Convulsion	38	36.54
Black quarter	1	0.96
Hemorrhagic Septicemia	1	0.96
Deworming vaccine	17	16.35
All of them	47	45.19
Total	104	100.00

Annual costs of animal vaccination		
1000	64	61.54
1500	14	13.46
2000	20	19.23
500	4	3.85
5000	2	1.92
Total	104	100
Opinion about reasonable price of vaccinations costs		
Yes	192	50.8
No	186	49.2
Total	378	100

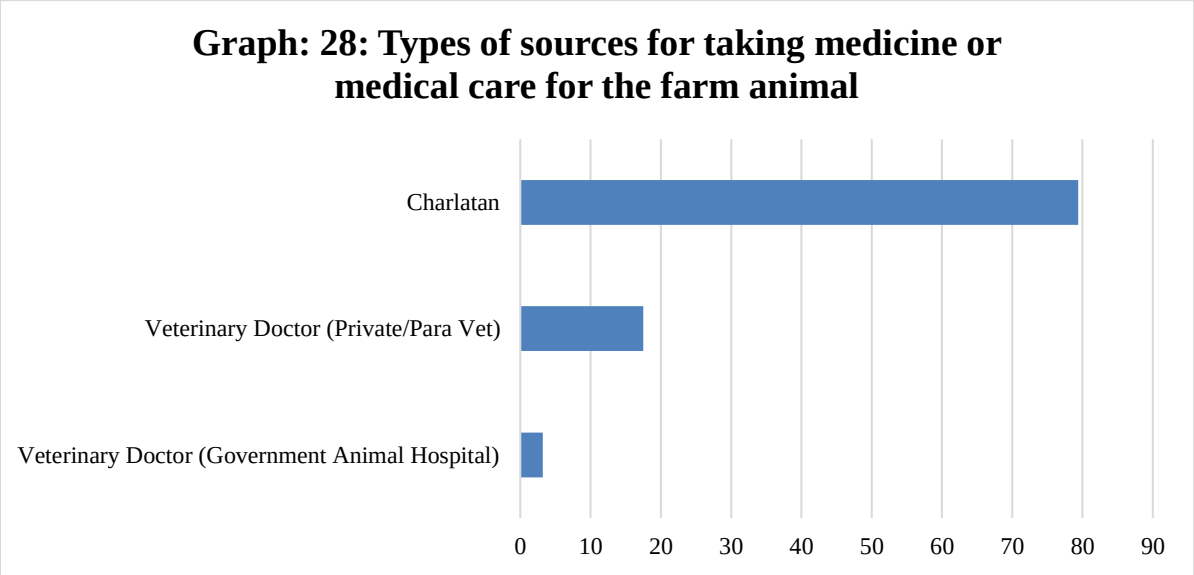
The status of regularly vaccinating cattle was only practiced by 27.5% of farms, and we are sorry to inform that the remaining 72.5% of farms did not practice immunizations. On the other hand, each and every one of the vaccines includes approximately 45.19 percent of the total responses. From the point of view of the expense of vaccines, it was also shown that 61.54% of farming farmers pay 1000 taka on an annual basis. Moreover, 50.8% of the respondents opined that the costs of vaccination were reasonable and satisfactory. On the contrary, 49.2% opined that it was unreasonable and excessive to bearing them in the study area.

Method of breeding farm animal



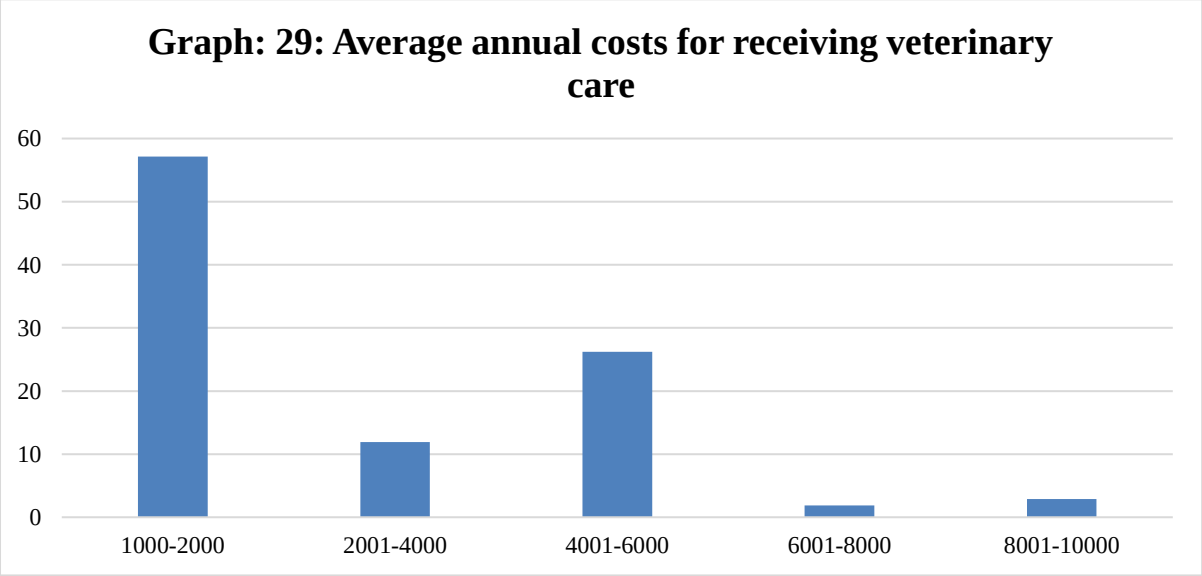
There were two types of breeding facilities for animal breeding in the study area. People who were involved in animal rearing and farming sector bred used natural and artificial breeding methods for cattle breeding. However, around 55.3% farms have investigated natural methods of breeding farm animals, while the remaining 44.7% of farms have used artificial insemination.

Types of sources for taking medicine or medical care for the farm animal



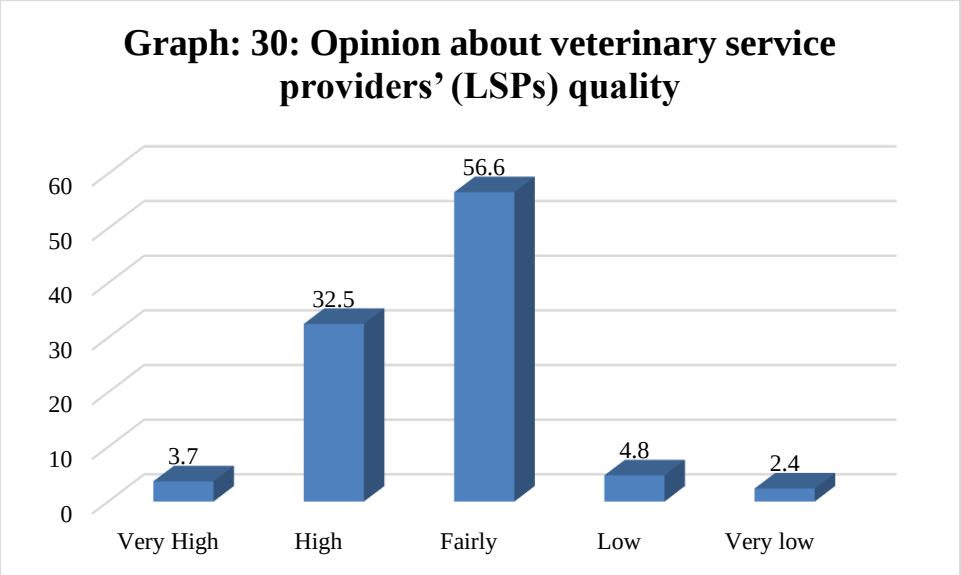
In this section, we will review the different kinds of sources that can be used to give medicine to or provide medical care for farm animals. It was discovered that the majority of the farms (79.4%) were run by local quacks. In addition, Veterinary Doctors who worked at Private or Para Veterinarians as well as Veterinary Doctors who worked at Government Animal Hospitals were questioned by 17.5% and 3.2%, respectively.

Annual costing for veterinary care



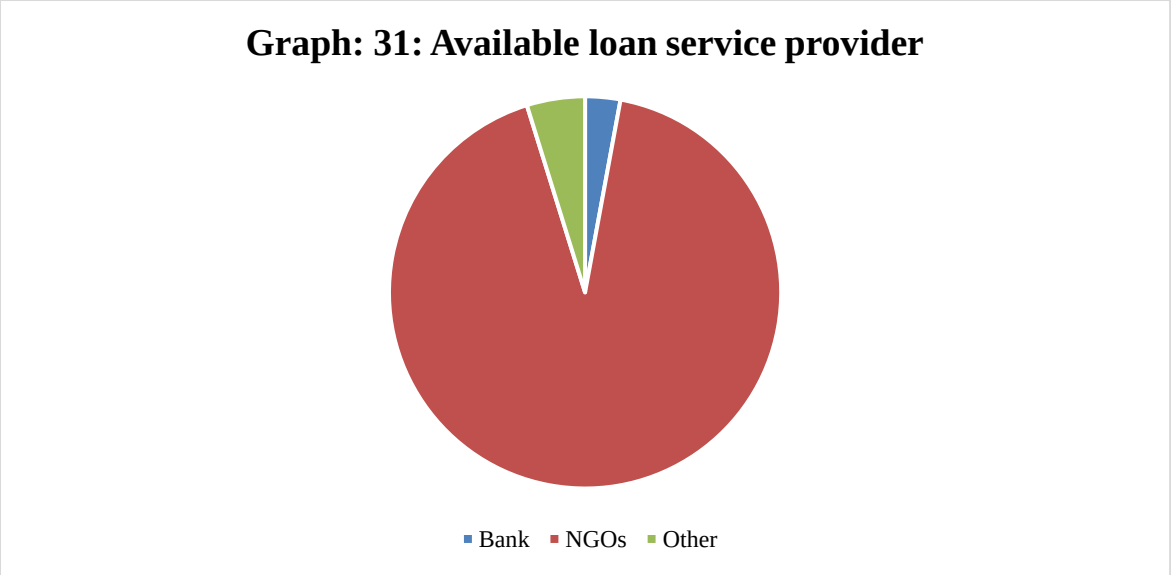
It was shown that approximately 57.14% of people spend between 1000 and 2000 takas annually on receiving veterinary care, which is comparable to the average annual cost of receiving veterinary care. According to the data we collected in the field, the remaining ones spent more than 2-10000.

Opinion about veterinary service providers



Opinion about veterinary service providers' (LSPs) quality which shown that, almost half of the respondents have fairly answered (56.6%). On the contrary, very high and very low contains around 3.7% and 2.4%.

Available loan service provider



Concerning the loan service providers that are accessible in the event that one is in need of monetary assistances, it was found that a nearly overwhelming proportion of the incentives were offered by NGOs (92.3%). In addition, the rest of them were made up of the bank and other entities, and their respective percentages were 2.9% and 4.8%.

Status of taking loan for farm management

Table: 10: Status of taking loan for farm management		
Type	Frequency	Percent
Yes	122	32.3
No	256	67.7
Total	378	100
If yes, from which source did you borrow?		
Bank	2	1.64
NGOs	120	98.36
Total	122	100
Amount of money borrowed		
10 thousand to 25 thousand	46	37.70
26 thousand to 50 thousand	58	47.54
51 thousand to 75 thousand	2	1.64
76 thousand to 1 lakh	11	9.02
1 lakh to 2 lakh	3	2.46
3 lakh to 4 lakh	2	1.64
Total	122	100.00

More than half of the participants have given a negative answer (67.7%) from their point of view when asked about the possibility of taking out a loan to manage animal husbandry or a farm. While the remaining majority (32.3%) held a favorable opinion. The amount of money that was borrowed was most frequently in the range of 26,000 to 50,000 takas, which accounts for 47,54 percent of the total respondents.

Problems faced in animal husbandry and milk production

Table: 11: Problems faced in animal husbandry and milk production		
Type	Frequency	Percent
Lack of advanced and modern animal husbandry facilities	27	7.1
Lack of quality food and green grass	43	11.4
Lack of modern technology in farm management	5	1.3
Problems in production and marketing of products	3	0.8
Lack of financial services/support	300	79.4
Total	378	100

There were various problems faced in animal husbandry and milk production in farms. Because it was noted that the main constraints revealed lack of financial services/support which around

79.4%. Moreover, Lack of advanced and modern animal husbandry facilities (7.1%) and Lack of quality food and green grass contains 11.4%.

Farmer association and membership

Table: 12: Farmer association and membership		
Type	Yes	No
Availability of any producers'/ farmers' associations/ associations	7.90%	92.10%
Status of membership to any organization/ association	27.20%	72.80%

Concerning farmer associations and membership in any producers' or farmers' associations, the majority of respondents (92.10%) provided a negative response, while the remaining respondents (7.90%) provided a positive response. On the other side, the status of membership to any organization or association also demonstrated that positively vive 27.20% and negatively answered 72.80% of the entire respondents.

Innovation, technology, environment and Bangla GAP

Table: 13: Innovation, technology, environment and Bangla GAP		
Type	Yes	No
Status of using quality and innovative materials (fans, lighting, meat storage in glass boxes, etc.) for the farm	14.80%	85.20%
Status of having advanced technology (meat cutting machine, digital weighing machine, freezing facility etc.)	0.80%	99.20%
Status of knowing or practicing Bangla GAP (Indigenous/ Bangla-Good Agricultural Practices)	7.90%	92.10%
Status of using environmentally friendly technology	4.20%	95.80%

From the perspective of innovation, technology, the environment, and other aspects, it was found that the participants' status of knowing or practicing Bangla GAP (Indigenous/Bangla-Good Agricultural Practices) was negative 92.10 percent of the time. And the population's overall judgment was that the status of having sophisticated technology was disclosed to 99.20 percent of the total population. The percentage of people who are considered to have a status of knowing or practicing Bangla is 7.90% of the favorably responding procedure.

Number of having disease of farm animal

Table: 14: Number of having disease of farm animal		
Number	Frequency	Percent
0	161	42.6
1	152	40.2
2	60	15.9
3	3	0.8
4	2	0.5
Total	378	100
Number of bulls are sick on average in a year		
Number	Frequency	Percent
0	261	69
1	83	22
2	32	8.5
4	1	0.3
10	1	0.3
Total	378	100
Number of goats sick on average per year		
Number	Frequency	Percent
0	162	42.9
1	86	22.8
2	77	20.4
3	25	6.6
4	14	3.7
5	9	2.4
6	3	0.8
8	1	0.3
9	1	0.3
Total	378	100

Farms that were contaminated in both the quantity of sick animals and the frequency with which they were sick had a rate of 42.6%. In addition, the number of farms that have not discovered any diseases or sick roles despite the fact that an average of 261 bulls get sick each year on those farms. In addition, 83 farms had cases of bulls' disease every year, accounting for a ratio of 22 percent. On the other hand, the number of ill goats that occur on average each year revealed that around 86 businesses had the potential to sick at least one goat each year. And the remaining pollutants make up anywhere from two (20.4%) to nine (0.3%) of the total number of enterprises engaged in husbandry.

Number of cows/ buffaloes die on an average per year

Table: 15: Number of cows/ buffaloes die on an average per year		
Number	Frequency	Percent
0	333	88.1
1	35	9.3
2	9	2.4
4	1	0.3
Total	378	100
Number of calves/ adult goats/ sheep die on average per year		
Number	Frequency	Percent
0	306	81
1	38	10.1
2	24	6.3
3	2	0.5
4	2	0.5
5	1	0.3
6	5	1.3
Total	378	100
Number of goats/ sheep die on average per year		
	Frequency	Percent
0	258	68.3
1	61	16.1
2	45	11.9
3	6	1.6
4	2	0.5
5	1	0.3
6	5	1.3
Total	378	100

In this part, we determined the average number of cattle that were lost each year at those businesses by counting the number of deaths. Around an enormous amount of 333 businesses, with a ratio of 88.1%, have not been involved in any kind of buffalo death events. In addition, 35 different businesses had to deal with the death of at least one buffalo per year.

On the other hand, the number of dead calves ranged from one to six across all of the businesses, with the fatality rate ranging from 10.1% to 1.3% of the total businesses. On the other hand, the number of goats and sheep that had not passed away in 258 of the businesses ranged from one to six every year. The rest of the animals passed away between one and six times annually.

Farm management, modern mechanized and ICT use

Table: 16: Farm management, modern mechanized and ICT use		
	Yes	No
Status of the enterprise of having good farm management (adequate space, light and ventilation, paved and clean floors, nutritious feed, proper treatment, etc.)	15.30%	84.70%
Status of mechanizing modern farm (use of garbage and dung cleaning equipment, mowers, milking machines/testing equipment, use of refrigerators, etc.)	2.60%	97.40%
Status of using ICT based technology in the farm (telemedicine, animal database, nutritional testing system of animal feed etc.)	2.40%	97.60%

In terms of farm management, modern mechanization, and the utilization of ICT, it was discovered that the enterprise did not have a good farm management status (adequate space, light and ventilation, paved and clean floors, nutritious feed, proper treatment, and so on), and 84.70% of the total participants gave a negative answer. And finally, the remainder of them of applying ICT-based technology in the farm (telemedicine, animal database, nutritional testing system of animal feed, etc.) which were favourably opined by 2.40% and negatively regarded by 97.60%.

Number of sales per year

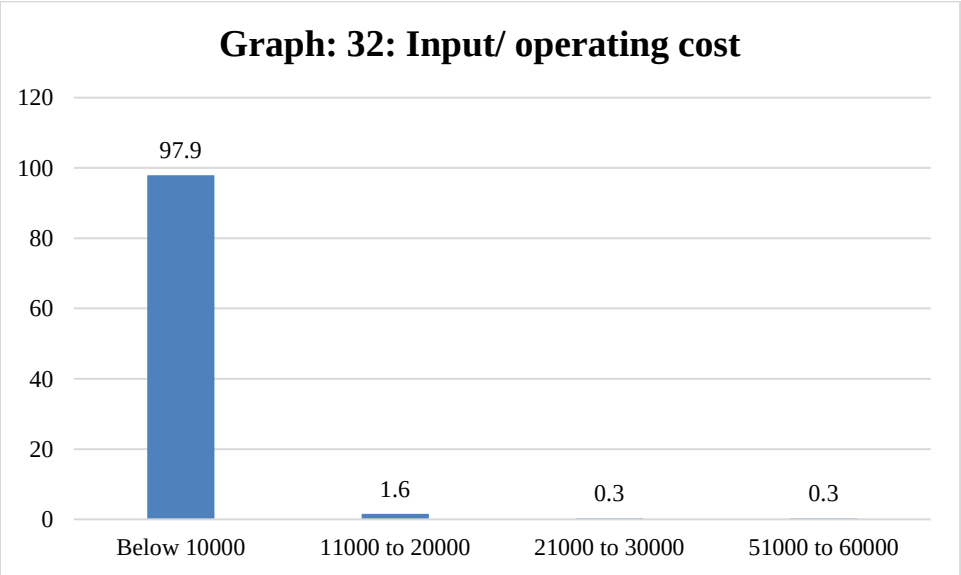
Table: 17: Number of animal sales in a year		
Number of cows sell a year		
Number	Frequency	Percent
0	233	61.6
1	113	29.9
2	28	7.4
3	2	0.5
5	2	0.5
Total	378	100
Number of bulls sell a year		
0	247	65.3
1	80	21.2
2	44	11.6
3	5	1.3
5	1	0.3
6	1	0.3
Total	378	100
Number of sheep sell a year		
0	361	95.5

1	11	2.9
2	4	1.1
3	1	0.3
5	1	0.3
Total	378	100
Number of goats sell a year		
0	149	39.4
1	62	16.4
2	90	23.8
3	32	8.5
4	19	5
5	14	3.7
6	5	1.3

According to the results of this poll, which indicated the number of farms that sold cows, bulls, goats, and sheep for various purposes, around 113 farms sold at least one cow, indicating that 29.9% of the farms did so. And perhaps most intriguing is the fact that 61.6% of farm owners have not even sold a single cow from their operations.

In addition, single and double basis sales accounted for respectively 21.2% and 11.6% of all bulls that were sold within a year. On the other hand, the number of sheep that are sold in a year at a single basis with a percentage of 2.9% is a single basis, and the rest of them have sold anywhere from 2 to 5 with varying portions of ratios.

Input/ operating cost



According to the total number of inputs and operating costs, the range of costs that is less than 10,000 takas has 370 farms that have a 97.9% ratio. In addition, the lowest possible operating costs were found to be between 51000 and 60000 takas with an input rate of 0.3.

Getting training from the Livestock Service Provider

Table: 18: Getting training from the Livestock Service Provider		
Indicator	Yes	No
Availability of any livestock service providers offering training, vaccination, deworming, artificial insemination and other services in your area/ enterprise	24.30%	75.70%
If yes, have you received training and consulting services from them?	13.50%	86.50%
If so, have you received training on animal husbandry technology?	4.80%	95.20%
If yes, have you taken regular vaccination, deworming and artificial insemination services through them?	12.70%	87.30%

The availability of any livestock service providers offering training, vaccination, deworming, artificial insemination, and other services in your area/enterprise was investigated. The majority of respondents (75.70%) had a negative opinion of this, while the majority of respondents (95.20%) had a positive opinion of having received training on animal husbandry technology. Positive vive with the regular vaccination, deworming, and artificial insemination services includes 12.70% of the overall population.

Getting Master Training and trained by Master training on GGAP status

Table: 19: Getting Master Training and trained by Master training on GGAP		
Type	Yes	No
Status of taking master training on Global Good Agricultural Practices (GAP) and Hazard Analysis Critical Control Points (HASSAP)	5.30%	94.70%
Status of being trained by a Master Trainer on Global Good Agricultural Practices (GAP) and Hazard Analysis Critical Control Points (HASAP)	2.60%	97.40%

On accordance to getting Master Training and trained by Master Training on GGAP status it also shown that, the vast majority of participants have opined negative opinion on the basis of taking master training on Global Good Agricultural Practices (GAP) and Hazard Analysis Critical Control Points (HASSAP) (94.70%) and trained by a Master Trainer on Global Good Agricultural Practices (GAP) and Hazard Analysis Critical Control Points (HASSAP) (97.40%) And the remainder of those polled gave a positive response, with a ratio of 5.30 percent, followed by 2.60 percent.

Knowledge on policy dialogue and GGAP

Table: 20: Knowledge on policy dialogue and GGAP		
Type	Yes	No
Knowledge about policy dialogues/ policy-making discussions on animal husbandry with farmers	2.4	97.6
Knowledge about and practice the good practices guidelines of the Global Good Agricultural Practices (GGAP)	4.5	95.5

Regarding participants' knowledge of policy dialogues and policy-making talks on animal husbandry with farmers, nearly all of the respondents (97.6%) gave unfavourable responses to this question. And the remainder of them a modest percentage of respondents agreed of affirmative sign (2.4%). On the other hand, knowledge about and practice the good practices principles of the Global Good Agricultural Practices (GAP) have found that a variety of participants push up no button as well (95.5%), and the remainder of them were positively vivid (4.5%).

Ready feed, cuff starter, grass, silage, UTS, nutrition technology

Table: 21: Ready feed and cuff starter dealer and supply point		
Type	Yes	No
Availability of any Ready-Feed, Cuff starter dealers in your area operating businesses from whom you have serviced?	10.80%	89.20%
Availability of any grass, silage, UTS, UMS dealers operating in your area who you have serviced from	5.80%	94.20%
Availability of any 'supply points' for meat/milk supply in your area	22.50%	77.50%
Having ready feed, cuff starter, grass, silage, UTS, nutrition technology in the farm		
ready feed, cuff starter, grass, silage, UTS, nutrition technology	2.9	97.1

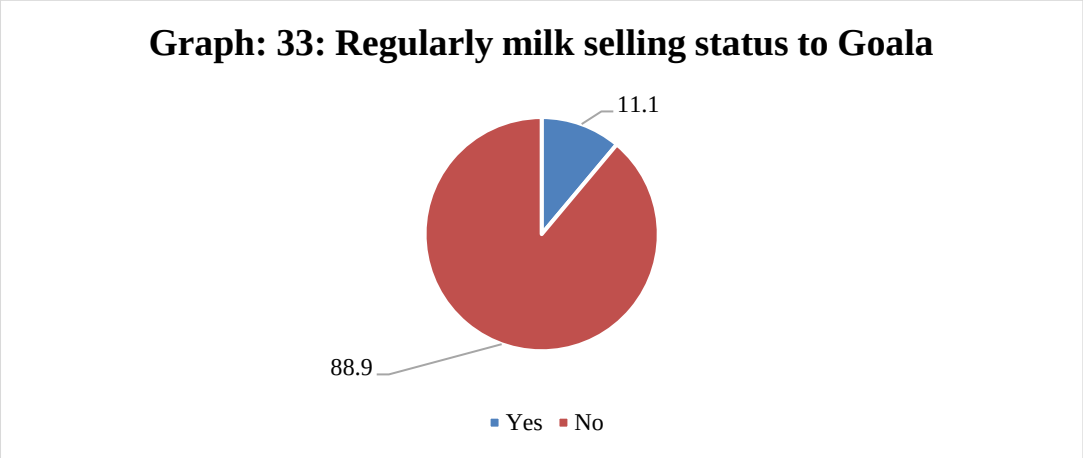
Concerning the point of ready feed and cuff starter dealer and supply point data reveals that an availability of any grass, silage, UTS, and UMS dealers operating in your area who you have serviced from explored by the participants with a negative exemplification 94.20% of the time; this is a problem. In addition, ready feed, cuff starter, grass, silage, UTS, and nutrition technology in the farm stand for positive yes answers given by a tiny portion of participants, while the rest of them negatively describe these terms (97.1%).

Machinery supplying dealer and purchasing new technology

Table: 22: Machinery supplying dealer and purchasing new technology		
	Yes	No
Availability of dealers/ sub-dealers selling farm mechanization parts in your area	4.50%	95.50%
If yes, have you purchased any new technology from them?	0.00%	100.00%

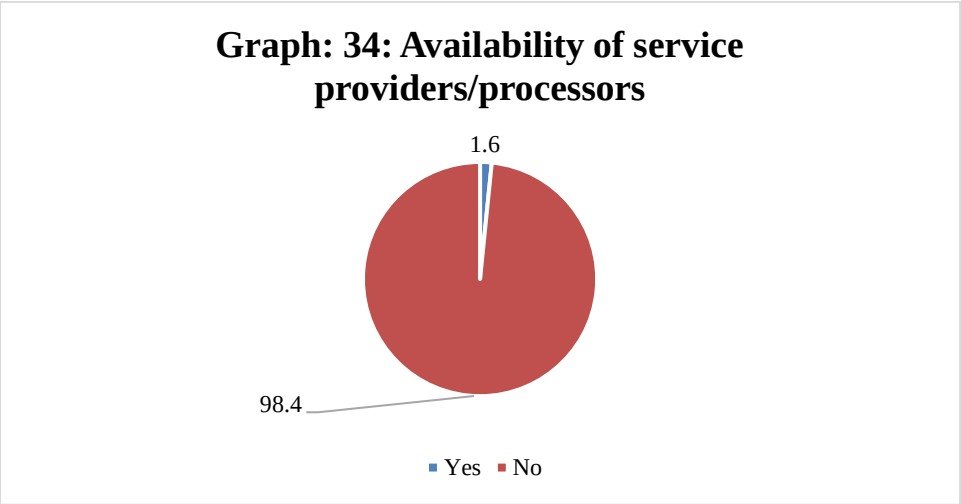
According to our field study, the availability of dealers and sub-dealers selling farm mechanization parts in the area has adversely densified to the tune of 95.50 percent. This was discovered through the findings of the machinery providing dealer and the acquisition of new technology. And the other part of the participants who have made a purchase from them of any new technology received a uniformly negative response from the participants as a whole.

Regularly milk selling status to Goala



There were different types of milk buyers in the study area such as goala, company, local people, and local hotel and restaurant owners. They consumed a major portion of local milk production. However, regarding regularly milk selling status to Goala our data revealed it was affirmatively responded by the respondents with 11.1% and rest of them were negatively signed (88.9%) in their opinion.

Availability of service providers/ processors dealing with producing, fortification, certification, packaging, branding and sub-contracting of products



The majority of respondents (98.4%) have expressed dissatisfaction with the accessibility of service providers/processors in their region who deal with the manufacturing, fortification, certification, packaging, branding, and outsourcing of products, while only 1.6% have expressed satisfaction with this situation.

Milk selling by subcontracting or selling thyself

Table: 23: Milk selling by subcontracting or selling thyself		
Type	Yes	No
Selling meat/ milk to buyers who sell meat/milk through subcontracting?	0.50%	99.50%
Selling meat/ milk by contracting yourself	7.10%	92.90%

Regarding the practice of selling milk through subcontracting, it was discovered that selling meat or milk to purchasers who also engage in the practice of selling meat or milk through subcontracting was gotten a negative rating by an overwhelming majority of respondents (99.50%). And an extremely small percentage (0.50%) of the participants hypothesize that the positive sound was produced.

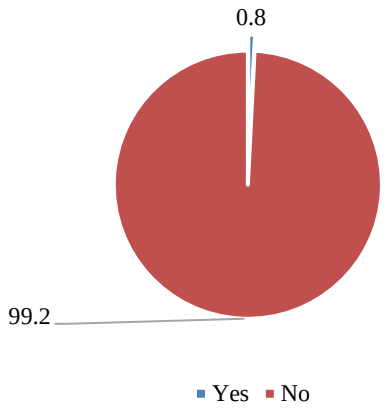
Linking with Slaughterhouse and Butcher shop

Table: 24: Linking with Slaughterhouse and Butcher shop		
	Yes	No
Availability of any Slaughter Houses cum Butcher Shops using modern equipment in your area	0.80%	99.20%
Selling live animals to butcher shops and premium markets through contracting	0.00%	100.00%

It has been determined, through the connection with the Slaughterhouse and the Butcher shop, that the majority of the farms in the vicinity do not make use of any contemporary technology. A negative rating was given for this by the overwhelming majority of participants (99.20%). On the other hand, selling live animals to butcher shops and premium markets through contracting does not result in any positive vives, and the participants' signs indicate that they are 100% opposed to this activity.

Presence of BSTI and HACCP-certified 'meat processing plants'

Graph: 35: Presence of BSTI and HACCP-certified 'meat processing plants'



The presence of BSTI- and HACCP-certified 'meat processing plants' demonstrated that a large proportion of people (99.2%) governed their region in a way that prevented such operations from occurring there. And only a small percentage of respondents, 0.8%, have provided a positive response.

Training and practicing GGAP and Nutrition and business management

Table: 25: Training and practicing GGAP and Nutrition and business management

Type	Yes	No
Getting trained and actively practice Global Good Agricultural Practice (GAP) protocols	4.50%	95.50%
Receiving training on nutrition, climate, social issues, and animal husbandry	9.50%	90.50%
Trained in business management and used apps developed for it	0.50%	99.50%

It was discovered that getting trained and actively practicing Global Good Agricultural Practice (GAP) protocols and receiving training on nutrition, climate, social issues, and animal husbandry contains negative expression by the respondents respectively 95.50% and 90.50%

of the time. This was investigated in terms of getting trained and actively practicing GGAP and Nutrition and business management. And perhaps most shockingly, business management and the apps that were built for it were adversely regarded by 99.50% of the participants.

Telemedicine and online business

Table: 26: Telemedicine and online business		
Type	Yes	No
Availability of veterinary 'telemedicine' service in your area where you received the service	25.90%	74.10%
Buying and selling livestock (cows, goats, sheep) online	1.10%	98.90%

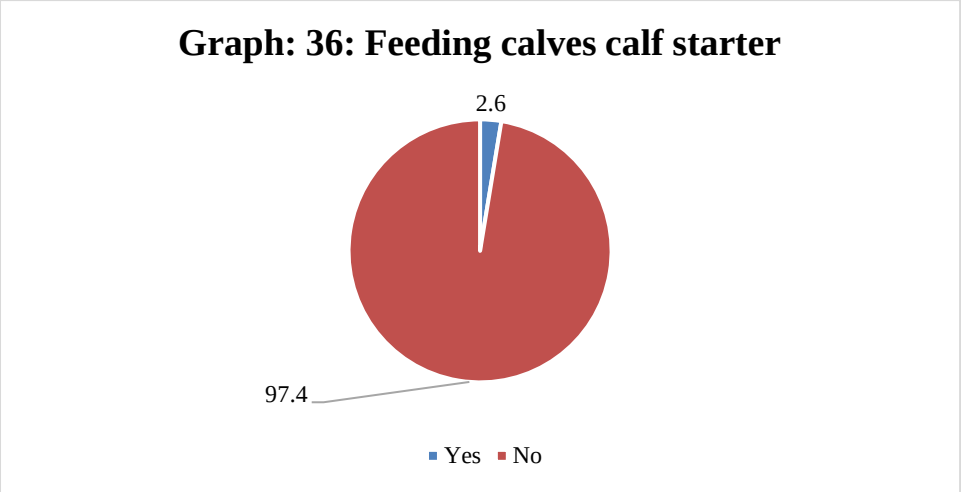
The availability of veterinary 'telemedicine' service in your area where received the service was positively supported by 25.90% of the respondents, and the rest of them agreed to dissatisfaction of their negative sign (74.10%). This was due to the rapid advancement of technologies that enable telemedicine and online business. On the other side, purchasing and selling livestock (cows, goats, and sheep) online was universally regarded unfavorably by the respondents, with a ratio of 98.90% unfavorable responses.

Feeding cattle ready feed and raw grass

Table: 27: Feeding cattle ready feed and raw grass		
Type	Yes	No
Regularly feeding the animals on your farm ready-made feed	6.90%	93.10%
If yes, is it ISO and food-safe certified?	0.00%	100.00%
Enterprise feeding animal regular amounts of raw/ green grass?	74.30%	25.70%

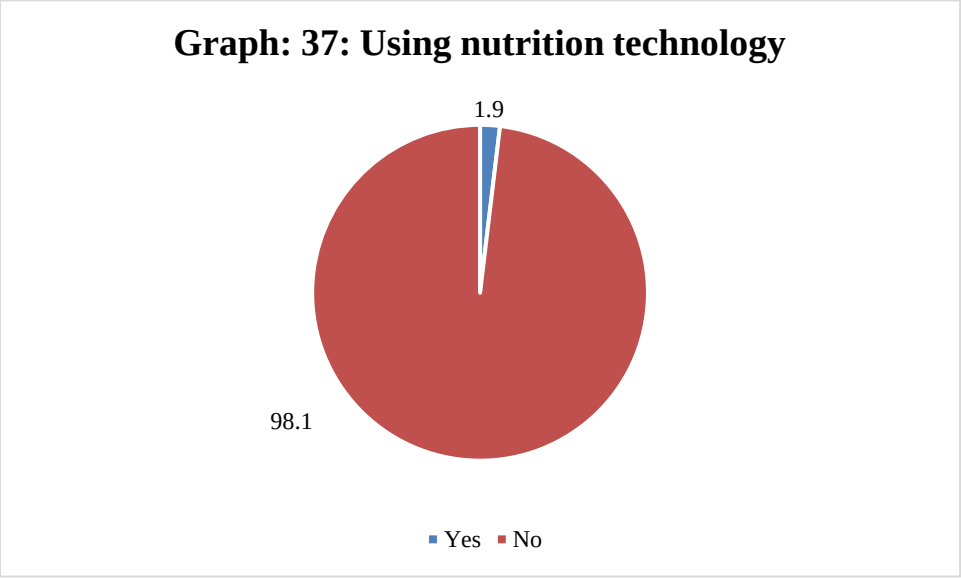
Concerning the practice of feeding raw grass and ready-made feed to cattle, the findings of our field research indicate that the vast majority of respondents (93.10%) believe that there is a negative impact caused by regularly feeding the animals on their farm ready-made feed. In addition, giving animals a consistent amount of raw or green grass received positive feedback from 74.30% of respondents while receiving negative feedback from 25.70% of respondents.

Feeding calves calf starter



Cuff starter is very vital food item for calves that meet nutritious demand of the animal. Feeding cuff starter to calves is rare in our country. However, it found that only 2.6% of the farm holders feed their calves cuff starter in the study area. On the contrary, 96.4% did not feed such types of grass to their animals.

Enterprise using nutrition technology



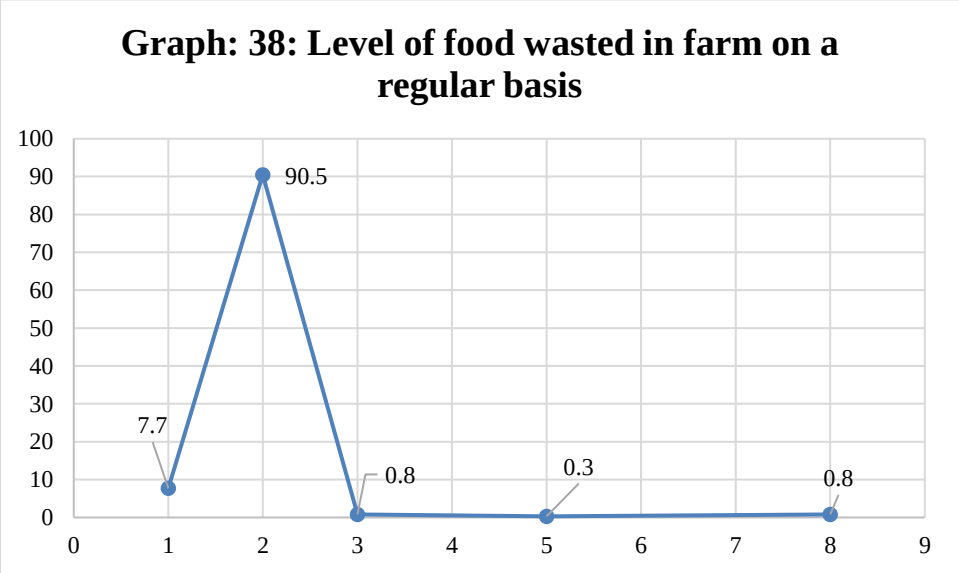
It was found out that a greater percentage of participants were assigned a negative reaction against nutrition technology uses. A very small percentage of respondents (1.9%), however, agreed that businesses should use nutrition technology, while the remaining 98.1% of respondents gave a very unfavourable evaluation.

Feeding farm animals open grain feed

Table: 28: Feeding farm animals open grain feed (chickpeas, husks, pulses, maize, rice husks)		
	Frequency	Percent
Yes	123	32.5
No	255	67.5
Total	378	100
If yes, what kind of market do you buy them from?		
Local market	115	93.50
Union level market	7	5.69
Upazila level market	1	0.81
Total	123	100.00

When it comes to feeding farm animals open grain feed (chickpeas, husks, pulses, maize, and rice husks), the results show that around 123 individuals have a good response, which contains 32.5%, while the other individuals, 67.5%, have a negative opinion. In addition, the sort of local market posists roughly 93.50% of their day-to-day demands, while the market at the Union level contains 5.69% and the market at the Upazila level contains 0.81% respectively.

Level of food wasted in farm on a regular basis



Regarding the amount of food that is thrown away on farms on a regular basis, it was discovered that the number of double proportions comprises the largest percentages of all participants (90.5%). On the other hand, the fifth number in the range elected to go with the lowest 0.3%.

Feeding Silage and UMM/ UTS

Table: 29: Feeding Silage and UMM/ UTS		
Type	Yes	No
Feeding silage to farm animals	1.10%	98.90%
Feeding farm animals UMM/ UTS	0.50%	99.50%

As shown by the findings of the study titled "Feeding silage and UMM/UTS," a vast majority of respondents (98.90%) had a bad opinion of feeding silage to farm animals, while only 1.10 percent have a favorable opinion. In addition, just 0.50% of respondents said they supported feeding UMM/UTS to farm animals, while 99.50% of respondents said they felt adversely about the practice.

Buying grass for animal feed

Table: 30: Buying grass for animal feed		
Type	Frequency	Percent
Yes	95	25.1
No	283	74.9
Total	378	100
If yes, what kind of shop/market do you buy from?		
Mobile grass shop	46	48.42
Shop selling permanent grass in the market	49	51.58
Total	95	100.00

According to the table chart, about 283 respondents do not buy grass for their animals, and only 95 respondents say yes regarding this question. Among 95 respondents, 46 farm owners purchase grass from Dynamic and temporal market place and 49 respondents purchase permanent grass selling place.

Knowledge about a balanced diet and nutrient-rich grass

Table: 31: Knowledge about a balanced diet and nutrient-rich grass		
Type	Yes	No
Knowledge about the ideal balanced diet for animals	41.00%	59.00%
Knowledge about improved and nutrient-rich grass and grass cultivation	40.20%	59.80%

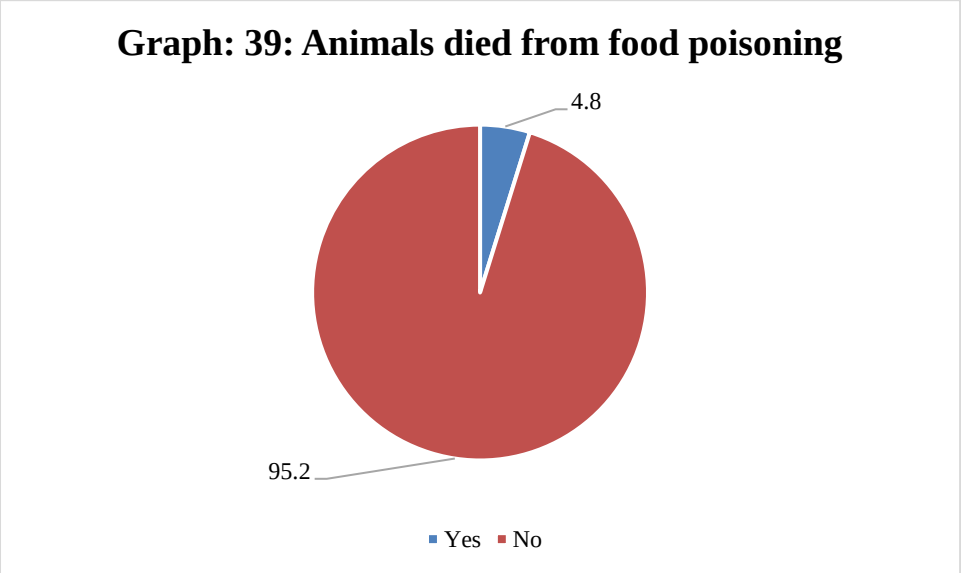
Most of the respondents 59.00% do not have enough understanding of ideal balanced feed for animals and 59.80% do not have knowledge about the way how to improve and grow nutrient-rich grass. And other 41.00% and 40.20 respondents don't know about balanced food for animals and don't know how to grow quality grass for animals respectively.

Cultivating quality grass and soil testing

Table: 32: Cultivating quality grass and soil testing		
Type	Yes	No
Growing quality grass, themselves	12.20%	87.80%
If yes, test the soil for grass cultivation	2.60%	97.40%

The survey shows that 12.20% of farm owners are growing their own required grass, but only 2.60% of them have tested the soil to produce quality grass. On the other hand, 87.80% of respondents are not producing grass themselves even though 97.40% of respondents test their soil.

Animals died from food poisoning



The chart shows that only 4.8% of the respondents opined positive answer; animals died due to food poisoning on their farms. Other 95.2% of the farm owners said that no animal death occurred by food poisoning.

Summary of the Focus Group Discussion (FGD)

Three Focus Group Discussion (FGD) were conducted in Thakurgoan Sadar, Pirgonj and Ranisoinkoil Upazila.

Name of the upazila	Nature	Participant number
Thakurgoan Sadar	**KII**	**10**
Pirganj	**KII**	**8**
Ranisainkail	**KII**	**8**

The participant were basically male and female beneficiary and stakeholders including local service providers who had been providing service to the animals and meat sectors in the study areas. The summary of the focus group discussions are as follows:

Ownership and Infrastructure

Producers mostly rear cows and goats. Most of them have at least 2 up to 8/10 cows. However, from a long time, they are associated with rearing these cows. Parul, an FGD participant from Ranisoinkoil stated that, *"I have three cows, one goat. A cow gives 2 kg of milk daily." "We all have more cows. Less goats. I grow small size cows and sell them."* (Bahamoni, FGD participant from Ranisoinkoil). *"Cows and goats have been reared for a long time. Now I am thinking of rearing buffalo…."* (Rokeya Begum, FGD participant from Pirgonj). The producers have to busy with their animals and work for them all day long.*"I have a total of seven cows including calves. It takes whole day to work for the cows."* (Kobita Debnath, FGD participant from Thakurgoan Sadar). *"There is no chance to go anywhere."* (Aroti Debnath, A FGD participant from Thakurgoan Sadar).

The producers are associated in rearing cows and goat since many years. They pay their children's educational expenses and other necessary expenditure by producing and selling these in the market. *"I have been rearing cows since marriage. That would be around 18/120 years."* (Babita Debnath, FGD participant from Thakurgoan Sadar).*"I have been rearing cows for 7/8 years."*(Dipti, FGD participant from Ranisoinkoil).*"I have been rearing cows and goats for many years. By rearing cows and goats, I am paying for the education of my sons and daughters."* (Jokurmoni, FGD participant from Pirgonj)

The infrastructural condition of many cow houses is improved. The condition of many cow houses is very deplorable. The infrastructural condition of the cow house is also improved for those who keep foreign or hybrid cows. Domestic cow owners are not very conscious about the infrastructure of the animal house, as the domestic cow can adapt to any environment.*"The house is improved. Lights, fans are all there. If the fan is turned off a little, the cows feel uncomfortable. However, I rear foreign cow."* (Palina Debnath, FGD participant from Thakurgoan Sadar).*"Tin shed house. The floor is made of mud.* (Salina akter, FGD participant from Pirgonj).*"Paved brick house. I take good care of the cows and goats."* (Sobeda khatun, FGD participant from Thakurgoan Sadar). *"Mud house. Raw floor, tin shed house. There is no fan in our house. How can I give a fan in the cow house?"* (Minu, FGD participant from Ranisoinkoil)

The producers, who produce in a small scale, are rearing their animals in their own land.*"We keep a few cows in our own land."* (Sathi begum, FGD participant from Pirgonj).*"We have nothing except the house land. There is also a small cow house with that bedroom."* (Fulmoni, FGD participant from Ranisoinkoil).*"Nice paved house. I am doing it in my own land. Will anyone allow others to build cow house on his/her land?"* (Aroti Debnath, FGD participant from Thakurgoan Sadar)

Most of the producers rear their animals in a traditional way. A little follow the advanced or modern way of cattle farming. *"The way our grandfathers used to do it. I follow the way my mother is rearing cows and goats."* (Fahima, FGD participant from Ranisoinkoil). *"I keep foreign cows. So I have to do it in a slightly better way."*(Palina Debnath, FGD participant from Thakurgoan Sadar). Some producers subconsciously follow an advanced way of farming.*"I don't know any method. Cows are fed grass and straw as well as feed and vitamins. Consult with doctor if any cow feels sick."*(Chandana Debnath, FGD participant from Thakurgoan Sadar). However, those who rear native cows, feel rearing less troublesome.*"All my cows and goats are native. The cost and trouble of keeping a native are less. It is also easy to rear."* (Bela Rani, FGD participant from Pirgonj)

Producers mostly keep indigenous and crossbred cows. Many people keep two or four goats besides cows. But there is no single goat farm.*"There are two types of cows I rear, native and hybrid. Hybrid cows require a little more care than native cows."* (Sathi begum, FGD participant from Pirgonj).*"I have 4/5 native cows. I also keep some goats."* (Kalpona, FGD participant from Ranisoinkoil)

Production and market value chain

The producers of this area are mostly involved in milk production and beef fattening. Many believe that fattening cows is more profitable than milk production.*"I have three cows. A cow and two bulls. By selling the cow milk I manage the cost of feeding of the two bulls."* (Smriti, FGD participant from Ranisoinkoil). *"If the cows are fattened and sold, the profit is available together. That's why I do it."* (Sobeda khatun, FGD participant from Thakurgoan Sadar).*"I keep only foreign cows. We milk 14/15 liters of milk per day from two cows."* (Kajol Debnath, FGD participant from Thakurgoan Sadar)

Producers usually sell their products at home. The milkmen come from house to house and take milk.*"The milkmen come from house to house and take milk. We don't have to go. But the price is not good. I sell 40/45 taka per kg. If you calculate the cost of eating cows, this money is nothing."* (Kajol Debnath, FGD participant from Thakurgoan Sadar). There is no milk selling center/hub where they can sell milk. That why they have to depend on the milkmen to buy from them.*"There is no milk selling center here. Nearby neighbors buy occasionally. Most of the time milkman comes and buys it."* (Kobita Debnath, FGD participant from Thakurgoan Sadar)

If anyone want to sell cows and goats, the brokers/wholesalers come from house to house, bargain and fix the price and take the cows/goats. *"If we want to sell cows/goats, inform the wholesalers. Show 3/4 wholesalers. Finally sell to whoever offers the best price."* (Fahima, FGD participant from Ranisoinkoil). Sometimes a permit from the market authority is needed. Many producers sell their products at home to save some money for that permit and transportation cost. *"A permit is required to sell cows in the market. There is also transportation cost. If it is not sold after taking to the market, it must be brought back! So we sell to wholesalers at home."* (Chandana Debnath, FGD participant from Thakurgoan Sadar)

The producers sell their products (mostly cows) after rearing 6 months to 1 or 2 years.*"If you want to sell in 6 months, you will get less profit. If you sell it after one and a half or two years, you get a huge sum of money."*(Sathi begum, FGD participant from Pirgonj). But sometimes in time of need they have to sell their products without thinking of profit maximization. *"6 months, 1 year nothing matters. When money is needed, we sell cows/goats to make up the shortfall. I keep cows and goats so that I can use them when needed."* (Chandana Debnath, FGD participant from Thakurgoan Sadar). *"It is not possible to think about profit in times of need. Even if the profit is low, we have to sell in time of need."* (Minu, FGD participant from Ranisoinkoil)

Income and profitability

Cow farming is becoming costly as the price of necessary commodities is becoming high. *"Straw, grass, feed all have to be bought and fed. Cow rearing is very expensive now. If the prices of these were low, it would have been more profitable to rear cows."* (Fatema Akter, FGD participant from Pirgonj). *"Cow rearing is very expensive now. Straw, feed, grass all are expensive. If you have your own land, it would cost a little less to plant grass. But I don't even have a chance of it."* (Palina Debnath, FGD participant from Thakurgoan Sadar). Some producers buy grass from mobile or permanent grass shops, some collect grass from the grazing land for their animals. *"I have a few native cows. I have to buy straw and feed. I collect grass from the field. There is no money to buy anything else."* (Salina akter, FGD participant from Pirgonj). *"Grass has to be bought and fed. I usually buy grass from the mobile grass shop."* (Chandana Debnath, FGD participant from Thakurgoan Sadar).

Some producers feel the price of milk in the market is not enough comparing to the price of other necessary commodities. *"The price of everything is going up. Cow feed, straw, everything is expensive. Now selling milk does not make much profit."* (Salina akter, FGD participant from Pirgonj). But most of the producers feel cow farming profitable weather it is less profitable or more profitable. *"Even if it is not very profitable, it is profitable. What would I have done if it had not been profitable?"* (Bahamoni, FGD participant from Ranisoinkoil).

Most of the producers have no registration as they produce small scale production. Those who are farmers have registration and the number is very less. *We don't know what kind of registration to do if anyone keep cows."* (Rokeya Begum, FGD participant from Pirgonj). However, for small-scale private production, the family members of the producers take care of their cows and goats together. *""Husband and wife both look after the cows together. Since my husband also works outside, I spend more time looking after cows and goats."*(Palina Debnath, FGD participant from Thakurgoan Sadar)

Breeding

Producers breed their animals both naturally and artificially. *"I have local cow and do breeding naturally."* (Smriti, FGD participant from Ranisoinkoil). *"I usually do artificial insemination of my cows.* Hybrid cows." (Sobeda khatun, FGD participant from Thakurgoan Sadar). But weather the artificial insemination is healthy or not that is the question. *"I don't know whether it is good or bad. I do artificial insemination of my cows."* (Rokeya Begum, FGD participant from Pirgonj). *"I do artificial insemination of my cows from our local doctor. I don't know the quality of the semen or other things."* (Kalpona , A FGD participant from Ranisoinkoil)

Food and nutrition

Not everyone is very aware about the nutritious food of cows. *"What nutritious cow food! I feed that grass, straw, husk. Nothing else."* (Minu, FGD participant from Ranisoinkoil). The producers don't even care about what they eat. *"We can't eat good food all the time. We occasionally eat good foods."* (Jokurmoni, FGD participant from Pirgonj). Many producers only drink their own cow's milk as a nutritious food. *"Anything else I eat, I drink a glass of milk every day."* (Aroti Debnath, FGD participant from Thakurgoan Sadar). *"I milk about 2 liters of milk. Sometimes I sell a little. Most of the time the whole family consume it."* (Fatema Akter, FGD participant from Pirgonj).

However, children are given more importance when it comes to food in the family.*"We eat sharing each other of the family. But even if we don't eat it ourself, have to keep for the boys and girls."* (Dipti , FGD participant from Ranisoinkoil). *"Boys and girls cannot eat with bad curry. Have to keep the good for them."*(Babita Debnath, FGD participant from Thakurgoan Sadar)

Training

Producers have hardly received any training from the government. *"I didn't get any training."* (Kalpona, FGD participant from Ranisoinkoil). *"I received a government training 2 years ago."* (Kobita Debnath, FGD participant from Thakurgoan Sadar). A small number of producers have received livestock training from ESDO and World Vision. *"I received a training from World Vision a long time ago."* (Bela Rani, FGD participant from Pirgonj). *"I received a training from ESDO a long time ago. On how to raise cows and goats, how to feed them and others."* (Fulmoni, FGD participant from Ranisoinkoil).*"Received a training on cow fattening from ESDO."* (Palina Debnath, FGD participant from Thakurgoan Sadar)

Support and disbursement Finance and loan

Although the producers did not receive any government or non-government financial support, they received various suggestions along with cow grass seedlings, calf milk, vitamins and many other supports.*"I did not receive any money. I got grass seedling, calf milk, vitamins from ESDO."* (Rokeya Begum, FGD participant from Pirgonj). *"Even if I don't pay money, I get wise advice from the brothers of ESDO."* (Aroti Debnath, FGD participant from Thakurgoan Sadar) Besides, many producers have availed loans for animal husbandry from ESDO.*"I took a loan from ESDO to buy cows."* (Fahima, FGD participant from Ranisoinkoil). However, the producers also take loan from different NGOs to meet up their need.*"Loans are taken for different purposes. But I never took it to buy and raise cows. I took loan in my need."* (Kajol Debnath, FGD participant from Thakurgoan Sadar)

Technology and GAP practice

Most of the producers keep cattle and goats in traditional way. They do not use any technology. But they are thinking of availing the opportunity of using the technology in cattle farming. *"We do milking by hand, not by machine. It's hard milking so much milk by hand."* (Kajol Debnath, FGD participant from Thakurgoan Sadar). However, the producers are thinking of using technology in cattle rearing. *"I'm thinking of buying a straw cutting machine."* (Palina Debnath, FGD participant from Thakurgoan Sadar).

However, most of the producers hardly have any idea about GAP. *"I don't know anything about GAP."* (Fatema Akter, FGD participant from Pirgonj). *"Cows and goats should be fed grass, grains and all".* (Kalpona, FGD participant from Ranisoinkoil)

Diseases, veterinary service and vaccination

Producers' livestock suffers from different diseases at different times. Common ailments include fever, sore throat, cough, LSD, black quarter, acidosis, FMD. *"Illness happens. Fever, cold."* (Fulmoni, FGD participant from Ranisoinkoil). *"My cow does not conceive. This time after consulting with a doctor and taking necessary measures it has conceived."* (Salina akter, FGD participant from Pirgonj).

The treatment is usually done with the help of local veterinarians. Many take the help of the doctors of the veterinary office. Producers also receive support from ESDO veterinarians. Outside doctors have to pay Tk 200-500 taka. But ESDO vets don't charge for visits. Only money for medicine has to be paid. *"The cows suffer from LSD. I have taken medicine consulting with a doctor at the animal hospital."* (Fahima, FGD participant from Ranisoinkoil). *"My foreign cow. If it's a little something, I consult with a good doctor, I consult a government doctor. There's no need to pay visit. Only medicine has to be paid."* (Kobita Debnath, FGD participant from Thakurgoan Sadar)

Vaccinations for various diseases including deworming, FMD are given free of cost. Along with the doctors from the animal husbandry office, the veterinarians of ESDO come door to door and administer these vaccinations. *"Vaccines are given for free. My cows have been*

vaccinated against measles. A few days ago they (cows) got the deworming vaccine." (Bahamoni, FGD participant from Ranisoinkoil). *"When there available any vaccine, I vaccinate my cows."* (Bela Rani, FGD participant from Pirgonj). *"I vaccinate my cows regularly."* (Palina Debnath, FGD participant from Thakurgoan Sadar)

Problems and suggestions

Manufacturers face various problems while producing. Due to lack of milk price, high price of animal feed, shortage of veterinarians, many other difficulties are being faced. *"It is not profitable to sell milk at 40/45 per kg. Everything costs too much."* (Kajol Debnath, FGD participant from Thakurgoan Sadar). *"Feed, grass, everything is more expensive. The cost would be less if you could plant grass yourself and feed it."* (Dipti, FGD participant from Ranisoinkoil)

Follow up trainings, available and easy vet services and other necessary steps are needed to mitigate the existing problems of the producers. *"I did a training a long time ago. I forgot everything. If there is any training then it will be good. We can learn everything better."* (Smriti, FGD participant from Ranisoinkoil).

Available and budget friendly vet service is required. *"If you want to consult a good doctor, you have to pay Tk 300-500 per visit. I don't always have money to pay a doctor. It would be nice if there is a good vet in the village."* (Chandana Debnath, FGD participant from Thakurgoan Sadar). *"It would be good if there is an animal hospital in the village."* (Sobeda khatun, FGD participant from Thakurgoan Sadar)

Easy terms loan and other facilities are needed.*"If there's give a loan at low interest, we can raise cows with the loan."* (Fatema Akter, FGD participant from Pirgonj)

The price of grass in the market is high. *"Those who sell grass in vans charge more than the market price."* (Palina Debnath, FGD participant from Thakurgoan Sadar). *"It would be nice if there was a place to plant grass in the village."* (Sathi begum, FGD participant from Pirgonj)

Summary of the Key Informant Interviews (KIIs)

Key informant interviews are in-depth interviews of a select group of experts or practitioners who are most knowledgeable about the organization, program, practice, event, or issue. The interviews are unstructured and rely on a list of talking points to discuss. To explain the shortcomings, recommendations, and successes of an activity or project, KII is necessary to get an insight into the practices, attitudes, behavior, and motivations of stakeholders, beneficiaries, and partners. Furthermore, it can be utilized to supplement survey findings, particularly for survey interpretation. The researcher conducted KIIs with different stakeholders for the baseline study of the 'Safe Meat & Dairy Product Market Development' Sub-project. The stakeholder's list and the summary of the discussions with them. The KII facilitator tried to discuss on some main them with the respondents.

Name of Stakeholders	Designation
Dr. Abul Kalam Azad	District Livestock Officer (DLO)
Dr. Hemanta Kumar Roy	Upazila Livestock Officer (ULO)
Dr. Mst. Rojina Begum	Livestock Officer
Dr. Md. Nurul Amin	DTO
Dr. Ijhar Ahmed	VO
Md. Golam Mustafa	President, Farm Owner Samiti
Prabitra Rani Swapna	LSP
Kailash Roy	AI Dealer
Md. Abdul Jalil	Vaccinator
Paritosh Barman	LSP
Joy Gabinda Sarkar	Milkman
Momin Ali	Butcher
Mahabub Rayhan	Milkman
Mr. Zaman	Grass Dealer
Md. Nazmul Haque	LSP

The summary of the key interviews has been cited below under thematic areas. The thematic areas have been defined by the research team to make more relevant to the survey on the meat and dairy sub-project.

Ownership & Infrastructural Status

Upazila Livestock Officer, Dr. Hemanta Kumar Ray said that –

> *"Most of the farmers raise their own cows and goats. In the past, many poor families used to take barga from others. Even now, it is very rare. They build cowsheds or lofts in their own homes and raise cattle.*
>
> *I think until now most of the cattle rearers have not constructed cow and goat houses in modern hygienic way. They are still following traditional methods. But those who are large scale farmers have built their cattle and goat houses relatively well. Most cow and goat house floors are wet and dirty."*

Local Service Provider, Pabitra Rani Swapna stated that –

> *"Everyone is rearing their own cows, bulls, goats. Because taking money or cattle from others doesn't make much profit. They raise their own cows and goats, albeit on a small scale.*

Farmers are now very aware. Many of them are now improving cowsheds. They paved the floor of their cow and goat house and added other facilities like fans, lights, feeding utensils etc."

Production & Market Value Chain

Dr. Hemanta Kumar Ray stated that –

"In most cases it is observed that they are involved in the cattle fattening sector. It is kept for six months or a year and sold in the market. But many keep cows for milk production. In this case, farmers prefer hybrids or foreign breeds because the milk of native cows is less. For fattening, they also rear different Shankar breeds of cows. If the cows are salable, they sell them to brokers or butchers. I have not seen any example of contract production with any company or organization. They produce independently.

One advantage of raising milk cows is that the milk can be consumed at home and also sold. They buy the cow and other cow food from the milk sale money. As a result, the price of cow feed comes from the money from selling milk. They usually sell the milk to cowherds and many take it to the local market and sell it. Gowala collects the milk and supplies it to the collection or chilling centers of various companies. An important local buyer is confectionery and dairy producers.

The price of cattle and goats is not always the same. When the supply is high, the price is relatively low. But the price increases in various occasions. For example, the price of cows increases before Eid, and the price of Patha goats increases before Puja. I think there is a profitable market for cattle and goats in Bangladesh. Butchers buy beef cattle and goats and sell them as meat in the market."

Local Vet Doctor, Md. Abdul Jalil opined that –

Generally, there are not many large-scale farms in this area. However, almost every family in the village keeps two to four cows and goats. They sell them after a year or two.

Mr. Kailash Roy, an AI dealer stated that –

"As indigenous beef growth slows down, most farmers have now started raising mixed or exotic breeds of cattle. Like Fijian, Shahiwal etc. The milk production of such cows is also much higher than that of native cows. As mixed or exotic cows grow faster, they have also started to be cultivated commercially. The demand for these cows in the market is very high. Especially for milk production."

LSP, Paritosh Barman said that –

"Now more cows and goats are being produced. As a result, the rate of meeting people's demand for meat and milk is increasing. Although the buffalo production rate is very low, almost every household has cows and goats. Most people are producing on a small or medium scale. The poor people of the village raise cows and goats hoping to make a profit at the end of the year. As their capital is less, they keep two cows or goats each. Then his animal wealth increased by breeding from them."

Joy Gabinda Sarkar, a Milkman stated –

"I collect milk from door to door. Then we supply them to various sweet factories and dairy factories. Some farmers themselves sell milk to companies and milk buying centers."

Profitability & Income Status

Mr. Hemanta Kumar Roy, ULO stated that –

> *"In a word, raising cows and goats is profitable. Goat rearing is relatively more profitable because many goats can be reared in a small space at low cost. Goats do not require much ready feed. Cows need a lot of raw grass but not enough of it. However, I think both are profitable, many people make a living by selling cow's milk. Again, many are becoming self-reliant by rearing bullocks. The income they earn from rearing cows and goats is useful for their family's various expenses. For example, they use the profits to repair houses, pay for children's education, start new businesses, buy nutritious food, etc.*
>
> *Especially women are making a strong position in the family and society by rearing goats. Because they are now reducing their economic dependence on men.*
>
> *At present the price of milk is good in the market. They also run the household expenses from the money of selling milk. This money is also used to buy feed for cows and goats."*

LSP, Mr. Paritash said that –

> *"I think if you adopt the right approach to rearing, whether it is a cow or a goat, you will get a profit. But not all people understand this. I am a farmer myself. I farmed on a medium scale because I got profit. Since the price of cows and goats is good in the market, it can be profitable if you feed them properly and keep them away from diseases. The farm can be enlarged by buying new cows and goats with the profit money."*

Local Service Provider Swapna stated that –

> *"Profitable but not much. Because the availability of green raw grass is currently low. Not everyone has the ability to cultivate grass in their own land. The price of ready feed has also increased a lot. Raw grass also has to be bought and fed, which costs a lot of money. Therefore, the rate of profit obtained from the farm of cows and goats is decreasing."*

Training Status

Vaccinator Mr. M A Jalil said that –

> *"We have received various types of training. Received training on how to treat diseases, administer vaccines, etc. Besides, ordinary farmers also received some training. Animal Resources Office and ESDO provide training. But if everyone gets the training, it would be more beneficial."*

Mr. Hemanta Kumar stated –

> *"We have arranged many types of training through our office. But common people are less interested. Various NGOs also provide various trainings. I would say that cattle and goat farmers are still lagging behind in terms of training on a large scale, they need to be trained through training to establish themselves as successful cattle farmers. Livestock Office and ESDO organized several trainings in the past. For example, animal feed, animal diseases and treatment etc.*
>
> *Farmers need more modern training in various subjects. Such as technology and management, grass cultivation, environment and climate, farm mechanization, marketing, nutrition etc."*

AI dealer, Mr. Kailash said that –

"I believe that training is very important for successful cow and goat farming. Those of us who provide the service receive different trainings from time to time, but for the farmers, training on cow feeding and cleaning of cowsheds is very important. They also need training on how to produce milk safely. Those who make dairy products should also be brought under training. Only then will it be possible to supply safe dairy products."

Momin Ali, a local Butcher opined that –

"We butchers prepare meat in the traditional method, if modern training is arranged for us both we and common people will benefit. We are very interested in this."

Technology

Dr. Md. Abul Kalam Azad, DLO stated that –

"The reality is that the technology is not yet ready to be used on a large scale because of knowledge and resource limitations. Although some commercial and large-scale farms have started using modern machinery.

But it is not used everywhere. In keeping with the times, modern technology must be used to be profitable. But before that big entrepreneurs have to be created. "

A milkman, Mahabub Rayhan said that –

"I collect milk. I don't know about the use of technology that exists for collecting and storing milk. Again, because of their high price, it is beyond our reach."

Livestock officer, Hemanta Kumar stated that –

"It is true that we have come a long way in technology but we also have to admit that we lack the knowledge of where and how to use it. For that, small and big farmers of all types should be made efficient by providing technical knowledge sharing and assistance."

DTO, Dr. Md. Nurul Amin said that –

"In order to increase and promote the use of technology, it is important to provide various modern technologies and equipment at low or no cost to entrepreneurs."

Food & Nutritional Status

Dr. Mst. Rojina Begum, Livestock Officer opined that –

"Feed is a very important factor in milk production and fattening of cows. Because the profitability of this sector largely depends on this factor. Nutritious feed is essential for both cows and goats.

Generally, farmers feed hay, husk, and ready feed to cows. Goats are fed mostly raw grass, as well as husks. Cows are also fed raw grass, but not enough.

Not all farmers are aware of the proportions in which different feeds need to be fed to meet the nutritional requirements of cows and goats. Due to which they spend money to buy food but it is of less use"

ULO, Dr. Hemanta Kumar Roy said that –

"Most of the farmers have no idea about the balanced diet of cows and goats. Many of those farmers consult with us or local service providers to provide balanced feed to cows and goats.

Raw grass is better for cows and goats than ready feed. But currently, raw grass is not available in all seasons. Cows and goats must be fed more raw grass. 80% raw grass and 20% ready feed can be fed."

Mr. Zamal, a local grass dealer said that –

"Now many people grow grass, I also grow it myself. I sell grass locally. Raw grass is very important for cow nutrition. Many farmers now buy grass from my grass shop. They didn't understand before, now they understand."

Diseases & Veterinary Services

Dr. Abul Kalam Azad, DLO said that –

"An important indicator of the income or loss from the cow and goat farm is disease. Because if a lot of money is spent for the treatment of cow and goat diseases throughout the year, then the amount of profit will decrease. So, cows and goats should be kept away from diseases."

ULO, Dr. Hemanta Kumar Roy said that –

"Different diseases occur at different times of the year. Common diseases are kura, badla, PPR, LSD, FMD. Goats are more prone to PPR. Apart from this, diarrhea, food poisoning and other diseases occur."

Md. Nazmul Haque, village vet doctor said that –

"There are animal hospitals, animal resource officers, local service providers to treat all these diseases. Usually, the local providers give the treatment first and then if needed govt. doctor called for treatment.

There are also vaccinators, inseminators and dealers for vaccination against various diseases. ESDO service providers provide door-to-door services in villages."

Problems/Challenges

Golam Mustafa, President of Farm Owner Samity stated that-

"The biggest problem for those of us who raise cattle and goats, whether small or large, is the increase in the cost of fodder. Daily fodder has to be purchased at high cost due to lack of sufficient raw grass."

Dr. Ijhar Ahmed, VO said that –

"I think one of the biggest problems is the reluctance and ignorance of the farmers to acquire the necessary knowledge for rearing cows and goats in the right way."

Local vet, Abdul Jalil stated that –

"Those who are small-scale entrepreneurs lack capital. Most of them do not have land for grass cultivation."

AI dealer, Mr. Kailash & LSP Paritash Barman said that –

"More experienced veterinarians and service providers are needed. They lack training."

Project Monitoring Matrix

DESCRIPTION	PERFORMANCE INDICATORS	BASELINE DATA
PROJECT GOAL (RMTP):		
Through value chain activities, the income, food security and nutritional status of marginal, small farmers and small entrepreneurs under the scope of the project have been sustainably increased.	A. 70 percent of the entrepreneurs had a minimum 50 percent increase in income. B. 30 percent of project members added nutrient-dense foods to their regular diet.	a. 5000 to 12000 a.1. 5000 to 6000 a.2. 7000 to 8000 a.3. 10000 to 12000 b. 11.90% of the family aware and add nutrient-dense foods
DEVELOPMENT OBJECTIVES (RMTP)		
The value chain of selected rural products supported by the project is sustainably developed.	a. 80 percent of the project's entrepreneurs saw at least a 30% increase in their consumption of safe meat and dairy products. b. 80 percent of entrepreneurs in the project saw a minimum 20% increase in profits.	a.1. Meat and fish 5.6% a.2. Milk and milk products 2.1% b. Average profit 6000 to 7000
OUTCOME (RMTP)		
Effective production methods, internationally accepted safety standards, traceability, market linkages etc. of livestock related enterprises have been strengthened and sustained.	a. All entrepreneurs involved in the project are conducting safe product manufacturing operations through quality/innovative materials, advanced technology or best practices. b. 13 percent of the manufacturing teams conducted institutional/contractual business with public or private major markets or buyers. c. 60 percent of the project teams have achieved the 'Bangla Gap' and are practicing; d. 58 percent members have adopted eco-friendly smart technology.	a.1. Status of using quality and innovative materials 11.8% a.2. Status of having advanced technology 0.8% b. Institutional/contractual business with public or private major markets 4.2% c. Status of knowing or practicing Bangla GAP 7.90% d. Status of using environmentally smart technology 4.2%
PROJECT OUTCOME (SUB-PROJECT)		
As the business of women and men livestock entrepreneurs in the value chain is dynamic, expanding and	A. Reduction in animal morbidity (below 20 percent), reduction in animal mortality (adult cows/buffalo 1 percent, calves and adult goats/sheep 3 percent and	a.1. adult cows/buffalo 11.9% (1 to 4) a.2. calves and adult goats/sheep 19% (1 to 6)

sustainable, their living standards have improved and employment has been created at the local level.	goats/lambs below 5 percent), reduction in cow interbreeding period (average 3 months from baseline reduction), the number of animals in the cluster increased by 15 percent and production by at least 30 percent as the milk production period of cows increased to the optimum level (210 days on average). B. Sustainable farm management practices, mechanization of farms and processing plants, adoption of ICT based technology in livestock businesses have resulted in an overall reduction of 10 percent in production cost per unit of safe milk, meat and processed consumer products. C. Strengthening of the local processing sub-sector, linking local, regional and national markets with producer groups, creating new markets and developing market management have led to a 10 percent increase in commodity prices. D. An increase in the number of livestock-related enterprises and entrepreneurs in the cluster (10 percent) and employment generation as a result of cluster expansion (15 percent).	a.3. interbreeding 365 days a.4. about 89.9% have 1 to 10 animals a.5. milk production period 150-180 days b.1. Sustainable farm management practices 15.30% b.2. mechanizing modern farm 2.60% b.3. Status of using ICT based technology 2.40% c. selling products to local market 95.8% d. new employment creation 6.9%
OUTPUT:		
1. The proliferation of service providers has ensured access to new and quality livestock services.	a. 200 livestock service providers have been developed to provide quality training, vaccination, deworming, artificial insemination and other services; They have contributed cash/in-kind/partial financial in undertaking training/developing advisory services. b. All project participants are trained in animal husbandry technology through the service provider. c. 19,200 farmers (80 percent of total members) have secured vaccination and deworming and artificial	a.1. 12.70% of the farm holders get livestock service providers have been developed to provide quality training, vaccination, deworming, artificial insemination and other services; a.2. 13.50% farm holders get training/developing advisory services b. training on animal husbandry technology 4.8%

	insemination services through the said service providers. d. 10 Master Trainers have been developed on Global Gap and Hasab. e. 5000 farmers have been trained on 'Global Gap and Hassap' through Master Trainer and are practicing good practices on key indicators of 'Global Gap' in milk and meat production. f. At least 2 policy issues at local and national level have been identified and policy dialogues have been conducted on these issues.	c. regular vaccination, deworming and artificial insemination services through them 12.70% d. master training on Global Good Agricultural Practices (GAP) and Hazard Analysis Critical Control Points (HASSAP) 5.30% e. trained by a Master Trainer on Global Good Agricultural Practices (GAP) and Hazard Analysis Critical Control Points (HASAP) 2.60% f. Knowledge about policy dialogues/ policy-making discussions on animal husbandry with farmers 2.4%
2. Sales of sub-dealers increased as supply network of ready feed and green grass strengthened.	a. Development of 50 suppliers/service providers in sales of ready feed and calf starters and 50 in sales of grass, silage, UTS, UMB etc. b. The said service providers are promoting 'Physical and Virtual' by setting up delivery points. c. 19200 farmers in the project area are purchasing ready feed, cow-starter, raw grass, UTS, nutrition technology and other materials as per the requirement of animals.	A.1. Availability of any Ready-Feed, Cuff starter dealers 10.80% a.2. any grass, silage, UTS, UMS dealers 5.80% b. supply points 22.50% c. ready feed, cuff starter, grass, silage, UTS, nutrition technology 2.9%
3. Increased availability of light and heavy machines/technology and spare parts in farm management has increased the rate of farm mechanization/technology adoption.	a. At least one sub-dealer/dealer/agent/service provider has been developed in each union in farm mechanization. b. 6000 farmers are using at least one new technology/machinery purchased from the said dealers.	a. Availability of dealers/ sub-dealers selling farm mechanization 4.50% b. new technology user 0.0%

4. Increased production, diversification, packaging development, certification, supply network development and sales of safe milk products.	a. The cluster has developed 100 goalas/service providers who are selling milk in the institutional and informal markets. b. The cluster has developed 120 processors/service providers who have launched at least 1 new product manufacturing/ existing product fortification, certification, product packaging development, branding, sub-contracting and institutionalized businesses. c. 100 new institutional buyers, small and large, and 200 non-institutional buyers/service providers have been connected who are procuring milk and processed products through sub-contracting. d. At least 2,000 farmers are selling milk in the institutional market through contract farming (following key global gap indicators).	a. goalas/service providers 11.1% b. existing product fortification, certification, product packaging development, branding, sub-contracting and institutionalized businesses 1.6% c. 1. new institutional buyers 0.5% c.2. non-institutional buyers/service providers 1.1% c.3. procuring milk and processed products through sub-contracting 0.5%
5. Increased production, diversification, supply network development and sales of safe meat	a. At least 3,000 members are trained and rearing animals following some of the important protocols of Global Gap. b. At least 1 small scale meat processing plant has been set up in the project area which is BSTI and HASAP certified, selling at least 1 ton of frozen meat and homogenous products per week in the market. c. 2 'Slaughter Houses' cum 'Butcher Shops' have been developed with City Corporation/Municipality/Union Council, where at least 40 butchers are using new technology/machinery. d. At least 3,000 farmers are selling live animals to butcher shops and premium markets through contract farming.	a. Getting trained and actively practice GAP protocols 4.5% b.1. BSTI and HACCP certified meat processing plant almost 0.0%/0.8% b.2. selling 0.0 ton c. 1. Availability of any Slaughter Houses cum Butcher Shops 0.0%/0.8% c.2. using modern equipment 0.0%/0.8% d. Selling live animals to butcher shops 0.0%

6. Access to information technology and financial services has increased in livestock businesses	a. 25000 members (producers and small borrowers) have been trained on nutrition, climate, environment, social issues, animal husbandry and business management. b. Veterinary telemedicine services have been launched in each union with associated service providers; At least 5000 farmers have availed services through the apps developed through the project, 200 members have come under insurance services. c. At least 600 entrepreneurs have been trained in business management and at least 500 entrepreneurs are using apps for business management and expanding their businesses. d. At least 3000 farmers have sold cows online.	a. Receiving training on nutrition, climate, social issues, and animal husbandry 9.5% b. 1. Availability of veterinary 'telemedicine' service 25.9% b.2. availability of services through the apps 0.5% b.3. insurance service 0.0% c.1. Trained in business management 0.5% c.2. using apps for business management 0.5% d. online business 1.10%

Limitations of the study

It is important to note that, despite its inevitable nature, this study has several limitations that must be taken into consideration when conducting the pertinent studies. The following are the relevant restrictions:

- Availability of the Micro-entrepreneurs

It was discovered that many of the micro-entrepreneurs were inaccessible and difficult to reach during the Focus Group Discussions (FGDs). The data collection team eventually arrived and began gathering data after some waiting.

- Reluctance of the respondents

It discovered that respondents resisted giving accurate information and taking part in data collection procedures. They explained that they did not have enough time or energy to engage in the data gathering processes because they were too busy with their everyday activities. They argued that the schedule's abundance of questions was unnecessary for them.

- Insufficient budget and assistance.

The study's budgetary allotment was insufficient. The mentioned study's insufficient funding made it challenging to carry it out. Furthermore, compared to the normative budgetary scale for completing the baseline study in Bangladesh, this budget was unfair. Consequently, it was challenging to maintain the highest possible level of survey quality on a tight budget.

- Non-standard sample size compared to the statistical standard.

The survey's standard formula for probability or non-probability sampling was not used to determine the sample size. It acknowledged that the research team did not employ the probability sampling approach, but rather the purposive sampling formula.

- The short duration of the study period

Conducting field studies in Bangladesh was typically constrained by their short length. Compared to the anticipated timeframe, the timeframe was limited and sparse. Additionally, creating a report for the survey in a short amount of time was challenging.

- Collecting huge redundant data

The baseline survey gathered a lot of information about the natural components of handicrafts. This massive amount of data was largely redundant and infrequently used. The products were typically not used in the future in accordance with baseline studies. Reports were archived as outdated papers that had not been used for the benchmark database once the survey was over. Occasionally, midline or online surveys did not use the baseline data.

- Lack of proper record keeping of the baseline documents.

After the survey was finished, the report was temporarily used to meet the demands of the time. This information is no longer relevant after a few dates. Additionally, the majority of companies lack adequate record-keeping procedures to keep the baseline report. The project implementation organization might not have adequate capabilities for maintaining reliable information for the survey.

- Limited spaces to use secondary data and anticipation

Due to the nature of the study, there were restrictions on how the secondary data could be used to analyze the field data. A baseline survey was only carried out to achieve the project's objectives and produce the benchmark data. Less room was available in the significant findings and debates for the inclusion of theoretical and secondary evidence.

- Lack of sufficient previous studies

Due to the paucity of research on the eco-friendly construction industry in Bangladesh, the study team made a concerted effort to compile the findings of the current studies in the survey report. The research team was unable to locate enough prior studies in the same areas as the current trials. In such case, the team made an effort to cite as many sources as they could.

- The limited scope of generalization

The main purpose of this baseline study was to build the benchmark database for the initiative for increasing the production and use of eco-friendly construction materials. Within the given study field, this baseline data will only be used and framed for the intended goals. In addition, it was impossible to precisely generalize the results in light of other pertinent investigations.

Conclusion

Meat and diary sector is a raising field of agriculture which is playing a vital role to meet human foods demand over the globe. Globally, meat is very demandable to people which meet a vast portion of the population's food crisis. In the context of Bangladesh, there is huge demand of meat and dairy products. The people of Bangladesh is consuming a huge amount of meat and dairy products including cow meat, goat meat, bull meat, sheep meat and milk of cow and goat. To establish a strong value chain system in meat and dairy sector in Thakurgaon district of Bangladesh, ESDO is carrying out the sub-project titled "Safe Meat and Dairy Product Market Development." Under the Palli Karma-Sahayak Foundation's (PKSF) Rural Microenterprise Transformation Project (RMTP), IFAD, DANIDA, and this sub-project are all contributing funding. Precisely, on the basis of farming production system of animal husbandry, most of the producers (45.8%) are engaged in beef fattening while the second largest portion is involved in milk production. The largest portion of the producers do not produce dairy or milk products commercially. However, a large number of the producers (98.4%) do not have registration for it. The study found that a significant portion of the respondents (52.9%) believe that meat production on the other hand beef fattening is more profitable than production of milk (47.1%). However, a major portion of the producers (44.7%) believe that they make least profit from their animal husbandry while a significant portion make a fair profit from it. In terms of farm management, modern machinery, and ICT use, 84.70% of the total participants provided a negative answer (enough space, light and air, paved and clean floors, nutritious feed, suitable treatment, etc.). Telemedicine, animal databases, nutritional testing systems for animal feed, etc.) were seen positively by 2.40 percent and negatively by 97.60 percent. The presence of BSTI- and HACCP-certified meat processing plants demonstrated that a large proportion of people (99.2%) governed their region in a way that prevented such operations. And only a small percentage of respondents, 0.8%, have provided a positive response. Manufacturers face various problems while producing. Due to lack of milk price, high price of animal feed, shortage of veterinarians, many other difficulties are being faced. Finally, one of the key informants argued that *"The biggest problem for those of us who raise cattle and goats, whether small or large, is the increase in the cost of fodder. Daily fodder has to be purchased at high cost due to lack of sufficient raw grass."*

Annexure: 01: Questionnaire of the survey

Eco-Social Development Organization (ESDO)

ইকো-সোশ্যাল ডেভলপমেন্ট অর্গানাইজেশন (ইএসডিও)

Baseline Survey Questionnaire

বেইসলাইন জরিপ প্রশ্নপত্র

নিরাপদ মাংস ও দুগ্ধজাত পণ্য বাজার উন্নয়ন উপ-প্রকল্প

(Safe Meat & Dairy Product Market Development Sub-project)

এই জরিপের মূল উদ্দেশ্য হচ্ছে প্রকল্প শুরু হওয়ার আগে মূল সূচকগুলো পরিমাপ করার জন্য, প্রকল্পের সূচকগুলো স্মার্ট **(SMART)** কিনা তা নিশ্চিত করা, মূল্যায়ন ও শিখনের ব্যবহারিক টুলস তৈরি করা এবং প্রাসঙ্গিক হলে নতুন সূচকের পরামর্শ দেয়া। এই প্রশ্নপত্রের মাধ্যমে প্রকল্পের সূচক অনুযায়ী বর্তমান পরিস্থিতি পরিমাপ করাও উক্ত গবেষণার অন্যতম উদ্দেশ্য। এছাড়াও, ক্ষুদ্র উদ্যোক্তাদের বর্তমান পরিস্থিতির একটি স্ন্যাপশট পাওয়ার লক্ষ্যে এই সমীক্ষাটি পরিচালিত হবে যা ব্যবহার করে প্রকল্পের মেয়াদের পরে প্রকল্পের অগ্রগতি মূল্যায়ন করা সম্ভব হবে। প্রাপ্ত তথ্যসমূহ ইএসডিও ও পিকেএসএফ-এর কাজে সহায়ক ভূমিকা পালন করবে। আপনি স্বাধীনভাবে উত্তর নির্বাচন ও মতামত প্রদান করতে পারেন। প্রশ্নপত্রটি পূরণ করতে ১ ঘন্টা সময় লাগতে পারে। আপনার প্রদত্ত উত্তরগুলো কঠোর গোপনীয়তা বজায় রেখে ব্যবহার করা হবে। এই বেসলাইন জরিপ এবং এর তথ্য কিভাবে ব্যবহার করা হবে সেসম্পর্কে যেকোন জিজ্ঞাসার উত্তরের জন্য আরএমটিপি, ইএসডিও, ঠিকানা-কলেজপাড়া, ঠাকুরগাঁও-৫১০০ **(মোবাইল নম্বর: ০১৭১৭৮৯২৯১৮)** এর সাথে যোগাযোগ করতে পারেন।

জরিপ পরিচালনাকারী প্রতিষ্ঠান

Bangladesh Research Institute for Development (BRID)

বাংলাদেশ রিসার্চ ইনস্টিটিউট ফর ডেভলপমেন্ট (বিআরআইডি)

জনমিতিক তথ্য

১. নামঃ
২. বয়সঃ
৩. লিঙ্গঃ
   ক) পুরুষ খ) নারী গ) অন্যান্য
৪. শিক্ষাগত যোগ্যতাঃ
   ক) স্বাক্ষর জ্ঞান খ) প্রাথমিক গ) মাধ্যমিক ঘ) উচ্চ মাধ্যমিক
   ঙ) সম্মান চ) মাস্টার্স ছ) অন্যান্য (নির্দিষ্ট করুন)
৫. বৈবাহিক অবস্থাঃ
   ক) অবিবাহিত খ) বিবাহিত গ) বিধবা/বিপত্নিক ঘ) তালাক প্রাপ্ত
৬. পরিবারের সদস্য সংখ্যাঃ .....জন। ক) ছেলেঃ..... খ) মেয়েঃ.....
৭. ঠিকানা :- গ্রামঃ উপজেলাঃ জেলাঃ

মালিকানা এবং অবকাঠামো সম্পর্কিত তথ্য

৮. আপনার কতটি গরু/ছাগল/মহিষ/ভেড়া আছে?

ক্র.	গবাদি পশুর ধরন সংখ্যা	সংখ্যা
১.	গাভী	
২.	খাড়	
৩.	ছাগল	
৪.	ভেড়া/গাড়ল	
৫.	অন্যান্য	

৯. কত বছর থেকে এ কাজের/ব্যবসার/উৎপাদনের সাথে যুক্ত আছেন?
   ক) ১ বছরের কম খ) ১-৫ বছর গ) ৬-১০ বছর ঘ) ১০ বছরের বেশি
১০. আপনার গোয়াল ঘরটি/পশু রাখার ঘরটি কীসের তৈরী?
   ক) খরের তৈরী খ) টিনের চালা গ) ইটের তৈরী ঘ) অন্যান্য (উল্লেখ করুন)
১১. আপনি কোন পদ্ধতিতে পশুপালন করেন?
   ক) সনাতন খ) উন্নত গ) আধুনিক
১২. ফার্ম/পশু পালনের জন্য ব্যবহৃত জমি/সম্পত্তির মালিকানা ধরন নিম্নের কোনটি?
   ক) নিজস্ব খ) লীজ গ) শেয়ার ঘ) ভাড়া

কর্মী এবং কর্মসংস্থান সম্পর্কিত তথ্য

১৩. আপনার প্রধান পেশা কোনটি?.....
১৪. প্রধান পেশা থেকে ম্যাসিক আয় কত?.....
১৫. খামারের গরু/ছাগল ইত্যাদি দেখাশোনা করে কে?
   ক) বাড়ির পুরুষরা খ) বাড়ির নারীরা
   গ) নারী-পুরুষ উভয়েই ঘ) মজুর/কর্মচারি

১৬. গবাদি পশু/ফার্ম দেখাশোনা করার জন্য কোন মজুর/কর্মচারি আছে কিনা?

ক) হ্যাঁ খ) না

১৭. হ্যাঁ হলে, তার মজুরি কত টাকা?

ক্র.	মজুর/কর্মচারির ধরন	মজুরির পরিমাণ (টাকা)
১.	দৈনিক	
২.	মাসিক	
৩.	চুক্তিভিত্তিক	

উৎপাদন ও মার্কেট ভ্যালু চেইন সম্পর্কিত তথ্য

১৮. আপনি কোন ধরণের পণ্য উৎপাদনের সাথে যুক্ত আছেন?

ক) দুধ উৎপাদন খ) গরু মোটাতাজাকরণ গ) মহিষ পালন ঘ) ছাগল পালন

১৯. আপনি কি বাণিজ্যিকভাবে পন্য (মাংস/দুধ) উৎপাদন করেন?

ক) হ্যাঁ খ) না

২০. হ্যাঁ হলে, কোন রেজিস্ট্রেশন আছে কিনা?

ক) হ্যাঁ খ) না

২১. আপনার খামারে/বাড়ীতে কী জাতের পশু পালন করেন? (জাতের নাম লিখুন)

ক্র.	গবাদি পশুর ধরন	দেশি	বিদেশী	ক্রস
১.	গাভী			
২.	ষাড়			
৩.	ছাগল			
৪.	ভেড়া/গাড়ল			

২২. আপনার দুধ উৎপাদনকারী কতটি গাভী আছে? .....

(ক) দৈনিক কত লিটার দুধ উৎপাদন করেন? .....

২৩. আপনার মাংস উৎপাদনকারী/ মোটাতাজাকরণের জন্য কতটি গরু আছে? .....

(ক) কতদিন পালন করার পরে বিক্রয় উপযোগী হয়? .....

২৪. উৎপাদিত গরু/মহিষ/ছাগল/ভেড়া ইত্যাদি কোথায় বিক্রি করেন?

ক) বড় বাজার/কোম্পানি/ সমজাতীয় প্রতিষ্ঠান

খ) স্থানীয় বাজার/গরু ব্যবসায়ী (পাইকার/দালাল)/স্থানীয় মাংস বিক্রেতা (কসাই)

২৫. পশুর বাজার মূল্য কেমন?

ক্র.	গবাদি পশুর ধরন	গড়ে মূল্য
১.	গাভী	
২.	ষাড়	
৩.	ছাগল	
৪.	ভেড়া/গাড়ল	

২৬. উৎপাদিত দুধ কোথায়/কার কাছে বিক্রয় করেন?

ক) গোয়ালা/ঘোষ খ) কোম্পানি গ) অন্যান্য (উল্ল্যেখ করুন)

২৭. দুধের বাজার মূল্য কেমন?

ক্র.	ক্রেতা	মুল্য (প্রতি কেজি)
১.	ঘোষ	
২.	কোম্পানি/হাব	
৩.	অন্যান্য	

আয় সম্পর্কিত তথ্য

২৮. আপনার খামার থেকে বাৎসরিক মোট কত টাকার মাংস/দুধ/পশু বিক্রি হয়?

ক) ১০ হাজার থেকে ১ লাখ খ) ১-২ লাখ গ) ২-৩ লাখ
ঘ) ৩-৪ লাখ ঙ) ৪-৫ লাখ চ) ৫ লাখের বেশি

২৯. আপনার খামার থেকে বাৎসরিক কত টাকা লাভ হয়?

ক) ১০ হাজার থেকে ১ লাখ খ) ১-২ লাখ গ) ২-৩ লাখ
ঘ) ৩-৪ লাখ ঙ) ৪-৫ লাখ চ) ৫ লাখের বেশি

৩০. পরিবারের আয়ের উৎসসমূহ কী কী?

ক) দুধ উৎপাদন খ) ষাড় মোটাতাজাকরণ গ) গাভী পালন
ঘ) ছাগল পালন ঙ) ভেড়া/গাড়ল পালন চ) অন্যান্য (উল্লেখ করুন)

৩১. পরিবারের আয়ের প্রধান উৎস কোনটি?

ক) দুধ উৎপাদন খ) ষাড় মোটাতাজাকরণ গ) গাভী পালন
ঘ) ছাগল পালন ঙ) ভেড়া/গাড়ল পালন চ) অন্যান্য (উল্লেখ করুন)

৩২. কোন ধরনের উৎপাদন বেশি লাভজনক?

ক) মাংস উৎপাদন (মোটাতাজাকরণ) খ) দুধ উৎপাদন

৩৩. কেন এটি বেশি লাভজনক বলে মনে করেন? .....

৩৪. পরিবার পরিচালনায় কত শতাংশ খামার থেকে আসে? .....

৩৫. খামার/পশুপালনের লাভজনকতা কেমন?

ক) খুবই বেশি খ) বেশি গ) মোটামুটি ঘ) কম ঙ) খুবই কম

৩৬. উৎপাদিত পশু/পণ্যের বিক্রয় দামে কি আপনি সন্তুষ্ট ?

ক) হ্যাঁ খ) না

৩৭. খামার থেকে প্রাপ্ত আয় কে ভোগ করে?

ক) পুরুষ (কর্তা) খ) নারী গ) উভয়ই

৩৮. প্রাপ্ত আয় কোন কোন ক্ষেত্রে ব্যবহার করে? .....

প্রশিক্ষণ সম্পর্কিত তথ্য

৩৯. পূর্বে গবাদি পশু পালন বিষয়ক কোন প্রশিক্ষণ পেয়েছিলেন কিনা ?

ক্র.	প্রশিক্ষণের ধরন	হ্যাঁ	না
১.	প্রযুক্তি ও ব্যবস্থাপনা বিষয়ক প্রশিক্ষণ		
২.	গ্লোবাল গ্যাপ বিষয়ক প্রশিক্ষণ		
৩.	ঘাস চাষ ও ঘাসের বাজার উন্নয়ন বিষয়ক প্রশিক্ষণ		
৪.	খামার যান্ত্রিকীকরণ বিষয়ক প্রশিক্ষণ কর্মশালা		
৫.	কন্ট্রাক্ট ফার্মিং উন্নয়ন বিষয়ক প্রশিক্ষণ		
৬.	পুষ্টি বিষয়ক প্রশিক্ষণ		
৭.	জলবায়ু ও পরিবেশ বিষয়ক প্রশিক্ষণ		
৮.	সামাজিক ইস্যু বিষয়ক প্রশিক্ষণ		
৯.	উৎপাদন ও পণ্য বাজারজাতকরণ বিষয়ক প্রশিক্ষণ		
১০.	টালি খাতা/রেকর্ড কিপিং বিষয়ক প্রশিক্ষণ		

৪০. কোন কোন উৎস থেকে প্রশিক্ষণগুলো পেয়েছেন?

ক) সরকারি খ) এনজিও

গ) কোম্পানি ঘ) অন্যান্য (উল্লেখ করুন)

৪১. প্রাপ্ত প্রশিক্ষণগুলো থেকে আপনি কেমন উপকৃত হয়েছেন?

ক) খুবই বেশি খ) বেশি গ) মোটামুটি

ঘ) কম ঙ) খুব কম চ) কোন উপকার হয় নাই

৪২. ভবিষ্যতে কী ধরণের প্রশিক্ষণ প্রয়োজন বলে মনে করেন?

ক্র.	প্রশিক্ষণের ধরন	হ্যাঁ	না
১.	প্রযুক্তি ও ব্যবস্থাপনা বিষয়ক প্রশিক্ষণ		
২.	গ্লোবাল গ্যাপ বিষয়ক প্রশিক্ষণ		
৩.	ঘাস চাষ ও ঘাসের বাজার উন্নয়ন বিষয়ক প্রশিক্ষণ		

৪.	খামার যান্ত্রিকীকরণ বিষয়ক প্রশিক্ষণ কর্মশালা		
৫.	কন্ট্রাক্ট ফার্মিং উন্নয়ন বিষয়ক প্রশিক্ষণ		
৬.	পুষ্টি বিষয়ক প্রশিক্ষণ		
৭.	জলবায়ু ও পরিবেশ বিষয়ক প্রশিক্ষণ		
৮.	সামাজিক ইস্যু বিষয়ক প্রশিক্ষণ		
৯.	উৎপাদন ও পণ্য বাজারজাতকরণ বিষয়ক প্রশিক্ষণ		
১০.	টালি খাতা/রেকর্ড কিপিং বিষয়ক প্রশিক্ষণ		

সহায়তা এবং বিতরণ সম্পর্কিত তথ্য

৪৩. গবাদি পশু পালন/দুধ উতপাদন/খামার পরিচালনার জন্য কোন ধরণের আর্থিক অনুদান/সহায়তা/প্রণোদনা পেয়েছেন কি?

ক) হ্যাঁ খ) না

৪৪. হ্যাঁ হলে, কোন উৎস থেকে পেয়েছেন?

ক) সরকারি খ) এনজিও

গ) কোম্পানি ঘ) অন্যান্য (উল্লেখ করুন)

৪৫. কী ধরনের আর্থিক অনুদান/সহায়তা/প্রণোদনা পেয়েছেন?

ক্র.	আর্থিক অনুদান/সহায়তা/প্রণোদনার ধরণ	হ্যাঁ	না
১.	গবাদি পশু ক্রয়ে আর্থিক সহায়তা		
২.	কৃত্রিম প্রজননে প্রণোদনা		
৩.	টিকা প্রদানে অনুদান		
৪.	ঘাস ও খর কাটার মেশিন ক্রয়ে অনুদান		
৫.	টিএমআর বা খাদ্য মেশানোর মেশিন ক্রয়ে অনুদান		
৬.	মিল্কিং মেশিন ক্রয়ে অনুদান		
৭.	মিল্ক কালেকশান সিস্টেম উন্নয়নে অনুদান		
৮.	কম্পোস্ট/জৈবসার উৎপাদন প্লান্ট স্থাপনে অনুদান		
৯.	বায়োগ্যাস প্লান্ট স্থাপনে অনুদান		
১০.	নিউট্রিশন টেকনোলজি প্রোমোশন		

৪৬. আর্থিক অনুদান/সহায়তা/প্রণোদনা পেয়ে আপনি কতটুকু উপকৃত হয়েছেন ?

ক) খুবই বেশি খ) বেশি গ) মোটামুটি ঘ) কম ঙ) খুব কম

৪৭. ভবিষ্যতে কী ধরনের আর্থিক অনুদান/সহায়তা/প্রণোদনা প্রত্যাশা করেন ?

ক্র.	আর্থিক অনুদান/সহায়তা/প্রণোদনার ধরন	হ্যাঁ	না
১.	গবাদি পশু ক্রয়ে আর্থিক সহায়তা		
২.	কৃত্রিম প্রজননে প্রণোদনা		
৩.	টিকা প্রদানে অনুদান		
৪.	ঘাস ও খর কাটার মেশিন ক্রয়ে অনুদান		
৫.	টিএমআর বা খাদ্য মেশানোর মেশিন ক্রয়ে অনুদান		
৬.	মিল্কিং মেশিন ক্রয়ে অনুদান		
৭.	মিল্ক কালেকশান সিস্টেম উন্নয়নে অনুদান		
৮.	কম্পোস্ট/জৈব সার উৎপাদন প্লান্ট স্থাপনে অনুদান		
৯.	বায়োগ্যাস প্লান্ট স্থাপনে অনুদান		
১০.	নিউট্রিশন টেকনোলজি প্রোমোশন		
১১.	অন্যান্য(উল্লেখ করুন)		

খাদ্য এবং পুষ্টি সম্পর্কিত তথ্য (প্রাণী)

৪৮. আপনার খামারের/বাড়ীর গবাদি পশুগুলোকে কী ধরনের খাবার খাওয়ান?

ক্র.	খাদ্যের ধরন	হ্যাঁ	না
১.	খড়		
২.	ঘাস		
৩.	ভুষি		
৪.	ফিড		
৫.	ঝোলা গুড়/ ইউরিয়া মোলাসেস স্ট্র		
৬.	শস্য দানা		

৪৯. আপনার গবাদি পশুর খাবারের উৎস কী?

ক) বাজার থেকে ক্রয়কৃত খ) নিজ উদ্যোগে উৎপাদিত/ চাষকৃত

গ) চারণ ভুমি ঘ) অন্যান্য

৫০. প্রতি মাসে পশুর খাবার বাবদ কত টাকা খরচ হয়?

ক্র.	খাদ্যের ধরন	খরচ (টাকা)
১.	খড়	
২.	ঘাস	
৩.	ভুষি	
৪.	ফিড	
৫.	ঝোলা গুড়	
৬.	শস্য দানা	
	মোট	

৫১. পশুকে যে খাবার গুলো খাওয়ান তাতে কী তাদের পুষ্টির চাহিদা পূরণ হয়?

ক) হ্যাঁ খ) না

৫২. আপনার উদ্যোগের পশুর খাদ্যে পুষ্টিমান পরীক্ষা করার কোন ব্যবস্থা রয়েছে কিনা?

ক) হ্যাঁ খ) না

খাদ্য এবং পুষ্টি সম্পর্কিত তথ্য (উৎপাদক/কৃষক)

৫৩. আপনি কি পুষ্টিকর খাবারের ব্যাপারে অবগত?

ক) হ্যাঁ খ) না

৫৪. আপনি এবং আপনার পরিবারের সদস্যরা কি নিয়মিত পুষ্টিকর খাবার গ্রহণ করেন ?

ক) হ্যাঁ খ) না

৫৫. আপনি এবং আপনার পরিবারের সদস্যরা নিয়মিত দুধ পান করেন?

ক) হ্যাঁ খ) না

৫৬. হ্যাঁ হলে, কখন করেন?

ক) প্রতিদিন খ) সপ্তাহে দুই দিন

গ) সপ্তাহে এক দিন ঘ) মাঝে মধ্যে

৫৭. পুর্ববর্তী ২৪ ঘণ্টায় (দিনে/রাতে) কোন ধরণের খাবার গ্রহণ করেছেন?

ক্র.	খাবারের ধরন	হ্যাঁ	না
১.	শস্য, মূল জাতীয়, কন্দ বা আলু জাতীয়		
২.	মটরশুঁটি/ ডাল		
৩.	বাদাম ও বীজ		
৪.	দুধ ও দুগ্ধজাত খাদ্য		
৫.	মাংস ও মাছ		
৬.	ডিম		
৭.	সবুজ শাক সবজি		
৮.	ভিটামিন 'এ' সমৃদ্ধ শাক সবজি		
৯.	অন্যান্য শাক সবজি		
১০.	অন্যান্য ফল		

গবাদিপশুর রোগ-বালাই এবং চিকিৎসাসেবা

৫৮. আপনার খামারের/বাড়ীর গবাদি পশুর সাধারণত কী কী রোগ হয়? .....

৫৯. আপনার পশুকে নিয়মিত টিকা দিয়েছেন কিনা?

ক) হ্যাঁ খ) না

৬০. আপনার প্রাণিকে কোন কোন রোগের টিকা দিয়েছেন?

ক) তড়কা খ) বাদলা গ) গলাফুলা

ঘ) ক্রিমিনাশক ঙ) সবগুলো

৬১. এসব টিকা বাবদ মাসে কত খরচ হয়?.....

৬২. কোথায় থেকে পশুকে টিকা দিয়েছেন?.....

৬৩. টিকা প্রদান বাবদ খরচ কী ন্যায্য/সঙ্গত মনে করেন?

ক) হ্যাঁ খ) না

৬৪. নিয়মিত টিকা প্রদান না করলে, তার কারণ কি?

ক) ক্রয় মুল্য বেশি খ) সহজলভ্য নয় গ) প্রয়োজন মনে করিনা

৬৫. আপনার খামারের পশুর প্রজনন কীভাবে করান?

ক) প্রাকৃতিক উপায়ে খ) কৃত্রিম উপায়ে

৬৬. প্রাকৃতিক উপায়ে হলে, কোথায় থেকে সেবা নিয়ে থাকেন? .....

৬৭. প্রাকৃতিক উপায়ে হলে, খরচ কেমন হয়? .....

৬৮. কৃত্রিম উপায়ে হলে, কোথায় থেকে সেবা নিয়ে থাকেন? .....

৬৯. কৃত্রিম উপায়ে হলে, খরচ কেমন হয়? .....

৭০. পশুর রোগ বালাই হলে কী ধরণের উৎস থেকে চিকিৎসা সেবা গ্রহণ করেন?

ক) ভেটেরিনারি ডাক্তার (সরকারি পশু হাসপাতাল)

খ) ভেটেরিনারি ডাক্তার (বেসরকারি/প্যারা ভেট)

গ) হাতুড়ে ডাক্তার

ঘ) অন্যান্য (উল্লেখ করুন)

৭১. প্রাণি চিকিৎসা সেবা গ্রহণের খরচ সম্পর্কে বলুন?

ক্র.	সেবার ধরন	গড় খরচ
১.	ডোর টু ডোর সার্ভিস (স্থানীয়/নিকট দুরুত্ব)	
২.	ডোর টু ডোর সার্ভিস (দুরবর্তী)	
৩.	সাধারণ চিকিৎসা	
৪.	কৃত্রিম প্রজনন	
৫.	গর্ভ ধারণ পরীক্ষা	
৬.	প্রসবকালীন সেবা	
৭.	টিকা দান	
৮.	সার্জারি	

৭২. ভেটেরিনারি সেবা প্রদানকারীরা (এলএসপি) কতটুকু দক্ষ বলে আপনি মনে করেন?

ক) খুবই বেশি খ) বেশি গ) মোটামুটি ঘ) কম ঙ) খুব কম

আর্থিক সেবা এবং ঋণ সম্পর্কিত তথ্য

৭৩. খামার পরিচালনা বা পশু পালনের ক্ষেত্রে আর্থিক সেবা/সহায়তা পেয়েছেন কিনা?

ক) হ্যাঁ খ) না

৭৪. আর্থিক সেবার উৎস গুলো কী কী?

ক) নিজস্ব খ) ব্যাংক লোন গ) এনজিও লোন

ঘ) সরকারি অনুদান ঙ) বেসরকারি অনুদান চ) অন্যান্য

৭৫. লোন সহায়তার ক্ষেত্রে কোনটি সহজপ্রাপ্য?

ক) ব্যাংক খ) এনজিও গ) অন্যান্য

৭৬. পশু পালন/খামার পরিচালনার জন্য ঋণ নিয়েছেন কি?

ক) হ্যাঁ খ) না

৭৭. হ্যাঁ হলে কোন উৎস হতে ঋণ নিয়েছেন ?

ক) ব্যাংক খ) এনজিও গ) অন্যান্য (উল্লেখ করুন)

৭৮. কত টাকা ঋণ নিয়েছেন?

ক) ১০০০০-২৫০০০ খ) ২৬০০০-৫০০০০ গ) ৫১০০০-৭৫০০০

ঘ) ৭৬০০০-১০০০০০ ঙ) ১০০০০০-২০০০০০ চ) ৩০০০০০-৪০০০০০

ছ) ৪০০০০০-৫০০০০০ জ) ৬০০০০০-৭০০০০০ ঝ) ৭ লাখের বেশি

সমস্যা এবং সুপারিশ

৭৯. পশু পালন ও দুধ উৎপাদনে কী ধরণের সমস্যার সম্মুখীন হন?

ক্র.	বাধা সমূহ	খুবই বেশি	বেশি	মোটামুটি	কম	খুবই কম
১.	উন্নত ও আধুনিক পশুপালন সুবিধার অভাব					
৩.	মান সম্মত খাবার ও সবুজ ঘাসের স্বল্পতা					
৪.	খামার ব্যবস্থাপনায় আধুনিক প্রযুক্তির অভাব					
৫.	উৎপাদন ও পন্য বাজারজাতকরণে সমস্যা					
৬.	আর্থিক সেবা/সহায়তার স্বল্পতা					
৭.	আইসিটি অ্যাক্সেস এ বাধা					

৮০. উল্লেখিত বাধাগুলোর মূল কারণসমূহ কী কী ?

৮১. উক্ত সমস্যাগুলো সমাধানে কোন প্দক্ষেপ নিয়েছেন কিনা?

ক) হ্যাঁ খ) না

৮২. হ্যাঁ হলে, সমস্যাগুলো সমাধানে কী ধরনের পদক্ষেপ নিয়েছেন?.....

৮৩. না নিলে, কেন নেননি?.....

৮৪. উৎপাদনকারীদের কোন সংগঠন/সমিতি আছে কিনা?

ক) হ্যাঁ খ) না

৮৫. আপনি কি কোন সংগঠন/সমিতির সদস্য?

ক) হ্যাঁ খ) না

উদ্যোক্তাদের আয়, খাদ্য সুরক্ষা ও পুষ্টির স্থায়ী বৃদ্ধি সম্পর্কিত তথ্য

৮৬. আপনার উদ্যোগে/খামারে গুনগত ও নতুন উপকরণ (ফ্যান, লাইটিং, কাচের বক্সে মাংস সংরক্ষণ ইত্যাদি) ব্যবহার করেন কিনা?

(ক) হ্যাঁ (খ) না

৮৭. আপনার উদ্যোগে উন্নত প্রযুক্তি (মাংস কাটার যন্ত্র, ওজনের ডিজিটাল যন্ত্র, ফ্রিজিং সুবিধা প্রভৃতি) ব্যবহার করেন কিনা?

(ক) হ্যাঁ (খ) না

৮৮. বাংলা গ্যাপ (দেশীয়/বাংলা-ভাল কৃষিভিত্তিক অনুশীলন) সম্পর্কে জানেন কিনা অথবা অনুশীলন করেন কিনা?

(ক) হ্যাঁ (খ) না

৮৯. আপনার উদ্যোগে পরিবেশবান্ধব টেকনোলজি ব্যবহার করা হয় কিনা?

(ক) হ্যাঁ (খ) না

৯০. দৈনিক/মাস/বছরে গড়ে কতটি প্রাণী রোগাক্রান্ত হয়?

ক্র.	প্রাণীর নাম	রোগাক্রান্ত প্রাণীর সংখ্যা
১.	গাভী	
২.	ষাড়	
৩.	ছাগল	
৪.	ভেড়া/গাড়ল	
	মোট	

৯১. দৈনিক/মাস/বছরে গড়ে কতটি প্রাণী মারা যায়?

ক্র.	প্রাণীর নাম	মৃত প্রাণীর সংখ্যা
১.	গরু/মহিষ	
২.	বাছুর/পূর্ণবয়স্ক ছাগল/ভেড়া	
৩.	ছাগল/ভেড়া	
	মোট	

৯২. আন্তঃপ্রজননকাল কতদিন?

ক্র.	প্রাণীর নাম	প্রজনন কাল
১.	গাভী	
২.	ছাগল/ভেড়া	

৯৩. দুধ দহনের সময়কাল কতদিন?

ক্র.	প্রাণীর নাম	দিন
১.	গাভী	
২.	ছাগল/ভেড়া	

৯৪. আপনার উদ্যোগে উন্নত খামার ব্যবস্থাপনা (পর্যাপ্ত জায়গা, আলো-বাতাস চলাচলের ব্যবস্থা, পাকা ও পরিষ্কার মেঝে, পুষ্টিসমৃদ্ধ খাবার, যথাযথ চিকিৎসা ইত্যাদি) রয়েছে কিনা? (ক) হ্যাঁ (খ) না

৯৫. আপনার খামারটি আধুনিক যান্ত্রীকীকরণ (আবর্জনা ও গোবর পরিষ্কার করার জন্য যন্ত্রের ব্যবহার, ঘাস কাটার মেশিন, দুধ দোহনের মেশিন/পরীক্ষার যন্ত্র, ফ্রিজের ব্যবহার ইত্যাদি) হয়েছে কিনা? (ক) হ্যাঁ (খ) না

৯৬. আপনার খামারটি আইসিটি বেইজড প্রযুক্তি (টেলিমেডিসিন, পশুর ডাটাবেজ, পশুর খাদ্যের পুষ্টিমান পরীক্ষার ব্যবস্থা ইত্যাদি) কিনা? (ক) হ্যাঁ (খ) না

৯৭. আপনি বছরে কয়টি পশু বিক্রি করেন

ক্র.	প্রাণীর নাম	মোট সংখ্যা
১.	গাভী	
২.	ষাড়	
৩.	ছাগল	
৪.	ভেড়া/গাড়ল	
	মোট	

৯৮. আপনি দৈনিক/মাস/বছরে কত কেজি দুধ উৎপাদন/বিক্রি করেন?.....কেজি

৯৯. প্রতি ইউনিট/কেজি মাংস/দুধের উৎপাদন খরচ কত?

ক্র.	নাম	টাকা
১.	মাংস	
২.	দুধ	
৩.	প্রক্রিয়াজাত পণ্য (পনির, ঘি, হিমায়িত মাংস, মাংসের আচার)	

১০০. প্রতি ইউনিট/কেজি মাংস/দুধের দাম কত?

ক্র.	নাম	টাকা
১.	মাংস	
২.	দুধ	
৩.	প্রক্রিয়াজাত পণ্য (পনির, ঘি, হিমায়িত মাংস, মাংসের আচার)	

১০১.আপনার খামারে কতজন কর্মী কাজ করেন?

ক্র.	নাম	সংখ্যা
১.	পুরুষ কর্মী	
২.	নারী কর্মী	

১০২. আপনার খামারে কর্মরত কর্মীদের মাসিক বেতনের পরিমাণ?

ক্র.	নাম	মাসিক বেতনের পরিমাণ
১.	পুরুষ কর্মী	
২.	নারী কর্মী	

১০৩. আপনার এলাকায়/উদ্যোগের জন্য প্রশিক্ষণ, টিকা, কৃমিনাশক, কৃত্রিম প্রজনন ও অন্যান্য পরিষেবা প্রদানে কোন লাইভস্টক সার্ভিস প্রোভাইডার আছে কিনা?

(ক) হ্যাঁ (খ) না

১০৪. থাকলে, তাদের নিকট থেকে প্রশিক্ষণ ও পরামর্শ সেবা পেয়েছেন কিনা?

(ক) হ্যাঁ (খ) না

১০৫. থাকলে, তাদের নিকট থেকে প্রাণীপালন প্রযুক্তি বিষয়ে প্রশিক্ষণ নিয়েছেন কিনা?

(ক) হ্যাঁ (খ) না

১০৬. থাকলে, তাদের মাধ্যমে নিয়মানুযায়ী টিকা, কৃমিনাশক ও কৃত্রিম প্রজনন সেবা নিয়েছেন কিনা?

(ক) হ্যাঁ (খ) না

১০৭. আপনি কি গ্লোবাল গুড এ্যাগ্রিকালচারাল প্রাকটিস (গ্যাপ) ও হ্যাজার্ড এনালাইসিস ক্রিটিকাল কন্ট্রোল পয়েন্ট (হ্যাসাপ) বিষয়ে মাস্টার ট্রেইনিং নিয়েছেন?

(ক) হ্যাঁ (খ) না

১০৮. আপনি কি গ্লোবাল গুড এ্যাগ্রিকালচারাল প্রাকটিস (গ্যাপ) ও হ্যাজার্ড এনালাইসিস ক্রিটিকাল কন্ট্রোল পয়েন্ট (হ্যাসাপ) বিষয়ে কোন মাস্টার ট্রেইনারের মাধ্যমে প্রশিক্ষণ নিয়েছেন?

(ক) হ্যাঁ (খ) না

১০৯. আপনি কি গ্লোবাল গুড এ্যাগ্রিকালচারাল প্রাকটিস (গ্যাপ) এর উত্তম অনুশীলনের নির্দেশক সম্পর্কে জানেন এবং অনুশীলন করেন কিনা?

(ক) হ্যাঁ (খ) না

১১০.আপনার এলাকায় খামারিদের নিয়ে পশুপালন বিষয়ে কোন পলিসি ডায়ালগ/নীতি নির্ধারক পর্যায়ে আলোচনা হয়েছে কিনা?

(ক) হ্যাঁ (খ) না

১১১.আপনার এলাকায় কোন রেডিফিড, কাফস্টাটার বিক্রেতা তাদের ব্যবসা পরিচালনা করছেন কিনা যাদের কাছ থেকে আপনি সার্ভিস নিয়েছেন?

(ক) হ্যাঁ (খ) না

১১২.আপনার এলাকায় কোন ঘাস, সাইলেজ, ইউটিএস, ইউএমএস বিক্রেতা তাদের ব্যবসা পরিচালনা করছেন কিনা যাদের কাছ থেকে আপনি সার্ভিস নিয়েছেন?

(ক) হ্যাঁ (খ) না

১১৩. আপনার এলাকায় মাংস/দুধ সরবারহের জন্য কোন 'সরবরাহ পয়েন্ট' আছে কিনা?

(ক) হ্যাঁ (খ) না

১১৪.আপনার খামারে রেডিফিড, কাফকাস্টার, ঘাস, সাইলেজ, ইউটিএস, নিউট্রিশন টেকনোলজির ব্যবস্থা রয়েছে কি?

(ক) হ্যাঁ (খ) না

১১৫. আপনার এলাকায় খামার যান্ত্রীকীকরণের জন্য প্রয়োজনীয় যন্ত্রাংশ বিক্রয়ের ডিলার/সাব-ডিলার রয়েছে কিনা?

(ক) হ্যাঁ (খ) না

১১৬. থাকলে, তাদের নিকট থেকে আপনি কি নতুন কোন প্রযুক্তি ক্রয় করেছেন?

(ক) হ্যাঁ (খ) না

১১৭.ক্রয় করলে, তার নাম ও পরিমাণ বলুন.....

১১৮. আপনি কি নিয়মিত গোয়ালার নিকট দুধ বিক্রি করেন?

(ক) হ্যাঁ (খ) না

১১৯. আপনার এলাকায় পণ্যের উৎপাদন, ফর্টিফিকেশন, সনদায়ন, মোড়ক, ব্রান্ডিং ও সাব-কন্ট্রাক্টিং-এর মাধ্যমে ব্যবসা করছে এমন সার্ভিস প্রোভাইডার/প্রক্রিয়াজাতকারী রয়েছে কিনা?

(ক) হ্যাঁ (খ) না

১২০. থাকলে, তার নাম বলুন.....

১২১.আপনি কি এমন বায়ারদের নিকট মাংস/দুধ বিক্রি করেন যারা সাব-কন্ট্রাক্টিং-এর মাধ্যমে মাংস/দুধ বিক্রি করেন?

(ক) হ্যাঁ (খ) না

১২২. থাকলে, তার সংখ্যা বলুন?

ক) প্রাতিষ্ঠানিক বায়ার.....টি

খ) অপ্রাতিষ্ঠানিক বায়ার.....টি

১২৩. আপনি নিজেই কি কন্ট্রাক্টিং-এর মাধ্যমে মাংস/দুধ বিক্রি করেন?

(ক) হ্যাঁ (খ) না

১২৪. আপনি কি গ্লোবাল গুড এ্যাগ্রিকালচারাল প্রাকটিস (গ্যাপ))-এর প্রোটোকলগুলোর উপর প্রশিক্ষণ নিয়েছেন এবং উদ্যোগে অনুশীলন করছেন?

(ক) হ্যাঁ (খ) না

১২৫. আপনার এলাকায় বিএসটিআই ও হ্যাসাপ সনদপ্রাপ্ত 'মাংস প্রক্রিয়াজাতকরণ প্লান্ট' আছে কি?

(ক) হ্যাঁ (খ) না

১২৬. থাকলে, তার সাপ্তাহিক বিক্রির পরিমাণ কত? .....

১২৭. আপনার এলাকায় আধুনিক যন্ত্রপাতি ব্যবহারকারী কোন 'স্লাটার হাউস কাম বুচার শপ' আছে কিনা?

(ক) হ্যাঁ (খ) না

১২৮. আপনি কি কন্ট্রাক্টিং-এর মাধ্যমে বুচার শপে ও প্রিমিয়াম মার্কেটে লাইভ এনিমেল বিক্রি করেছেন?

(ক) হ্যাঁ (খ) না

১২৯. আপনি কি পুষ্টি, জলবায়ু, সামাজিক ইস্যু, ও প্রাণীপালন বিষয়ে প্রশিক্ষণ নিয়েছেন?

(ক) হ্যাঁ (খ) না

১৩০. নিয়ে থাকলে, প্রশিক্ষণ প্রদানকারী প্রতিষ্ঠানের নাম কী.....

১৩১. আপনার এলাকায় ভেটেরিনারি 'টেলিমেডিসিন' সেবা রয়েছে কিনা যেখান থেকে আপনি সেবা নিয়েছেন?

(ক) হ্যাঁ (খ) না

১৩২. আপনি কি ব্যবসা ব্যবস্থাপনা বিষয়ে প্রশিক্ষণ নিয়েছেন এবং এ বিষয়ে তৈরিকৃত এ্যাপস ব্যবহার করেছেন?

(ক) হ্যাঁ (খ) না

১৩৩. আপনি কি অনলাইনে পশু (গরু, ছাগল, ভেড়া) বেচা-কেনা করেন?

(ক) হ্যাঁ (খ) না

১৩৪. আপনার খামারে পশুগুলোকে নিয়মিত পরিমাণমত রেডিফিড খাওয়ান কিনা?

(ক) হ্যাঁ (খ) না

১৩৫. হ্যাঁ হলে, রেডিফিডটির নাম বলুন.....

১৩৬. হ্যাঁ হলে, সেটি আইএসও (ISO) ও নিরাপদ খাদ্যের সনদপ্রাপ্ত কিনা?

(ক) হ্যাঁ (খ) না

১৩৭. আপনার উদ্যোগে পশুগুলোকে নিয়মিত পরিমাণমত কাচা ঘাস খাওয়ান কিনা?

(ক) হ্যাঁ (খ) না

১৩৮. আপনার উদ্যোগে নিউট্রিশন টেকনোলজি ব্যবহার করেন কিনা?

(ক) হ্যাঁ (খ) না

১৩৯. আপনি কি বাছুরকে কাফস্টার্টার খাওয়ান?

(ক) হ্যাঁ (খ) না

১৪০. আপনি কি খামারের প্রাণীগুলোকে খোলা দানাদার খাদ্য (খৈল, ভূষি, ডাল, ভূট্টা, ধানের কুড়া) খাওয়ান?

(ক) হ্যাঁ (খ) না

১৪১.হ্যাঁ হলে, সেগুলো কোন ধরনের বাজার থেকে ক্রয় করেন?

ক) স্থানীয় বাজার খ) ইউনিয়ন পর্যায়ের বাজার গ) উপজেলা পর্যায়ের বাজার ঘ) অন্যান্য

১৪২. আপনার খামারে কী পরিমাণে খাদ্য প্রতিনিয়ত নষ্ট হয়? .....

১৪৩. আপনি কি খামারের প্রাণীগুলোকে সাইলেজ খাওয়ান?

(ক) হ্যাঁ (খ) না

১৪৪.আপনি কি খামারের প্রাণীগুলোকে ইউএমএম/ইউটিএস খাওয়ান?

(ক) হ্যাঁ (খ) না

১৪৫. পশুর আদর্শ সুষম খাবার সম্পর্কে জানেন কিনা?

(ক) হ্যাঁ (খ) না

১৪৬. আপনি কি পশুর খাদ্যের জন্য ঘাস ক্রয় করেন?

(ক) হ্যাঁ (খ) না

১৪৭.হ্যাঁ হলে, কোন ধরনের দোকান/বাজার থেকে ক্রয় করেন?

ক) ভ্রাম্যমান ঘাস দোকান খ) বাজারের স্থায়ী ঘাষ বিক্রির দোকান

১৪৮. উন্নত ও পুষ্টিমান সমৃদ্ধ ঘাস ও ঘাসের চাষাবাদ সম্পর্কে জানেন কিনা?

(ক) হ্যাঁ (খ) না

১৪৯. আপনি নিজে উন্নতজাতের ঘাস চাষ করেন কিনা?

(ক) হ্যাঁ (খ) না

১৫০. হ্যাঁ হলে, চাষের জন্য মাটি পরীক্ষা করান কিনা?

(ক) হ্যাঁ (খ) না

১৫১. আপনার উদ্যোগে খাদ্যজনিত কারণে কোন পশু মারা গিয়েছে কিনা?

(ক) হ্যাঁ (খ) না

তথ্য প্রদান করার জন্য আপনাকে অসংখ্য ধন্যবাদ

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তথ্য সংগ্রহকারীর নাম	দস্তখত	তারিখ:
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নিরীক্ষকের নাম	দস্তখত:	তারিখ:

Annexure: 02: Term of Reference (ToR)

Terms of Reference

For hiring a consultant to conduct Baseline Study for the "Safe Meat & Dairy Product Market Development Sub-project."

Implemented by: Eco-Social Development Organization (ESDO)
Supported by: Palli Karma-Sahayak Foundation (PKSF)

Summary

Type of study	Baseline
Purpose	To measure the key conditions (indicators) before the project begins, ensure that the project indicators are SMART, develop practical tools for monitoring and learning, and suggest new indicators if relevant, also to measure current conditions as per project indicators.
Audience	ESDO, PKSF, IFAD, DANIDA and others
Reports to	ESDO
Expected start/end dates, number of work days	Please write
Location	Thakurgaon District
Deadline for receiving applications	Please write

1. Background

ESDO is implementing the sub-project titled "Safe Meat and Dairy Product Market Development" at Thakurgaon Sadar, Ranishankail and Pirganj under Thakurgaon District of Bangladesh". This sub-project is jointly funded by the Palli Karma-Sahayak Foundation (PKSF), IFAD and DANIDA under Rural Microenterprise Transformation Project (RMTP) of PKSF. The sub-project will enable rural producers to expand sustainable micro-enterprises through efficient production methods and strong market connectivity, implemented for the overall business development of small entrepreneurs. The project is providing support to produce and distribute safe dairy and meat products following the Global GAP and HACCP protocols. Traceability and certification of those products will be introduced for the branding of dairy/meat products and help equip the participants with a valuable business tool for compliance of product quality. The objective of the sub-project is to increase the income, food security and nutrition situation of marginal, small farmers and small entrepreneurs in the project area through value chain activities. Now, ESDO has taken the initiative to hire a consultant for baseline survey of safe meat and dairy products project beneficiaries in the project area.

2. Sub-project Goal and Outcome

The chain activities will gradually increase the income, food security and nutrition situation of marginal, small farmers and small entrepreneurs under the project. In other words, the implementation of the sub-project will increase the income of 60 percent of the entrepreneurs by at least 50 percent and 30 percent of the project members will be able to add nutritious food to their regular food list.

3. Study Overview

3.1 Objective of Study (two types, 1. Overall and 2. Specific in points as per sub-project objectives)

- to measure current perception, attitude, knowledge and behaviour
- study will further explore existing support system and linkage of the beneficiaries with local government institute and service providing agencies
- the study will serve the purpose of ensuring that the project indicators are SMART (specific, measurable, achievable, relevant, and targeted) and can be used for the study as well as future project monitoring and learning
- The baseline data will consider various socio-economic indicators including income, gender, nutrition etc. as per project log-frame.

The main objective of the baseline study is to collect data and information from a representative sample of project participants to gain a clear picture of their pre programme socio-economic status to allow for project management to measure improvement/ change of their status at the middle and at the end of the project based on the baseline information. The baseline data will consider various socio-economic indicators including income, gender, nutrition etc. as per project log frame. The baseline will also measure gender (55%) and youth (11.24%) targets. Details of project targets and log frame indicators can be found in the Project Proposal. The Consultant will support the project team in developing a strategy for implementing the baseline survey, SWOT analysis, existing business models for small entrepreneurs/producers/processors/ Local service providers and identifying further market opportunities for our entrepreneurs related to safe meat & dairy product market development.

3.2 Scope of work:

The sub-project aims to benefit 25,000 households including marginal, small farmers and microenterpreneurs consisting of ultra-poor, transitional poor and enterprising poor. In line with project targets, the baseline survey will collect information against all socio-economic indicators to measure project performance. 55% targeted project participants will be women. The youth (18-35) target will be 11.24% among the project participants. The baseline study will assess the present condition of gender and youth coverage. The sub-project has specific indicators to measure its performance in improving the nutritional status of its participants. By creating self and wage employment and expanding microenterprises, sub-project will contribute to the national target of poverty reduction. It is estimated that with project support a total of 25,000 entrepreneurs will adopt environmentally sustainable and climate-resilient technologies. The study will assess the present situation of the microenterprises regarding this issue. To cover indicators like the increase of income and production of the project households, profit increase in the enterprises, the study should investigate the present situation of project households and microenterprises. The study should look into the initial status on financial and technical supports, adopting of Global GAP and HACCP at the enterprise level, skill on production practices and technologies, adoption of technologies and/or management practices, rural enterprises accessing to business development services, persons in rural areas accessing financial services etc. The study should provide gender-segregated data against all log frame indicators for the sake of future outcome and impact assessments.

3.3 Main audience of study

The main audiences for the baseline study include project staff of ESDO, PKSF, IFAD and DANIDA. The project beneficiaries are also part of the audience of this study and the baseline findings will be disseminated to them by ESDO.

3.4 Coverage of study

The baseline study will draw conclusions that are valid for Thakurgaon Sadar, Ranishankail and Pirganj under Thakurgaon District of Bangladesh, the baseline study will apply a standard sample design procedure.

4. Approach, Methodology and Sample size determination:

The project area is Thakurgaon district of the country. The VCD sub-projects will be implemented in different sub-districts among 25,000 participants considering the potentiality of the business cluster of dairy and meat sub-sector. Considering the above, this study will select the area and propose an appropriate sample size.

4.1 Approaches:

The consultant approach will be in line with the main objective of the study that seeks to gather information and provide a complete picture of the project participants at the project implementing areas. The approach will involve wide-ranging and sequenced discussion with project professionals and officials related to know the prevailing situation of the targeted project participants.

4.2 Methodology:

The methodology of data collection will be both qualitative and quantitative in nature, and will include information gathered on the outcome and project goal indicators on knowledge, attitudes and practices. The baseline study will be done in project area. All data, qualitative and quantitative, collected through the assessment must be disaggregated by age, sex, ethnicity, poverty and wherever appropriate as per project design. Finally, consultant/s are expected to propose a suitable methodology for carrying out the work and fulfil the objectives of the study. The methodology should adhere to the ethical standard, but bidders are free and encouraged to be as creative as possible in arriving at a suitable methodology that will ensure that the objectives of the study are fully met in a timely and efficient way. The baseline study will involve collecting:

4.3 Quantitative data collection

The consultant will design the questionnaire for quantitative survey based on the logical model. This will be finalized by incorporating feedback from ESDO including pretesting. The data collection modality will be mobile based but exemption might be allowed in consultation with ESDO.

4.4 Qualitative data collection

The consultant should use qualitative approaches, such as focus group discussions and key informant interviews, as well as participatory exercises and approaches. The following should at least be done in each selected community:

- # FGD with producers
- # FGD with processors
- # FGD with LSPs and Backward market actors
- # FGD with Input dealers and others
- # KII with GoB officials
- # KII with Paiker/Private sector/Forward market actors
- # KII with Business Management Organization
- # KII with AVCF/VCF

- # KII with others (Those who are involved in business enabling environment and carrying out/supporting rural microenterprises/support function actors)

4.5 Sample size determination of project participants:

The baseline study will be conducted in the project areas following appropriate, applicable statistical sampling procedures. However, significant the sample size could be finalized after discussion with the project professionals to have representative sample for two components of the project. The consulting firm should ensure representation of sub-sectors, gender, age group and poverty. A detailed approach and methodology to conduct the baseline study should be suggested by the consultants in compliance with the goal, objective and log-frame of sub-project.

4.6 Services and Facilities to be provided by ESDO:

ESDO will supply all necessary documents and information for designing an appropriate questionnaire to cover all project indicators including Project Proposal, Project Implementation Guideline (PIG), area demography, list of microenterprises etc.

4.7 Services and Facilities to be provided by the consultant:

The firm should have physical strength to collect and manage real time data. Geo-referencing of the respondent should be applied by the firm to track the respondent in future. All analyses related to the assignment should be preserved and supplied with the report by the consultant so that any information could be verified as and when necessary.

5. Duration of the study and schedule of the reports:

The total time duration of the assignment will be 90 days. A detailed implementation plan will be agreed upon in consultation with the programme, however, it is anticipated that the inception report should be submitted within 10 days upon signing the contract. The draft report of the study should be submitted by the consultant within 65 days, and presentation on the draft report should be given at ESDO within 75 days after signing the agreement.

The consulting firm should finalize the baseline report by incorporating comments and queries of ESDO/PKSF. The final report of baseline study should be submitted within 90 days from the date of agreement signing.

6. Quality and Ethical Standard

The consultant hired should take all reasonable steps to ensure that the baseline study is designed and conducted to respect and protect the rights and welfare of people and the communities of which they are members, and to ensure that the baseline study is technically accurate, reliable, and legitimate, conducted in a transparent and impartial manner, and contributes to organizational learning and accountability.

1. Utility: Evaluations must be useful and used.

2. Feasibility: Evaluations must be realistic, diplomatic, and managed in a sensible, cost effective manner.

3. Ethics & Legality: Evaluations must be conducted in an ethical and legal manner, with particular regard for the welfare of those involved in and affected by the evaluation.

4. Impartiality & Independence; Evaluations should be impartial, providing a comprehensive and unbiased assessment that considers the views of all stakeholders.

5. Transparency: Evaluation activities should reflect an attitude of openness and transparency.

6. Accuracy: Evaluations should be technical accurate, providing sufficient information about the data collection, analysis, and interpretation methods so that its worth or merit can be determined.

7. Participation: Stakeholders should be consulted and meaningfully involved in the evaluation process when feasible and appropriate.

8. Collaboration: Collaboration between key operating partners in the evaluation process improves the legitimacy and utility of the evaluation.

7. Reports and deliverables:

The consulting firm should provide the following deliverables:

i) **An inception report** with a detailed work plan, schedule (Gantt chart) in line with the time limit mentioned in this ToR and a detailed questionnaire for interviewing respondents. The inception report should elaborate on the proposed schedule of tasks, activities and deliverables, and designate a team member with lead responsibility for the study. The inception report will also contain a sample size with a detailed study methodology. The inception report will also include an outline of contents of the final survey report, the training plan for enumerators, data quality control measures.

ii) **A detailed determination of sample size and sampling frame** using statistical tools and formula.

iii) **Baseline survey questionnaire, FGD and KII checklist** to capture all required data and information of the study.

iv) **Baseline Study design** with data analysis and findings provided to ESDO before the presentation.

v) **Final study presentation.** The consulting firm will have to give a presentation at ESDO on the draft report highlighting major findings on baseline status. The final report of the study should be written in common English. The final report should have the reflections of the comments made by the ESDO/PKSF officials on the draft report. The hard copies (if applicable) of all filled up questionnaires must be submitted along with the final report. The report should include the list of respondents with their contact details. Five copies of the final report and a soft copy with data sets exported to SPSS files in a CD/DVD must be submitted to ESDO.

vi) **Findings brief.** The consulting firm should provide a brief of the findings corresponding to the objectives of the study that can be widely circulated. The brief of the study could be within three pages.

vii) **Indicator Table with Value:** The consulting firm should provide an indicator table including the values which got in the baseline study.

viii) **Final Report will sketch with the following headings:** The final report will contain a short executive summary (not more than 1,000 words) and a main body of the report (not more than 10,000 words) covering the background of the intervention evaluated, a description of the evaluation methods and limitations, findings, conclusions, lessons learned, recommendations and action points related to these.

- Acknowledgements
- Acronyms
- Glossary
- Executive Summary
- Introduction/Background
- Rationale and Objectives of the Baseline Study
- Scope of the Baseline Study
- Evaluation Methodology
- Findings and Discussion

- Recommendations
- Conclusion and lessons learned (if any)
- References
- Annex (including a copy of the ToR, cited resources or bibliography/reference, a list of those interviewed, case studies and any other relevant materials etc.).

8. Qualifications of the consultant (National):

- Proven extensive experience in being the lead in conducting base line and end line study of a resilience program
- The lead consultant should have University degree at the post-graduate level in Business Administration/Economics/Social Science/Ecology and Environmental Science/Anthropology/Livestock/Statistics/Engineering or other relevant subjects, However, PhD degree in relevant sector will get priority.
- Strong analytical skills and ability to clearly synthesize and present findings, draw practical conclusions, make recommendations and to prepare well-written reports in a timely manner;
- Excellent in English and Bangla writing and presentation skills
- Immediate availability for the period indicated
- At least two relevant recent reports (soft copy) written by the lead consultant.
- Must have necessary computer skills with necessary hardware.
- Should have good understanding of the local language.

9. Individual Consultant (National) Selection Process:

Individual Consultant Selection (ICS) method and Standard Request for Application (SRFA:PS-3) Documents on lump-sum contracts of Schedule 1 of the Public Procurement Rules-2008 of the Government of Bangladesh should be followed in preparation of short-listing the consultants, evaluation of applications, selection the consultant, negotiation, signing of contract and receipt of survey reports for conducting this study.

10. Mode of Payment:

ESDO will pay the cost of the study to the assigned firm subject to the completion of all deliverables and reports acceptance of PKSF by deducting VAT and TAX at source as per the Government rules of Bangladesh. Payments will be made based on the following percentages and milestones:
a) 1st Payment (30% of total contract value): The 1st payment will be made upon submission and acceptance of the inception report by PKSF.
b) 2nd Payment (30% of total contract value): The 2nd payment will be made upon submission and acceptance of the draft report by PKSF.
c) Final Payment (40% of total contract value): The final payment will be made upon acceptance of the final report by PKSF.

11. Timeframe

The study shall be conducted expectedly in two months from start of the study, and is scheduled to preferably start in the (date 2022). The consultant will submit the final report latest by (date 2022). The timeline will be finalized as agreed by the consultant and ESDO.

12. Disclaimer

The ESDO management reserves the right to amend the terms of reference at any time as required upon mutual discussion with the lead researcher. ESDO reserves the right to terminate the contract at its sole discretion in case of non-compliance of the terms and conditions that will be finally agreed.

13. Proposal Submission/ Application and Selection Details

The proposal should include the following below six items. Please note that any proposal which does not contain all six items will be rejected.

Cover letter: clearly summarizing your experience and competency as it pertains to this assignment

Technical proposal: not exceeding eight (08) pages expressing an understanding and interpretation of the ToR, the proposed methodology, relevant experience and time and activity schedule.

Financial proposal: itemizing estimated costs for services rendered (daily consultancy fees), accommodation and living costs, transport costs, stationery costs, and any other related supplies or services required for the review in BDT and modality of payment. Please also attach a TIN/Registration Certificate.

Detailed CVs of all professionals who will work on the process. CVs of proposed study team, please attach a table describing the level of effort (in number of days) of each team member in each of the Baseline activities.

Professional references needed to provide two or three references from your previous clients.

Short example from previous Baseline study report (Dairy products value chain/marketing preferred) that is relevant to this work (5-7 pages)

(Application materials are non-returnable, and we thank you in advance for understanding that only short-listed candidates will be contacted for the next step in the application process and the selection panel does not have the capacity to respond to any requests for application feedback. Please take note that expressions of interest that do not cover these requirements will not be considered.)

14. Application Procedure: Please email complete applications to aaaa@esdo.com

15. **Deadline for Application:** The application deadline is 1st June, 2022.