

# **FARMERS' SATISFACTION ON LIVESTOCK EXTENSION SERVICES**

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**FARMERS' SATISFACTION ON LIVESTOCK EXTENSION  
SERVICES**

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**CERTIFICATE**

This is to certify that the thesis entitled “**Farmers’ Satisfaction on Livestock Extension Services**” submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **Master of Science in Agricultural Extension**, embodies the result of a piece of bona fide research work carried out by **Farjana Jahan**, Registration No.**18-09013** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

**Dated: June, 2020  
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***DEDICATED  
TO***

***MY BELOVED  
PARENTS***

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## LIST OF CONTENTS

	<b>TITLE</b>	<b>PAGE NO.</b>
	TITLE PAGE	I
	APPROVAL SHEET	II
	CERTIFICATE	III
	DEDICATION	VI
	ACKNOWLEDGEMENT	V
	LIST OF CONTENTS	VI
	LIST OF TABLES	IX
	LIST OF FIGURES	X
	LIST OF APPENDICES	X
	ABSTRACT	XI

<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	<b>1-9</b>
1.1	General Background	1
1.2	Statement of the Problem	2
1.3	Specific Objectives of the Study	3
1.4	Scope or rationale of the Study	3
1.5	Justification of the Study	4
1.6	Assumptions of the Study	4
1.7	Limitations of the Study	5
1.8	Definition of Terms	5

<b>CHAPTER 2</b>	<b>REVIEW OF LITERATURE</b>	<b>10-19</b>
------------------	-----------------------------	--------------

2.1	Concept of satisfaction	10
2.2	Previous research studies related to concept	14
2.3	Relationship between selected characteristics of the respondents and their satisfaction on livestock extension services	17
2.4	Research gap of the study	18
2.5	The conceptual framework of the study	18

<b>CHAPTER 3</b>	<b>MATERIALS AND METHODS</b>	<b>20-30</b>
------------------	------------------------------	--------------

3.1	Locale of the Study	20
3.2	Population and Sample of the Study	23
3.3	Research Instrument	23
3.4	Collection of Data	24
3.5	Measurement of Independent Variables	24
3.6	Measurement of Dependent Variables	28
3.7	Hypothesis of the Study	29
3.8	Data Processing	29
3.9	Statistical Procedures	30

<b>CHAPTER 4</b>		<b>RESULT &amp; DISCUSSION</b>	<b>31-47</b>
4.1	Characteristics of the Respondents		31
4.1.1	Age		31
4.1.2	Level of education		32
4.1.3	Farming experience		33
4.1.4	Livestock farm area		33
4.1.5	Annual family income		34
4.1.6	Income from livestock		35
4.1.7	Daily time spend in livestock farm		35
4.1.8	Training exposure		36
4.1.9	Extension media contact		37
4.1.10	Innovativeness		37
4.2	Farmers satisfaction on livestock extension services		38
4.3	Relation between each of the selected characteristics of the livestock farmers and their satisfaction on livestock extension services		39

<b>CHAPTER 5</b>		<b>SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS</b>	<b>48-53</b>
5.1	Summary of major findings		48
5.1.1	Selected characteristics of the farmer		48
5.1.2	Farmers satisfaction on livestock extension Services		49
5.1.3	Result of hypothesis testing		49
5.2	Conclusions		49
5.3	Recommendations		51
5.3.1	Recommendations for policy implications		51
5.4.1	Recommendations for further study		52



**LIST OF TABLES**

<b>TABLE</b>		<b>PAGE</b>
3.1	Population and sample of the study area	23
4.1	Distribution of the respondents according to their age	31
4.2	Distribution of the respondents according to their level of education	32
4.3	Distribution of the farmers according to their farming experience	33
4.4	Distribution of the farmers according to their livestock farm area	34
4.5	Distribution of the farmers according to their annual family income	34
4.6	Distribution of the farmers according to their income from livestock	35
4.7	Distribution of the farmers according to their time spend for livestock farm	36
4.8	Distribution of the farmers according to their training exposure	36
4.9	Distribution of the farmers according to their extension media contact	37
4.10	Distribution of the farmers according to their innovativeness	38
4.11	Distribution of the farmers according to their satisfaction	38
4.12	Coefficient of correlation showing relationship between each of the selected characteristics of the livestock farmers and their satisfaction on livestock extension services	39

## LIST OF FIGURES

<b>FIGURES</b>	<b>PAGE</b>
2.1 The conceptual frame work of the study	19
3.1 A Map of Madaripur district showing MadaripurSadarupazila	21
3.2 A Map of MadaripurSadarupazila showing the study area Rasti&Panchkhola Union	22

## LIST OF APPENDICES

<b>APPENDICES</b>	<b>PAGE</b>
A English Version of the Interview Schedule	58
B Correlation matrix of the experimental and predicted variables	63

# **FARMERS' SATISFACTION ON LIVESTOCK EXTENSION SERVICES IN BANGLADESH**

**Farjana Jahan**

## **Abstract**

The main purpose of this study was to determine farmers' satisfaction on livestock extension services and to explore the relationship between each of the selected characteristics of the livestock farmers like age, level of education, farming experience, livestock farm area, annual family income, percentage of income from livestock, daily time spend in livestock farm, training exposure, extension media contact and innovativeness with their satisfaction on livestock extension services. Data were gathered from randomly selected 110 farmers of two unions (Panchkhola, Rasti) of Madaripur sadar upazila under Madaripur district by using personal interview schedule during the period from 10<sup>th</sup> October to 25<sup>th</sup> November, 2019. Pearson's Product Moment Co-efficient of Correlation was used to examine the relationship of each of the selected characteristics of the farmers and their satisfaction on livestock extension services in Bangladesh. The findings revealed that 62.73% of the respondents had low satisfaction, while 31.82% had medium satisfaction and 5.45% had high satisfaction on livestock extension services. Correlation co-efficient indicated that among the ten selected experimental variables, only five namely, farming experience, livestock farm area, income from livestock, extension media contact and innovativeness of the farmers had significant positive relationship with their satisfaction on livestock extension services. The rest five variables namely, age, level of education, annual family income, daily time spend for livestock farming and training exposure of the farmers did not show any significant relationship with their satisfaction on livestock extension services. Based on the findings, it may be concluded that government, non-government and private livestock extension providing organizations of Bangladesh should review their extension services to take appropriate action for increasing farmers satisfaction on livestock extension services.

**Key words:** Satisfaction, Livestock extension services

# CHAPTER 1

## INTRODUCTION

### 1.1 General Background

Bangladesh is one of the large populated and agro-based developing country. Agriculture comprises mainly four sub-sectors such as crops, livestock, fisheries and forestry are the dominant sectors of the economy of Bangladesh. About 80% of total population are directly or indirectly depends for their livelihood on cropping and livestock farming. The contribution of overall agriculture sector in Gross Domestic Product (GDP) is very significant in this sector which contributes 17.2% (BBS, 2014) of total GDP. The livestock sub sector is an important sub sector in Bangladesh agriculture. Livestock sub-sector contributes 35 to 40 percent alone to overall agriculture sector. This contribution is about 7-8 percent of the total GDP, among which around 1.53 percent from the animal husbandry (Ministry of fisheries & livestock 2019). The livestock sub-sector provides full time employment for 20% of the total population and part-time employment for another 50%. Livestock agribusiness plays a significant role in our economy through contributing to poverty eradication by creating rural employment and to gear up the achievement of higher economic growth. Performing various functions as provisions of food, nutrition, income generation, savings, draft power, manure, fuel, transport and cultural function and earning foreign currency by exporting meat, hides and skin and value added waste products, etc. In addition, Bangladesh has a suitable environment for cattle. Therefore, the need for developing the dairy industry, especially, in the rural areas, has been recognized. About 36% of the total animal protein comes from the livestock and the rest 64% come from poultry, fish and pluses. Bangladesh has huge number of livestock and poultry population with very high density but low productivity. The poultry meat alone contributes a substantial proportion(37%) of the total meat production in Bangladesh (Begum et al 2011). The country has about 23.4 million cattle, 1.45 million buffalos, 25.6 million goats, 3.16 million sheep, 221.30 million chicken and 41.23 million ducks (Tareque at el. 2010). Its contribution to country's GDP is about 2.5 percent. However, the sector's actual contribution has been consistently underestimated as the value added in draught power used in farm operation, threshing, sugarcane and oilseed crushing, local transport, dung for cooking fuel and manure for fertilization of crop fields were not taken into account. Livestock sub-sector provides new raw material for industry, serves a social security for

the rural poor, and provides security against crop failure or damage during draught or cyclone. Though Bangladesh has one of the highest livestock populations in the world, but characterized by very low productivity, particularly in cattle because of low productivity, inferior genetic material, indiscriminate breeding leading to severe genetic erosion, neglect of animal healthcare and non- existence of an efficient value chain, shortage of feeds and fodder resources, and lack of awareness. Goat and sheep are generally maintained by landless marginal farmers mostly for meat. Poultry is another important component where private industries are playing a major role to support farmers in selected hubs across the country. Considering above discussion, there is a need to conduct a study on farmers satisfaction on livestock extension services in Bangladesh. The tasks to inform, teach and motivate farmers about the improved livestock practices, popularly known as livestock extension, entrusted to the Department of Livestock Services (DLS).

## **1.2 Statement of the Problem**

Practicing of improved innovations for boosting up livestock production is increasing in Bangladesh day by day. A dynamic change in livestock production has already been observed in Bangladesh for carrying of extension program by DLS and other reputed organization. The information, education and motivation functions of DLS have been entrusted to DLO (District livestock officer), ULO (Upazila livestock officer), VS (Veterinary surgeon), LEO (Livestock extension officer) etc. The researcher undertook the investigation entitled, “Farmers satisfaction on livestock extension services” in order to have an understanding the satisfaction of farmers about the livestock extension services. In order to make the study manageable, the following research questions were taken into consideration.

- ✓ What are the selected characteristics of the livestock farmers?
- ✓ What is the level of satisfaction of farmers on livestock extension services?
- ✓ What is the relationship between each of the selected characteristics of the farmers and their satisfaction on livestock extension services?

### **1.3 Specific Objectives of the Study**

In order to attain the answer of the above mentioned research questions, the following objectives were formulated to give proper direction of the study.

- ✓ To determine and describe the following selected characteristics of farmers:
  - Age
  - Education
  - Livestock farming Experience
  - Livestock farm area
  - Annual Family Income
  - Annual livestock income
  - Daily time spend in livestock farm
  - Livestock training exposure
  - Extension media contact
  - Innovativeness
- ✓ To assess the level of farmers' satisfaction on livestock extension services
- ✓ To explore the relationship between each of the selected characteristics of the farmers and their satisfaction on livestock extension services

### **1.4 Scope of the Study**

In this study, extent of farmers satisfaction on livestock extension services were determined. The findings of the study would particularly be applicable to the Madaripursadarupazila in Madaripur district. However, the findings may also be applicable to other districts of Bangladesh and other similar areas where the socio-economic, cultural, physical and geographical conditions do not differ much from those of the study area. It is felt that, these findings of the study would be helpful for administrators of the country to formulate appropriate approach in this regard. The study would also be helpful to the extension workers to set up appropriate strategies which would be suitable for the Department of Livestock Services as well as for the ministry of Livestock & Fisheries

## **1.5 Justification of the Study**

The delivery of livestock services is emerging as an important priority area for enhancing and optimizing livestock production and management of the livestock. Recent advances in the animal husbandry sector have increased the demand for various livestock services like animal breeding, health care, feed and fodder production, marketing, livestock extension etc. which are provided by multifarious organization in Bangladesh. Among all the services, livestock extension services play an important role to empower farmers with appropriate technological knowledge and skills through various extension educations and training programs. With the proper management advice of the farmers, it is possible to move the livestock sector towards rapid development. As a result, it is possible to meet the deficiency of animal protein in Bangladesh. Apart from this, unemployment problems can be reduced in Bangladesh through livestock management

## **1.6 Assumptions of the Study**

An assumption is the supposition that an apparent fact or principle is true in the light of the available evidence (Goode and Hatt, 1952). The researcher had taken the following assumptions into consideration during carrying out the study:

1. The respondents had enough capability to provide proper response of the question furnished in the interview schedule.
2. The respondents were provided views and opinions included in the sample representative of the whole population of the study area.
3. The items, questions and scale of measurement of the variables were reasonably authentic to present the actual condition of the respondents.
4. The data furnished by the respondents were free from bias.
5. The researcher was capable of rating the responses of the respondents with adequate precision.
6. The researcher was capable to adjust with the social and cultural environment of the study area. So, the respondents could provide their information correctly.

7. The findings of the study would give clear concept about farmer's satisfaction on livestock extension services

### **1.7 Limitations of the Study**

In order to keep the study under manageable limit, meaningful, and considering the time, money and other necessary resources available to the researcher, the following limitations were recognized

- The study was confined to Madaripur sadar upazila in Madaripur district
- The major areas of investigation were mostly confined to the farmers satisfaction on livestock extension services.
- There were many characteristics of the farmers in the study area but only 11 of them were selected for investigation.
- For information about the study, the researcher depended on the data furnished by the selected respondent farmer.
- Time allocation and budget was also limitation in the study.

### **1.8 Definition of Terms**

A concept is an abstract of observed things, events or phenomenon or in other words, it is a short hand representation of variety of facts. A researcher needs to know the meaning and contents of every term that he used in his dissertation. It should clarify the issue as well as explain the fact to the investigator and readers. For clarity of understanding, a number of key concepts/terms frequently used throughout the study defined as follows:

#### **Satisfactions**

It can be defined as “a mental or emotional reaction that results as a response to the experience of interaction with the service” (Rust. and Oliver 1994). It can also be regarded as “the extent to which one realizes the effectiveness of the received service in fulfilling his needs (Reed, Johan &



Nicholas 97). Accordingly, farmer satisfaction is a personal feeling or evaluation, which explains the difficulty of satisfying all individuals or estimating satisfaction among a group of individuals.

### **Livestock**

The term livestock is used to designate of poultry, goat and cattle which render by human being for an economic service and produce freely under their care.

### **Grazing land**

Grazing land refers to the pasture land where livestock graze and eat growing grass. The grazing land may be fallow lands, bank of rivers, canals and road sides

### **Poultry farmers**

The poultry farmer refers to those farmers who are engaged in poultry rearing activities in their families for economic benefit.

### **Goat farmers**

Goat farmers refer to those farmers who are engaged in goat rearing activities in their families for income generation.

### **Cattle farmers**

Cattle farmers refer to those farmers who are engaged in cattle rearing activities in their families for additional income.

### **Production**

Production is the method of turning raw materials or inputs into finished goods or products in a manufacturing process. In other words, it means the creation of something from basic inputs.

### **Cattle, Goat and poultry rearing knowledge**

It refers to the basic understanding of the farmers on different cattle, goat and poultry management practices, namely, breeding, feeding, housing, and prevention and disease control.

**Breeding**

It is the process of reproduction of livestock.

**Feeding**

It is the process of supplying ration to livestock for its proper growth, maintenance and reproduction.

**Problem**

Problem means difficult situation which requires some actions to minimize the gap between “what ought to be “and “what is”. The term problem refers to difficult situation faced by the women at the time of livestock rearing.

**Prevention of disease**

It is the process of adopting certain precautionary measures in such a way that the livestock will not be affected by a particular kind of disease or disease.

**Control of disease**

It is a process, which involves the use of some methods or techniques to control, elimination and also to prevent the spread of the particular disease and problem existing to the livestock.

**Artificial Insemination**

Artificial insemination is the technique in which semen with living sperms is collected from the male and introduced into female reproductive tract at proper time with the help of instruments. This has been found to result in a normal offspring. In this process, the semen is inseminated into the female by placing a portion of it either in a collected or diluted forms into the cervix or uterus by mechanical methods at the proper time and under most hygienic conditions.

**Hay**

Hay is grass, legumes or other herbaceous plants that have been cut and dried to be stored for use as animal fodder particularly for large grazing animals raised as livestock, such as cattle, buffalo, goats, and sheep.

**Silage**

Fodder (such as hay or corn) converted into succulent feed for livestock through processes of anaerobic bacterial fermentation (as in a silo).

### **UTS**

Urea treated straw .This is hay or crop residue (corn, millet, sorghum stover, rice straw) treated with urea fertilizer solution to improve its nutritive quality and digestibility.

### **UMMB**

Urea-Molasses Multi nutrient Block

### **Age**

Age may be defined as the stretch of them between birth and the time of interview. It is measured in terms of actual years.

### **Education**

Education refers to the development of desirable knowledge, skill and attitude in individual male and female through the experience of reading, writing, observation and other related activities .It is measured in terms of years of formal schooling.

### **Experience in livestock production**

Experience as a general concept comprises knowledge or skill of something or some event gained through involvement in or exposure to that thing or event. Experience refers to the nature of the events someone or something has undergone. Experience is what is happening to use all the time-as long we exist. However, in this study, it was considered as the year of starting from first livestock production till the year of data collection.

### **Livestock farm area**

It refers to the area owned by farmer including the homestead on which he carried on her livestock and poultry farming, the area being estimated in terms of full benefit to the farmer

### **Annual family income**

It is defined as the total earning of an individual and the members of the family from livestock and other sources (crop, service, business) during a year .It was expressed in ‘000’ taka.

**Annual livestock income**

It means the total earning of an individual and the members of the family from livestock and poultry farming during a year .It was expressed in ‘000’ taka.

**Daily time spend in livestock farm**

It means how much time spend by a respondent each day for the livestock and poultry farming.

**Livestock training exposure**

Livestock training exposure referred to organized instruction aimed at improving knowledge, skill and attitude of respondents that they can perform his/her functions more effectively in livestock and poultry farm. Livestock training exposure referred to number of days the respondents received training in different aspects of livestock sector.

**Extension media contact**

It refers to the extent of contact with various communication media by the farmers in receiving livestock information.

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

Review of literature is presented in this Chapter. This study is mainly related with farmers' satisfaction in livestock extension services and some other improved technologies. Information here collected on this aspect from various sources such as relevant studies theses, journals, articles, organization's reports, internet etc. This enhanced researcher's knowledge for better and clear understanding of the present study.

This chapter has been presented in five sections as follows:

1. Review of literature related to concept of satisfaction
2. Previous research studies related to respondents satisfaction
3. Relationship between selected characteristics of the respondents and their satisfaction on livestock extension services
4. Research gap of the study
5. The conceptual framework of the study

#### **2.1 Concept of Satisfaction**

Satisfaction means customer level of approval when comparing a product's perceived performance with his or her expectations. Also could refer to discharge, extinguishment, or retirement of an obligation to the acceptance of the obligor, or fulfillment of a claim. While satisfaction is sometimes equated with performance, it implies compensation or substitution whereas performance denotes doing what was actually promised.

Satisfaction is the result of interaction between the consumers pre-purchase expectations and post purchase evaluation (ChoongLyong Ha 1998). Belchand Landon(1977) gave a more current approach. He defined consumer satisfaction as a state of mind in which the consumers needs, wants, and expectations throughout the product of service life have been met or exceeded, resulting in future repurchase and loyalty. Some researchers support the idea that satisfaction can be measured from a perspective of performance evaluations, making the inclusion of the disconfirmation process needless. Furthermore, satisfaction is not only consists of cognitive

element but have to include emotional element in determining consumers' satisfaction. Satisfaction can be interpreted in a various ways. Some of them are described below:

1. The act of satisfying or state of being satisfied
2. A fulfillment of a need or desire
3. The pleasure obtained from such fulfillment
4. A source of fulfillment
5. The contentment one feels when one has fulfilled a desire, need, or expectation
6. Compensation for a wrong

The consumer behavior literature has traditionally suggested that consumer satisfaction is a relative concept, and is always judged in relation to a standard (Olander, 1977). Consequently, in the course of its development, a number of different competing theories based on various standards have been postulated for explaining customer satisfaction. These theories include

- The Expectancy-Disconfirmation Paradigm (EDP);
- The Value-Precept Theory;
- The Attribution Theory;
- The Equity Theory;
- The Comparison Level Theory;
- The Evaluation Congruity Theory;
- The Person-Situation- Fit model;
- The Performance-Importance model;
- The Dissonance Theory;
- The Contrast Theory.

### **The Expectancy Disconfirmation Paradigm**

Drawing on the shortcomings of the above early theories of consumer satisfaction, Olander (1977) proposed the Expectancy-Disconfirmation Paradigm (EDP) as the most promising theoretical framework for the assessment of customer satisfaction. The model implies that consumers purchase goods and services with pre-purchase expectations about the anticipated

performance. The expectation level then becomes a standard against which the product is judged. That is, once the product or service has been used, outcomes are compared against expectations. If the outcome matches the expectation confirmation occurs. Disconfirmation occurs where there is a difference between expectations and outcomes.

### **The Value Percept Theory**

Similar to LaTour and Peat's argument, Westbrook and Reilly (1983) argue that the Expectancy-Disconfirmation paradigm may not be the most appropriate model to explain customer satisfaction, as customer satisfaction/dissatisfaction is more likely to be determined by comparative standards other than expectations. They proposed a Value-Percept Disparity theory, as an alternative to the Expectation-Disconfirmation paradigm. Criticizing the predictive expectations used as a comparison standard in the traditional Disconfirmation paradigm, Westbrook and Reilly argue that what is expected from a product may or may not correspond to what is desired or valued in a product.

### **The Attribution Theory**

Research of the Attribution Theory is primarily developed from the Weiner, Frieze and Kukla's (1971) work. It is important to note that the Attribution theory has been mostly used in dissatisfaction/ complaining behavior models than in satisfaction models per se. According to this model, consumers are regarded as rational processors of information who seek out reasons to explain why a purchase outcome, for example dissatisfaction, has occurred (Folkes, 1984).

### **The Equity Theory**

According to the Equity Theory, satisfaction exists when consumers perceive their output/input ratio as being fair (Swan & Oliver, 1989). Equity models are derived from the Equity Theory (Adams, 1963), and are based on the notion of input output ratio, which plays a key role in satisfaction (Swan&Oliver, 1989).

### **The Comparison Level Theory**

In contrast to the Expectancy-Disconfirmation paradigm which uses predictive or situational-produced expectations as the comparison standard, the Comparison Level Theory argues that

there are more than one basic determinants of comparison level for a product: (1) consumers' prior experiences with similar products, (2) situational produced expectations (those created through advertising and promotional efforts), and (3) the experience of other consumers who serve as referent persons.

### **The Evaluative Congruity Theory**

According to Sirgy's (1984) Evaluative Congruity Model (or the Social Cognition Model), satisfaction is a function of evaluative congruity, which is a cognitive matching process in which a perception is compared to an evoked referent cognition in order to evaluate a stimulus or action.

### **The Person-Situation-Fit Concept**

It has been also noted that tourist satisfaction can be explained by the Person-Situation Fit concept (Pearce & Moscardo, 1984). This concept argues that people deliberately seek situations, which they feel match their personalities and orientations.

### **The Importance- Performance Model**

This implies that customers' satisfaction levels are related to the strength of their beliefs regarding attribute importance multiplied by how well these attributes meet their expectations (Barsky, 1992) (a modified version of EDP to measure customer satisfaction).

### **The Dissonance Theory**

The Dissonance Theory suggests that a person who expected a high-value product and received a low-value product would recognize the disparity and experience a cognitive dissonance (Cardozzo, 1965). That is, the disconfirmed expectations create a state of dissonance or a psychological discomfort (Yi, 1990).

### **The Contrast Theory**

The Contrast Theory suggests the opposite of the Dissonance Theory. According to this theory, when actual product performance falls short of consumer's expectations about the product, the



contrast between the expectation and outcome will cause the consumer to exaggerate the disparity (Yi, 1990).

## **2.2 Past research findings relating to respondents' satisfaction**

This section presents a review of previous studies relating the respondents' satisfaction towards different aspects. Howard and Sheth (1969) define satisfaction as, "The buyer's cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone" .According to Westbrook and Reilly (1983) define satisfaction as, customer satisfaction is "an emotional response to the experiences provided by, associated with particular 32 products or services purchased, retail outlets, or even molar patterns of behavior such as shopping and buyer behavior, as well as the overall market place" .

Oliver (1981)put forward a definition as, "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumers' prior feelings about the consumption experience".

The definition offered by Hunt (1977) is "an evaluation rendered that the(consumption) experience was at least as good as it was supposed to be". Customer/consumer satisfaction is "an evaluation that the chosen alternative is consistent with prior beliefs with respect to that alternative" – Definition by Engel and Blackwell (1982).

Tse and Wilton (1988) define as, "the consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some other norm of performance) and the actual performance of the product/service as perceived after its consumption".

Berry and Parasuraman (1991) argue that since customers' satisfaction is influenced by the availability of customer services, the provision of quality customer service has become a major concern of all businesses. Customer satisfaction is typically defined as a post consumption evaluative judgment concerning a specific product or service. It is the result of an evaluative

process that contrasts pre-purchase expectations with perceptions of performance during and after the consumption experience.

Oliver (1981) defines customer satisfaction as a customer's emotional response to the use of a product or service.

Anton (1996) offers more elaboration: "customer satisfaction as a state of mind in which the customer's needs, wants and expectations throughout the product or service life have been met or exceeded, resulting in subsequent repurchase and loyalty".

Merchant Account Glossary points out that, "Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and produce/service to produce/service."

Schiffman and Kanuk (2004) defines customer satisfaction as "The individual's perception of the performance of the product or service in relation to his or her expectations".

Woodruff and Gardian (1996) define "Satisfaction, then, is the evaluation or feeling that results from the disconfirmation process. It is not the comparison itself (i.e., the disconfirmation process), but it is the customer's response to the comparison. Satisfaction has an emotional component."

According to Hung (1977), "... satisfaction is a kind of stepping away from an experience and evaluating it ... One could have a pleasurable experience that caused dissatisfaction because even though it was pleasurable, it wasn't as pleasurable as it was supposed to be. So satisfaction / dissatisfaction isn't an emotion, it's the evaluation of the emotion".

Oliver (1977) defines "Satisfaction is the consumer's fulfillment response. It is a judgment that a product or service feature, or the product of service itself, provided (or is providing) a pleasurable level of consumption- related fulfillment, including levels of under- or over-fulfillment".

Some of the definitions available from web are compiled below: “Customer satisfaction, a business term, is a measure of how products and services supplied by a company meet or surpass customer expectation”.

“Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service”.

According to Business Dictionary, customer satisfaction is, “Degree of satisfaction provided by the goods or services of a firm as measured by the number of repeat customers.” These definitions suggest that an evaluative process is an important element underlying customer satisfaction. Research conducted by Vanderberg and Lance (1992) during which they surveyed 100 professionals in the information services for five months showed a strong relations between job satisfaction and employee loyalty. Their research proved that the higher the degree of job satisfaction the higher is the level of employee loyalty. Even though the effects are modest the fact that job satisfaction contributes to decreasing the level of employee absenteeism remains. So satisfaction is worth paying attention to, especially since it is potentially under your control, unlike some of the other causes of absenteeism (e.g. illness, accidents). But as we said circumstances can alter this equation. As a manager you could be implicitly encouraging absenteeism by enforcing company policies. If people are paid for sick days, and if they must be “used or lost” this is pretty strong encouragement for employees to be absent. In other words, you’ve helped create a culture of absenteeism that can overcome the “satisfaction” effect. (Sweney and McFarlin, 2005) When satisfaction is high, absenteeism tends to be low; when satisfaction is low, absenteeism tends to be high. However as with the other relationships with satisfaction, there are moderating variables such as the degree to which people feel their jobs are important. Additionally, it is important to remember that while high job satisfaction will not necessarily result in low absenteeism, low job satisfaction is likely to bring about high absenteeism.

### **2.3 Relationship between selected characteristics of the respondents and their satisfaction**

The reviews related to the relationship between selected characteristics of farmers' and their satisfaction on livestock extension services in Bangladesh was very limited. Yet the researcher tried her best to find out the related reviews, which were found.

#### **Livestock farm area**

Ahmed (1974) indicated that farm size of the farmers had a significant positive relationship with their farming knowledge and he concluded that the agricultural knowledge of the farmers increased with increase in farm size.

Westernguard (1981) stated that in landed families the females were engaged in income generating activities within the family farm both in post harvest operation and in the maintenance of vegetable and animals.

Yasmin (1987) in her study concluded that the farm size of the farmers had significant negative effect on their knowledge on poultry production. The findings thus indicated that the larger the farm size of the farmers, the smaller was their knowledge in connection in poultry production.

Ali (1978) examined the relationship between farm size of the farmers and their cattle problem confrontation and he found a negative relationship between the concerned variables.

#### **Daily time spend in livestock farm**

There was no direct review available about time availability. However, some literature on time allocation indicated that women on average utilize more time on household activities and men spend more time in activities related to cash earning (Halim, 1991)

#### **Extension media contact**

Easmin (1987) was concluded that the extension contact of the farmers had significant positive effect on their knowledge on poultry production.

Islam & Shahidullah (1989) also found a positive relationship between extension contact and livestock knowledge.

Ahmed (1987) was concluded that there was a positive significant relationship between extension contact of the farmers and their agricultural knowledge.

## **2.4 Research Gap of the Study**

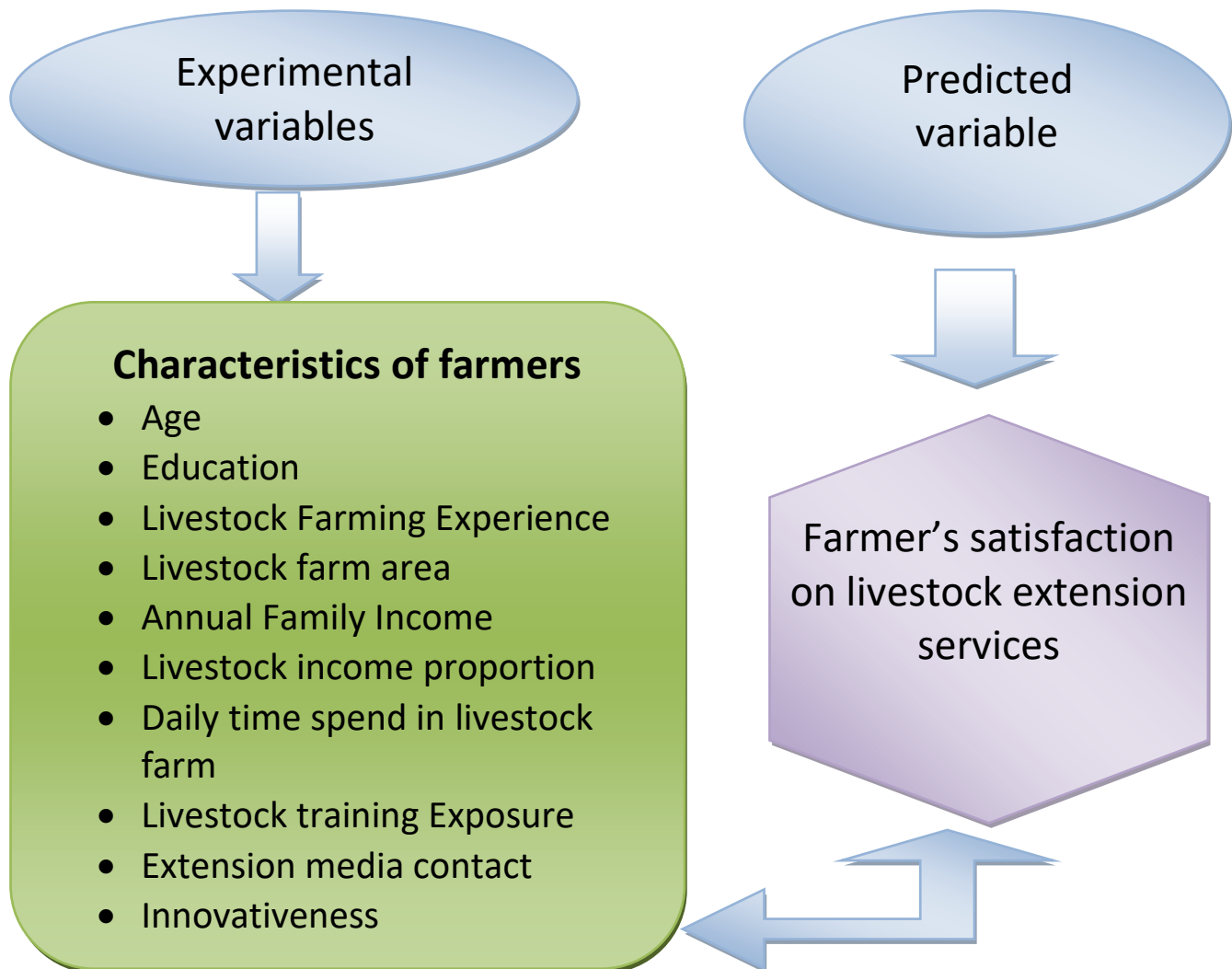
There are lots of researches on farmers' satisfaction on various issues of crop sector. Few researches conducted on farmers' satisfaction by using farmers 'satisfaction model and evaluation index for establishing of rural public infrastructure. Others research occurred on Farmers satisfaction on rural public goods supply and its influencing factors. To the best of the knowledge of the present researcher, no attempt was made to determine farmers' satisfaction on livestock extension services in Bangladesh. On these considerations, the present researcher felt necessity to conduct the present research to find out the farmers' satisfaction on livestock extension services in Bangladesh.

## **2.5 Conceptual Framework of the Study**

In scientific research, selection and measurement of variables constitute an important task. Studies on individual, group and society revealed that acceptance of modern technologies is conditional upon many factors. Some of these are social, personal, economical and situational factors and the behavior of farmers are influenced by these characteristics. The hypothesis of a research while constructed properly consist at least two important elements i.e.: a predicted variable and an experimental variable. A predicted variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the experimental variables (Townsend, 1953). An experimental variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. Variables together are the causes and the phenomenon is effect and thus, there is cause effect relationship everywhere in the universe for a specific events or issues.

The present study tried to focus on determining farmers' satisfaction on livestock extension services. Satisfaction of an individual may be influenced and affected by different interacting

forces and many characteristics that he possesses. It is not possible to deal with all the characteristics in a single study. Considering the facts, conceptual model of the study has been presented in Figure 2.1.



**Figure 2.1 Conceptual Framework of the Study**

## **CHAPTER 3**

### **METHODOLOGY**

Methodology would be enabling the researcher to collect valid & reliable information and to analyze them properly to arrive at correct decisions. Without proper methodology it is impossible to conduct research work smoothly and it is very difficult to address the objectives with a scientific manner. The basic materials for conducting any research are the unbiased information and facts. A sequential description of the methodologies followed in conducting in this research work has been presented in this chapter.

#### **3.1 Locale of the study**

The study was conducted in Madaripur Sadar Upazila under Madaripur District. Madaripur Sadar is located at 23.1667°N 90.2083°E. It has 74451 households and a total area of 283.14 km<sup>2</sup>. It is bounded by Shibchar and Zanjira Upazilas on the north, Kalkini and Kotalipara Upazilas on the south, Shariatpur Sadar Upazila on the east, Rajoir Upazila on the west. There are fifteen union under Madaripur Sadar Upazila. From which two union were randomly selected for study purpose namely Panchkhola & Rasti Union. Two villages were randomly selected from each union as the locale of the study like Mahisherchar & Jafrabaz in Panchkhola union and Putiya & Charmuguriya in Rasti union. Maps of Madaripur district and Madaripur Sadar Upazila showing the study area are presented in figures 3.1 & 3.2 respectively.



Figure 3.1 A Map of Madaripur District Showing Madaripur Sadar Upazila





Figure 3.2 A map of Mdaripur Sadar Upazila Showing the study area

### 3.2 Population and Sample

The livestock farmers of Mahisherchar & Jafrabaz villages in Panchkhola union and Putiya & Charmuguriya villages in Rasti union constituted the population of the study. Update lists of 440 farmers from the selected villages were prepared with the help of statistics office. Twenty five (25) percent of the population was randomly proportionately selected as the sample of the study by using random sampling method. Thus, 110 livestock farmers constituted the sample of the study. The distribution of the population and sample farmers are shown below:

**Table 3.1 Population and sample of the study area**

<b>Name of the Upazila</b>	<b>Name of the Union</b>	<b>Name of the Village</b>	<b>Number of population</b>	<b>Number of sample size</b>
Madaripur Sadar Upazila	Panchkhola	Mahisherchar	125	31
		Jafrabaz	90	23
	Rasti	Putiya	105	26
		Charmuguriya	120	30
<b>Total</b>			<b>440</b>	<b>110</b>

### **3.3 Research Instrument**

A well-structured interview schedule (IS) was developed based on objectives of the study for collecting information. Both open and closed form questions were used in the questionnaire. The questionnaire was constructed containing direct and simple question in view the dependent and independent variables.

The questionnaire was pretested with ten farmers in actual situation before finalized it for collection of data. Necessary correction, addition, alteration rearrangement and adjustment were made in the interview schedule based on pretest experience. Appropriate scales were developed to measure both independent and dependent variables. Bengali version of the interview schedule was used for the data collection. A copy of the English version of interview schedule is presented into Appendix I.

### **3.4 Collection of Data**

The data were collected personally by the researcher himself through face to face interview from the selected respondents. Whenever any respondents faced difficulty in understanding questions, more attention was taken to explain the same with a view to enabling the farmers to answer properly. During the data collection no serious problem was faced by the investigator but obtained cooperation from the respondents. Data collection was started on 10<sup>th</sup> October, 2019 and completed by 25<sup>th</sup> November, 2019.

### **3.5 Measurement of Independent Variables**

In the scientific research, the selection and measurement of variable constitute a significant task. In this conception, the researcher reviewed literatures to widen this understanding about the natures and scopes of the variables relevant to this research. Farmers' satisfaction on livestock extension services was the main focus of the study. Ten (10) characteristics of the livestock farmers like age, level of education, livestock farming experience, livestock farm area, annual family income, livestock income proportion, daily time spend in livestock farm, livestock training exposure, extension media contact, and innovativeness were considered for the study which might have relationship with their satisfaction on livestock extension services. Following procedures were followed for measuring the variables.

#### **3.5.1 Age**

The age of individual is one of the important factors pertaining to his personality make up which can play an important role in his/her adoption behavior. Age of a respondent farmer was measured by the period of time from his/her birth to the time of interview and it was measured in terms of complete years on the basis of their response. A score of one (1) was assigned for each years of age.

#### **3.5.2 Education**

Education was measured in terms of grades of formal education (school/college) completed by an individual. It was expressed in terms of years of schooling. A score of one (1) was assigned for each year of schooling completed (item no. 2, Appendix-I). For example, if the respondent passed the S.S.C. examination, his education score was given as 10, if he passes the final examination of class seven, his education score was given as 7. If the respondent did not know

how to read and write, his education score was given as “0” (zero). A score of 0.5 (half) was given to that respondent who could sign his/her name only.

### **3.5.3 Livestock farming experience**

Livestock farming experience of an individual is one of the important factors. Experience can play an important role on the livestock sector. The livestock farming experience of a respondent farmer was measured by counting the actual years of his livestock rearing practices at the time of interview on the basis of his statement. It was determined as the number of years the farmer has been rearing. So it was measured in terms of actual years. No fractional year was considered for the study. For example, if farmers had 10 years farming experience he /she get 10 score as per year score was assigned as 1. This variable appears in item number three (3) in the interview schedule as presented in Appendix-I.

### **3.5.4 Livestock farm area**

The size of a respondent's livestock farm was measured by the area of land used in his/her possessed livestock. Data obtained in response to questions under item No. 4 of the interview schedule formed the basis for determining the farm size of the respondent. Farm size of respondents was measured in terms of decimal. Here, farm size was computed by using the following formula:

$$FS=A+B+C$$

Where, FS= Farm size

A =Land used for poultry rearing

B = Land used for large animal rearing (cattle, buffalo)

C= Land used for small animal rearing (sheep, goat)

### **3.5.5 Annual family income**

The annual family income of a respondent was measured in '000' taka on the basis of his/her total yearly earnings from livestock and other sources in which s/he was involved. The price of the other enterprises (Crop cultivation i.e. field crops, vegetable etc.) was also added to the earnings. Earnings of each respondent from different sources (like service, business and labor) were also included in calculating the income. Yearly earnings from farming and other sources were also added together to obtain total income of a respondent. A score of one (1) was given for each one thousand taka. This variable appears in item number five (5) in the interview schedule as presented in Appendix-I.

### **3.5.6 Livestock income proportion**

Income from livestock of a respondent was measured in '000' taka on the basis of his/her total yearly earnings from livestock & poultry rearing. A score of one (1) was given for each one thousand taka. This variable was included in the item number five (5) of the interview schedule as presented in Appendix-I.

### **3.5.7 Daily time spend in livestock farm**

Daily time spends in livestock and poultry farming of a respondent farmer was measured by the number of hour s/he spent per day for livestock and poultry farming. A score of one (1) was given for each hour of time spend per day. This variable appears in item number six (6) in the interview schedule as presented in Appendix-I.

### **3.5.8 Livestock training exposure**

Livestock training exposure of a respondent farmer was measured by the total number of days a respondent attended in various types of livestock and poultry training courses during his/her life. This variable appears in item number seven (7) in the interview schedule as presented in Appendix-I. If farmer received total training for 10 days in his life his/her training exposure score would be 10.

### **3.5.9 Extension media contact**

The extension media contact of a respondent farmer was measured on the basis of the contact of one's participation with six selected information sources. Scores were assigned for a respondent's participation in extension media contact as follows:

<b>Extent of communication</b>	<b>Scores</b>
Regularly	3
Occasionally	2
Rarely	1
Not at all	0

This variable appears in item number eight (8) in the interview schedule as presented in Appendix-I. The score of extension media contact could range from 0 to 18 while '0' indicating no contact with extension media and '18' indicating regular contact with extension media.

### **3.5.10 Innovativeness**

According to Rogers (1995), it is the degree of adoption of a new technology to which an individual or other unit of adoption is relatively earlier than the other member of the social system. Innovativeness of a respondent was measured by computing an innovativeness score on the basis of his/her extent of using 5 selected modern Agricultural practices. Scores were assigned on the basis of time dimension in the following manner:

<b>Degree of innovativeness</b>	<b>Score assigned</b>
Adoption within 2 year of hearing	3
Adoption during >2-4 year of hearing	2
Adoption within >4 year of hearing	1
Not at all	0

This variable appears in item number nine (9) of the interview schedule as presented in Appendix-I. Innovativeness score of a respondent was obtained by adding his/her score for all

the items. Therefore, the possible innovativeness score of the respondents could range from 0 to 15, where '0' indicating no innovativeness and '15' indicating highest innovativeness.

### 3.6 Measurement of farmers' satisfaction on livestock extension services

Farmers' satisfaction on livestock extension services was the main focus of this study. In this study, the level of satisfaction of the farmers on livestock extension services was highlighted. On the basis of this main aspect, the researcher obtained knowledge by visiting the study area, discussing with the livestock farmers and local leaders at the time of collecting data. Besides, the researcher discussed with the Livestock Extension Officer, Veterinary Surgeon and other related persons of the respective study area. The procedure for measuring this variable was as follows:

Farmers' satisfaction on livestock extension services was measured on the basis of 13 selected statements. Degree of satisfaction on each of the statement was measured by assigning the score in the following manner:

Degree of satisfaction	Score assigned
Highly	3
Moderately	2
Low	1
Not at all	0

The scores for responses against all the 13 statement were added together to obtain one's satisfaction score. Therefore, satisfaction score of the respondents could range from 0 to 39. Where '0' indicates no satisfaction and '39' indicates highest level of satisfaction.

### 3.7 Hypothesis of the study

Goode and Hatt (1952) defined “A hypothesis is a proposition which can be put to a test to determine its validity. It may seem contrary to, or in accord with common sense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test”.

Following hypothesis was formulated to explore the relationship between each of the selected characteristics of the livestock farmers and their satisfaction on livestock services in Bangladesh:

“There is a relationship between each of the selected characteristics (age, education, livestock farming experience, livestock farm area, annual family income, annual livestock income, daily time spend in livestock farm, livestock training exposure, extension media contact and innovativeness)of the livestock farmers and their satisfaction on livestock extension services.”

The research hypothesis was converted into null form for the purpose of statistical testing. A null hypothesis states that there is no relationship between the concerned variables.

The following null hypotheses were formulated for this study:

“There is no relationship between of each of the selected characteristics (age, education, livestock farming experience, livestock farm area, annual family income, annual livestock income, daily time spend in livestock farm, livestock training exposure, extension media contact and innovativeness)of the farmers and their satisfaction on livestock extension services.”

### **3.8 Processing of Data**

For data processing and analysis the following steps followed:

#### **3.8.1 Compilation of data**

After completion of field survey all the interview schedule were compiled, tabulated and analyzed according to the objective of the study. In this process all the responses in the interview schedule were given numerical coded values. Local units were converted into standard units. The responses to the questions in the interview schedule were transferred to a master sheet to facilitate tabulation. Tabulation was done on the basis of categories developed by the investigator.



### **3.8.2 Categorization of respondents**

For describing the various independent and dependent variables, the respondents were classified into various categories. In developing categories the researcher was guided by the nature of data and general consideration prevailing on the social system. The procedures have been discussed while describing the variable in the sub-sequent sections of next chapter.

### **3.9 Statistical procedures**

Various statistical measures such as frequency counts, range, mean, percentage, standard deviation were used in describing data. SPSS (version 11.5) computer program were used for analyzing the data. The categories and tables were used in describing data. The categories and tables were also used in presenting data for better understanding.

For determining the relationship between each of the selected characteristics of the farmers and their level of satisfaction on livestock extension services Pearson`s Product Moment Correlation Co-efficient (r) test was used. In the study five percent (0.05) level of probability was used to reject any null hypothesis.

**CHAPTER 4**  
**RESULT AND DISCUSSION**

Result and discussion is a reflection of research work. A consequential and detailed discussion on the findings of the scientific research study has been presented in this chapter. The chapter includes three sections. In the first section, selected characteristics of the respondents have been discussed. The second deals with farmers’ satisfaction on livestock services and the finally, the relationship between selected characteristics of the farmers’ and farmers satisfaction on livestock extension services have been discussed in the third section.

**4.1 Selected Characteristics of the respondents**

Ten characteristics of the farmers were selected for this study, which are described in this sub section. These selected characteristics were age, level of education, farming experience, land area, annual family income, income from livestock sector, time exposure, training exposure, extension media contact, innovativeness. The noticeable topographies of the ten characteristics of the farmers are discussed below:

**4.1.1 Age**

The age of the sample farmers ranged from 25 to 70 with an average of 48.45 and standard deviation of 11.754. The respondents were classified into three categories on the basis of their age (Table 4.1).

**Table 4.1 Distribution of the respondents according to their age**

Categories of respondents	Observed Range (Year)	Respondents’		Mean	Standard deviation
		Number	Percent		
Young aged (up to 35)	25-70	14	12.72	48.45	11.754
Middle aged (36-50)		51	46.36		
Old aged (above 50)		45	40.90		
Total		110	100		

Data shows that the highest proportions (46.36 percent) of the farmers were middle aged compared to 40.90 percent old and 12.72 percent young. Data also indicates that the middle and old aged respondents constitute an overwhelming majority (87.26 percent) of the respondents. The middle and old aged respondents generally tend to be involved with different types of innovations than the youngest group. In fact, respondents having ability to take risk and think about the improved or modern agriculture usually contact with Livestock Extension Services for better utilization of modern technology for achieving maximum production as well as highest benefit.

#### 4.1.2 Education

The education of the respondents ranged from 0 to 16 with the mean and standard deviation of 6.145 and 3.628 respectively. Based on their education, the respondents were classified into five categories such as ‘illiterate’ (0), ‘can sign only’ (0.5), primary (1-5), secondary (6-10), and above secondary (>10) education..The distribution of the respondents according to their education is presented in Table 4.2.

**Table 4.2 Distribution of the respondents according to their level of education**

Categories of respondents	Respondents'		Mean	Standard Deviation
	Number	Percent		
Illiterate (0)	2	1.81	6.145	3.628
Can sign only (0.5)	20	18.18		
Primary education (1-5)	27	24.54		
Secondary education (6-10)	54	49		
Above secondary (above 10)	7	6.36		
Total	110	100		

Table 4.2 shows that 49 percent respondents had secondary level of education followed by 18.18 percent could sign their name only, 24.25 percent had primary, 1.81 percent respondents were illiterate and 6.36 percent respondents had above secondary level of education.

### 4.1.3 Livestock farming experience

Farming experience score of the respondents varied from 2 to 37 with a mean of 10.96 and standard deviation of 7.852. On the basis of farming experience, the respondents were classified into three categories according to their farming experience as shown in Table 4.3

**Table 4.3 Distribution of the farmers according to their farming experience**

Category	Respondents		Mean	Standard Deviation
	Number	Percent		
Low (up to 10 year)	72	65.45	10.96	7.852
Medium (>10-20 year)	25	22.72		
High (>20 year)	13	11.83		
Total	110	100		

Data shown in the table 4.3 revealed that 65.45 percent of the respondents had low farming experience followed by 22.72 percent had medium and 11.83 percent had high livestock farming experience.

### 4.1.4 Livestock farm area

The livestock farm area of the respondents varied from 2 to 16 decimal with an average of 6.9591 and standard deviation of 3.431. The respondents were classified into three categories on the basis of their livestock farm area as shown in table 4.4.

**Table 4.4 Distribution of the farmers according to their livestock land area**

Categories	Respondents		Mean	Standard Deviation
	Number	Percent		
Small (up to 5 decimal)	39	35.45	6.9591	3.431
Medium (>5-10 decimal)	56	50.92		
Large (>10 decimal)	15	13.63		
Total	110	100		

Table 4.4 shows that the highest proportion of the respondents (50.92 percent) belonged to medium livestock farm area while 35.45 percent belonged to small and 13.63 percent belonged to large for livestock farm. Thus most of the farmers had small to medium size livestock farm area.

#### 4.1.5 Annual family income

The annual family income of the respondents ranged from 62 to 920 thousand taka with the mean and standard deviation of 302.96 and 192.849 respectively. Considering the annual income, the respondent farmers were classified into three categories namely low, medium and high annual income group. The distribution of respondent farmers according to their annual family income is presented in Table 4.5.

**Table 4.5 Distribution of the farmers according to their annual family income**

Category	Respondents		Mean	Standard Deviation
	Number	Percent (%)		
Low income (up to 100)	20	18.18	302.96	192.849
Medium income (105 to 240)	31	28.18		
High income (above 240)	59	53.64		
Total	110	100		

Data in Table 4.5 revealed that 53.64 percent of respondents have high annual income, 28.18 percent respondents have medium income and 18.18 percent respondents have lower annual income. It shows that most of the farmers belonged to high annual income.

#### 4.1.6 Annual livestock income

The livestock income of the respondents ranged from 17 to 420 thousand taka with the mean and standard deviation of 81.30 and 78.431 respectively. Considering the livestock income, the respondent farmers were classified into three categories namely low, medium and high income group. The distribution of respondent farmers according to their income from livestock is presented in table 4.6.

**Table 4.6 Distribution of the farmers according to their income from livestock**

Category	Respondents		Mean	Standard Deviation
	Number	Percent		
Low income (up to 46)	63	57.28	81.30	78.431
Medium income (46 to 136)	27	24.54		
High income (above 136)	20	18.18		
Total	110	100		

From Table 4.6, it was observed that the highest portion (57.28%) of the respondents had low annual family income while (24.54%) respondents had medium and (18.18%) had high annual family income from livestock farm. It shows that most of the farmers belonged to low to medium annual income. For the present study, it is necessary to determine the satisfaction level of all categories of farmers on livestock development of the Government of Bangladesh.

#### 4.1.7 Daily time spend in livestock farm

The Daily times spend in livestock farm of the respondents ranged from 4 to 8 hour with the mean of 6.38 and standard deviation of 1.361. Considering the time spends farmers were classified into three categories namely low, medium and high group. The distribution of respondent farmers according to their daily time spend in livestock farm is presented in table 4.7.

**Table 4.7 Distribution of the farmers according to their time spend for livestock farm**

Categories	Respondents		Mean	Standard Deviation
	Number	Percent		
Low (up to 4 hour)	11	10	6.38	1.361
Medium (5-7 hour)	66	60		
High (8 hour)	33	30		
Total	110	100		

From Table 4.7, it was observed that the highest portion (60%) of the respondents spend medium level of time while (30%) respondents spend high and (10%) respondents spend low level of time. It shows that most of the farmers spend high to medium level of time for livestock rearing.

#### **4.1.8 Livestock training exposure**

The score of livestock training exposure of the respondents ranged from 0 to 4, with an average of 1.65 and standard deviation of 1.192. Based on their training exposure, the respondents were classified into the three categories i.e., no training, low training and medium training exposure. Distribution of the farmers according to their training exposure is presented in the table 4.8

**Table 4.8 Distribution of the farmers according to their training exposure**

Category	Respondents		Mean	Standard Deviation
	Number	Percent		
No training (0 days)	28	25.45	1.65	1.192
Low training (1-3 days)	78	70.90		
Medium training (4 days)	4	3.65		
Total	110	100		

From Table 4.8, it was observed that the highest portion (70.90%) of the respondents had received low training while (25.45%) respondents had received no training and 3.65% respondents had received medium training. Overwhelming majority (96.35 percent) of the

respondents had no to low training exposure. Nobody had high training in the study area. The respondents training exposure indicate that the respondents of the study area needs to training facilities.

#### 4.1.9 Extension media contact

The scores of the farmers regarding extension media contact ranged from 4 to 12 with a mean of 6.52 and standard deviation of 1.613. On the basis of their extension contact scores, the farmers were classified into three categories as low contact, medium contact and high contact as shown in table 4.9.

**Table 4.9 Distribution of the farmers according to their extension media contact**

Categories	Respondents		Mean	Standard Deviation
	Number	Percent (%)		
Low (1-6)	60	54.54	6.52	1.613
Medium (7-11)	47	42.73		
High (>11)	3	2.73		
Total	110	100		

Data presented in the table 4.9 indicate that the highest proportion (54.54%) of the respondents had low contact as compared to 42.73% and 2.73% having medium and high extension media contact respectively. Data again revealed that majority (97.27%) of the farmers had low to medium extension media contact. The results indicate that the contact with livestock extension service provider of the farmers was low to medium.

#### 4.1.10 Innovativeness

The scores of innovativeness of the farmers ranged from 4 to 14 with a mean of 7.37 and standard deviation of 2.089. On the basis of their innovativeness scores, the farmers were classified into three categories as low (up to 5), medium (6 to 10) and high (>14) as shown in table 4.10.



**Table 4.10 Distribution of the farmers according to their innovativeness**

Category	Respondents		Mean	Standard Deviation
	Number	Percent (%)		
Low (up to 5)	11	10	7.37	2.089
Medium (6-10)	91	82.72		
High (>10)	8	7.28		
Total	110	100		

Data presented in the Table 4.10 show that the highest proportion (82.72%) of the farmers had medium innovativeness as compared to 10% having low innovativeness and 7.28% having high innovativeness. Thus, most (92.72%) of the farmers had low to medium innovativeness.

#### 4.2 Farmers Satisfaction on Livestock Extension Services

Satisfaction of the farmers on livestock extension services was the main focus of the study. The observed satisfaction score of the respondents ranged from 13 to 27 against the possible range of 0-39 with the mean scores of 16.70 with the standard deviation of 3.149. Based on their satisfaction scores, the respondents were classified into three categories as low, medium and high level of satisfaction as shown in Table 4.11.

**Table 4.11 Distribution of the farmers according to their satisfaction**

Categories	Respondents		Mean	Standard Deviation
	Number	Percent (%)		
Low (13-17)	69	62.73	16.70	3.149
Medium (18-22)	35	31.82		
High (23-27)	6	5.45		
Total	110	100		

Data contained in the Table 4.11 revealed that majority (62.73%) of the farmers had low satisfaction as compared to 31.82% and 5.45% having medium and high satisfaction

respectively. It means that overwhelming majority (94.55%) of the farmers had low to medium satisfied on livestock extension services in Bangladesh.

#### **4.3 Relationship between each of the selected characteristics of livestock farmers and their satisfaction on livestock extension services**

The purpose of this section is to examine the relationship of each of the selected characteristics of the livestock farmer with their satisfaction on livestock extension services. The characteristics of the farmers included age, level of education, farming experience, livestock farm area, annual family income, income from livestock, daily time spend, training exposure, extension media contact, and innovativeness and the focal variable was the farmers satisfaction on livestock extension services. To explore the relationship between each of the selected individual characteristics of the farmers and their satisfaction on livestock extension services Pearson’s product moment correlation co-efficient  $r'$  has been used. Five percent (0.05) level of probability was used as the basis for acceptance or rejection of a hypothesis. The result of co-efficient of correlation between the concerned variables as presented in the Table 4.12.

**Table 4.12 Co-efficient of correlation showing relationship between each of the selected characteristics of the livestock farmers and their satisfaction on livestock extension services**

<b>Predicted variable</b>	<b>Experimental variable</b>	<b>Computed value of “ r ”</b>
Farmers satisfaction on livestock extension services	Age	- 0.002
	Education	0.077
	Livestock farming experience	0.327**
	Livestock farm area	0.380**
	Annual family income	0.157
	Annual livestock income	0.485**
	Daily time spend in livestock farm	0.091
	Livestock training exposure	0.043
	Extension media contact	0.428**
	Innovativeness	0.427**

\*NS Not significant

\* Significant at 0.05 level of probability

\* Significant at 0.01 level of probability

### **4.3.1 Age and satisfaction on livestock extension services**

Relation between age of the farmers and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between age of the farmers and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be ‘ $r$ ’=- 0.002 as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a negative trend.
- The calculated value between the concerned variables ‘ $r$ ’ (-0.002) was found to be smaller than the tabulated value of ‘ $r$ ’ with 108 degrees of freedom at 0.05 level of probability.
- The concerned null hypothesis was accepted.
- The co-efficient of correlation between concerned variable was non- significant at 0.05 level of probability

Thus, the age of the farmers had no significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

### **4.3.2 Education and satisfaction on livestock extension services**

Relation between level of education of the farmers and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between education of the farmers and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be  $r = 0.077$  as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables  $r$  (0.077) was found to be smaller than the tabulated value of  $r$  with 108 degrees of freedom at 0.05 level of probability.
- The concerned null hypothesis was accepted.
- The co-efficient of correlation between concerned variable was non- significant at 0.05 level of probability

Thus the level of education of the farmers had no significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.3 Livestock farming experience and satisfaction on livestock extension services**

Relation between livestock farming experience of the farmers and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between livestock farming experience of the farmers and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be  $r = 0.327$  as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables  $r$  (0.327) was greater than the tabulated value of  $r$  with 108 degrees of freedom at 0.01 level of probability.

- The concerned null hypothesis was rejected.
- The co-efficient of correlation between concerned variable was significant at 0.01 level of probability

Thus, the livestock farming experience of the farmers had positive significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.4 Livestock farm area and satisfaction on livestock extension services**

Relation between farmers livestock farm area and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between farmers livestock farm area and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be ‘r’= 0.380 as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables ‘r’ (0.380) was greater than the tabulated value of ‘r’ with 108 degrees of freedom at 0.01 level of probability.
- The concerned null hypothesis was rejected.
- The co-efficient of correlation between concerned variable was significant at 0.01 level of probability

Thus the livestock farm area of the farmers had positive significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.5 Annual family income and satisfaction on livestock extension services**

Relation between farmers annual family income and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between farmers annual family income and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be ‘ $r$ ’= 0.157 as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables ‘ $r$ ’ (0.157) was found to be smaller than the tabulated value of ‘ $r$ ’ with 108 degrees of freedom at 0.05 level of probability.
- The concerned null hypothesis was accepted.
- The co-efficient of correlation between concerned variable was non- significant at 0.05 level of probability

Thus the annual income of the farmers had no significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.6 Annual livestock income and satisfaction on livestock extension services**

Relation between farmers' income from livestock and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between farmers' income from livestock and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be  $r = 0.485$  as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables  $r$  (0.485) was greater than the tabulated value of  $r$  with 108 degrees of freedom at 0.01 level of probability.
- The concerned null hypothesis was rejected.
- The co-efficient of correlation between concerned variable was significant at 0.01 level of probability

Thus the income from livestock of the farmers had positive significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.7 Daily time spends in livestock farm and satisfaction on livestock extension services**

Relation between farmers' daily time spends in livestock farm and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between farmers' daily time spends in livestock farm and their satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be 'r'= 0.091 as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables 'r' (0.091) was found to be smaller than the tabulated value of 'r' with 108 degrees of freedom at 0.05 level of probability.
- The concerned null hypothesis was accepted.
- The co-efficient of correlation between concerned variable was non- significant at 0.05 level of probability

Thus, the daily time spend of the farmers had no significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.8 Livestock training exposure and satisfaction on livestock extension services**

Relation between farmers' livestock training exposure and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

‘‘There is no relationship between farmers' livestock training exposure and their satisfaction on livestock extension services’’

Co-efficient of correlation between the concerned variables was found to be 'r'= 0.043 as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.



- The calculated value between the concerned variables 'r' (0.043) was found to be smaller than the tabulated value of 'r' with 108 degrees of freedom at 0.05 level of probability.
- The concerned null hypothesis was accepted.
- The co-efficient of correlation between concerned variable was non- significant at 0.05 level of probability

Thus the training exposure of the farmers had no significant relationship with their satisfaction on livestock extension services. Ahmed (2006) observed the similar findings in their studies.

#### **4.3.9 Extension media contact and satisfaction on livestock extension services**

Relation between farmers' extension media contact and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between extension media contact and farmers satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be 'r'= 0.428 as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables 'r' (0.428) was greater than the tabulated value of 'r' with 108 degrees of freedom at 0.01 level of probability.
- The concerned null hypothesis was rejected.
- The co-efficient of correlation between concerned variable was significant at 0.01 level of probability

Thus the extension media contact of the farmers had positive significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

#### **4.3.10 Innovativeness and satisfaction on livestock extension services**

Relation between farmers' innovativeness and their satisfaction on livestock extension services was examined by testing the following null hypothesis:

“There is no relationship between innovativeness and farmer's satisfaction on livestock extension services”

Co-efficient of correlation between the concerned variables was found to be  $r = 0.427$  as shown in Table 4.12. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables:

- The relationship showed a positive trend.
- The calculated value between the concerned variables ' $r$ ' (0.427) was greater than the tabulated value of ' $r$ ' with 108 degrees of freedom at 0.01 level of probability.
- The concerned null hypothesis was rejected.
- The co-efficient of correlation between concerned variable was significant at 0.01 level of probability

Thus the innovativeness of the farmers had positive significant relationship with their satisfaction on livestock extension services. Poddar et al., (2017) observed the similar findings in their studies.

## **CHAPTER 5**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Summary of Major Findings**

##### **5.1.1 Selected characteristics of the farmers**

**Age:** The majority (87.26 percent) of the respondents were middle to old aged.

**Education:** The highest proportion of the farmers (49 percent) had secondary level of education.

**Livestock farming experience:** The majority of the farmers (65.45 percent) had low livestock farming experience.

**Livestock farm area:** The highest proportion of the farmers (50.92 percent) belonged to medium category of livestock farm area.

**Annual family income:** The highest proportion of the farmers (53.64 percent) had high annual income. And the other (28.18 & 18.18 percent) farmers had medium to lower annual income.

**Annual livestock income:** The highest portion (57.28percent) of the respondents had low annual family income from livestock, while (24.54 percent) respondents had medium and (18.18 percent) had high annual family income.

**Daily time spend in livestock farm:** The highest proportion of the farmers (60 percent) spends medium level of time while (30 percent) respondents spend high and (10 percent) respondents spend low level of time.

**Livestock training exposure:** The highest portion (70.90 percent) of the farmers had received low training while (25.45 percent) farmers had received no more training and (3.65 percent) had received medium training exposure. Overwhelming majority (96.35 percent) of the farmers had no to low training exposure in livestock. Nobody had high training under the study area.

**Extension media contact:** The highest proportion (54.54 percent) of the farmers had low contact as compared to (42.73 percent) and (2.73 percent) had medium and high extension media contact

respectively. Data again revealed that majority (97.27 percent) of the farmers had medium to low extension media contact.

**Innovativeness:** The highest proportion (82.72 percent) of the farmers had medium innovativeness as compared to (10 percent) having low innovativeness and (7.28 percent) having high innovativeness. Thus, most (92.72 percent) of the farmers had low to medium innovativeness.

### **5.1.2 Farmers' satisfaction on livestock extension services**

The highest proportion (62.73 percent) of the farmers had low satisfaction as compared to 31.82 percent and 5.45 percent having medium and high satisfaction respectively. It means that overwhelming majority (44.55%) of the farmers was low to medium satisfied on livestock extension services.

### **5.1.3 Result of hypothesis testing**

Out of ten selected characteristics of the farmers, only five namely, farming experience, livestock farm area, income from livestock, extension media contact and innovativeness had significant positive relationship with their satisfaction on livestock extension services. Rest five characteristics i.e. farmers' age, education, annual family income, time spend and training exposure had no relationship with their satisfaction on livestock extension services.

## **5.2 Conclusions**

The findings and relevant facts of research work prompted the researcher to draw following conclusions.

1. Overwhelming majority (94.55 percent) of the farmers had low to medium satisfied on livestock extension services. It is therefore, concluded that the overall activities of the livestock extension services in Bangladesh have need to more develop.
2. Livestock farming experience of the farmers had significant positive relationship with their satisfaction on livestock extension services. Therefore, it may be concluded that the

farmers' satisfaction on livestock extension services in Bangladesh was higher to the experienced farmers.

3. Livestock farm area of the farmers had significant positive relationship with their satisfaction on livestock extension services. The highest proportion of the farmers belonged to medium quantity land area. Again, an overwhelming majority of the respondents had small to medium livestock farm area. These facts lead to the conclusion that respondent farm area could increase their satisfaction on livestock extension services in Bangladesh.
4. The farmers' income from livestock farm had positive relationship with their satisfaction on livestock extension services. It shows that most of the farmers belonged to low to medium annual income from livestock. These facts lead to the conclusion that farmers' income level from livestock sector could increase their satisfaction on livestock extension services in Bangladesh.
5. Extension media contact of the farmers had a significant positive relationship with their satisfaction on livestock extension services. Through extension media contact, an individual farmer became facilitating of the information on the various aspect of livestock production. The above facts lead to conclude that extension media contact of the farmers could increase their satisfaction on livestock extension services in Bangladesh.
6. Most of the farmers (92.72%) had medium to low innovativeness. Findings indicated that innovativeness of the farmers had significant positive contribution to their satisfaction on livestock extension services in Bangladesh. So, it may be concluded that the farmers having more innovativeness, had higher satisfaction on livestock extension services in Bangladesh.

## 5.3 Recommendations

### 5.3.1 Recommendations for policy implications

Recommendation based on findings and conclusions of the study have been presented below:

- ✓ It may be recommended that livestock extension agencies, especially DLS should review their training programs and take steps to increase farmers' satisfaction with applicable services. The DLS and other non-governmental organizations should strengthen their extension activities.
- ✓ Bangladesh government through Bureau of Non-formal Education (BNFE) and NGOs can take necessary steps to increase farmers' primary level of education through the establishment of night school, adult education and regular farmers' training, workshop, rally needs to be organized to broaden their knowledge.
- ✓ It may be recommended that DLS should conduct several awareness programs for the old aged farmers and make young aged farmers more efficient through training programs.
- ✓ Experience in livestock farming of the farmers had significant relationship with their satisfaction on livestock extension services. Therefore, it may be recommended that livestock extension services should increase for experienced and non-experienced livestock farmers so that they could increase their satisfaction on livestock extension services in Bangladesh.
- ✓ Livestock farm area of the respondents had significant relationship with their satisfaction on livestock extension services. Therefore, it may be recommended that motivational campaigning should be arranged by the livestock extension providers, so that the farmers could increase their livestock farm area for more production. As a result they could increase their satisfaction on livestock extension services.

- ✓ Farmers' income from livestock had significant relationship with their satisfaction on livestock extension services. Therefore, it may be recommended that concerned authorities like Department of Livestock Services (DLS) and other livestock extension service providers should take proper care to increase livestock production of the farmers to increase their satisfaction on livestock extension services.
- ✓ Extension media contact of the farmers had significant relationship with their satisfaction on livestock extension services in Bangladesh. It is therefore, recommended that livestock extension organizations should be conscientious to facilitate farmers' livestock production by increasing contact with the farmers to increase their satisfaction on livestock extension services.
- ✓ Innovativeness of the farmers had significant relationship with their satisfaction on livestock extension services in Bangladesh. Therefore, it may be recommended that livestock extension services should conduct more learning events for the farmers on new innovations to increase livestock production for increasing their level of satisfaction on livestock extension services in Bangladesh.

Based on the above recommendations, the overall recommendation is:

As the largest public livestock extension organization of Bangladesh, DLS should increase the number of Livestock Extension Officers (LEO) like the Department of Agriculture Extension (DAE) to increase livestock extension services at village level and at least 5% of the LEO should have higher degree in Agricultural Extension to perform better extension services.

#### **5.4.1 Recommendations for further study**

A small and limited research work cannot provide unique and universal information related to farmers' satisfaction on livestock extension services. Further studies should be undertaken on related matters. On the basis of scope and limitations of the present study and observations made by the researcher, the following recommendations are made for further study:

- The study was conducted in only two unions under Madaripur Sadar upazila in Madaripur district. Similar studies should be conducted in other area of the country to get a clear picture of the whole country which will be helpful for effective policy formulation.
- The study investigated the contributions of the 10 selected characteristics of the farmers with their satisfaction on livestock extension services in Bangladesh. But farmers' satisfaction on livestock extension services in Bangladesh might be affected by other various personal, social, psychological, cultural and situational factors. It is, therefore, recommended that further study should be conducted involving other characteristics of the farmers.
- In this study farmers' satisfaction on livestock extension services in Bangladesh was determined by 13 items. Therefore, it may be recommended that research should be conducted by involving other dimensions of satisfaction of the farmers for livestock production.
- Measurement of farmers' satisfaction on livestock extension services in Bangladesh is not free from questions. Therefore, more reliable measurement of concerned variable is necessary for further study.
- In the present study farmers' age, education, annual family income, training exposure had no significant relationship with their satisfaction on livestock extension services in Bangladesh. In this connection, further verification is much necessary.



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# APPENDIX -I

## AN ENGLISH VERSION OF INTERVIEW SCHEUDLE

Department of Agricultural extension and Information System

Sher-e-Bangla Agricultural University

Sher-e-Bangla Nagar, Dhaka-1207

An interview schedule for a research study entitled

### FARMERS' SATISFACTION ON LIVESTOCK EXTENSION SERVICES

**Serial No:.....**

**Name of the respondent:.....**

**Village:.....**

**Union:.....**

**Upazila:.....**

**District:.....**

**(Please answer the following question. Your information will be kept confidential and will be used for research purpose only)**

#### **1. Age**

What is your present age? .....years

#### **2. Education**

What is the level of your education?

1. Do not know reading & writing.....
2. Can sign only.....
3. I have passed up to class.....

#### **3. Farming Experience**

Please mention your experience in livestock sector

SL. NO.	Types of livestock	Experience in year	Technical expertise			
			Highly (3)	Moderately (2)	Low (1)	Not at all (0)
1.	Poultry (Native chicken, broiler, layer, Duck, Pigeon, Quail, Turkey, Pheasant)					
2.	Small animal (Goat, Sheep)					
3.	Large animal (Cattle, Buffalo)					

#### 4.Livestock Farm Area

Please mention the amount of livestock land area

SL. NO.	Types of livestock		Land area	
			Local unit	Hectare
1.	Poultry	Native chicken, broiler, layer		
		Duck		
		Pigeon		
		Quail		
		Turkey		
		Pheasant		
2.	Large animal	Cattle		
		Buffalo		
3.	Small animal	Goat		
		Sheep		

## 5. Annual Family Income

Please mention the amount of annual income from the following sources

Sl. No.	Sources of income	Taka
1.	Livestock & poultry	
2.	Fisheries	
3.	Crop cultivation(field crops, vegetable,)	
4.	Service or other profession	
5.	Business	

## 6. Daily time spend in livestock farm

How much time do you spend each day for the livestock and poultry farming?

.....hour/Day

## 7.Livestock Training Exposure

Did you receive any livestock related training in the last five years?

Yes...../No.....(If yes, please furnished following information)

SL No.	Title of the training coarse	Days	Training offering organization
1.			
2.			
3.			

## 8. Extension Media Contact

Please indicate the extent of your exposure with the following media

Information sources	Extent of communication			
	Regularly (3)	Occasionally (2)	Rarely (1)	Not at all (0)
Neighboring model farmers	5-6 times/ months()	3-4 times/ months()	1-2 times/ months()	0 times/ months()
Local livestock resources person	5-6 times/ months()	3-4 times/ months()	1-2 times/ months()	0 times/ months()
Input dealer	5-6 times/	3-4 times/	1-2 times/	0 times/

	months()	months()	months()	months()
Livestock related NGO workers	5-6 times/3 month ( )	3-4 times/3 month ( )	1 -2 times/3 month ( )	0 time/3 month ( )
Livestock field worker	5-6 times/3 month ( )	3-4 times/3 month ( )	1 -2 times/3 month ( )	0 time/3 month ( )
Upazilla level Livestock Officers	5-6 times/year()	3-4 times/year()	1-2 times/year()	0 times/year()

## 9. Innovativeness

Please mention the degree of use of the following innovation

SL No	Name of the innovation	Degree of innovativeness			
		Adoption within 2 year of hearing (3)	Adoption during >2-4 year of hearing (2)	Adoption within >4 year of hearing (1)	Not at all (0)
1.	Use of urea treated straw(UTS)				
2.	Use of urea molasses block(UMMB)				
3.	Use of artificial insemination				
4.	Use of silage				
5.	Use of hay				

## 10. Farmers' Satisfaction on Livestock Extension Services

Please mention the degree of your satisfaction on Livestock Extension Services

Sl. No	Livestock extension services	Degree of satisfaction			
		Highly (3)	Moderately (2)	Low (1)	Not at all (0)
1.	Regular livestock advisory services				
2.	Regular vaccination				
3.	Timely artificial insemination				



4.	Regular animal treatment				
5.	Beef fattening as required				
6.	Goat fattening as required				
7.	Regular training				
8.	Supply of feed substances				
9.	Supply of vitamin & mineral substances				
10.	Supply of fodder				
11.	Supply of anthelmintic				
12.	Credit support				
13.	Exposure visit				

Thank you very much.

The Interviewer

## APPENDIX –II

### Correlation Matrix of the dependent and independent variables (N =110)

	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>	Y
X <sub>1</sub>	1										
X <sub>2</sub>	-.091	1									
X <sub>3</sub>	.025	-.027	1								
X <sub>4</sub>	-.005	-.096	.227*	1							
X <sub>5</sub>	.100	-.145	.116	.245*	1						
X <sub>6</sub>	-.002	.060	.174	.200*	.550**	1					
X <sub>7</sub>	.059	.143	.051	.134	.056	.037	1				
X <sub>8</sub>	.024	.055	.105	-.064	.190*	.141	-.014	1			
X <sub>9</sub>	.041	-.026	.208*	.323**	.085	.095	.151	.022	1		
X <sub>10</sub>	-.165	.116	.284**	.304**	-.108	.087	.088	.089	.397**	1	
Y	-.002	.077	.327**	.380**	.157	.485**	.091	.043	.428**	.427**	1

\* Correlation is significant at the 0.05 level (2-tailed).

\*\*, Correlation is significant at the 0.01 level (2-tailed).

X <sub>1</sub> = Age	X <sub>6</sub> = Annual livestock income
X <sub>2</sub> = Education	X <sub>7</sub> = Daily time spend in livestock farm
X <sub>3</sub> = Livestock farming experience	X <sub>8</sub> = Livestock Training exposure
X <sub>4</sub> = Livestock farm area	X <sub>9</sub> = Extension media contact
X <sub>5</sub> = Annual family income	X <sub>10</sub> = Innovativeness
Y= Satisfaction on livestock extension services	