WOMEN PARTICIPATION IN INCOME GENERATING ACTIVITIES THROUGH LIVESTOCK REARING

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CERTIFICATE

This is to certify that the thesis entitled "**WOMEN PARTICIPATION IN INCOME GENERATING ACTIVITIES THROUGH LIVESTOCK REARING** " submitted to the Department of Development and Poverty Studies, Sher-e-Bangla Agricultural University, Dhaka-1207, in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE (MS) in DEVELOPMENT AND POVERTY STUDIES**, embodies the result of a piece of bona fide research work carried out by **SAKERA AKTER MUNNI**, Registration No. **14-06300** 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:
Dhaka, Bangladesh

Md. Mahbubul Alam, PhD
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Dedicated to

My

Beloved Parents

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Date: **Author**

WOMEN PARTICIPATION IN INCOME GENERATING ACTIVITIES THROUGH LIVESTOCK REARING

ABSTRACT

The purpose of the study is to identify and describe rural women's involvement in income generating activities through livestock rearing, as well as to analyze the contribution of selected characteristics of the women to their income generation activities. The study was conducted in Fulbaria Upazila under the Mymensingh District. Data were collected from the randomly selected 100 women respondents using an interview schedule. The independent variables were: age, level of education, family size, farm size, annual family income, credit received, experience, training exposure, extension contact, cosmopoliteness, while the dependent variable was women participation in livestock rearing. To test the stated hypotheses, Multiple Coefficient of Regression (β) was used and data were analyzed using SPSS v.23 to determine model significance. About half of the respondents (49%) were involved in livestock rearing at a medium level, followed by 40% at a low level, and only 11% at a high level. It indicates that the large majority of the women who responded (89%) had a medium to low level of participation in livestock rearing. Among eleven selected characteristics of the women five namely family size, credit availability, training received, extension contact, cosmopoliteness had positive significant and two namely education, farm size had negative significant contribution to their participation and the rest four characteristics namely, age, knowledge, farm experience, annual family income had no significant contribution to their participation in livestock rearing. Based on the findings, it is suggested that the relevant authorities, such as DLS, DAE, and NGOs, execute and promote women-based programs on a large scale in order to increase livestock rearing.

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ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics
BRAC	Bangladesh Rural Advancement Committee
DAE	Department of Agricultural Extension
DLS	Department of Livestock Services
FAO	Food and Agriculture Organization of the United Nation
GDP	Gross Domestic Product
IGAs	Income-generating activities
NGO	Non-Government Organizations
SPSS	Statistical Package for Social Science

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Bangladesh has a population of 164.4 million where 88.2 million are female which constitute half of the total population (BBS, 2019). Outside of the home, Bangladeshi women were scarcely involved in any income-generating activities (Bose *et al*. 2009; Hossain and Bayes, 2009). In this male-dominated society, the male is the head of the family and has complete freedom to do anything he wants. It is impossible to assure the country's overall growth without effective participation of women in development activities.

Agriculture is the country's backbone. Livestock is one of the essential parts of the overall economy of Bangladesh. Cropping and livestock farming are the primary sources of income for the majority of rural people. Cattle are frequently used for dual purposes, such as milk and draft power (Rokonuzzaman *et al*. 2009). Livestock contributes 3.40 percent to national GDP, or 13.62 percent of the total agricultural share (DLS, 2019). The majority of Bangladeshis are malnourished, owing to a lack of protein in the food supply. Livestock can play a significant role in quickly resolving nutritional deficiencies. It also has a high potential for providing additional income to low-income families.

Women's empowerment is a prerequisite for the country's balanced socio-economic development. Our country's socio-economic prosperity and women's standing are intrinsically linked. Women's empowerment is frequently mentioned as a goal of international development policy, and many donor organizations now include it in their development goals (Schuler *et al*. 2010). Women's entrepreneurship has grown in popularity around the world over the last four decades, with an increasing number of women wanting to start and run their own business (Endalew, 2020). It is clear that women involving in different income generating activities and women empowerment are complementary to each other. Women in Bangladesh now have more power and access to make decisions, both within and outside the home (Nawaz, 2009). Only through increasing the involvement of women in income-generating activities can this be possible. Women's contributions to livestock rearing have a tremendous impact on rural households and it is the most essential way for rural women to contribute

significantly to the cash needs of themselves and their families. Farmers attitude towards better livestock treatment techniques and their knowledge of farming management issues and zoo techniques are all factors in the growth of livestock farming, which includes topics such as lairage facilities, equipment, and genetic improvement of cattle (Karelakis *et al.* 2013; Dwyer, 2009). As a result, in livestock farming systems, there may be a potential conflict between profit and animal health (Stott *et al*. 2005). Livestock rearing with minimal care is the most practical form of earning for women who generally stay on their homestead. Women raising poultry, goats, and cattle are some of the occupations that have the potential to transform the country's overall economic situation. Livestock also provides a unique opportunity for the empowerment of rural women, who are eager to access and control livestock and their products than other productive resources such as land and machinery (Galiè *et al*. 2015; Njuki and Sanginga 2013).

Livestock rearing is an important source of income for rural women that has been promoted by several government and non-governmental groups. In light of the foregoing facts and results, the investigator got interested in learning more about women's involvement in income-generating activities which including livestock rearing. Across many agricultural systems and value chains, livestock provide money, job opportunities and food and nutrition security. Poor livestock-keeping households benefit from growing livestock prices because they are net sellers of livestock products. Livestock provides a safety net for underprivileged households, preventing them from sliding into poverty. They are frequently the sole asset that women own and manage, and they can be sold to cover emergency and family health expenses. Bangladeshis rely on the livestock sector for existence, with a major associate sector for the unemployed (Shamsuddoha, 2009) that is also related to the gathering and sale of dried dung cake by the poorest women during the cooler months. In rural Bangladesh, poverty alleviation is difficult to achieve unless women are encouraged to participate in income-generating activities. Women who are struggling to make a good living and trying to overcome poverty generally do not receive any encouragement from society's powerful individuals.

In Bangladesh, rural women labor hard and make significant contributions to income-generating activities. Poor women take animals from wealthy people and raise them in exchange for a 50% return share of the offspring. Women in Bangladesh also run a

variety of small businesses, including tiny shops, trading video cassettes, and running small food stores near their houses, as well as selling clothing and other household things (Fakir, 2008 and Farid *et al*. 2009). Livestock has been regarded as an asset that is more easily owned by women and has the ability to help bridge the gender asset gap in households (Kristjanson *et al*. 2010). Livestock are a strategic entry point for improving the nutrition of the poor, particularly during the first 1000 days of life, given that livestock provide nutrient-rich foods, such as milk or meat, which have been shown to improve growth and cognitive functioning, respectively (Grace et al. 2014; Neumann et al. 2007). In most countries, women play an important role as food producers and suppliers (Jiggins 2011), as well as controlling (some) livestock products that are critical for food and nutrition security (Njuki and Sanginga 2013). Women have less access to income-generating activities, leadership, and decision-making roles in the home, according to empirical research individual economic involvement by women is thought to be small in terms of broader social, political, and legal empowerment, but it helps to build social capital by developing and stranding women's networks (Mahmud, 2002).Women's participation in the main stream of rural development has been limited due to a lack of institutional support and skilled training (Islam, 2002). Income generating activities (IGAs) change the poor's living conditions, housing, nutrition, savings, clothing, medical treatment, health, sanitation, liberalization, and education (Ullah and Routray, 2007). In order to alleviate pervasive poverty and improve livelihoods, rural women's income disparities must be overcome (Kandiyoti, 1988; Fakir, 2008). Rural women in Bangladesh currently play an important role in family management as well as involvement in various income-generating activities such as crop farming, livestock and poultry keeping, aquaculture etc (Hoque and Itohara, 2008; Al-amin, 2008; ADB, 2007). Livestock rearing is an important income-generating activities (IGA) for rural women that has been promoted by several government and non-governmental organizations (NGO).

1.2 Statement of the Problem

Women's contributions to income-generating activities are critical to their household's economic progress. However, women in developing countries, particularly in rural areas, do not have economic independence.

In a patriarchal society like Bangladesh, men have complete control over their households and society as a whole, while women are typically confined to their homes

(Balk,1997). Women's income is a necessary precondition for the elimination of poverty and the protection of human rights (DFID, 2000), especially at the individual level, because it helps to provide a base for social transformation.

However, they are unable to maximize the production from livestock rearing due to a lack of adequate knowledge and favorable participation in livestock rearing. They do not have the financial capability to construct any form of animal farm because they are marginal and small farmers. Another issue they face at every step is marketing. The majority of home activities are carried out by women. Rural women engage in numerous agricultural production activities by following homestead fanning activities in addition to their regular non-agricultural activities such as sewing, money lending with interest, grocery shopping, fishing, and so on. The study's major purpose is to determine and describe the extent to which women participate in income-generating activities through livestock rearing. Moreover, the research attempted to answer the following questions.

1. What characteristics did rural women have?
2. What is the extent of rural women's participation in income generating activities through livestock rearing?
3. Was there any involvement between their selected characteristics of the rural women and their participation towards livestock rearing?

1.3 Objectives of the Study

Considering the situation, the current study was carried out with the following specific objectives.

- To determine the socio economic characteristics of the respondent;
- To assess the women participation in income generating activities and
- To find out the contribution of selected characteristics of the women to their income generation activities.

1.4 Justification of the Study

Women's participation in income-generating activities such as livestock rearing is projected to help households cope with income shocks, provide food security, avoid poverty, and keep vulnerable households from falling below the poverty line. Women's income from livestock rearing is crucial for Bangladesh's economic growth

and long-term development, so policymakers should prioritize their economic contributions (Kabeer, 2003). Rural women have been hampered by existing socio cultural possibilities and structures from fully participating in IGAs and large-scale livestock production. To alleviate rural women's distress and bring them into the mainstream of development in order to achieve a sustainable livelihood, they must become much more actively involved in income-generating activities such as livestock rearing.

Government and non-governmental organizations are actively working in Bangladesh to improve the economic situation of rural women. To increase women's status in society, they must first be recognized for their contributions to various sub-sectors. It goes without saying that rural women are directly involved in a variety of income-generating activities in the sub-sector of crop, livestock, fishery, forestry, etc. While male family members work in the field, they look after the livestock and participate in post-crop-harvest activities at home. These women are usually involved in vegetable cultivation in rural families, homestead gardening, poultry and goat rearing, and small business as a source of income. As a result, without women's participation in income-generating activities, we cannot expect the country's socioeconomic growth and development to be smooth and balanced. The government also undertakes in a variety of activities to improve women's status. The researcher should inquire about rural women's participation. Hence, it is logical to investigate about the involvement of rural women in livestock rearing.

1.5 Limitation of the Study

Considering time, money, and other essential resources and to make the study convenient and meaningful from the research point of view it has become necessary to impose certain limitation as mentioned below:

1. This study was limited to a selected area i.e. four villages of Fulbaria Upazila under the Mymensingh District.

2. The characteristics of the respondents were many in number but only 11 personal and socio-economic characteristics were selected for study in this study.

3. To get information, the researcher depended on data as furnished by the selected female respondents in collection of data.

4. It is difficult to obtain precise information from them because many women are illiterate.

5. At the time of data collection, there were some embarrassing incidents. As a result, the researcher needed to maintain a good connection with the respondents in order to get as much information as possible.

1.6 Assumption of the Study

An assumption is a presumption that an apparent fact or principle is true in light of the facts available (Goode and Hatt, 1952). The researcher made the following assumptions while conducting this study.

The respondents chosen for the study were able to respond appropriately to the questions on the interview schedule.

1. The information provided by the respondents was accurate. They were truthful about their involvement in income-generating activities.
2. The information provided by the sampled respondents was representative of the entire population of the research area.
3. The researcher's data were non-biased and normally distributed.
4. The respondents were able to provide proper replies to the interview questions.
5. The respondents were able to provide appropriate response to the interview questions.
6. The researcher was at ease with the study area's social environment. As a result, the data collected from the respondents was devoid of bias.

The researcher who conducted the interviews was well-acquainted with the subject area's social context. As a result, the data she gathered from the respondents was free of biased.

1.7 Definition of Terms

This section defines a few key concepts that were used throughout the study to help with comprehension. Their meaning and interpretation are given below for this purpose:

Respondent: Respondents are those who have answered questions for a social survey from an interviewer.

Income generating activities: Income-generating activities are those in which a woman earns money directly by producing, manufacturing, and selling various things.

Credit received: It was the total amount of taka received as credit from various organizations by a respondent.

Participation in farm activities: The nature and amount of women's participation in various farm-related activities is referred to as participation in agricultural activities.

Livestock: The term livestock refers to chickens, goats, and cattle that are cared for by humans and produce freely.

Grazing land: Grazing land is pasture land where animals graze and eat growing grass. Fallow grounds, riverbanks, canals, and road sides are all possibilities for grazing land.

Production: It refers to the annual number of livestock in a family that is reproduced, purchased, obtained excluding the number of loss and death.

Cattle, Goat and poultry rearing knowledge: It refers to farmers' basic knowledge of various cow, goat, and poultry management procedures, such as breeding, feeding, housing, and disease prevention and control.

Prevention of disease: It is the process of taking certain preventive measures to ensure that animals are not infected with a specific disease or condition.

Control of disease: It's a method or technique for controlling, eliminating, and preventing the spread of a specific illness or issue in livestock.

Age: Age can be defined as the time span between birth and the interview.It is measured in years.

Education: Education is the process of a person develops desirable information, skill, and attitude through reading, writing, observation, and other associated activities. It is measured in years of formal education

Family size: The respondent’s family size is defined as the number of individuals in the family who live and eat together, including herself, her spouse, children, brother, sisters, and any other permanent dependents.

Farm size: It refers to the land owned by a farmer, including the farmhouse on which She carried on her farming and family business, and the land is valued in terms of the

farmer's complete profit. A farmer is deemed to enjoy full advantage from cultivated land that She owns or obtains for a lower price from others, and half benefit from land that She cultivated on borga or gave to others to grow on borga basis.

Family income: It is defined as the total earning of an individual and the members of the family from agriculture and other sources (service, business) during a year.It was expressed in thousand taka.

CHAPTER II

REVIEW OF LITERATURE

This Chapter purpose is to summarize the findings of various past studies and popular articles that are relevant to this investigation. Despite a frenzied search, the researcher discovered only a few studies, all of which are only indirectly connected. The focus of this research is on rural women's involvement in income generating activities through livestock rearing. The researcher came across several expert opinions on the notion of participation and did her best to gather relevant material by searching relevant studies, journals, periodicals, the Internet, and thesis papers etc. This Chapter is divided into four sections that are given below:

Section 1: Review of Literature about Participation

Section 2: Previous Research Studies on Livestock Rearing

Section 3: Relationship between Selected Rural Women Characteristics and their Participation in Income-generating Activities

Section 4: Conceptual Framework of the Study

2.1 Concept of Participation

Uphoff *et al*. (1979) described Participation is defined as ‘the participation of a large number of people in situations that improve their well-being, such as their income, security, and self-esteem. The term 'participation' is commonly used in development. The following are some of the common definitions of participation:

- Participation is when people give their time and effort to projects without having a say in the decisions that are made.
- People are sensitized in order to strengthen their receptivity and ability to respond to development efforts through participation.
- Participation is a proactive procedure in which the individual or group in question takes the initiative and asserts his or her autonomy.
- People voluntary involvement in self-determined transformation is referred to as participation.
- Participation refers to people's involvement in the growth of themselves, their life, and their surroundings.

2.2 Previous Livestock Related Research Studies

This research is focused on a socioeconomic analysis of livestock rearing. The available literature were reviewed to find out related works completed in the Sher-e-Bangla Agricultural University as well as in other places of Bangladesh. However, only a few studies that were directly connected to the present topic were found. The following are some of them:

Selvam (2004) investigated the economic possibilities of free-range local raising by rural women in five villages in Namakkal (Tamil Nadu, India). The farms were divided into three categories: small, medium, and large. The flocks were divided into three sizes: 5, 12, and 26, with 44, 49, and 52 eggs produced for each respectively. The sale price of free range eggs and broilers was significantly higher than the sale price of commercial eggs and broilers.

Parveen (2008) observed that women are responsible for all animal care. Older women and children lead cattle, sheep, and goats to graze, while housewives prepare feed, and clean animals, and frequently milk cows.

Hussain *et al*. (2004) investigated the role of gender in livestock rearing and the impact of livestock training courses offered by the National Rural Support Program (NRSP) in Kotli, Azad Kashmir. The goal of the study was to determine the influence of NRSP livestock training courses on livestock productivity. The findings of the study revealed that livestock was the primary source of income for Kotli's rural inhabitants. Sheep were kept by the majority of responders, followed by buffalo, goat, and cow.

Hansen (1992) found mixed results in his research for Danish poultry breeders. This uncertainty stems mainly from the likelihood of a market-liberating outcome from the General Agreement on Tariffs and Trade (GATT) negotiations. The EC reforms, which will also lead to market liberalization, will have an impact, but because EC subsidies for poultry are limited, the sector will not be severely impacted.

2.3 The Relationship Between Rural Women's Participation and Selected Characteristics

Participation can be classified and quantified in several ways. It varies depending on the respondent's socio-economic profiles, such as age, marital status, educational attainment, family size, farm size, annual gross income, credit received, annual family expenditure, cosmopoliteness, contact with extension, knowledge about livestock rearing.

Age and participation

Aktaruzzaman (2006) stated that there had a significant and positive relationship between age of landless women and their functional participation in income generating activities

According to Naher (2000), discovered that there was no association between age and participation in income-generating activities that are mostly participated by rural women.

Akter (2000) observed that there was no relation between the age of the women in the RDRS clientele group and their involvement in family decision-making about development activities.

Chowdhury (2000) found that rural women's age had no significant impact on their willingness to participate in development activities.

Nahar (2000) discovered that there was no correlation between age and participation in farmhouse vegetable cultivation, post-harvest practices, poultry rearing, and goat rearing, although younger housewives are more likely to engage in vegetable cultivation.

Islam (1996) found that women age has no impact on their level of participation in income-generating activities.

Shah (1994) found that increasing the level of rural women's participation in domestic vegetable production in Bangladesh farming system was inversely connected to their age.

Women's participation in agricultural IGAs such as vegetable cultivation, poultry rearing, cattle rearing, and fish culture was researched by (Islam *et al.* 1996). The data

revealed that the age of the women who took part had no bearing on their level of participation.

Faroque's (1997) study of female rural youth in Mymensingh found that while age had little bearing on their involvement in homestead agricultural activities, it did have a considerable positive impact on their problem-solving abilities in certain areas. Begum (1998) observed that the age of rural women had no bearing on their poverty reduction as a result of ASA involvement.

Education and participation

Aktaruzzaman (2006) concluded non-significant relationship between education of landless women and their functional participation in income generating activities(IGAs).

Khatun (2004) mentioned there was significant negative relationship between academic of rural women and their participation in homestead management activities. Amin (2004) also found similar findings in his research.

Akter (2000) found that women's education had a significant positive relation with their participation in family decision-making about development activities.

Chowdhury (2000) discovered that rural women education had a substantial positive relationship with their willingness to participate in development activities.

Khan (1983) found that the educational level of rural women in Bangladesh had a favorable relationship with their participation in communal activities and income-generating initiatives.

According to Akanda (1994), rural women education had a positive significant impact with their involvement in fruit tree farming. However, there was a statistically significant positive relation between education and homestead vegetable growing and non-farm activities.

According to Saha (1997), the youth educational level had a significant negative relationship with their participation in agricultural activities, but a good relationship with their income-generating activities and difficulties.

Begum (1998) found that rural women's education had a positive significant relation with their poverty alleviation due to their participation in ASA activities.

Farm size and Participation

Shehrawat (2002) observed in their study farm size had a significant contribution in participation of farmers.

Noor (1995) found in his study farm size of the farmer's had no contribution in their participation.

Family size and participation

Aktaruzzaman (2006) concluded there was no significant realationship between family size of landless women and their functional participation in Income Generating Activities (IGAs).

Didarul (2007) observed family size of the world beneficiaries had no significant role on their extent of participation in various income sources.

Nahar (2000) found no difference between family size and women's engagement in farmhouse vegetable production, poultry rearing, or goat rearing, but she did discover a strong favorable connection between family size and post-harvest activities.

According to Islam (2002), the size of a woman's household had no impact on her participation in income-generating activities.

Akter (2000) found that there was a significant relationship between family size and the level of family involvement in decision-making about development activities.

According to Parveen (1993), there was a significant positive relation between farm women's family size, consciousness and knowledge, and environmental degradation.

According to Begum (1998), the size of a rural women household had no effect on her poverty reduction as a result of ASA involvement.

According to Rahman (1995), the size of an imam's family has a substantial positive relation with their participation in rural development initiatives.

Annual income and participation

Aktaruzzaman (2006) mentioned non-significant relationship between family income of landless women and their functional participation in Income Generating Activities (IGAs).

Khatun (2004) stated that there was significant positive relationship between family annual income of rural women and their participation in homestead management activities.

Nahar (2000) discovered a negative relationship between family income and participation in domestic vegetable growing, post-harvest activities, chicken rearing, and goat rearing.

Islam (2002) observed that women's family income had a significant positive relationship with their participation in income activities and domestic and healthcare decision-making.

Shehrawat (2002) found that farm size had a significant impact on farmer involvement.

Noor (1995) found that the size of the farmer's farm had no impact on their willingness to participate.

Verma and Kumar (1991) discovered that participation had a positive and significant effect.

Framing Experience and Participation

BARC (2006) found that individual BARC involvement with rural women had a significant impact on their knowledge, attitude, and skills improvement as a result of their farming experience.

Cosmopoliteness and participation in livestock rearing

Chowdhury (2003) observed cosmopoliteness had a positive significant contribution to farmer participation.

Farmers participation and Cosmopoliteness were found to have a favorable and significant impact, according to Sing and Kunzroo (1985).

Anwar (1994) found that the rural youth cosmopoliteness had very little impact on their involvement in agricultural and income-generating activities. However, he found that cosmopoliteness was associated with the problem of youth unemployment.

Knowledge and participation in livestock rearing

Sadat (2002), agricultural expertise was found to be positively associated with non-beneficiary attitudes about PROSHIKA, while no such association was found in the case of PROSHIKA recipients.

Sarker (2001) observed that farmers' attitudes toward organic homestead gardening practices were significantly influenced by their knowledge of world vision.

According to Haque (2002), women with higher agricultural knowledge participate in more positive ways. As a result, the literature reviews related to participation are mentioned above.

Training exposure and participation

Islam (2003) showed that there was a significant positive relationship between training length and their participation in goat rearing.

Training for development emphasizes training as a means of modifying behavior for long-term work improvement rather than as a source of new information (Lynton and Pareek, 1990).

Rahman (1999) found a substantial and favorable relationship between PROSHIKA participant’s exposure to training and their income changes.

Credit received and participation

Akter (2003) concluded that there was significant and positive relationship between credit received and the participation in income generating activities.

Credit-induced self-employment, according to Yunus (1993), should have a spillover effect on the village labor market. Households in both participation and non-participation responded to these changes, and the effects were dependent on these interactions. Changes in village employment and their impact on overall output were interlinked.

In her research, Begum (1995) discovered that rural women's access to credit had a favorable relationship with their income.

In her study, Begum (1998) observed that rural women's access to credit had a significant positive relationship with their poverty reduction as a result of involvement in ASA development programme.

Participation in income generating activities

Didarul (2007) found a study on participation in Various income sources by World vision beneficiaries and shown that the highest proportion (83.6 percent) of the beneficiaries had medium participation in diversified income sources and only (16.4%) had low participation.

Hasan (2006) observed that the highest proportion (98 %) of conventional farmers had medium participation in farming activities. On the other hand, percent of organic farmer had high participation in farming activities. Organic farmers were substantially more involved in farming activities than conventional farmers on average.

Aktaruzzaman (2006) observed that almost same proportion (50.8 percent and 49.2 percent) of the landless women had less and moderate functional participation in Income Generating Activities (IGAs).

Khan (2004) found that the highest proportion (75 percent) of women had medium participation in farm and community level activities while 13 percent high and 12 percent low participation respectively.

Islam (2003) mentioned that the highest proportion (41 percent) of the respondents had medium participation in goat rearing while 25 percent high, 22 percent low and 12 percent of them had very low participation.

Christy and Thirunavukkarasu's (2002) observed that the relationship between the socioeconomic characteristics of farm women and extent of their participation in livestock rearing. The findings of the research show that most of the tasks related to livestock rearing were performed by the farm women.

Hossain (1988) observed that women in homes were economically active and contributed significantly to a diversified of domestic activities. However, these contributions were not properly undertaken in national income accounting for lacking of national statistical procedures. Due to their social standing and illiteracy, women's input was also disregarded.

Begum et al, (1988) observed that after participating in the RDRS, housewives' labor absorption in tailoring, teaching, and other non-agricultural activities increased by 22%. Women were found to be more involved in duck and chicken care and management (over 60%), whereas men were more involved in the procurement and selling of birds and meat (above 40 percent).

Female rural youth preferred chicken husbandry, enhanced summer and winter vegetable gardening in and around the household, and poultry immunization, according to Faroque (1997).

2.4 Conceptual Framework of the Study

When properly developed, a research hypothesis includes at least two key elements: "a dependent variable" and "an independent variable. According to Townsend (1953), a dependent variable is a factor that arises, eliminates, or changes as the researcher presents, removes, or changes the independent variables. An independent variable is a factor that the researcher manipulates in order to determine its relevance to an observed phenomenon. The causes are the variables, and the phenomena are the effect, therefore there is a cause-and-effect relation everywhere in the cosmos. While making structural arrangements for the dependent and independent variables, the conceptual framework of Rosenberg and Hovland (1960) was kept in mind. The purpose of this study is women participation in income-generating activities through livestock rearing. As a result, the dependent variable was the woman's participation in income-generating activities, whereas the independent variables were 11 selected characteristics of the women. Individual perception can be influenced by the interactions of several independent variables. In a single study, it is impossible to address all independent variables. For this study, it was necessary to limit the independent variables, which included age, level of education, family size, farm size, annual family income, organizational participation, cosmopoliteness, contact with development workers, training exposure, credit received, and income-generating problems. Based on the above mentioned circumstances and discussion, a conceptual framework for this study has been developed, which is diagrammatically presented in Figure 1

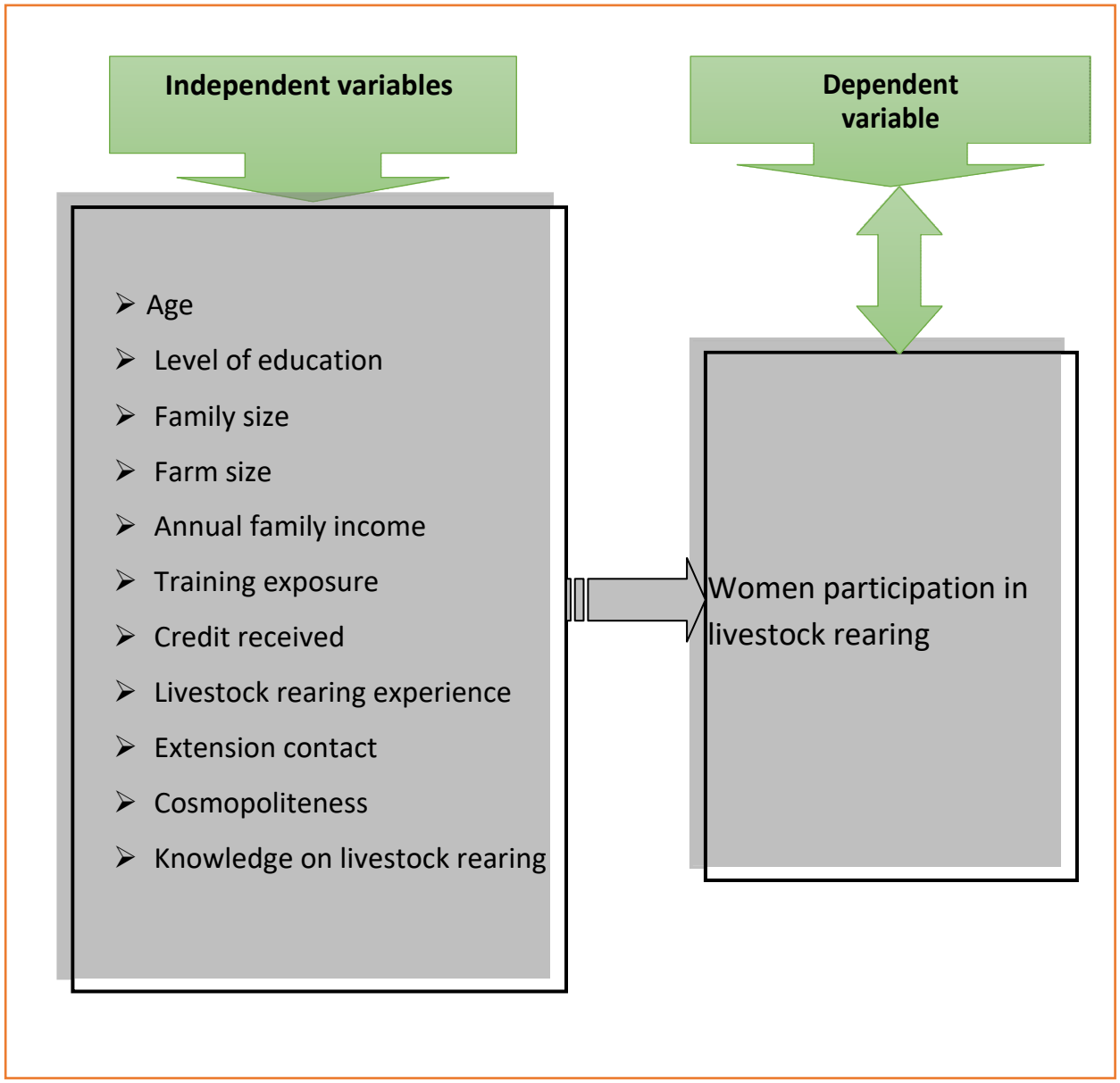

Figure 1 The conceptual framework study

CHAPTRE III

METHODOLOGY

In a scientific study, methods play an important role. Methods of any research should allow the researcher to acquire valid and reliable data, analyze it effectively, and make appropriate decisions. A research technique, according to Mingers (2001), is an organized set of instructions or actions for generating accurate and reliable research results. This Chapter explains the procedures and methods used in the research.

3.1 Locale of the Study

The study was conducted at four villages of Kaladaha and Bakta unions of Fulbaria Upazila under the Mymensingh district. Two villages in Kaladaha and two form Bakta union were selected purposively as the locale of the study. The selected villages were Kaladaha, Bidyanondo, Bakta and Bhalukjan. The following are the main reason for selecting the study area:

i. Good communication and easy accessibility
ii. Expected better cooperation from the respondent because the researcher is familiar with the respondent's area and language
iii. No such type of study was undertaken previously in the study area

3.2 Sources of Data

Data were collected from both primary and secondary sources for the present study. Farmers provided primary data, while secondary data was gathered from a variety of published sources.

3.3 Population and Sample Size

There were 470 women in the selected four villages which constituted the population of the study and these women were purposively selected. Among the 470 respondents 20% was selected as a sample size randomly. Thus, the total sample size stood at 100. The following (Table 1) shows the sample size.

Table 1: Distribution of Population and Sample Size of Respondents in the Selected Villages

Name of the Upazilla	Name of the Unions	Name of the Villages	Population size	Sample size
Fulbaria	Kaladaha	Kaladaha	150	30
		Bidyananda	90	15
	Bakta	Bakta	95	25
		Bhalukjan	140	30
Total			470	100

3.4 Instrument for Data Collection

A cross sectional survey method was used since the goals of this study were to test hypotheses and measure variances. As a result, data was collected through a structured interview schedule. The study adapted validated measuring items from previous studies whenever possible, keeping the aims in mind. The previously arranged interview schedule was put to the test, and any required changes were made. Closed-ended questions were used in most cases. From 20th March to 28th April 2021, the researchers collected data for this study by conducting personal interviews. The structured questionnaire was used to collect data from respondents in a face-to-face situation. The approved estimation items for each construct, along with their literature sources, were included in an English version of the interview schedule, which was attached as Appendix-A.

3.1 Variables and Their Measurement

In most cases, a research paper contains at least two important variables in the form of independent and dependent variables. A dependent variable which appears, disappears or varies as the researcher introduces, removes or differs the independent variable (Townsend, 1953). An independent variable is a factor that the researcher manipulates to determine its relevance to an observed phenomenon. The selection and measuring of variables is a key function in scientific research. The researcher conducted a literature review to gain a better knowledge of the natures and scopes of the variables that are relevant to this study. He discussed with departmental teacher as well as concerned researchers of the allied fields. There are taken eleven independent variables and one dependent variable in this study. Age of respondents, education, family size, farm size, annual family income, extension contact, cosmopoliteness, experience, credit received, training exposure, knowledge were the independent

variables. Rural women participation in livestock rearing was the dependent variable of the study. The following were the methods and procedures for measuring these variables:

3.2 Measurement of Independent Variables

The independent variables are the 11 characteristics of respondents given above. The independent variables were measured using the procedures listed below. The following methods were used to measure the independent variables.

3.4.1 Age

The age of a respondent was calculated using the time from her birth to the time of the interview, and it was expressed in whole years based on her response (Rashid, 2014). For each year of age, a score of one (1) was assigned. This variable can be seen in item number 1 in the interview schedule presented as presented in Appendix -A.

3.4.2 Education

The respondent's education was quantified in terms of the grades (classes) he or she received. If a respondent got education outside of the school, her education was evaluated in terms of school education, i.e. one (1) score was indicated for each year of schooling. If the respondent received education outside of school and her level of education was equivalent to that of the school's class V, her education score was assigned a value of 5. A score of zero was assigned to each illiterate person. A respondent who could only sign his or her name receive a score of 0.5. This variable can be seen in item number 2 in the interview schedule presented as presented in Appendix -A.

3.4.2 Family size

The total number of her family members, including herself, her husband, children, and other dependents, eating and staying together, was used to determine a respondent's family size. This variable can be seen in item number 3 in the interview schedule presented as presented in Appendix -A.

3.4.2 Farm size

Farm size of respondent women referred to the total area of land on which her family carried out farming operation, the area being in terms of full benefit her fami1y. It was measured in hectares for each respondent using the following formula:

Farm size = A+B+1/2(C+D) +E

Where, A= Homestead area(A)

B= Own land under own cultivation(B)

C= Land given to others as borga (C)

D = Land taken from others to borga(D)

E= Land taken from others on lease(E)

The overall farm size of each respondent was categorized into 4 types (Islam, 2007). Marginal farmers were those who had less than 0.20 hectares of land. Small farmers had land between 0.20 and 1.00 hectares, medium farmers had land between 1.00 and 3 hectares and 3 or more hectares was considered as large farmers. This variable can be seen in item number 4 in the interview schedule presented as presented in Appendix -A.

3.4.3 Annual family income

This refers to the overall earnings of a respondent's entire family in a given year from agriculture, livestock, poultry, fishery services, business, and other sources as specified in the question. Taka was used to represent the amount. Farmers' income was classified as low, medium, or high, depending on their yearly income. This variable can be seen in item number 5 in the interview schedule presented as presented in Appendix -A.

3.4.4 Livestock rearing experience

The total number of years participated in livestock rearing was used to determine rural women's livestock rearing experience. Each year's livestock rearing experiences were given a score of one (1). This variable can be seen in item number 6 in the interview schedule presented as presented in Appendix -A. On the basis of the available information cited by the women, they were divided into three categories (Mean ± Standard Deviation) namely ‘low’, ‘medium’ and ‘high’ livestock rearing experience.

3.4.5 Training exposure

The total number of days a respondent spent in various training courses throughout her life was used to calculate her training exposure. For no training, a score of 0 was assigned. The responding women were divided into three groups (Mean ± Standard

Deviation) based on their training exposure: low exposure, who received training for fewer than three days, medium exposure, who received training for three to six days, and high exposure, who received training for more than six days. This variable can be seen in item number 7 in the interview schedule presented as presented in Appendix-A.

3.4.6 Credit received

The amount of credit that the respondent women received from various organizations was used to determine how much credit they received. Taka was used to expressing it. Total credit in taka of an individual respondent is used to measure this variable. For every thousand takas, a one-point score was assigned. This variable can be seen in item number 8 in the interview schedule presented as presented in Appendix -A.

3.4.7 Extension contact

One's participation in the extension was used to determine how much interaction one had with it such as District livestock development officer, Veterinary surgeon, Participation in group discussion, Radio, Television, etc. This variable can be seen in item number 9 in the interview schedule presented as presented in Appendix -A.

The following is the scale that was used to calculate the extension scores:

Items	**Score Assigned**
Not at all	0
Rarely	1
Occasionally	2
Often	3
Regularly	4

3.4.8 Cosmopoliteness

Based on the basis of her visits to seven different types of places outside of her social system, a cosmopoliteness score was calculated for each respondent's woman to measure her degree of cosmopoliteness. This variable can be seen in item number 10 in the interview schedule presented as presented in Appendix -A.

The following are the scale that was used to calculate the cosmopoliteness scores:

Items	Score Assigned
Not at all	0
Rarely	1
Occasionally	2
Often	3
Regularly	4

The cosmopoliteness score of a respondent was calculated by adding the scores obtained for visits to each of the seven types of places listed above. An individual's cosmopoliteness score could vary from 0 to 21, with 0 indicating no cosmopoliteness and 21 indicating high cosmopoliteness.

3.4.9 Knowledge

A respondent's livestock-rearing knowledge was assessed by assigning a score based on her answers to eleven questions. Two marks were given to each question.A respondent could receive a score of 2 for correctly answering a question. She could receive a zero if she gave an incorrect answer to a question (0). A score of one was given for a partially right response. This variable is depicted in the interview schedule's question number eleven.

3.5 Measurement of Dependent Variable

The study's only dependent variable was rural women's participation in income generating activities through livestock rearing. The following was the technique for determining the dependent variable:

Rural women participation in livestock rearing:

Ten items were used to assess a respondent's participation in livestock rearing. A respondent's participation in livestock rearing score was calculated by adding the weights for her responses to all 8 statements. This variable can be seen in item number 3 in the interview schedule presented as presented in Appendix -A.

The respondents' participation in livestock rearing scores could vary from 0 to 32. While a score of zero (0) indicates no participation and a score of more than 20 indicates a high level of participation.

Items	Score Assigned
Not at all	0
Rarely	1
Occasionally	2
Often	3
Regularly	4

3.6 Data Processing and Analysis

3.6.1 Editing

Raw data was thoroughly examined for omission errors. When the researcher finished an interview, she double-checked that all data was included to make coding and tabulation easier.

3.6.2 Coding and tabulation

After consulting with the study supervisor and co-supervisor, the researcher devised a precise coding strategy. Every response was given a number score. To make tabulation easier, the respondents' responses were copied to a master sheet.

3.6.3 Categorization of data

All of the data was tabulated in accordance with the study's objectives. The collected data was categorized into multiple groups for the coding operation. For each of the variables, these categories were created based on their possible range (max and min). In Chapter 4, the process and categorization of a given variable were examined in greater depth.

3.6.4 Method of data analysis

The data was analyzed using descriptive and inferential statistics. To display the overall properties of the data set, descriptive statistics like frequency distribution, percentage, range, mean, and standard deviation were utilized and linear regression were employed to test the presented hypotheses. All of these analyses were carried out using SPSS v.23.0. The significance level of each hypothesis was tested at a five percent (5%) level of significance.

3.7 Statement of the Hypothesis

A set of hypotheses would be established for empirical testing to order to guide appropriate data collection, analysis, and interpretation of data. "A hypothesis is a

proposition that may be tested to assess its validity," (Goode and Hatt, 1952). It may appear to be contradictory to common sense. It may or may not be correct. However, in any case, it leads to an empirical test." The hypothesis can be classified into two types in general: research hypothesis (H1) and null hypothesis (H0). The following null hypothesis was proposed in this study: The selected characteristics of women play a role in women's involvement in livestock rearing. An investigator first formulates a research hypothesis, which describes the expected relationships between the variables. On the other hand, statistical tests necessitate the formulation of a null hypothesis. A null hypothesis states that no contribution to the variables in question exists.

CHAPTER IV

SOCIO-ECONOMIC CHARACTERISTICS OF THE WOMEN

Various characteristics of the women could have influenced their willingness to participate in income-generating activities. There were a variety of socio-economic characteristics that were likely to influence respondents to participation, but for the purposes of this study, only 11 criteria were evaluated. These are age, education, family size, farm size, family income, experience, training, credit, extension contact and cosmopoliteness.

4.1 Respondent Characteristics

Women's participation in income-generating activities in the area where the study was performed was influenced by an individual's possession of several interrelated characteristics. As a result, it was expected that the women's characteristics would influence their involvement in income-generating activities. There were eleven selected characteristics studied in the study such as age, education, family size, farm size, annual income, Extension contact, cosmopoliteness, knowledge is presented below.

4.1.1 Age

The age of the respondent women ranged from 21 to 61 years with the mean and standard deviation were 43.05 and 8.92, respectively. The women were divided into three categories based on their age scores: ‘young’, ‘middle’ and ‘old’ aged following Rashid (2014). The age distribution of the respondent women are presented in Table

Table 4.1 Distribution of the Women According to Their Age

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Young	Up to 35	21-61	21	21	43.05	8.91
Middle	36-50		62	62		
Old	> 50		17	17		
Total			100	100		

Table 4.1 shows that among the respondent women in the study area, the medium aged category had the highest proportion (62%) followed by the young aged (21%) and the old aged (17%). According to the data, middle and young-aged women made up a large portion of the respondents 83%. Considering the status and necessity of the locality, young and middle-aged women are more likely than older women to be involved in a variety of income-generating activities. In this study, it was found that young or middle-aged women prefer to participate in income-generating activities in order to enhance their living and socioeconomic situation.

4.1.2 Level of education

Considering the education level of the respondent women it was varied from 0 to 12 with mean and standard deviation 6.14 and 3.95, respectively. Based on their education score, the women were classified into four categories namely 'illiterate', 'primary education', 'secondary education' and above secondary education.

The distributions of rural women according to their level of education are presented in

Table 4.2 Distribution of Women According to Their Education

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Can't read & write	0	0-12	0	0	6.14	3.95
Can sign only	.5		21	21		
Primary	1 to 5		19	19		
Secondary	6 to 10		45	45		
Above secondary	>10		15	15		
Total			100	100		

Table 4.2 shows that the majority of women (45%) had a secondary education, with 19% having a primary education and the remaining illiterate (21 %). Only 15% of the women who responded to the survey had completed secondary school. Women's education broadens their horizons and increases their ability to understand any circumstance involving need, allowing them to choose appropriate income-generating activities. It is a fascinating fact that around three-quarters of the women who responded had schooling ranging from primary to post-secondary. So, it is expected that primary to above secondary level educated respondent women would have good

outlook towards income generating activities and they can easily would be capable them for the engaged with this types of initiatives.

4.1.3 Family size

Family size of the respondent women ranged from 3 to 13 with the mean and standard deviation of 7.27 and 2.29, respectively. According to family size, the respondent women were classified into three categories namely 'small family', 'medium family' and 'large family'. The distribution of the respondent women with number and percentage on the basis of the family size has been presented in Table .

Table 4.3 Distribution of the Women According to Their Family Size

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Small family	≤ 4	3-13	23	23	7.27	2.29
Medium family	5-8		49	49		
Large family	> 8		28	28		
Total			100	100		

Data in Table 4.3 indicate that the medium family constituted the highest proportion (49 %) followed by large family (28%). Small family sizes constituted the lowest (23%) proportion among the respondents. Table 4.3 showed that the respondent's average family size was higher than the national average of 5.4 (BBS, 2008).

4.1.4 Farm size

The respondent women's farm size ranged from 0.16 hectare to 2.5 hectare, with a mean and standard deviation of 0.671 and 0.513, respectively. On the basis of their farm size, the respondents were classification into three categories following the categorization followed by DAE (1999). The women farmers were divided into four categories based on the size of their farm: marginal (0 to 0.2 ha), small (0.21-1 ha), medium (1.01 to 3ha), and large (above 3 ha). The distribution of the respondent's according to farm size categories has been presented in Table .

Table 4.4 Distribution of Women According to Their Farm Size

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Marginal	Up to .20 ha	.16-2.5	41	41	.671	.513
Small	.21 to 1 ha		37	37		
Medium	1.01 to <3		22	22		
Total			100	100		

Table 5 shows that the marginal farm size category had the highest proportion of respondent women (41.0%), followed by the small farm size category (37.0%). However, marginal and small farm size holders together constituted majority (78 %) the farm size of which ranged from .16 to 2.5 ha. More than one-fifth of the respondents (22%) owned a medium farm. According to the findings, the respondent women have a limited income which influences them to engage in various income generating activities.

4.1.5 Annual family income

The respondents' annual family income ranged from 80 to 600 thousand taka with a mean and standard deviation of 219.95 and 108.01, respectively. The respondents were divided into three groups based on their annual household income: low, medium, and high. The following (Table) shows the distribution of women farmers according to their annual family income.

Table 4.5 Distribution of Women According to Their Income

Categories	Rang("000"tk)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Low Income	≤ 112 (Mean-SD)	80-600	18	18	219.95	108.01
Medium income	113to300 (Mean ± SD)		69	69		
Large Income	>300 (Mean-SD)		13	13		
Total			100	100		

Table 4.5 shows that more than half of the respondent women (69 percent) came from a medium-income family, while 18% and 13% were from low and high-income families, respectively. The average income of the study area rural youth is higher than the country's per capita income of US Dollar 599 (BBS, 2007).

4.1.6 Livestock rearing experience

Respondent women's livestock rearing experience scores ranged from 0 to 22, with a mean and standard deviation of 10.07 and 5.45, respectively. The respondents were divided into three categories based on their experience score: low experience, medium experience, and high experience**.** The following (Table) shows the distribution of women based on their experience.

Table 4.6 Distribution of Women According to Their Experience

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Low	≤ 4 (Mean-SD	3-22	16	10	10.07	5.45
Medium	5 to15 (Mean ± SD		69	65		
High	>15 (Mean +SD)		15	25		
Total			100	100		

Data in Table 4.6 shows that the medium level extension contact constitutes the highest proportion (69%) followed by low level contact with development worker (16%) and only 15% respondent had high level farm experience.

4.1.7 Training exposure

Respondents training exposure scores ranged from 0 to 30, with a mean and standard deviation of 5.13 and 6.812, respectively. Respondents were divided into four categories based on their training exposure: ‘no training’, ‘low’, ‘medium’ and ‘high’ training exposure. The following (Table) shows the distribution of women based on their training exposure.

Table 4.7 Distribution of Women According to Their Training Exposure

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
No training	0	0-30	48	48	5.13	6.812
Low training	≤ 6 (Mean-SD)		16	16		
Medium training	7 to 11 (Mean ± SD		21	21		
High training	> 11 (Mean +SD)		10	0		
Total			100	100		

Table 4.7 shows that a large percentage of women were not received any training. This implies that training exposure provides a significant opportunity for respondents in the study area to gain sufficient knowledge about various sources of income. So, it is necessary to arrange training programs for women.

4.1.8 Credit received

Respondent credit received scores ranged from 0 to 100, with a mean and standard deviation of 22.23 and 30.67, respectively. The respondents were divided into four categories based on their credit received score: no credit received, low credit received, moderate credit received, and high credit received. The following (Table) shows the distribution of responders based on the amount of credit they received.

Table 4.8 Distribution of Women According to Their Credit

Categories	Rang(“000”tk)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
No credit	0	0-100	61	61	22.23	30.67
Low credit	≤ 50 (Mean-SD)		22	22		
Medium credit	51-53 (Mean ± SD		7	7		
High credit	> 53 (Mean +SD)		10	10		
Total			100	100		

Table 4.8 shows that 7% of respondents have received moderate credit, while 22% have received low credit. The majority of responders (61%) did not receive any credit, with only 10% receiving credit over 53 thousand taka. Financial support is required for every form of income-generating activity. Microcredit can be used to provide financial assistance in rural areas.

4.1.9 Extension contact

Extension contact score ranged 7 to 16 with the mean and standard deviation of 12.05 and 1.92, respectively. According to the Extension contact, the respondent women were divided into three categories based on their observed scores: 'low,' 'medium' and 'high'. The following (Table) shows the distribution of women according to their level of extension contact.

Table 4.9 Distribution of Women According to Their Extension Contact

Categories	Range (Years)		Respondents		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Low contact	≤ 10 (Mean-SD	7-16	39	39	12.05	1.92
Medium contact	10 to13 (Mean ± SD		53	53		
High contact	>13 (Mean +SD)		8	8		
Total						

Data in Table 4.9 shows that the medium level extension contact constitutes the highest proportion (53 %) followed by low level contact with development worker (39%) and only 8 % respondent had high level contact with Extension.

4.1.10 Cosmopoliteness

The respondent's women's cosmopoliteness ranged from 8 to 17, with mean and standard deviations of 12.07 and 1.82, respectively. The respondents were categorized into three categories based on their cosmopoliteness score. low, medium, and high cosmopoliteness were the three classifications. The following (Table 4.10) shows the distribution of the respondent women's cosmopoliteness scores.

Table 4.10 Distribution of Women According to Their Cosmopoliteness

Categories	Range (Years)		Respondents'		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Low	≤ 10 (Mean-SD	8-17	20	20	12.07	1.82
Medium	11to13 (Mean ± SD		56	56		
High	> 13 (Mean +SD)		24	24		
Total			100	100		

According to Table 4.10 medium cosmopoliteness was indicated by more than half of the women respondents (56%) followed by low cosmopoliteness (20%) and high cosmopoliteness (24 %). It was also discovered that three-quarters of the women who responded (80%) were in the medium to high-income category. The respondent women's cosmopoliteness score is much progressive and exhibits signs of self-development. As a result, it is expected that as cosmopolitanism increases, so will involvement in income-generating activities.

4.1.11 Knowledge

Twelve questions were used to assess women knowledge about livestock rearing. A respondent's knowledge score was calculated by summing her scores from all of the questions. The following (Table 4.11) shows the distribution of the respondent's knowledge scores.

Table 4.11 Distribution of Women According to Their Knowledge

Categories	Range (Years)		Respondents'		Mean	Standard Deviation
	Score	Observed	Number	Percent		
Low	≤ 16 (Mean-SD	12-20	10	10	17.33	1.48
Medium	17 to19 (Mean ± SD		65	65		
High	>19 (Mean +SD)		25	25		
Total						

The respondent's knowledge scores ranged from 12 to 20, with a mean and standard deviation of 17.33 and 1.48, respectively. Table 12 shows that the medium level knowledge group had the biggest proportion of respondents (65.0%), followed by the low knowledge group (10%), and the high level knowledge group (25%). A total of 90% of the respondents have a medium to high level of knowledge.

CHAPTER V

WOMEN PARTICIPATION IN INCOME GENERATING ACTIVITIES

Rural women usually play vital roles in the household by doing different kinds of activities such as household activities, on-farm activities like vegetable cultivation, livestock rearing and non-farm activities such as small business, handicraft, etc. Livestock is one of the most important assets for rural women's livelihood. They provide people with income, electricity, organic fertilizer, and food. There are many works include with IGAs such as crop production, livestock rearing, goat rearing, poultry rearing, duck rearing, fish culture, grocery shop, fire wood sale, collection of shrimp fingerlings, sewing activities, nut marketing, service, nursery management, tree plantation and another business activity. This study only discusses with the participation of women in income generating activities through livestock rearing. Women's involvement scores in various livestock rearing activities ranged from 10 to 22, with a mean and standard deviation of 15.42 and 3.16, respectively. The respondents were divided into three categories based on their activity in livestock rearing: 'low participation (1-6),' 'medium participation (11-20),' and 'high participation (above 20)'. The following (Table 13) shows the distribution of respondents according to their level of participation in livestock rearing.

Table 5.1 Distribution of Women According to Their Participation in Livestock Rearing

Categories	**Range (Years)**		**Respondents**		**Mean**	**Standard Deviation**
	Score	**Observed**	**Number**	**Percent**		
Low	≤ 12(Mean-SD)	10-22	40	40	15.42	3.16
Medium	13 to 19 (Mean ±		49	49		
High	> 19 (Mean +SD)		11	11		
Total			100	100		

Table 5.1 indicate that the women belonged to medium participation category constituted the highest proportion (49 %) followed by low participation (40 %), and high participation (11%). Among the respondent, a total of 89 % respondent have low to medium participation group. It was also found that all of the women who responded

were involved in income-generating activities. Some had a high level of participation, some had a low level of participation. Women occupied social positions as a result of their ability to generate income. So, women should involve in income-generating activities to maintain their status and dignity.

Khatun (2005) discovered that the extent of their participation (63%) among the respondents were low to medium. The present study found that women extent their participation (89%) were low to medium. The result of a study conducted by (Aktaruzzaman (2006)) is in agreement with the finding of this study. The study shows that almost same proportion (50.8 % and 49.2 %) of the landless women had less and moderate functional participation in Income Generating Activities (IGAs). In this study we found that women who have low farm size they are more participated in livestock rearing.

The present finding was also supported by Christy and Thirunavukkarasu's (2002) in which they observed that the relationship between the socioeconomic characteristics of farm women and extent of their participation in livestock rearing. The findings of the research show that most of the tasks related to livestock rearing were performed by the farm women.

Parveen (2008) observed that women are responsible for all animal care. Older women and children lead cattle, sheep, and goats to graze, while housewives prepare feed, and clean animals, and frequently milk cows. The findings of the research are almost same with the present study.

Khan (2004) found that the highest proportion (75%) of women had medium participation in farm and community level activities while 13% high and 12% low participation respectively. Therefore, this results are a bit different from the findings of the present study.

CHAPTER VI

FACTORS INFLUENCING WOMEN PARTICIPATION IN INCOME GENERATING ACTIVITIES

The purpose of this section is to find out the contribution of eleven selected characteristics of the women to their participation in income generating activities through livestock rearing. Multiple regression coefficients were used to identify the contribution between the selected characteristics of the women which are the fundamental variables of the study and their participation in income generating activities. In order to determine the contribution eleven selected characteristics of the women farmers (age, education, family size, farm size, annual income, knowledge, training, extension contact, cosmopoliteness) on participation in livestock rearing, To test the null hypothesis about the contribution between the variables used in this study, multiple regression coefficients (β) were used. The rejection of any null hypothesis was based on a five percent level of significance. From the analysis, it was seen that some selected characteristics had significant relationship with participation by the women in livestock rearing. The results of the Multiple regression coefficients representing the contribution between each of the selected characteristics of the women and their participation level are shown in (Table 6.1**).**

Table 6.1 Multiple Regression Coefficients of Contributing Variables Related to Participation in Income Generating Activities

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2	Adj. R^2	F
	B	Std. Error	Beta					
Constant	.530	.441		1.202	.233	.577	.524	10.92***
Age	.000	.004	.009	.096	.924			
Education	-.028	.009	-.277***	-3.25	.002			
Family size	.034	.015	.199**	2.37	.020			
Farm size	-.000	.003	-.277**	-2.34	.022			
Income	.000	.000	$-.081^{NS}$	-.909	.366			
Training exposure	.023	.005	.385***	4.93	.001			
Livestock rearing experience	.001	.006	$.010^{NS}$	.115	.908			

Credit received	.002	.001	.117**	2.028	.046			
Extension contact	.125	.056	.202**	2.247	.020			
Cosmopoliteness	.187	.060	.237***	3.101	.003			
Knowledge	.005	.017	$.023^{NS}$	.314	.755			

NS Non-significant

***Significant at 1% level of significance

**Significant at 5% level of significance

Table 6.1 shows that there is a significant contribution of the respondent's education, family size, duration training, credit availability, cosmopoliteness, extension contact to women's participation in livestock rearing. Of these, training, cosmopoliteness, education was the most important contributing factors (significant at the 1% level) followed by farm size, family size, credit and extension contact (significant at 5% level) while coefficients of other selected variables do not have any contribution to women's participation in income generating activities. The value of R^2 is a measure of how the variability in the dependent variable is accounted for the independent variables. So, the value of R^2= .577 means that independent variables account for 57.7% of the variation of women participation in income generating activities. The F ratio is 10.92 which is highly significant (at 1% level of significance).

However, each predictor may explain some of the variances in respondents to participation in income generating activities. The adjusted R^2 value penalizes the addition of extraneous predictors in the model, but values .524 still shows that variance can be attributed to the predictor variables. In summary, the models suggest that the respective authority should be considered the farmers' credit availability, training exposure, extension contact, cosmopoliteness, knowledge on livestock rearing, some predictive importance has been discussed below:

6.1 Significant Contribution of Level of Education to Their Participation in Income Generating Activities

From the multiple regression, it was concluded that the contribution of education to the women participation was measured by the testing the following null hypothesis; "There is no contribution of education to women participation in income generating activities through livestock rearing."

On the basis of the value of the concerned variable of the study the following observations were made.

- The contribution of the education was significant at 1% level (.002)
- So, the null hypothesis will be rejected.
- The β-value of education is (-.277). So, it can be stated that as education increased by one unit, women farmers' participation is decreased by -.277 units. Considering the effects of all other factors are held constant.

So education has negative significant contribution to their participation in income generation activities through livestock rearing. Hence, we can say that people who are more educated they are involved in non-farm activities more than less literate respondents. The present finding was supported by khatun (2004), Islam (2003) in which it was found that women education had negative significant relationship in homestead activities. Howerver, Onyebu (2016), Akter (2000), Chowdhury (2000), Akanda (1994) found that positive significant relationship between education and their participation in IGAs.

6.2 Significant Contribution of Family Size to Participation in Income Generating Activities

The contribution of family size to the farmer's participation in livestock rearing was measured by the testing the following null hypothesis;

"Family size has no contribution to women participation in livestock rearing"

The following explanation were made based on the value of the concerned variable of the study under consideration.

- The contribution of the family size was significant at 1% level (.020)
- As a result, the null hypothesis will be rejected.

- The β-value of family size is (.199). So, it can be stated that as family size increased by one unit, women farmer's participation in livestock rearing increased by 0.199 units. Considering the effects of all other factors are held constant.

Hence, we can say rural women who had large family involve more in income generating activities rather than small family. Parveen (1993) found similar findings in her study while Didarul(2007), Aktaruzzaman (2006), Islam(2002) found non-significant positive relationship with participation in income generating activities.

6.3 Significant Contribution of Farm Size to Participation in Income Generating Activities

From the multiple regression, it was concluded that the contribution of farm size to the women participation was measured by the following null hypothesis is being tested;

"There is no contribution of the education to women participation in income generating activities through livestock rearing"

- The contribution of the farm size was significant at 5% level (.022)
- As a result, the null hypothesis might be rejected.
- The β-value of income is (-.277). So, it can be stated that as farm size increased by one unit, women farmer's participation in livestock rearing decreased by 0.277 units. Considering the effects of all other factors are held constant.

Hence, we can say rural women who had small farm size they are involve more in livestock rearing and who have large farm size they are involve in other agricultural activities and other income-generating activities. Respondents with small farm size, considering livestock rearing is as one of profitable sources of income.

6.4 Significant Contribution of Training Exposure to Women Participation in Income Generating Activities

From the multiple regression, it was concluded that the contribution of credit to women participation was measured by the testing the following null hypothesis;

"Training has no contribution to women participation in livestock rearing"

Based on the value of the concerned variables the following observations were made.

- The contribution of the training was significant at 1% level (.001)
- So, the null hypothesis will be rejected.
- The β-value of credit is (.385). So, it can be stated that as credit increased by one unit, women participation is increased by 0.385 units. Considering the effects of all other predictors are held constant.

Based on the findings, it was found that training exposure of the respondents had significant positive relationships with the women participation in income-generating activities. This indicates that training exposure of the women was an important factor regarding women participation in income-generating activities and with the increases of training of the women participation in income-generating activities also increases. Islam (2003) found there was significant positive relationship between training exposure and participation in income generating activities.

6.5 Significant Contribution of Credit to Women Participation in Income Generating Activities.

From the multiple regression, it was concluded that the contribution of credit to women participation was measured by the testing the following null hypothesis;

"Credit has no contribution to women participation in livestock rearing"

Based on the value of the concerned variables the following observations were made.

- The contribution of the credit was significant at 5% level (.046)
- So, the null hypothesis will be rejected.
- The β-value of credit is (.177). So, it can be stated that as credit increased by one unit, women participation is increased by 0.177 units. Considering the effects of all other predictors are held constant.

Based on the findings, it was concluded that women who obtained credit had statistically significant positive relationship with their participation in income-generating activities. This implies that women access to credit was an important factor of their involvement in income-generating activities so, with the increase of credit received women participation in income-generating activities also increases. Akter (2003) found that there was significant positive relation between credit received and participation in income generating activities.

6.6 Significant Contribution of Extension Contact to Their Extent of Participation in Income Generating Activities

From the multiple regression, it was concluded that the contribution of extension contact to the women participation was measured by the following null hypothesis is being tested;

"There is no contribution of Extension contact to the women farmers to participation in livestock rearing"

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- The contribution of the Extension contact was significant at 5% level (.020)
- So, the null hypothesis will be rejected.
- The β-value of Extension is (0.202). So, it can be stated that as extension contact increased by one unit, women participation is increased by 0.210 units. All other factors are held constant while considering their effects.

Therefore, extension contact had positive significant contribution to their participation. Based on the above finding, it can be said that with the increase in the level of extension contact of women farmer's participation towards livestock rearing also increased.

6.7 Significant Contribution of Cosmopoliteness to Their Participation in Income Generating Activities

From the multiple regression, it was concluded that the contribution of cosmopoliteness to the women participation was measured by the testing the following null hypothesis;

"There is no contribution of cosmopoliteness to women participation in livestock rearing"

The following observations were made on the basis of the value of the concerned variable of the study under consideration.

- The contribution of the cosmopoliteness was significant at 1% level (.003)
- So, the null hypothesis will be rejected.

- The β-value of cosmopoliteness is (.206). So, it can be stated that as cosmopoliteness increased by one unit, women participation is increased by 0.237 units. Considering the effects of all other predictors are held constant.

Based on the findings it was concluded that cosmopoliteness had significant positive relationships with women to their participation in income generating activities. This indicates that cosmopoliteness was a significant determinant of women participation in income-generating activities so, with the increases of cosmopoliteness women participation in income generating activities also increases. Cosmopoliteness influences to women participation in income-generating activities. Chowdhury (2003) found there was significant positive relationship between cosmopoliteness and participation in income generating activities.

CHAPTER VII
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Summary of Findings

This chapter contains a summary of the study's findings, conclusions, and recommendations. The following are the main findings of the study:

7.1.1 Individual characteristics of the farmers

The following are the results for the eleven selected characteristics of women farmers:

Age: The highest proportion (64.2 %) of the respondents were middle aged while 32% was young- aged.

Level of Education: Secondary education constituted the highest proportion (45%) and 21% are can't read & write but can sign only. Besides only 15% above the secondary category.

Family Size: The highest proportion (49%) of the respondents had medium family size, while 28 % had small and 23 % had large family size.

Farm size: The highest proportion (41%) of the respondents had marginal farm size compared with 37 percent having small farm size and 22 percent having medium farm size.

Annual family income: The highest proportion (69%) of the respondents had medium annual family income compared with 18% having low income and 13% having high annual family income.

Livestock rearing experience: The highest proportion (69%) of the respondents had medium knowledge compared with 10 percent having low knowledge and only 15% having high knowledge.

Training received: A large number of women (48 %) did not receive any training, with 16% having low training and 10% having high training.

Credit received: The majority of responders (61%) did not receive any credit, with only 10% receiving credit over 53 thousand. 7% of respondents have received moderate credit.

Knowledge on livestock rearing: The highest proportion (65%) of the respondents had medium knowledge compared with 10% having low knowledge and only 25% having high knowledge.

Cosmo politeness: The majority of the women belonged to medium visit categories classified highest proportion (56%) followed by (20) low visit, (24%) high visit.

Contact with Extension: The women belonged to medium contact constitute the highest proportion (53.00%) followed by low contact (39%) high contact (8%).

7.1.2 Women participation in livestock rearing

The women belonged to medium participation category constituted the highest proportion (49%) followed by low participation (40%) and high participation (11%).

7.2 Conclusions

The following conclusions are drawn from the findings of this study and its interpretation in light of other relevant factors:

1. Participation in livestock rearing was not significantly influenced by age. This observation leads to the conclusion that rural women's involvement in livestock rearing is not influenced by their age.
2. Education had negative significant contribution to the participation in livestock rearing of the rural women. This fact leads to the conclusion that women who are more educated they are more involve in non-farm activities.
3. Family size was significantly contributed to participation in livestock rearing. This implies that the family size is an important factor that influence rural women participation in livestock rearing.
4. Farm size had negative significant contribution to the participation in livestock rearing. This implies that the small farm size of the respondents leads to increase their participation in livestock rearing
5. There had insignificant contribution between family income and their extent of participation in livestock rearing.
6. Credit received had positive significant contribution to participation in livestock rearing. This implies that availability of credit influence to respondents to increase their participation in livestock rearing
7. This finding leads to the conclusion that rural women's involvement in livestock rearing is not influenced by their family income.

8. Extension contact had significant contribution to the participation in livestock rearing of women. This implies the conclusion that contact with Extension would be beneficial for the respondents to enhance their involvement in livestock rearing.
9. Participation in livestock rearing was significantly influenced by Cosmo politeness. This result leads to the conclusion that cosmopolitanism is a significant factor influencing rural women's livestock rearing participation.
10. Women's participation in income-generating activities was positively related with their exposure to training. Women's participation in income-generating activities increases as their level of training exposure increases.

7.3 Recommendations

7.3.1 Recommendations for policy implications

The following recommendation is made based on the observations and conclusions drawn from the study's findings:

1. Around 89 % women had low to medium level participation in livestock rearing. It is recommended that to increase their level of participation training program, credit availability, annual family income should be increased.
2. Most of the respondent women had minimum facilities to get credit support. So, it is recommended to provide credit support for encouraging people in income generating activities.There are many financial institutions like Brac, Grameen bank, Bangladesh Krishi bank and other micro credit institutions have to play a vital role as well as the rate of interest should be minimized and reasonable.
3. The respondents who contact with extension had significant contribution with their extent of participation in livestock rearing. So, it is necessary to increase extension contact.
4. Knowledge on livestock rearing play a vital role to increase participation in livestock rearing. So, we need to increase our knowledge to increase participation in livestock rearing.

7.3.2 Recommendations for further study

A small and limited research study will not be able to provide unique and universal information related to women participation in income generating activities through

livestock. The following recommendations are made for future research on the basis of scope and limitations of present study.

1. This research was conducted only at Kaladaha and Bakta Union in Fulbaria Upazilla under Mymensingh district. To justify the current research findings, it is important to make scope for more research in other regions.
2. The study was based on the participation in livestock rearing. Further studies may be conducted to women participation in other crop production.
3. In this study the investigations explore 11 selected characteristics of the respondents with their extent of participation. Other factors may have influenced women participation in livestock rearing, and more research is needed to determine them.

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APPENDIX-A

English Version of the Interview Schedule

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Interview schedule for data collection for the research on

Women Participation in Income Generating Activities Through Livestock Rearing

Name of the respondent: …… Serial no: ……

District: …….

Village: ……

(Please provide following information. Your information will be kept confidential and will be used for Research purpose only)

1. Age: How old are you? ---------- years

2. Level of Education: Please mention your level of education.

a) Cannot read and write ……
b) Can sign only ……...
c) Up to or equivalent to class……

3.Family size: Please mention the number of your family members.....

4.Farm size: Please indicate your farm size including homestead

SL	Types of Land Ownership	Area of Land	
		Local unit (Decimal)	Hectare
1.	Homestead (A)		
2.	Own land under own cultivation(B)		
3.	Own land given to others to borga (C)		
4.	Land taken from others to borga (D)		
5.	Land taken from others on lease (E)		
Total			

Total Farm Size =A+B+1/2(C+D) +E

5. Annual income of Family: Please mention the amount of annual income from the following sources:

Sectors of income	**Sources of income**	**Amount of Taka (Thousand taka in BDT)**
a) Agricultural	1.Rice	
	2.Potato	
	3.Vegetables	
	4.Fruits	
Total(a)		
b) Non –Agricultural	1.Business	
	2.Service/job	
	3.Labor	
	4.Remittance	
	5.Other(specify please)	
Total(b)		

C) Income from domestic animals:

SL NO	**Income resources**	**Total production (kg or Number)**	**Cost/unit(TK)**	**Total Cost (TK)**
1	Cattle			
2	Goat			
Total (c)				
Total (a +b +c)=				

6.Livestock rearing Experience: How long have you been engaged in livestock rearing?.....year

7. Training received: Have you attend any training program? Yes…..... No…….

If yes, please mention the following information:

SL No	Name of the training course(s)	Name of the organization	Duration of training (days)
1.			
2.			
3.			
Total			

8. Credit received: Had you taken any credit this year? Yes…… No…….

If yes, please mention your amount of credit? .....Thousand Taka

Sources	Amount(Thousand taka in BDT)
Family and Relatives	
NGO	
Bank	
Money Lender	
Other	
Total	

9. Extension contact: Please state the extent of your contact with the following communication media:

SL No	**Name of Information Sources**	**Extent of contact**				
		Regularly	Often	Occasionally	Rarely	Not at all
1	District Livestock Development	>6 times/ year	5-6 times /year	3-4 times/ year	1-2 times/ year	
2	Upazilla Livestock Officer	>6 times/ year	5-6 times /year	3-4 times/ year	1-2 times/ year	
3	Veterinary Surgeon/ Year	>6 times/ year	5-6 times /year	3-4 times/ year	1-2 times/	
3	Participation in group discussion	>6 times /month	4-5 times/ month	1-3 times/ month	1-2 times/ month	
4	Radio	>5 times/ week	4-5 times/ week	2-3 times/ week	1-2 times/ week	
5	Television	>5 times/ week	4-5 times/ week	2-3 times/ week	1-2 times/ week	
	Total					

10. Cosmopoliteness**:** Please indicate how frequently you visit the following places with a specific period.

SL No	**Place of visit**	**Frequency of Visit**				
		Regularly	Often	Occasionally	Rarely	Not at all
1	Visit of market /familiar home outside of your own village	>6 times/ month	5-6 times /month	3-4 times/ month	1-2 times/ month	
2	Visit of relatives/friends	>5 times/ month	4-5 times /month	2-3 times/ month	1 times/ month	
3	Visit to upazilla sadder	>5 times/ month	4-5 times / month	3-4 times/ month	1 times/ month	
4	Visit to upazila Livestock officer	>5 times/ year	4-5 times/ year	2-3 times/ year	1 times/ year	
6	Meeting livestock protection specialist	>3 times/ month	2-3 times/ month	1-3times/month	1-2 times/ month	

11.Knowledge about livestock rearing: Please answer the following questions. '2' for correct answer, '1' for partial correct answer and '0' for wrong or no answer.

SL no.	**Questions**	**Score**	
		Weighted	**Obtained**
1.	Mention the types of feed for livestock	2	
2.	How often did you feed livestock?	2	
3.	In which way of keeping the house of livestock free from disease?	2	
4.	Mention the name of five disease of livestock	2	
5.	What steps should be taken after death of livestock?	2	
6.	Mention two improved breed of cattle, goat, Poultry	2	
7.	Does livestock include poultry? What is the purpose of livestock?	2	
8.	How silage can be made ?	2	
9	In which part of the homestead area is used for livestock rearing?	2	

SL no.	Questions	Score	
		Weighted	Obtained
10.	What is the most important nutrient to feed livestock?	2	
11	How can you preserve the fodder to feed them during the period of feed shortage	2	
12.	How can you preserve the fodder to feed them during the period of feed shortage	2	

12. Women Participation in livestock rearing: Please indicate your extent of participation in the following items of livestock rearing.

SL No	Items	Regularly	Often	Occasionally	Rarely	Never
1	Collection of cattle, goat, breed	>6 times/ year	5-6 times /year	3-4 times/year	1-2 times/ year	
2	Cattle and goat shed management	>5 times/ year	4-5 times /year	2-3 times/ year	1 times/ year	
3	Vaccination and treatment	>5 times/ year	4-5 times/yea r	2-3 times/ year	1 times/ year	
4	Feeding calf	>5 times/ week	4-5 times /week	2-3 times/ week	1 times/ week	
5	Selling meat and milk in the market	>5 times/ week	4-5 times /week	2-3 times/ week	1 times/ week	
6	Caring of livestock	>5 times/ week	4-5 times /week	2-3 times/ week	1 times/ week	
7	Poultry shed management	>5 times/ year	4-5 times /year	2-3 times/ year	1 times/ year	
8	Selling of egg	>5 times/ week	4-5 times /week	2-3 times/ week	1 times/ week	
9	Income from by-product	>5 times/week	4-5 times /week	2-3 times/ week	1 times/ week	

Thanks for your kind co-operations