

**Understanding The Pros And Cons of Sustainable Approaches  
To Beef Fattening Practices In Banshkhali Upazila.**



**A production Report Presented in Partial Fulfilment of the Requirement  
for the Degree of  
Doctor of Veterinary Medicine**

A Report Submitted

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To Beef Fattening Practices In Banshkhali Upazila**



**A production report submitted as per approved styles and contents  
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## LIST OF ABBREVIATIONS

<b>NM</b>	Net Margin
<b>VC</b>	Variable Costs
<b>TR</b>	Total Return
<b>TC</b>	Total Cost
<b>TVC</b>	Total Variable Cost
<b>TFC</b>	Total Fixed Cost
<b>GM</b>	Gross margin
<b>VC</b>	Variable cost
<b>TR</b>	Total revenue
<b>NR</b>	Net Revenue
<b>BCR</b>	Benefit cost ratio
<b>BDT</b>	Bangladesh Taka
<b>UMB</b>	Urea Molasses Block
<b>UMS</b>	Urea Molasses Straw
<b>%</b>	Percentage

## ABSTRACT

This study presents a comprehensive analysis of beef fattening practices among farmers in specified study areas. The research delves into the socioeconomic characteristics of farmers, key variables related to beef fattening, prevalence of diseases, selling locations of fattened cattle, challenges encountered, and benefits gained. Through descriptive statistics and graphical representations, the study highlights the diverse demographics and practices within the beef fattening industry. Socioeconomic attributes, including gender distribution (100% male), educational levels (83.33% secondary, 13.33% primary), and occupation diversity (60% business, 26.67% shopkeeper), provided valuable insights into participants' backgrounds. Notably, 83.33% of farmers preferred crossbreed cattle. Key variables showed mean age (40.30 years), family size (5.36 members), experience (2.20 years), and cattle per farmer (17.6). Cattle acquisition indicated 63.33% from local markets, 36.67% from other farmers, while 96.67% fed cattle with natural sources. Disease prevalence was revealed by 30% affected by acidosis, 16.67% by FMD, and 23.33% by LSD. These findings contribute to a comprehensive understanding of beef fattening practices, shedding light on associated challenges and benefits. Findings reveal predominant use of crossbreeds, standardized cattle duration, and traditional feed ingredients. Disease prevalence and challenges, such as high feed costs and disease outbreaks, are unveiled. Moreover, the study underscores the positive impacts of beef fattening on food security, income enhancement, fertilizer production, and waste utilization.

**Keywords:** beef fattening, socioeconomic characteristics, crossbreeds, disease prevalence, challenges, benefits.

## CHAPTER I: INTRODUCTION

Beef is one of the most important sources of animal protein for human consumption in Bangladesh. According to the Bangladesh Bureau of Statistics (BBS), the per capita consumption of beef was 5.9 kg in 2018, which accounted for 55% of the total meat consumption in the country (Rahman et al., 2023). Beef production is also a major source of income and employment for rural people, especially smallholder farmers who rear cattle for both dairy and beef purposes (Wodajo et al., 2020). According to the Department of Livestock Services (DLS), there were about 25.2 million cattle in Bangladesh in 2019, of which about 11.7 million were used for beef production (DLS, 2020).

Beef fattening is a common practice among cattle farmers in Bangladesh, especially before Eid-ul-Adha, the Muslim festival of sacrifice (Hasan et al., 2022). Beef fattening involves feeding cattle with high-energy and high-protein diets for a period of time to increase their body weight and improve their meat quality (Mwangi et al., 2019). Beef fattening can be done using traditional methods or improved methods. Traditional methods involve feeding cattle with rice straw, green grass, crop residues, kitchen wastes, and locally available by-products. Improved methods involve feeding cattle with urea-molasses straw, concentrate feeds, oil cakes, mineral supplements, and growth promoters.

Beef fattening has both advantages and disadvantages for the farmers, consumers, and the environment (Hocquette et al., 2014). Some of the advantages are that it can increase the income and profitability of farmers by producing more meat per animal and reducing the feed cost per unit of weight gain; it can improve the food security and nutrition of consumers by providing more high-quality animal protein at affordable prices; it can enhance the utilization of agricultural by-products and wastes as feed resources for cattle; and it can reduce the greenhouse gas emissions from cattle by shortening their lifespan and improving their feed conversion efficiency. Some of the disadvantages are that it can pose health risks to consumers by increasing the fat content and cholesterol level of beef and by contaminating it with residues of antibiotics, hormones, and steroids used as growth promoters; it can cause environmental problems by generating more manure and wastewater that can pollute soil and water resources; it can threaten the genetic diversity and adaptability of local cattle breeds by favoring exotic or crossbred animals for fattening; and it can create social and ethical issues by compromising animal welfare and violating religious norms (Mund et al., 2017).

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The aim of this study is to evaluate the pros and cons of traditional methods of beef fattening in Banshkhali, Chattogram, Bangladesh. Banshkhali is a coastal sub-district in Chattogram district that has a long history of cattle rearing and beef production. Cattle fattening has been practiced in Banshkhali since ancient times as a part of the local culture and tradition (Hossain et al., 2008). The study will examine the socio-economic, nutritional, environmental, and health aspects of traditional beef fattening practices in Banshkhali. The study will also compare the performance and profitability of traditional beef fattening with improved methods. The study will provide recommendations for improving the sustainability and efficiency of beef fattening in Banshkhali and other similar areas in Bangladesh.

**Aims and Objectives:**

- Assessing the Socio-Economic Impacts of Traditional Beef Fattening
- To determine profitability of beef cattle fattening.
- Evaluating Environmental Consequences of Traditional Beef Fattening
- Investigating Health Implications of Traditional Beef Fattening



## CHAPTER II: MATERIALS AND METHODS

### 2.1. Study Area

The current research was carried out to explore the cattle fattening practices conducted by rural farmers in Banshkhali Upazila, Chattogram, Bangladesh. Information was gathered using a structured interview questionnaire from individuals in this region who were engaged in cattle fattening activities before Eid-ul-Azha. The participants were randomly selected from various areas within Banshkhali. Interviews were conducted at different cattle markets ahead of Eid-ul-Azha. A total of 30 respondents were included to collect data that would address the study's objectives. The interview questionnaire was designed in alignment with the study's objectives.



Figure 1: Map of Banshkhali Upazila (Study area)

### 2.2. Survey Design

The data for this study was gathered through interviews. A comprehensive structured questionnaire was employed for conducting the survey. The questionnaire has been included in the report as an attachment.

### **2.3. Data Collection**

A detailed questionnaire was developed to gather the necessary data. Through direct interviews, information was acquired from the participants. Prior to data collection, the study's purpose was effectively communicated to the respondents. The primary focus of the data collection was on economic analysis. The collected data encompassed various aspects, including the gender, age, education, farm size, social status, market supply, expenses, household size, as well as factors related to cattle fattening like breed, funding sources, feeding and nutrition, deworming treatment, and challenges encountered by farmers.

### **2.4. Data Analysis:**

The data that was gathered underwent organization and was inputted into Microsoft Excel (Microsoft 365 Apps for Enterprise). For the purpose of showcasing the outcomes aligned with the study's objectives, descriptive statistics were employed using StataCorp Stata MP 16.0\_SS\_2019.

## CHAPTER III: RESULTS AND DISCUSSION

### 3.1. Socioeconomic Characteristics of Beef Fattening Farmers of the Study Areas

This study offers a comprehensive snapshot of the socioeconomic attributes characterizing beef fattening farmers in the study areas. The distribution of Gender, Educational Level, Occupation, and Type of Breed provides valuable insights into the diverse backgrounds and choices made by these farmers, contributing to a holistic understanding of the context in which the beef fattening practices are conducted.

**Table 3.1 Comprehensive overview of the socioeconomic characteristics of beef fattening farmers**

<b>Variables</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage (%)</b>	<b>Cumulative</b>
Gender	Male	30	100.00	100.00
	Female	0	0.00	0.00
Educational Level	Primary	4	13.33	13.33
	Secondary	25	83.33	96.67
	Higher Secondary	0	0.00	96.67
	Graduation	1	3.33	100.00
Occupation	Business	18	60.00	60.00
	Shopkeeper	8	26.67	86.67
	Shopkeeper & farmer	4	13.33	100.00
Type of Breed	Indigenous	5	16.67	16.67
	Cross	25	83.33	100.00

Table 3.1 presents a comprehensive overview of the socioeconomic characteristics of beef fattening farmers within the study areas. The variables encompassed in this analysis include Gender, Educational Level, Occupation, and Type of Breed. These variables shed light on the diverse attributes of the farmers participating in the beef fattening enterprise, providing insights into their demographic and professional backgrounds.

In terms of Gender distribution, the data reveals a complete representation of male farmers (100%), while there are no female farmers within the surveyed group (0%). The Educational Level variable unveils a range of academic backgrounds among the farmers. The majority possess a Secondary education level (83.33%), followed by a smaller portion with a Primary education level (13.33%). A single respondent holds a Graduation degree (3.33%), and no participant has achieved a Higher Secondary education level.

Occupation data showcases the various roles undertaken by the beef fattening farmers. The dominant occupation observed is Business (60%), followed by Shopkeeper (26.67%). Additionally, a fraction of farmers combine the roles of Shopkeeper and farmer (13.33%).

Regarding the Type of Breed, the table underscores the diversity in cattle breeds adopted by the farmers. The data reveals that 83.33% of the farmers opt for Crossbreeds, which may indicate an inclination towards cattle breeds optimized for specific traits. In contrast, Indigenous breeds are selected by a smaller group of farmers (16.67%), showcasing the coexistence of traditional practices alongside more modern approaches.

### 3.2. Descriptive Statistics of Key Variables among Beef Fattening Farmers (N=30)

**Table 3.2**

<b>Variables</b>	<b>Observation</b>	<b>Mean</b>	<b>Std. dev.</b>	<b>Minimum</b>	<b>Maximum</b>
Age	30	40.30	4.9768	32	52
Family member (n)	30	5.36	1.3514	3	8
Experience	30	2.20	0.8469	1	4
Number of cattle	30	17.6	7.0299	7	33

Table 3.2 provides key statistics related to beef fattening among a sample of 30 farmers. It offers insights into the demographic and operational characteristics of these farmers. The mean age of the farmers is 40.30 years, with a narrow age range spanning from 32 to 52 years. On average, each farmer has 5.36 family members, indicating family involvement in this agricultural practice. Farmers, on average, have 2.20 years of experience in beef fattening, with a range of 1 to 4 years. The number of cattle per farmer varies significantly,

with an average of 17.6 cattle, ranging from 7 to 33, highlighting the diversity in herd sizes among these beef fattening practitioners.

### 3.3. Cattle Acquisition, Duration, and Feed Composition in Beef Fattening Practices (N=30)

**Table 3.3**

Variables	Category	Frequency	Percent %	Cumulative
Cattle bought from	Local market	19	63.33	63.33
	Another farmer	11	36.67	100.00
How long do you keep your cattle?	6-12 months	30	100.00	100.00
Feed ingredient's	Grass, Crop residues, Molasses, Salt, Mineral mixture, Water	29	96.67	96.67
	Grass, Crop residues, Molasses, Salt, Mineral mixture, Water, Concentrate	1	3.33	100.00

Table 3.3 provides essential insights into the practices of beef fattening, offering a glimpse into the sourcing, duration, and feed composition of cattle within the study.

In the first category, "Cattle bought from," the majority of farmers (63.33%) acquire their cattle from the local market, while a significant portion (36.67%) opt to purchase cattle from other farmers. This reveals a diversity in cattle procurement strategies among the surveyed farmers.

Regarding the duration of cattle keeping, all participants (100%) indicated that they keep their cattle for a period ranging from 6 to 12 months. This uniformity in the duration of cattle maintenance suggests a standardized approach to beef fattening within this group.

The final category, "Feed ingredients," delineates the components of the cattle diet. The data indicates that a vast majority (96.67%) of the farmers rely on a mixture of grass, crop residues, molasses, salt, mineral supplements, and water as the primary feed ingredients. Only a small fraction (3.33%) incorporate concentrate feeds into the diet. This underscores the predominant use of traditional and locally available feed resources in beef fattening practices within this community.

### 3.4. Prevalence of Diseases in Beef Cattle (N=30)

**Table 3.4**

<b>Disease affected</b>	<b>Freq.</b>	<b>Percent</b>	<b>Cum.</b>
Acidosis	9	30	30
Acidosis, foot rot	1	3.33	33.33
FMD	5	16.67	50
Foot rot	4	13.33	63.33
Joint ill	1	3.33	66.67
LSD	7	23.33	90
Mite infestation	1	3.33	93.33
Skin infestation	1	3.33	96.67
Tick infestation	1	3.33	100

Table 3.4 provides a comprehensive overview of the prevalence of various diseases affecting beef cattle, presenting both the frequency and the percentage distribution of each disease.

Acidosis was observed in 9 instances, accounting for 30% of the reported cases. Another case involved acidosis in combination with foot rot, constituting 3.33% of the cases, thus reaching a cumulative frequency of 33.33%. Foot-and-Mouth Disease (FMD) was recorded in 5 cases, making up 16.67% of the total instances, and foot rot alone was identified in 4 cases, contributing to 13.33%. Joint ill was reported in a single case, representing 3.33%, and the cumulative frequency up to that point was 66.67%.

Lumpy Skin Disease (LSD) was observed in 7 cases, constituting 23.33% of the occurrences. Instances of mite infestation, skin infestation, and tick infestation each appeared once, amounting to 3.33% each. This culminated in a cumulative frequency of 100%.

### 3.5. Selling Places of Fattened Beef Cattle

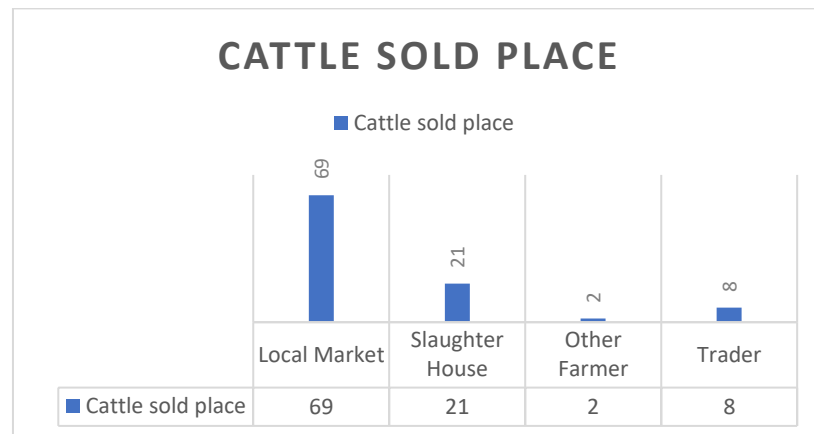


Figure 2: Selling Places of Fattened Beef Cattle

Figure 2 illustrates the distribution of beef-fattening cattle based on the places of sale. The data indicates that Local Markets accounted for the highest number of cattle sold, totaling 69 animals. The second most common sales destination was the Slaughterhouse, with 21 cattle being sold there. A smaller number of cattle were sold to Other Farmers (2 animals), while Traders acquired 8 cattle. This bar graph provides insights into the primary channels through which beef-fattening cattle are sold, reflecting the prominence of local markets and the role of slaughterhouses, traders, and other farmers in the sales process.

### 3.6. Difficulties in Beef Fattening

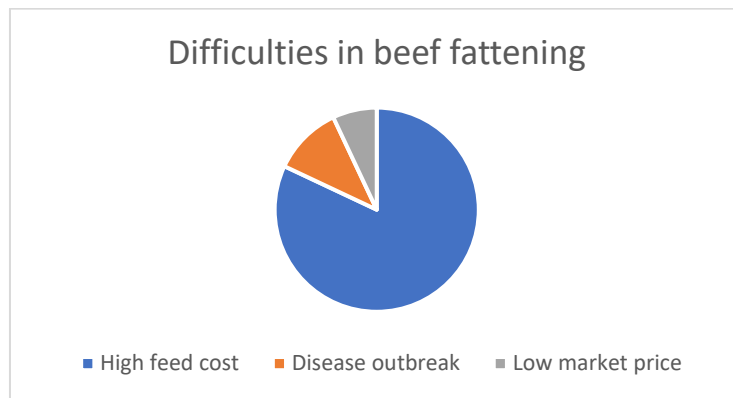


Figure 3: Difficulties in beef fattening

The pie chart presents an academic perspective on the difficulties encountered in the practice of beef fattening. These difficulties are categorized into three key factors:

1. **High Feed Cost:** The most prominent issue identified by the data is the high cost of feed, with 82 instances recorded. This issue suggests that the expense associated with procuring and providing feed for beef cattle is a significant challenge faced by beef fattening practitioners. It can impact the economic viability of the enterprise and the overall profitability of cattle fattening operations.
2. **Disease Outbreak:** The data reveals that disease outbreaks have affected 11 instances within the beef fattening context. Disease outbreaks can have detrimental effects on the health and well-being of cattle, potentially leading to financial losses for farmers. This issue highlights the importance of disease management and prevention strategies within the beef fattening industry.
3. **Low Market Price:** The table also indicates that low market prices have been a concern, albeit less frequently, with 7 instances reported. Low market prices for beef can reduce the profitability of beef fattening ventures and may affect the economic incentives for farmers to engage in this practice.



### 3.7. Benefits of Beef Fattening

Beef fattening can have far-reaching positive impacts. It not only contributes to food security by increasing the availability of protein-rich meat but also supports rural livelihoods by providing additional income streams for smallholder farmers. Furthermore, the practice can contribute to sustainable agriculture through waste recycling, where cattle waste is transformed into valuable fertilizers. Additionally, beef fattening can play a role in rural economies by creating employment opportunities and fostering local trade networks.

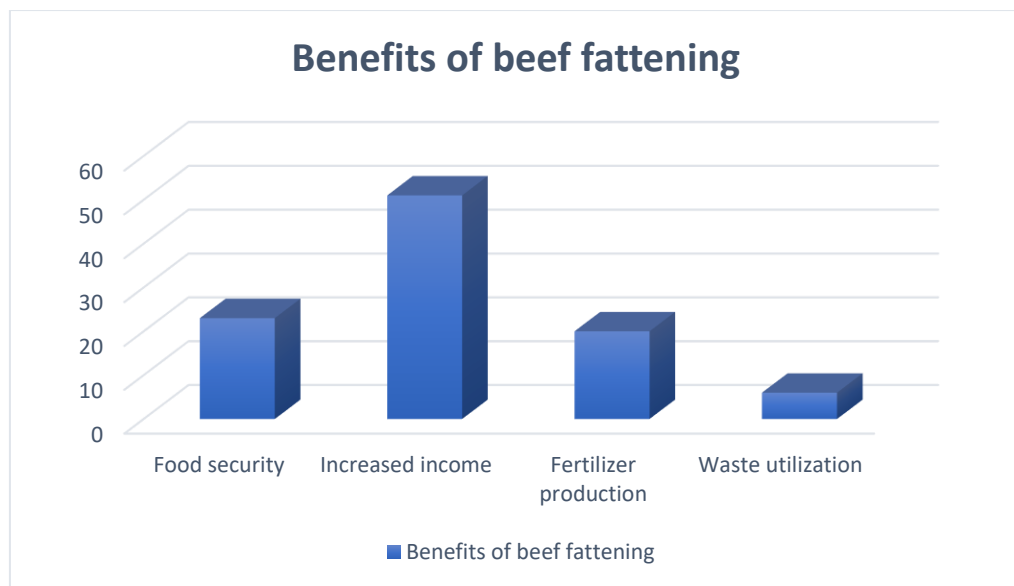


Figure 4: Benefits of beef fattening

The presented table offers an academic portrayal of the benefits associated with beef fattening, categorizing them into distinct factors:

1. **Food Security:** The data reveals that food security has been identified as a benefit in 23 instances. This suggests that beef fattening contributes to the availability of animal protein, potentially enhancing food security by providing a valuable protein source for local communities.
2. **Increase in Income:** The most prominently recognized benefit, with 51 instances, is the potential for increased income. Beef fattening has the capacity to generate additional revenue for farmers through the sale of meat products, thereby enhancing their economic well-being.

3. **Fertilizer Production:** The data also indicates that 20 instances recognize fertilizer production as a benefit of beef fattening. The organic waste generated by cattle can be utilized as a source of natural fertilizer, contributing to improved soil fertility and agricultural productivity.
4. **Waste Utilization:** A smaller number of instances (6) emphasize the benefit of waste utilization. Beef fattening generates organic waste materials that can be repurposed as feed for other animals or as inputs for other agricultural processes, enhancing resource efficiency.

### 3.8 Assessment of Profitability Measurement, Training, and Methodology in Beef Fattening Practices

Variables	Category	Frequency	Percent %	Cumulative
Measure profitability by	Cost-benefit analysis	30	100	100.00
Training received	LDDP	30	100	100.00
Method follows	Traditional method	30	100	100.00

Table 3.8 succinctly presents the consensus among the surveyed beef fattening practitioners across three variables. In terms of Measuring profitability, all 30 respondents (100%) employ Cost-benefit analysis, reflecting a unanimous reliance on this method to assess the financial viability of their endeavors. In the category of Training received, every participant (100%) reported having undergone training from the Livestock and Dairy Development Project (LDDP), highlighting the extensive influence of this program within the surveyed community. The variable Method follows reveals that all 30 respondents (100%) adhere to the Traditional method for beef fattening, suggesting a widespread preference for conventional practices. This table thus succinctly communicates the uniformity in approach observed across the variables, shedding light on the consistent strategies and influences shaping the beef fattening practices of the surveyed individuals.

## CHAPTER IV: CONCLUSION

The exploration of beef fattening practices in the study areas has provided valuable insights into its multifaceted nature, unveiling both significant benefits and notable challenges. The socio-demographic analysis revealed a predominantly male community of beef fattening farmers with diverse educational backgrounds and a range of occupations. Descriptive statistics shed light on operational aspects, indicating an average age of around 40 years and family involvement in the practice. Cattle acquisition, maintenance duration, and feed composition were key considerations, emphasizing local market reliance and standardized maintenance approaches. Disease prevalence highlighted vulnerabilities, with acidosis and FMD being common issues. Meanwhile, the practice's benefits, including food security, income generation, and sustainable practices like waste utilization, were substantial. Collaborative efforts are essential to address challenges and ensure the practice's long-term viability in supporting rural livelihoods and livestock production.

### Limitations of the Study

While this study offers valuable insights into beef fattening practices, certain limitations should be acknowledged. The sample size of 30 farmers from specific study areas might not be fully representative of broader beef fattening contexts. The reliance on self-reported data could introduce response bias. Additionally, the study's cross-sectional nature provides a snapshot in time, potentially missing seasonal variations. The absence of female participants and the focus on specific variables limit the study's gender and holistic perspective. Lastly, external factors like market trends and policy changes, not extensively explored, could influence the findings. These limitations emphasize the need for cautious interpretation and highlight avenues for future research.

## ACKNOWLEDGEMENT

The author extends sincere gratitude and appreciation to the Divine Being, upon whom we rely for sustenance and direction. It is a significant honor to express deep gratitude and indebtedness to the supervisor, Prof. Ms. Shahnaz Sultana from Department of Agricultural Economics and Social Sciences at Chattogram Veterinary and Animal Sciences University (CVASU), for unwavering guidance, patience, invaluable suggestions, and constant encouragement throughout this endeavor. Heartfelt acknowledgment and special recognition go to Dr. Supan Nandy, Upazila Livestock Officer, Banshkhali, Chattogram for providing valuable guidance during data collection. The author also wishes to convey sincere thanks to the respected teacher Professor Dr. A.K.M. Saifuddin, Director (External Affairs), CVASU, for his insightful advice and motivation. Lastly, the author expresses profound gratitude to his parents for their unwavering support and continuous encouragement throughout the study, without which this achievement would not have been possible.

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The Author

August 2023

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## APPENDIX

### Sustainable Beef Fattening in Bashkhali, Chattogram: Evaluating the Pros and Cons of Traditional Methods

Date: .../.../2023

**Questionnaire**

Questionnaire No:

#### Demographic Data of Farmer:

Q. No.	Question	Answer
1	What is your name?	
2	What is your age?	
3	What is your gender?	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other
4	Address	Union:....., Upazilla:.....
5	What is your educational level?	<input type="checkbox"/> Illiterate <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Higher Secondary <input type="checkbox"/> Graduate
6	How many members are there in your household?	
7	What is your main occupation and source of income?	<input type="checkbox"/> Farmer <input type="checkbox"/> Business <input type="checkbox"/> Shopkeeper <input type="checkbox"/> Service <input type="checkbox"/> Other.....

#### Farm and Fattening Data:

8	How long have you been involved in beef fattening?	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 3-5 years <input type="checkbox"/> More than 5 years
9	How many cattle do you rear for fattening at a time?	
10	What type of breed do you prefer for fattening and why?	<input type="checkbox"/> Indigenous <input type="checkbox"/> Cross <input type="checkbox"/> Both Why: .....
11	Where do you buy your cattle and how much do you pay for them?	<input type="checkbox"/> Local market <input type="checkbox"/> Trader <input type="checkbox"/> Farmer <input type="checkbox"/> Other (N=....., Tk.....)
12	How long do you keep your cattle for fattening and when do you sell them?	<input type="checkbox"/> Less than 6 months <input type="checkbox"/> 6-12 months <input type="checkbox"/> More than 12 months <input type="checkbox"/> Just before Eid-ul-Azha <input type="checkbox"/> Round the year <input type="checkbox"/> Seasonal
13	What kind of feed do you provide to your cattle and how much does it cost?	<input type="checkbox"/> Grass <input type="checkbox"/> Hay <input type="checkbox"/> Crop residues <input type="checkbox"/> Concentrate <input type="checkbox"/> Molasses <input type="checkbox"/> Salt <input type="checkbox"/> Mineral mixture <input type="checkbox"/> Water <input type="checkbox"/> Other Cost:.....tk
14	How do you ensure the health and welfare of your cattle during the fattening period?	<input type="checkbox"/> Vaccination <input type="checkbox"/> Deworming <input type="checkbox"/> Treatment <input type="checkbox"/> Shelter <input type="checkbox"/> Cleanliness <input type="checkbox"/> Other
15	What are the main diseases or problems that affect your cattle and how do you treat them?	

16	Where do you sell your cattle?	<input type="checkbox"/> Local market <input type="checkbox"/> Trader <input type="checkbox"/> Farmer <input type="checkbox"/> Slaughterhouse <input type="checkbox"/> Other
17	What are the main difficulties or risks that you face in beef fattening?	<input type="checkbox"/> High feed cost <input type="checkbox"/> Low market price <input type="checkbox"/> Disease outbreak <input type="checkbox"/> Theft <input type="checkbox"/> Natural disaster <input type="checkbox"/> Lack of capital <input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of support
18	How do you measure the profitability and efficiency of your beef fattening program?	<input type="checkbox"/> Cost-benefit analysis <input type="checkbox"/> Break-even analysis <input type="checkbox"/> Gross margin analysis <input type="checkbox"/> Return on investment analysis <input type="checkbox"/> Other
19	What are the benefits of beef fattening for your household and community?	<input type="checkbox"/> Increased income <input type="checkbox"/> Food security <input type="checkbox"/> Employment generation <input type="checkbox"/> Social status improvement <input type="checkbox"/> Waste utilization <input type="checkbox"/> Organic fertilizer production <input type="checkbox"/> Other
20	What are the drawbacks or negative effects of beef fattening on the environment and society?	<input type="checkbox"/> Greenhouse gas emission <input type="checkbox"/> Water pollution <input type="checkbox"/> Land degradation <input type="checkbox"/> Biodiversity loss <input type="checkbox"/> Antibiotic resistance <input type="checkbox"/> Animal welfare issues <input type="checkbox"/> Social conflict <input type="checkbox"/> Other .....
21	Do you have any training or support from any government or non-government organization on beef fattening?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, write the name of the organization: .....
22	Do you follow any traditional or indigenous methods or practices in beef fattening?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	If yes, write the name and description of the method or practice	
23	How do you think beef fattening can be made more sustainable and eco-friendlier in your area?	
24	Do you have any suggestions or recommendations for improving beef fattening in Bangladesh?	

**Economic Estimation:**

<b>Total cost</b> (Buying of cattle, feeding, treatment, transportation, other cost)		<b><u>Net Profit/Loss</u></b>
<b>Total Earning</b> (By selling cattle)		