A THESIS ON

SOCIO-ECONOMIC CONDITION OF THE MILK PRODUCING FARMERS INNALA VDC OF KAVRE DISTRICT

Submitted To

Central Department of Rural Development

In Partial Fulfillment of the Requirements for the

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RECOMMENDATION LETTER

This is to certify that the thesis submitted by Hem Raj Bohara entitled "Socio-Economic condition of the Milk Producing Farmers A Case of NalaVDC of Kavre District" has been prepared as approved by this department in the prescribed format of the Faculty of Humanities and Social Science for the partial fulfillment of the requirements of Master of Arts in Rural Development, under my direct supervision. This is her own innovative work conducted under my supervision and I, therefore, recommend this report for the evaluation and acceptance.

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This is to certify that thesis submitted by Hem Raj Bohara entitle "Socio-economic Condition of the Milk Producing Farmers A Case of NalaVDC ofKavre District" has been approved by the Department in the prescribed format of the Faculty of Humanities And Social Sciences.

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ABSTRACT

Socio-economic status of the particular society gives the actual life style of the people living in the society. Socio- economic status sees many aspects of life. The nature of family, family members, educational level etc are the social aspects and income, expenses and expenditures etc are the economic aspects of life. In fact socio-economic aspects of the life are the mirror of the society through which we can study about the standard of people, the accessibility on the resources and awareness level of the population. The research is intended to analyze the situation of the farmers of this area into various aspects and to observe the social status and the economic status of the farmers. Similarly, it tried to generate ideas about the relationship between socio-economic status of farmers and their domestic animals. The general objective of the research is to study socio-economic condition of milk producing farmers of NalaVDC ofKavre district and to study the impacts of milk production on socio economic status. On selection of sample equity among race and ethnicity was considered. Out of 500 household in Nala , VDC, 100 household were taken purposively.Various methodologies like questionnaire method, interview method as well as observation methods were applied to get the correct information from the informants. The research findings were derived by processing data in the form of table, pie-chart, histogram etc.

The research was able to find that most of the household head of the farmers who were depending upon milk from cattle and buffalos were from 41 to 60 years age level and most of the work in this sector was done by female. It was found that most of the farmers are literate and can do most of the calculations of this profession similarly almost all of them were using their income to educate their children. It is found that parents were able to send their children in private school. Farmers were found to be aware of health because most of them are using toilet in their home. However 6% respondents are reluctant to go to clinics and healthpost when they become sick. The economic status of farmers was found to be good and, most of them were holding less than 15Ropani of land. By and large, they involved in producing milk that shaped their diary activities.To be specific, they mostly kept two milking animals and produced 5 litres of milk per day. Hence, their economic status was satisfactory.

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ACRONYMS AND ABBREVIATION- X

- AGDP: Agriculture based gross domestic product
- APP: Agriculture Perspective Plan
- Biga: Unit of land measurement as 20 kattha=1 Biga
- CBS: Central Bureau of Statistics
- Chauri: Domestic animal of himalayan area for Milking
- CVD: Cardio Vascular Disease
- DDC: Dairy Development Corporation
- GDP: Gross Domestic Product
- ROPANI: Unit of land coverage in Mid hills
- NGO: Non-governmental Organization
- Rs: Rupees
- SLC: School Leaving Certificate
- UK: United Kingdom
- US: United States
- VDC: Village Development Committee
- ADS Agricultural Development Strategy

- AGDP Agricultural Gross Domestic Product
- ARS Agricultural Research Station
- BS BikramSambat
- CBS Central Bureau of Statistics
- CDR Central Development Region
- COB Clot on Boiling
- COP Code of Practices
- DADO District Agriculture Development Office
- DDC Dairy Development Corporation
- DLS Department of Livestock Services
- DLS Department of Livestock Services
- DLSO District Livestock Service Office
- DOA Department of Agriculture
- EDR Eastern Development Region
- FAO Food and Agriculture Organization
- FGD Focus Group Discussion
- FWDR Far western Development Region
- GAHP Good Animal Husbandry Practices
- GAP Good Agricultural Practices
- GAP Good Agriculture Practices
- GDFP Good Dairy Farming Practices
- GDP Gross Domestic Product
- GMP Good Manufacturing Practices
- GON Government of Nepal
- Ha Hectare
- HACCP Hazard Analysis and Critical Control Points
- HCRP Hill Crop Research Programme
- HHH House Hold Head
- HHs Households
- Kg Kilogram
- KII Key Informant Interview
- masl meters above sea level

- MOAD Ministry of Agricultural Development
- MOF Ministry of Finance
- MOST Ministry of Science and Technology
- Mt Metric ton
- MWDR Mid-Western Development Region
- NARC Nepal Agriculture Research Council
- NDDB Nepal Dairy Development Board
- NPC National Planning Commission
- NRs Nepalese Rupees
- PRA Participatory Rural Appraisal
- P-value Probability value
- r Coefficient of correlation
- R^2 Coefficient of multiple determinations
- SAP Sustainable Agriculture Practices
- SCC Somatic Cell Count
- SD Standard Deviation
- SE Standard Error
- SLC School Leaving Certificate
- SNF Solid Not Fat
- SPS Sanitary and Phyto-sanitary Measures
- SPSS Statistical Package for Social Science
- VDC Village Development Committee
- WDR Western Development Region
- WTO World Trade Organization
- REFERENCE
- **APPENDIX**

1 INTRODUCTION

1.1 Background of study

Nepal is a landlocked country and lies in between China to the north and India to the east, west and south. It is extended from 80^{o} 4' to 88^{o} 12' E and 26^{o} 22'to 30^{o} 27' N. The country has the area of 147,181 sq km. Although, Nepal lies near the northern limit of the tropics, wide range of climate, from subtropical in the Terai in the south to arctic in the high Himalayas in the north. The remarkable differences in climatic conditions are primarily related to the enormous range of altitudinal variation within a short north-south distance. The presence of the east-west extending Himalayan massifs to the north and the monsoonal alteration of wet and dry seasons also greatly contribute to local variations in climate (MOST, 2013). Geographically, the country is divided into three East-West ecological zones: the Northern Range – Mountain, the Mid Range – Hill and the Southern Range – Terai (flat land). In the northern range, the Himalayas from an unbroken mountain range, middle range is captured by mountains, high peaks, hills, valleys, duns and lakes. Southern range with almost 16 km. to 32 km. width consists of dense forest areas, national parks, wildlife reserves and conservation areas and fertile lands (CBS, 2013). Southern flat land Terai and inner valleys is suitable for agriculture especially for food grains, Hill is suitable for the vegetable and cash crop production and mountain area of the country is suitable for livestock and temperate fruits. The hills and mountains occupy nearly three fourth of the total area of country but only one fourth of total cultivated area (HCRP, 2004).

Nepal's economic future is inextricably linked to the health of its agriculture sector. Eighty percent of the country's population lives in rural areas, and agriculture is their primary livelihood (NARC, 2010). Agriculture sector, contributing to more than one third of Gross Domestic Product (GDP) and employing two-thirds of the country's labour force is central to the livelihood of every Nepalese people. The agriculture sector is pivotal to increase income, alleviate poverty and uplift the living standard of the Nepalese people (Gauchan, 2008).

Contributing 11 percent GDP and 26.8 percent of the total AGDP (NPC, 2016) livestock is an integrated part of farming and rural life in our country. Dairy as a subsidiary enterprise is of great importance for improving socio-economic conditions of rural population. Buffalo and cattle are core of integrated farming system in the rural areas of country. Buffalo and cattle has been the backbone of rural economy as this animal not only provides milk but also used as draft animal and also are considered as live bank to the small holder farmers.

Smallholder dairy production contributes significantly to the improvement of the livelihoods of rural people. Dairy development in developing countries has played a major role in increasing milk production, improving income level in the rural areas, generating employment opportunities and improving the nutritional standards of the people, especially for small and marginal farmers (Uddin, Uddin, Mamun Hassan & Khan, 2012; Quddus, 2013)

Dairying is Nepal's second major agricultural activity after cereal production in contributing to national GDP, and bearing over 60 percent of the livestock sub-sector output. The dairy component employs various actors along the milk chain right from production to marketing. Dairy farming is the dominant activity of the crop-livestock integrated farming practice among smallholder farmers in Nepal, with 80% of farm households rearing dairy animals (cows and buffaloes). In addition, the sector is the largest contributor of the livestock sector to Nepal's agricultural GDP (SAMARTH, 2016).

Chaudhary and Upadhyaya (2015) recorded and analyzed different sources of income with major category as main crop, cash crop, dairy goat farming and service in organizations. Among them, dairy was found to be the highest income contributor (55%) to the rural farmers. Moreover, dairy was found to be the symbol of pride, prestige and religious priority for the studied community in Nepal.

Milk production grew by 3.15 percent annually on an average from 1.31 million to 1.72 million Mt. per annum between 2005 and 2015(MOAD, 2015). This growth can be attributed to increasing demand for milk and other milk products and establishment of milk processing plants in the producing areas, which derives from the increased demand for milk and introduction of a livestock improvement program in the country all of which lead to higher yields that in turn precipitate market participation.

Being a nutritious food, milk serves as an ideal medium for the growth of various microorganisms. It is highly perishable commodity and poor handling can exert both a public health and economic toll, thus requiring hygienic vigilance throughout the chain from production to consumer. (NDDB, 2014b)

In recent years, as a result of the consumer demand for high quality food and in accordance with international trade, there are increasing expectations on the compliance of food products to safety and quality standards. Compliance with food quality and safety standards in the export sector, appear as restrictions for having direct access in foreign markets (Demirbaş&Tosun, 2006).

The increasing requirements of food quality and safety from consumers, and the social concern for environmental quality and sustainable development, are inducing the agro-food industry to increase the quality achievements and control in all phases of the production and marketing process, from farmer to retailer. These requirements of quality from the market, it's directly transmitted to the dairy farming practices adopted by the farmers, being the main requirements the adoption of environmental safe agriculture practices and those that improve also food quality and safety.

Milk production in Nepal is still carried out under the traditional production system, in the mixed farming system with small non-commercial holdings. A persistent problem the dairy industry faces is poor milk quality. This is associated with lack of farmer awareness with regards to the hygienic milk production which causes loss of income along the milk chain. Due to lack of a comprehensive policy and laws that provides standards to be complied with during milk production, the quality of milk in Nepal has remained a big issue. The basic reasons are attributable primarily to the lack of hygiene and inadequate sanitation at the production level, since major milk producers are small, marginal and poor, living at the subsistence level (NDDB, 2014b).

Adulteration of milk reduces the quality of milk and even makes it hazardous. Adulterants such as soap, acid, starch, table sugar and chemicals like formalin may be added to the milk. Most of such adulterants are poisonous and cause health hazards. Adulterants are mostly added to increase the shelf life of milk. Some of preservatives like acid and formalin are added to milk as adulterants, thereby increasing the storage period of milk. Generally, water is added to the milk to increase the volume content of milk (NDDB, 2014c).

Our country is considered as an agricultural country. Agricultural sector covers over 40% of our GDP (Budget announcement, 2065 B.S. of Nepal). So, the role of agriculture basically, livestock can easily be imagined. Livestock especially cow is religiously considered as goddess of Hindu. Other livestock domesticated for milk are buffalo and camel in gulf countries (Bhattarai, 2008) etc, but in our country cow and buffalo are domesticated for milk. Milk and its products help farmers to maintain their economical conditions. Yet, milk and its products are good for health. Improvement in economical status and maintenance of proper health are the benefits obtained. Even fertility of soil also can be produced, which even control the energy crisis too ((Shrivastav, Ghimire, Mishra, Thapa, 2005).

This research is especially based on Nala VDC of Kavredistrict. Kavre district is on the hilly area. This district is sloppy with large agricultural lands and is bounded by hilly area .NalaVDC is located 15 km south east from headquarter of Banepa . The total area of Nala VDC is 7.10 sq. km. The total population of this VDC is about 12448 and among them major inhabitant are BrahamankchetriTamang,Gurung, Newars and other marginalized communities. And few population of this VDC is covered by disadvantageous group termed as *dalit* (Census 2001).

Before about 15 years the population of this VDC was less than 5000. But the population is increasing due to migration of population from hilly district and remote areas. In VDC, people are involved in different occupation like government service, private sector, mostly business and farming too. But the major occupation of people of this VDC is agriculture and animal husbandry (VDC Profile 2001).

Most of the farmers who depend on livestock farming are directly related to production of milk product. They have one or more numbers of cows or buffaloes by which they are surviving. Farmers either directly sell milk or milk products like Yogurt, *Khuwa,Panir* etc.

Milk is the component which plays the vital role to maintain the social and economical life of the farmers. Farmers who have more numbers of cattle they are working a lot in this field for the livestock production of milk and its marketing. It is found that farmers are doing everywork related to milk production. It is accepted that the professional livestock farming is a strong occupation through which life standard of the farmers could be empowered.

1.2 Statement of problem

Dairy farmers are in the business of producing food. On farm practices should also ensure that milk is produced by healthy animals under acceptable conditions for the animals and in balance with the local environment. Dairy farmers' production systems worldwide need to be able to combine profitability with the responsibility of protecting human health, animal health, animal welfare and the environment (FAO, 2011).

Raw milk at farm level to chilling centers is ignored from periodic monitoring and inspections from concerned market actors including GON and dairy industries. There is a tendency to perceive by all the concerned authorities that food safety related rules and regulations are basically for inspecting and analyzing end products only.

Dairy Farming Practices (GDFP) when adopted will support the production and marketing of safe, quality-assured milk and dairy products GDFP focus on the relationship between consumer safety and economic, social and environmental management at the farm level.

The quality and safety of raw milk is essential for the quality and safety of milk and dairy products. The quality and safety of milk is related to the contamination of milk with microorganisms, chemical residues and other contaminants. (Tyami, 2009)

More than 85 percent of milk is marketed through informal channels, increasing risk of less scrutiny from formal institutions increasing risk of contamination and adulteration by the actors in the raw milk supply chain (MOAD, 2016). Milk collected at collection centers is brought chilling centers and transported to state owned DDC or private dairies as per contract. The individual brought milk is never subjected antibiotic residues test but are sometimes are examined for microbiological quality (NDDB, 2013). Hygienic and quality regulations for production and distribution of milk are more relaxed in Nepal, and are not subject to specific microbiological standards in a legal sense.

Farmers of Nala VDC of Kavre district are keen interested for milk production. Milk production has become one of the major occupations of the farmers in this area, where lots of them are engaged and are highly depend on it to generate income.

Farmers are well known for the production of milk and dairy products. Due to change in consumer food habit and awareness of balanced diet, consumption of milk product is increasing daily.By which population of this place are pleased in the milking animal husbandry. (Kantipur daily, 14th Aswin, 2065 B.S.). The standards of farmers are being increased day by day.

Farmers groups are playing a key role in milk product. So, it is important to study and understand their socio economic situation, social problem and notice their different type of involvement in dairy product. The study also includes their issues to further lift up them socially and economically.

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Due to lack of awareness about hygienic milk production, it has caused loss of income of the supply chain actors along the supply chain. Due to lack of comprehensive policy that provides standards to be complied with during milk production, the quality of milk has remained a big issue. The basic reasons are attributable primarily to the lack of hygiene and inadequate sanitation at the production level, since major milk producers are small, marginal and poor living at the subsistence level (NDDB, 2014c).

With the raising consumer awareness, association with the regional economic groups, integration with the regional and world markets, WTO and aim to export the potential surplus product the need for clean production and safe production is must.

A study by NDDB (2014c) reported, 30.71 percent of consumers suggested improvement of milk quality for improving the market and increasing the consumption of milk. Same study reported the concerned of the consumers is primarily towards the milk quality than milk price. 18.64 percent said it was not tasty, 16.85 adulterated with water 12.54 said it was odorously.

1.2 Objectives of the Study

The general objective of the study was to highlight on the social and economic condition of the milk producing farmers of Nala VDC of Kavre district. The study was also concerned with the change brought in their life. Here, it concerns about the educational, labor aspects as well as it focused on the income and profit too. The study specifies the following objectives.

The specific objectives of the study are as follows:

- To analyze the socio-economic status of the dairy farmers.
- To analyze the status of dairy farming practices in the farm households,
- To assess the factors affecting adoption of dairy farming practices and
- To identify the problems associated with the adoption of Dairy Farming Practices at the farm level.

1.4 Significance of the Study

The socio-economic condition of milk production farmers is the reflection of their knowledge and practices gained through their experiences of several years in the course of time. It is the mirror which shows their way of living and process of spending life. The knowledge that they acquire plays the vital role in term of sustainable development and natural resources management. The idea and skills gain by them may lead the small household cattle farming towards the industrialization.

Food safety is universally recognized as a public health priority. It requires a holistic approach, form production to consumption. All foods have potential to cause food borne illness, and milk and milk products are no exception. Milking procedure, subsequent pooling and storage of milk carry the risk of further contamination from human or the environment or growth of inherent pathogens. Implementation of proper hygienic control of milk and milk products throughout the milk chain is essential to ensure the safety and suitability of these foods for the intended use(NDDB, 2014c). Farm-level studies have shown that adopting improved feeding and management strategies improves livestock productivity and, in particular, increases the milk production and income of resource-poor smallholder mixed-crop and livestock farmers (Ahmed, 2002).

The scope of GDFP for dairy livestock covers the production, handling, transportation and storage dairy products within the farm which are intended to be used for commercial productions systems. However, it is not a standard for certification of organic products or Genetically Modified Organism (GMO) free products.The domestic production could be increased in terms of quantity and quality with adoption of Good Dairy Farming Practices (FAO, 2011).

So far, there have been no any such study regarding adoption of GDFP in Nepalese context and this study will help to know about the existing situation of GDFP and factors influencing the adoption of such factors. It will help to find out the factors that guide the farmers' behaviours towards adoption of GDFP.The purpose of this study is to enhance the harmonization of GDFP programs throughout the country. Adoption of GDFP will facilitate intra- and extra-trade and long competitiveness of to global markets, improve viability for farmers, and help sustain a safe food supply and the environment.

It is necessary to know that better professional experience of milk producing farmers in milk production has a great implication in production. It helps to inspire who spend time on same type of profession and labour but are gaining low achievement. But from this ideal study the farmers can understand their real socio- economical conditions that have a great significance importance in future for comparing and making strategic towards further important which had been reflected form the study.

1.5 Scope and Limitations of Study

This study was based on the social and economic condition of the milk producing farmers of small area and sample size of NalaVDC of Kavredistrict so had limitations which are

a. The study had been focused on the socio-economic condition of farmers who are involving in the milk production. So the research couldnot include other farmers who are involved in others livestock farming.

b. The study had been focused on small sample of NalaVDC of Kavre district. So it could not be generalized for all the farmers' even entire farmer involving on same occupation of same VDC.

c. The study had been carried out with limited time and resources. So it might not be able to represent the exact figure of the focus group.

1.6 Organization of the Study

Any study must have a proper organization. This present study also has some definite organization. This present study has been organized chapter wise. This study has been divided into Five major chapters.

Chapter one: Introduction

Chapter two: Review of literature

Chapter three: Research Methodology

Chapter four: Data Analysis and Interpretation

Chapter five: Summary, conclusion and recommendations

The First chapter deals about the introduction of study. This includes the background, study of the problems and objectives of study. It further involved the importance or justification of the study, research questions and Operational Definition.

Second chapter describes literature review. The relevant literature about the study is linked with the variables of the study. This chapter tries to adopt the past study about the topic or related to it.

The third chapter dealt about the way of doing research. It includes the procedure and instruments which are used in the research. It adopts the way of research, selection of study area, process of collection of data and statistics, analysis or interpretation of data and rationale of study area of the research.

Fourth chapter describes about the geography and society of the study area. It includes the availability of different resources and overall the nature of people of entire area. Most importantly covers the objective wise data analysis of data.

The fifth chapter includes about the summarization of research finding, conclusion drawn and recommendation for the further research. At last, the references and annex is included.

The first chapters i.e introduction deals with different aspects of the study consisting of background of the study, determent of the problem, objectives of the study, significance of the study, limitations f the study and organization of the study . The second chapter is Literature review that includes the conceptual reviews and policy review as well as some previous studies. It also includes the gaps in existing literature related to topic. TheThird chapter is about the research methodology which has been used to conduct this study. It includes the conceptual freamwork and the research design. Sampling design, sample size, sampling procedure, data collection methods and methods of data analysis are included here. The fourth chapter is about data processing and analysis. And then fifth or last chapter, conclusion of the recommendation for the remedy of problems describe in the statement of problem are included.

CHAPTER-II
LITERATURE REVIEW

This chapter presents the brief review of the Nepalese dairy sector, dairy population and distribution, trend of dairy animal population, milk production and productivity, factors affecting adoption of agriculture innovations, milk quality, and effect of various GDFP on milk quality, international and national rules and regulations, and application of logit regression model for adoption analysis.

2.1 Overview of Nepalese Dairy Sub-sector

Nepal remains a predominantly agrarian economy. About 66 percent of economically active population is dependent on agriculture for livelihood and employment (NPC, 2016). Agriculture sector accounts for 31.6 percent of the gross domestic product or GDP (MOF, 2016). Dominance of small farmers, subsistence driven farming, lack of diversification and commercialization contributes to low productivity in this sector (NPC, 2016). The livestock subsector contributes 11 percent GDP and 26.8 percent of the total AGDP (NPC, 2016) and also plays important roles in human food and nutritional security, livelihood, regional balance, gender mainstreaming, and rural poverty alleviation.

Dairy component of livestock subsector is considered as the back bone of rural economy and has created flow of Rs. 10,200 million from urban areas to rural areas. It has also been the major source of employment generation. It is estimated that one additional employment is generated per 10 to 20 litres of milk processing and marketing. At present only 15 percent of milk produced in Nepal enters into the formal market. There are substantial potentials of income and employment generation if more milk can be brought into the formal market (MOAD, 2016).

Lack of modern technology and technical knowhow among the farmers and indifference of the government towards scientific development of subsector, poor quality of dairy animals, lack of nutritious feed, less efforts in setting priority, sub-standard and insufficient micro-nutrients and veterinary services, lack of prior market information have resulted in under performance of this subsector.

The organized dairy development activities started some 52 years ago in Nepal with the establishment of Yak cheese factory in Langtang of Rasuwa district under Food and Agriculture Organization (FAO) assistance in 1953. Dairy development section was established under the Department of Agriculture (DOA) in 1954. Dairy development efforts of the government continued and domestic pasteurized milk was brought in Kathmandu market in 1969. History of private sector involvement in dairy processing is very short. The first private sector dairy processing industry, Himalayan Dairy, was established in 1983 (MOAD, 2016). A brief history of dairy development in Nepal is presented in Annex 1.

2.1.1 Small holder mixed Farming:

Dairy development projects were often oriented towards large-scale dairy farms with imported high-grade cattle. Such projects frequently failed for technical, economic and management reasons; if they did not fail their contribution to the creation of employment opportunities for the rural population remained small. Also public-sector resources, from subsidies to "concentrates", were frequently routed towards specialized livestock farms, leaving small farmers with little alternative but to buy expensive concentrates or accept declining milk production.

The modern livestock sector competed with smallholders for better quality land and for key seasonal grazing and water resources. Where the smallholders found themselves on the losing end, for example, through overgrazing, many who derived their livelihood from cattle rising risked losing their means of making a living?

At present donor attention is shifting towards the development of smallholder dairying within the framework of sustainable rural development. Dairy programmer should be set up in such a way that they can continue within the prevailing local conditions and with local management after donor inputs have ended.

Throughout the world most animals are raised in mixed farming systems, where livestock very often have different functions. Dairy activities should become an integral part of existing mixed farming systems, with opportunities to graze on fallow land, to use crop residues as feedstuff, to allow animals to browse on hedges and to use manure for biogas purposes and animals for traction. Local practices and expertise should be the bases for dairy development, using technologies that are economically feasible, socially acceptable and of low risk to farmers.

A special category of smallholder is the landless laborer who owns one or two dairy cows, a category that is dominant in Asia. These laborers must also be considered smallholders and should be included in dairy development programs.

In many smallholder cattle-raising enterprises the role of women, which varies according to region, culture, class and caste, is crucial. Unfortunately, this is frequently insufficiently recognized, as is the usefulness of local lore and knowledge.

2.1.2 Nutritive value of Milk

Because milk is capable of sustaining growth on its own, it is often regarded as a complete food. While this is not strictly true it is the most nearly perfect natural food available; 'only the whole carcass of an animal, including bones and liver, could contribute as much as milk, taken as a single food' (Kon, 1972). The nutritive value of milk is well recognized and widely reported (Kon, 1972). The value of milk in relieving malnutrition, especially among the young, in developing countries is particularly noteworthy. While milk and dairy products do supply energy (cheese yields as much energy as sugar on weight basis), their main nutritional benefit is as a source of protein, calcium phosphate and some vitamins. The percentage of total dietary protein supplied by milk and dairy products ranges from 2-5% in South-east Asia to 30-35.72 % in Northwest Europe (Abbott, 1966).

According to Yudkin (1976), liquid milk supplies 10% of the energy, 20% of the protein, 90% of the calcium, 45% of the riboflavin and 25% of the vitamin A of the average UK diet; cheese, cream, dried and concentrated milks make further significant contributions. The contribution of dairy products to the US diet is somewhat less (Rusoff, 1970). The value of milk as a source of dietary calcium is particularly striking (Phillips & Not all recent references to the nutritive value of milk and dairy products have been favorable. The most serious allegations have been made against high-fat dairy products as a possible risk factor in cardiovascular disease (CVD). However, major, non-dietary CVD risk factors are now acknowledged (Anon, 1976) and whole or skim milk is reported to be hypercholesterolemia (Howard, 1977). Lactose intolerance is widespread throughout the world except among populations of Northern European descent and certain Nigerian tribes (Rosensweig, 1969)

2.1.3 Labor aspects of Dairy Development:

Milk production implies a basic and compulsory daily routine of milking, feeding, watering and taking care of the animals. Other major activities related to milk production are the production, harvesting and cutting of fodder crops and the processing, marketing and transport of inputs and outputs.

Seasonal differences in feeding, watering and milking have to be taken into account as well as seasonal changes in the labour input of different household members and their relationship to

other farm and non-farm activities. In some cases paid laborers' are used incidentally, in others they are used permanently.

In addition to increased investments, many improvements require extra labour. It is essential to verify whether this extra labour is available and whether other activities need to be abandoned as a result. The consequences for the household unit must also be established. It is most important to determine whether the labour input is sufficiently rewarded and whether the additional benefits revert to those who provided the extra labour. In countries where women traditionally sell milk, they can be deprived of that source of income when a cooperative is set up that entitles only its members (i.e. the men) to collect the sales revenues. To avoid such situations, women should be allowed to become members of the cooperatives.

Labour constraints can be overcome to some extent by the introduction of labour-saving devices, such as mills, animal traction, water-collecting systems and grass-cutting implements. The availability of labour, capital and land (both quality and quantity) in a given situation determines to a large extent which cattle management system is the most appropriate:

2.1.4 Consumption of Dairy Products:

Dairy products are a source of high-quality animal protein. They are highly valued but not strictly necessary for a full and balanced diet. Governments might wish to develop milk production in order to increase the availability of protein-rich food for the rural population and income-generating possibilities for farmers, as well as the availability of dairy products (and/or substitute imports) for urban consumers.

Traditional beliefs and values may restrict the consumption of milk and other dairy products by certain categories of people.

Distribution of milk products within families does not always correspond with the need for protein-rich food of certain family members such as pregnant and nursing women. In areas where milk production takes place mainly for subsistence purposes, the establishment of milk collection and marketing points may lead to a lower consumption of dairy products within the household. To counteract this effect, a solution might be to collect only the morning milk, leaving the evening milk for consumption within the household/community.

There is a correlation between the consumption of dairy products and income levels: middle- and higher-income groups are the main consumers of milk and milk products. Demand for milk is highest in urban areas whereas production takes place mainly in rural areas, which indicates that dairy development could be an excellent way of transferring funds from urban to rural areas. The

higher-income groups, which consume more milk, profit most from low milk prices or milk subsidies.

Nutritional or social objectives should be realized through special nutrition programmes for vulnerable groups. Dairy development should only have one economic objective: increasing the income of small farmers.

According to monograph agriculture census Nepal, 2001/2002 published by central bureau of statistics there are about 7251.2 thousand of cattle, 95.4 thousand of Chauri, 3477.7 thousand of buffaloes which are the major milk donating livestock. Here I like to introduce one table of major animal and their female numbers who can give milk.

Table 2.1: Table showing the number of milking animals in Nepal

Particular	Cattle	Chauri	Buffalo
Female animals 3 years old and over (In thousand)	1823.6	35.3	1745.8
Number of Milking animals(In thousand)	918.8	2.7	1043.8
% of milking animals	50.4	58.7	59.7

Source: CBS: 2001

This table shows the proportion of milking animals relative to the total adult female live stock that are used for milking purpose. Among three large livestock, buffaloes yielded the highest of female buffaloes three years old and over three with milk in 2001/2002. *Chauri* milking animals consisted of 58.7% while cattle reported the proportion of milks cows at 50.8% (CBS, 2002).

Thus by above figure we can imagine the role of live- stock in the society of Nepal. If we go on present condition the price of 1 Liter of pure milk is Rs 45 and that of milk distributed by dairy is Rs 40. Normally the cost of a buffalo is about Rs 40000 and if it gives 8 Liter milk per day then for 8 month of period it will give about 6x30x8=1440L (supposing that 2 Liter milk is kept by farmer at house). If a farmer gets Rs 30 per lit then s/he will get about Rs 1440x30=43,200. So nearly farmer can get return of his/her investment within first year. Similarly compost fertilizer, proper health of family, high rate of crop production etc are other kinds of benefits.

Population and Distribution of Dairy Animal

Cattle, buffaloes yak and their crossbreeds are important dairy animals being reared in the country. The estimated population of cattle, buffaloes is 7.2 million, 5.1 million thousands respectively during year 2014/15. Of the total cattle population distribution in hilly region was highest (47.91 percent) followed by Terai (40.22 percent) and Mountain region (11.86 percent). Development region wise cattle population was concentrated in eastern development region followed by central, western, mid-western and far western development regions respectively as presented in Annex 2. Likewise, distribution of buffalo was also highest in the hill ecological regions (52.33 percent) followed by Terai (39.39percent) and Mountain (8.26 percent) region respectively. Development region wise CDR has highest followed by WDR, EDR, MWDR and FWDR respectively. Of total cattle and buffalo population in country 14.16 and 26.03 percent are dairy cattle and buffalo respectively as presented in Annex 3.

Though the statistics on population of cattle and buffaloes segregated by breed is not available, it is estimated that around 10-12 percent of cattle population and 25-36 percentage of buffalo population are considered to be exotic or crossbreed (DLS, 2014). The crossbreed improved populations are mostly concentrated in the peri-urban areas of hills and Terai regions with comparatively better infrastructures and marketing facilities. Holstein Friesian and Jersey are the predominant exotic breeds if dairy cattle introduced in Nepal for genetic improvement in the indigenous cattle, whereas Murrah is the only exotic buffalo breed introduced for the same purpose (NDDB, 2014).

Cattle population increased 0.34 percent whereas buffalo population increased 2.28 percent annually in last decade. However, negligible decrease in cattle and buffalo population was observed on last two years. Likewise, the dairy cattle and dairy buffalo population has increased by 1.35 and 2.40 percentage respectably on an average during last decade. Increase in the dairy buffalo population is considerably higher than increase in dairy cattle population on an average during last decade. Proportion of dairy cattle with respect to cattle population has increased from 12.90 to 14.16 percentages during last decade. However difference in increase in number of buffalo and dairy buffalo is negligible. Slight decrease in dairy buffalo population during last two years was observed corresponding to decrease in buffalo population. Proportion of dairy buffalo with respect to buffalo population has increased from 25.80 to 26.03 percentages during

last decade. Proportion of total dairy cattle and buffalo with respect to cattle and buffalo livestock has increased from 17.74 to 19.11 percent during last decade (Annex 4).

MilkProduction and Productivity:

The estimated milk production in the country in the year 2014/15 was 1.75 Mt., 1.45 percent higher than that in year 2013/14. Average annual increase in total milk production during last decade was observed to be 3.14 percent. Annual milk production was highest in hill region (51.61 percent) followed by Terai (41.78 percent) and least in Himalayan region (6.86 percent). The average milk production per milking cow and buffalo was 572 and 868 kg per year respectively. Productivity of dairy animals was higher in Terai followed by hilly and mountainous region. The overall productivity of cattle has increased by 27.44 percent and buffalo by 1.54 percent from 2005/06 to 2014/15 as shown in Annex 5. The increase in productivity is attributed to gradual replacement of indigenous cattle and buffaloes with exotic or crossbred animals particularly in the region were milk collection facilities from organized sector (DDC and Private dairies) have been established (NDDB, 2069). Average 4.47 and 2.59 percent increase in cattle and buffalo milk production per year was reported during last decade. The increase in cattle milk production may be attributed to improved productivity of cattle due to introduction of exotic breeds and improved breeding and increased in milking cattle population with respect to that of milking buffalos. Trend analysis of milk production shows gradual increase in both production and number of milking animals, but the productivity improvement has been marginal for both cattle (2.74 percent per annum) and buffalo (0.15 percent per annum) during last decade.

2.2 Factors Affecting Adoption of Agriculture Innovations

One of the most important means of accelerating National development in agricultural-based economies is the development, adaptation and evaluation of new agricultural innovations (Kuper&Kuper, 1996).

Dairy Farming is understood as the section of agriculture that concentrates on the management of dairy cows for the production of raw milk for processing into pasteurized fresh milk or manufactured dairy products for human consumption (Microsoft Encarta, 2007).

Milk production and marketing provide the household with a regular daily source of cash throughout the season/year, which can be used for small expenditures, while crop production results in a lump sum only after the harvest. Animals are not kept exclusively for milk production, however. Other possible functions are their use for draught, stock, manure, meat, hides, hair and wool. They can also be kept for investment purposes, which are an increasingly important consideration for livestock ownership, especially in countries with unstable economies.

With the proceeds from economically good years farmers tend to invest in animals for conversion into cash in adverse times. This attitude may also be the reason why the introduction of improved breeds meets with resistance on occasion. Local animals are better adapted to adverse conditions than high-bred ones and may survive longer when feed is scarce. As improved breeds are also considerably more expensive, the same amount of money would permit a farmer to buy more local animals and under conditions of stress the sale of a local animal would not reduce the capital to a large extent.

The importance of each function differs per situation and is related, among other things, to the farming system, production purposes and strategies and rights and duties of family members. Not surprisingly, considerable differences in interest may be found between people. There are various products that can be obtained from milk. Some of them are Butter, Cheese, Cream, Yogurt, Ice-cream, *Khuwa*, and Sweets like *Lal- Mohan*, *Rasawari, Peda, Barfi*and many more.

CHAPTER- III
METHODOLOGY

This chapter presents the conceptual framework of research methods and tools used to obtain research objectives which consists of four main sub-sections i.e. conceptual framework of the study; sampling procedure, sample frame, sample size and survey design; data collection procedure and data analysis techniques.

3.1 Research Design

The objective of this study was to assess the status of adoption of dairy farming practices that affect the milk quality at farm level by small holder dairy farmers. The study also assessed the factors influencing the adoption of GDFP by the farmers. The factors affecting the production of clean milk can be classified into: Internal factors (udder infection: mastitis and foremilk) external factors: animal body: dirt and dung from hind quarters and tail, udder and teats, milker: hygiene and habits, milking and storage utensils, method of milking, feed and water. Contamination of milk can be corrected at various levels: animal management- includes feeding, housing and health, hygiene of milking equipment and utensils, milker and milking practices, during storage and transport, personal hygiene of those who are involved in production, processing and delivery activities related to milk and milk products. However initial quality of milk collected highly determines further shelf life and propertied of milk. Initial good dairy farming practices at farm and households have great significance for maintaining the quality of milk throughout the dairy value chain form producers to consumers. Finally adoption of GDFP will lead to better animal health, improved milk quality, better price, and sustainability of dairy farming, sustainable use of resources, improved personal hygiene and sanitation in and around the farm.

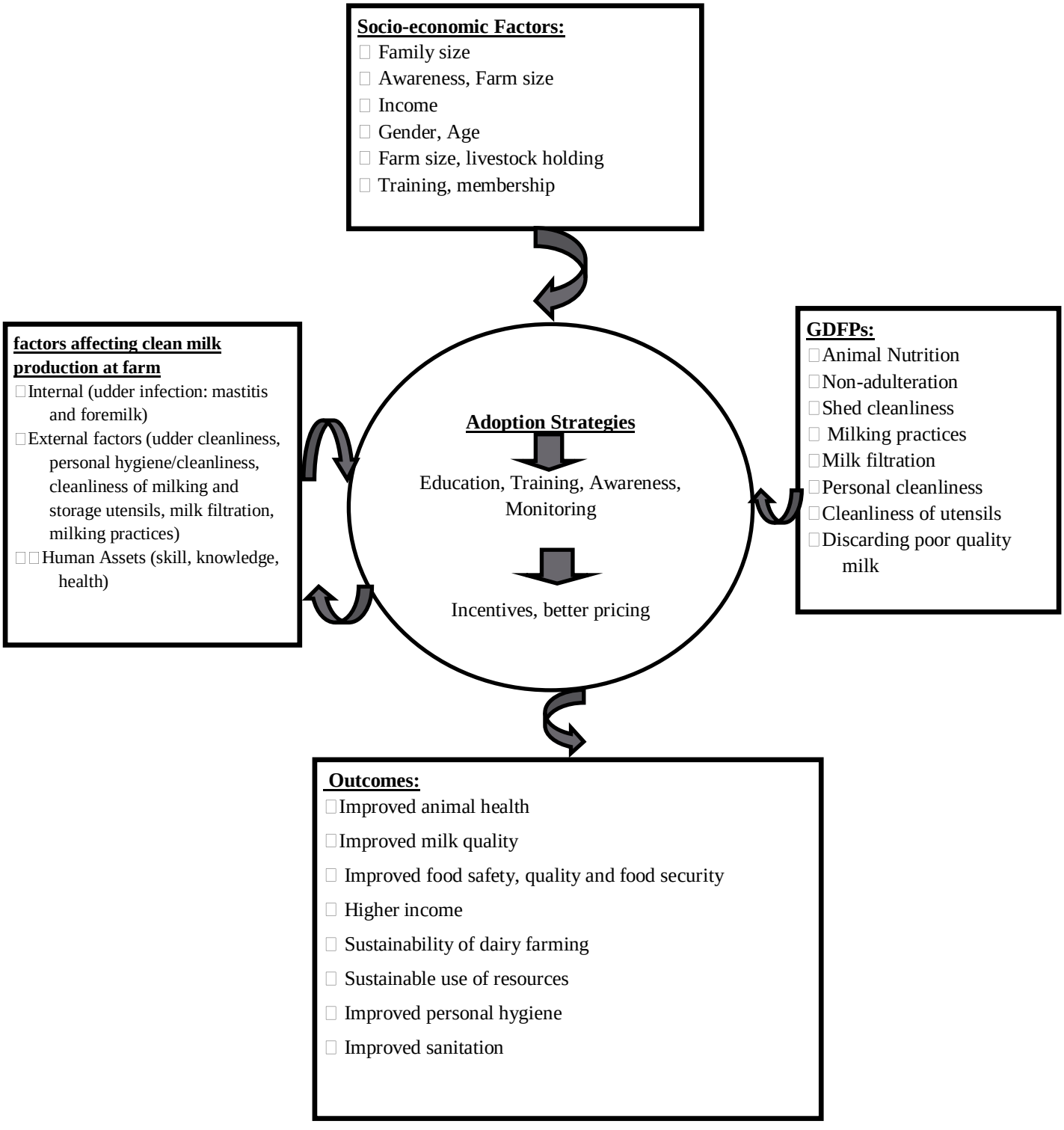

Figure 1. Conceptual framework adopted for the study

3.2 Selection of Study Area

The research was conducted in six raw milk supply chains constituting small scale dairy farmers registered as members of primary cooperatives or private collectors, collection centers in NalaVDC of Kavreplanchok district. Kavre districts is major milk producing and supplier districts in the country.

3.3 Sampling Procedure

3.3.1 Sampling Method

The sampling procedure involves the followed steps as: defining the population, sample frame, sample size and sample selection procedure.

3.3.2 Defining the Population

Classification of the population is the first step in the sampling procedure, namely, the sector or element under investigation, the sampling unit, the area or extent of investigation, and the duration of investigation (Kinnear & Taylor, 1987). The population under this study was small scale dairy farmers of the six selected raw milk supply chain of the districts.

3.3.3 Sampling Frame

The dairy farmers registered as members with the primary cooperatives, private collectors affiliated to partner Milk Chilling Centers and supplying milk in the current year (based on farmers' list maintained at the milk collection centre) constituted the population frame for selecting farmers.

3.3.4 Sample Size

Casley& Kumar (1988) and Kinnear &Tayler (1987) suggested a good survey sample should have both a small sampling error and minimum standard error. A sample size of 60 is generally regarded as the minimum requirement for larger population that will yield a sufficient level of certainty for decision-making (Poate&Daplyn, 1993). Dairy farmers in raw milk supply chain in

selected sites were target population for the study. Major focus of the study was small scale dairy farmers.

A total of 231 HHs out of 3200 farmers of milk supply chain were randomly sampled for the HH survey. The stratified random sampling was adopted while selecting the sample foe the representation of each district of milk supply chains.

3.3.5 Sample Selection Procedure

Thus by using sampling frame, a simple random sampling procedure was used to select the sample size. The procedure was comprehensive and representative of the whole population.

3.4 Methods of Data Collection

For the reliable and meaningful research different techniques such as face-to-face interview, focus group discussion, and informal interaction were applied for the collection of necessary information. In this study, both the primary and secondary data were collected.

3.4.1 Sources of Information

Dairy farmers in the command area of selected milk supply chain were the primary source of information. The pre-tested interview schedule was administered to the respondents to collect primary information. All randomly selected participants were visited and interviewed. Primary data was also collected through Focus Group Discussion (FGD) and Key Informant Interview (KII) by the use of interview guide. Focus group discussion was employed to capture information based on consensus and to verify the responses from the individual interview. These data were supplemented by information obtained from focus group discussion, direct observation and key informant interview.

Secondary information were collected from the various published materials like bulletins, books, journals, research articles, publications from different district offices of respected site, proceedings of various NGOs and INGOs, reports of District Agriculture Development Office (DADO), reports from the Ministry of Agriculture and Development (MOAD), District Development Committee (DDC), National Agriculture Research Council (NARC), Central

Bureau of Statistics (CBS), Village Development Committee (VDC), Community Development Organizations (CDO), Cooperatives, etc.

3.4.2 Techniques and Tools of Data Collection:

3.4.2.1 Household Survey

The face to face interview schedule was used to collect primary data from smallholder dairy farmers. Information on practicing of GDFP by dairy farmers actors in the raw milk supply chain was collected. Information regarding the farm and household characteristics, about production, consumption, marketing of milk, adoption of GDFP was collected through face to face interview and observation.

3.4.2.2Focus Group Discussion (FGDs)

One focus group discussions in one group in each milk supply were held to explore some of the issues and problems relating to the dairy farming, adoption GDFP. Respondents by placing in group a checklist of questions was used to facilitate the discussion and useful informative notes were taken.

3.5 Data Analysis and Interpretation

After collection of necessary information's it was coded and entered to computer for analysis. Data was fed to SPSS and analysis was done by using Statistical Packages for Social Sciences (SPSS), MS-excel and Stata. Mean standard deviations, frequency; percentage, Ordinary Least Square Technique of Multiple Regression and correlation study was done to derive inference needed.

3.6.1 Qualitative data analysis

Information on potential problems associated with the adoption of GDFP at farm level were identified and ranked in accordance to information obtained on FGD.

3.6.2 Quantitative data analysis

Quantitative data were analyzed by using the both descriptive and inferential statistics.

3.6.2.1 Descriptive analysis

Socioeconomic and farm characteristics of the respondents like family size, land holding size, livestock holdings, etc were described using simple descriptive statistics like frequency count, percentage, mean and standard error.

3.6.2. Logit model

Logit regression is a popular statistical technique in which the probability of a dichotomous outcome like adoption or non adoption is associated with the group of independent variables assumed in the relationship. To accomplish the objective of factors affecting adoption of GDFP like discarding milk of diseased animal, application of milk filtration practices, non-adulteration of milk, shed cleanliness, udder cleanliness and cleanliness of milking/transport vessels Logit regression technique was used considering adoption as the function of different personal, social, economic and institutional factors. Decision of farmers to practice different adaptation strategies were estimated through logistic regression to derive the several factors that govern the probability to practicing more adaptation strategies (Y_i =1). Maximum likelihood method leads to least square function under linear regression model (under the conditions of normally distributed error term) and gives value for the unknown parameters which maximizes the probability of obtaining the observed set of data (Wooldridge, 2003). In this process marginal effects were estimated to determine the probability of different factors under study to determine the adoption of particulars adaptation strategy.

It was hypothesized that there could be several factors that affect for the practicing different practices at farm level. Decision to practice different activities might be influenced by several socioeconomic, demographic, institutional, and financial conditions (Deressa et al., 2009). The logistic model was used to analyze the binary or dichotomous response and allows examining how a change in any independent variable changes all the outcome probabilities (Regmi, 2010).

If $Y_i = 1$; $P(Y_i = 1) = P_i$

$Y_i = 0$; $P(Y_i = 0) = 1 - P_i$

Where, $P_i = E(Y = 1/X)$ represents the conditional mean of Y given certain values of X.

The logistic transformation of the probability of the practicing adaptation strategies by farmers were represented as follows (Gujarati 2003).

$$L_i = \ln[P_i / 1 - P_i] = Z_i = \beta_0 + \sum_{i=1}^{n} \beta i Xi + \varepsilon_i$$

Where Y_i = a binary dependent variable (1, if farmers practicing adaptation practices, 0 otherwise), X_i includes the vector of explanatory variables used in the model, β_i = parameters to be estimated, β_0= a constant term, ε_i= error term of the model, exp (e) =base of the natural logarithms, L_i = Logit and $\ln[P_i/1-P_i]$= log of odd ratios for i= 1, 2, 3, 4,……n farm households. Thus, the binary logit regression model used in the study was expressed as:

$$Y_i = f(b_i x_i) = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + b_{10} X_{10} + b_{11} X_{11} + b_{12} X_{12} + b_{13} X_{13} + b_{14} X_{14} + b_{15} X_{15} + b_{16} X_{16} + b_{17} X_{17} + b_{18} X_{18} + \varepsilon_i$$

Table 2. Description of explanatory variables used in the good dairy farming practice adoption model

Variable name	Type	Description
Gender of household head(X_1)	Dummy	1 if Male is household head and 0 otherwise
Location (X_2)	Dummy	1 if Terai regions and 0 otherwise
Ethnicity(X_3)	Dummy	1 if Brahmin/Chhetri and 0 otherwise
Member of milk cooperative(X_4)	Dummy	1 if Yes and 0 otherwise
Personnel involved in caring (X_5)		1 if either male or female only and 0 if both are involved
GDFPs awareness(X_6)	Dummy	1 if yes and 0 otherwise
Trainings(X_7)	Dummy	1 if yes and 0 otherwise
Milk loss(X_8)	Dummy	1 if yes and 0 otherwise
Inspection (X_9)	Dummy	1 if inspection of records and cleanliness 0 otherwise
Family size(X_{10})	Continuous	Number of family members in a family
Female members (X_{11})	Continuous	Number of female members in a family
Dairy livestock(X_{12})	Continuous	Number of dairy livestock
Lactating animal(X_{13})	Continuous	Number of currently lactating dairy livestock
HHs land holding(X_{14})	Continuous	Household land holding in kattha
Forage cultivated land(X_{15})	Continuous	Household land owned used in forage cultivation
Milk loss (X_{16})	Continuous	Milk loss liters per year
Milk selling duration (X_{17})	Continuous	Milk selling months per year

Milk yield (X_{18})	Continuous	Milk yield per livestock per lactating period in liters

(Source: Author)

CHAPTER IV:

DATA ANALYSIS AND INTERPRETATION

4.1 Outline of the Study Area

Introduction of Nala VDC:

Kavre is the Central district of Central Development region which is bordered with Nawalparasi district of Western Development region in the west, Tanahu in the North, Makawanpur in the East and India in the south. It is the holy&tourism placei.e. Devghat Pilgrimage &Chitwan National park. Chitwan district is densely covered with forest in the north and flat plain lands in the south. It is located majorly in terai with fertile lands.

There are 77 VDCs and Municipalities in the Chitwan ,district. Among them Jutpani is the VDC which is considered as most economically active VDC of this district. It lies 5km far from the head quarter of district Chitwan. It is a historic and importance place of the district. The territory of this VDC is covered by Bharatapur in the west, Pithuwa in the east, shaktikhor in the north and Ratnanagar Municipality in south.

It has high importance in the trade and other activities as this paper has already mentioned that it is the centre of commercial VDCs Of Chitwan and 3 Brick factory, 2 furniture factory and no. of Crusher industry, Food industry and other dozens are established.

Geographical structure:

Geographically, Jutpani VDC is plain in its altitude from north to south and is 27.63°N to 82.86° E. Most of the agricultural land lies on the south of the VDC. It covers 7.10 square km of total surface area of Chitwan ,district. Out of 77 VDCs of Chitwandistrict, this VDC is in the northern corner and is fertile in soil as wellas incottage industrial development.

Rivers

The major river of the VDC is Khgerikhola which is one of the major supportive source of water forthis area. It starts from hilly area and is flowing from North to South. It lies on northern side

of VDC and is geographical boarder to many VDC. It has helped in agricultural activities and is the resource for soil and concrete and water. There are many small tributaries and are dry at winter and flows heavily in rainy season.

Weather and climate:

The weather and climate are same as that can be found in whole Chitwan. Sunny days, high temperature can be found in this region. This is a small VDC so variation in weather can not be obtained from one place to another place.

Winter starts from Aswin and ends at Chaitra. Normally this season is drier. The Poush and Magh months are very cold month and temperature reduces of fog. The average temperature during this season is 28^{o}c to 10^{o}c.

Summer starts from Baisakh and ends at late Bhadra. In the rainy reason less rain can be experienced than those other places of country. As in other place of Nepal the rain is due to the storm of monsoon from bay of Bangal. This season is very important for agriculture.

Natural Resources:

Natural resources are those which can be obtained from nature and helps to increased economic activities (Acharya, 2062 BS). The things obtained by nature have high contribution for the development. But in the most case the natural resources are not being able to use for the development. The natural resources that can be found in JutpaniVDC are forest, water resources etc.

Forest resources:

Jutpani VDC is surrounded by big forest in North and settlement in the south. About 30% of total surface of the VDC is covered by forest. Hence forest is the most important part of this VDC. Number of community forests and government forest are divided to the whole forest.

Sal, Chilauni, Khaer, Sisau, Jamunetc are the major plants of the forests of this VDC. Most of the plants are used as furniture and building purpose and are also the major sources for firewood. Nowadays due to uncontrolled deforestation the numbers of plants are being decreasing day by day. But due to the concept of community forest, the areas are being protected by local people which are obviously giving a fruitful result. But also the deforestation by thieving and

community forest member involvement, forest is degrading massively which has depleted the natural environment.

Water resources:

Water is the most essential thing to conduct the life. Without water life can not be imagined. Water is used for drinking, to prepare meal and others. Water is used for other lots of house hold activities. Water is most important for plants. We know that the origin of civilization is at the bank of river due to water because it is essential for life and irrigation can be done to get better crops. There are many resources of water in this VDC. Like pond, river, *rainy floods, tributaries,* water supply tap etc. In the Jutpani , VDC water tank and underground water by means of hand pump is the main supply of drinking water. For the cattle and to wash the clothes people use water of Hand pump. The drinking water supply is also found in the VDC whose water is used majorly by the urban area of VDC.

Education:

The total population of Jutpani, VDC is 12448. This VDC is somewhat educated village. According to CBS, 2008 source about 9646 people are literate. There are 2 high schools, one +2&some Private Schools in this VDC. Distribution of educational institution is tabulated below:

Table 4.1.1 Table showing the educational institution in Jutpani VDC

S.N.	Wardnumber	Name of institution	Nature of institute	Place name
1	3	Prithivi Higher Secondary	Government	Bhateni
2	9	Siddhivinaya English School	Private	Kholesimal
3	9	Moon Light Boarding	Private	Bhateni
4	9	New Sagarmatha School	Private	Jutpani
5	9	Jan Priya English School	Private	Jutpani

Source: Jutpani VDC, 2010).

Population:

The major population of Jutpani VDC is covered by Hindu Buddhist. Hindu occupies about 40% of total population. Mainly the ward number 9 is totally covered by Hindu&there's some Buddhist. Similarly third major population of this VDC is Gurung. They are covering about 18% of total population. Muslim covers more than 2% of the total population of the VDC. They are mostly resident of the southern belt of the VDC. Newar is the forth group according to the number of population. They are covering about 12%. And the marginalized population like yadav, pasi, chauhan, gadariya, keetc covers the other population. And chhetri, magar, kami are in lower number.

4.2 Data Analysis:

Social and economic condition of milk producing farmers

For this chapter the social and economic information of the farmers was collected by the help of semi- structured questionnaire, interview and observations of the farmers who were involving in the milk production. The information obtained during the survey is presented in the form of table or statistical diagrams.

4.2.1. Social condition of respondents:

The social condition includes age of respondents, ethnicity, education, family structure, religion, health, sanitation etc.

4.2.1.1 Age group of respondents:

Age group includes the age of owner of house. Age group directly effect on the way on learning, the way of doing work, efficiency of the work and strategy of decision making. Age group also helps to give idea about time engagement, motivation towards profession, labour contribution and idea sharing. Following table 4.2.1 and figure 2 shows the age group of respondents clearly.

Table 4.2.1 Age group of respondents*:*

Age group(Years)	Respondents	Percentage
Less than 20	-	-
21- 30	11	11
31- 40	39	39

41- 60	42	42
More than 60	8	8
Total	100	100

Figure 2 Age group of respondents

Source:Field survey, 2012

From the above table and figure, it was found that the farmers who were making milk production as a profession are of different age grouped. There were no any family head having age less than 20. But most respondents are between 41-60 years.

There were 11 respondents of age range 21 and 30 years. Similarly, there were 39 respondents between 31-40. It was found that the highest numbers of respondents of age 41-60 years are leading their family in this age range. Very less people of age above 60 were actively involving in the profession. There were only 8 respondents leading the family in this age level. In the field study, it was found that more than 70% of house is headed by male.

Hence we found that agriculture job is totally physical work although it includes mental too. But from the above table we found that most of the house owners are young and energetic aged. It was found from this study that more benefit can be obtained by the direct supervision of house hold head. Here it was found those middle aged household head groups were found to be busy in the milk producing profession, caring cattle, management of income and expenditure etc.

4.2.1.2. Education:

Education plays a vital role in socio- economic development. It makes people aware and the practice become easier by the means of education. An educated person can easily take any kind of decision quick and better than that by an uneducated person. During the research, it was the found that the most of the people involving in the profession of livestock farming for milk were literate. Here the research assumes that the person who can read and write a sentence is considered as literate. The following table 4.2.2 and figure 3 shows the education level of respondents.

Table 2.2.2 Education level of respondents Figure 3 Education level of respondents

	Respondents	
Level	No	%
Illiterate	18	18
Literate	51	51
Middle school	17	17
High school	12	12
Above	4	4
Total	100	100

Source: Field survey, 2012

From the above table and figure, we found that more than 50% of total respondents are literate i.e. at least they can write their name and do signature. A very few has passed higher level than SLC.

From the table 18% of total respondent were illiterate. Most of the illiterate were found to be more aged level. 51% of total respondent were literate where as 17% crossed middle school and 12% passed SLC. 4% of total respondent were educated people.

Education is an important component to change the attitude of a person. The attitude of the farmers towards the profession was found positive and shows need of education for the occupation. Education is most important to understand and adoption of new trend and practice. As well as it helps in the management search and create the market.

Farmers felt education as important things. Most of the farmers want to send their children to the school and higher education too. In the field survey it was found that some of the children of the farmer were going to complete the university level education too. Following table 4.2.3 and figure 4 shows the nature of institution.

Table 4.2.3 Nature of Educational institution Figure 4 Nature of institution

Nature	of	Number	Percentage

institution		
Private	56	60
Government	38	40
Total	94	100

Source: Field survey, 2012

From the above table and figure it was found that farmers are aware of education. 94% of children of farmers were getting education. As education is an important component of life, which can change socio economic condition of and make life better. Most of the household head felt education as only the matter which can drive the life towards success.

Most of the parents were conscious about the education. Children are affording the private school too. About 60% of respondent were sending their child in private institution and 40% of them were sending to the government school.

Education not only brings the consciousness in the society but it gives emphasis to the transform of the indigenous profession too. For the professional job, education is one of the most important things. But for the purely agricultural thing the farmer may get better result by the experience and the transformation of experience too.

Farmers were being able to send their children to school due to milk that they were getting from their cattle and buffalos. The milk production is helping the farmers to perform various activities of daily life. The education is also possible due to milk production.

From the field survey the research is able to conclude that farmers are highly known about the importance of education. Similarly their profession is empowering them. Most of them are accepting they are being able to send their children for schooling due to their profession and occupation. Hence from this discussion we can say that livestock farming (milking purpose) is a low risk job and can earn long term by investing once. 80% of respondents had accepted that the milking animals farming is making them able to send their children for schooling where as 11% and 9% were not accepting about this they do not seem to be satisfied by their profession.

Earning not only help in education but more earning can be done by the help of education. Education helps to acquire the knowledge for the professional development. But only theoretical education is not sufficient for the vocation. Special kinds of education which is practical and daily life base are required for the farmers to be empowered from their occupation. Most of the farmers believe education is only one mean which leads the scientific management. But some believe practice oriented and livelihood oriented education and training is required to get better achievement. Following table 4.2.4 and figure 5 shows about education helps in Professionalism.

Table 4.2.4 Education helps in professionalism, Figure 5 'Education helps in professionalism'

Parameter	Number	Percentage
Yes	87	87
No	2	2
Not compulsory	11	11
total	100	100

Source: Field survey, 2012

From the above table and diagram we found that farmers were accepting that they need education for better professionalism. 87% of total respondent were saying yes for the positive result of education in the occupation where as 13% were not accepting but they were focusing on their experience as an indicator of better development. Almost none of them were ignoring totally the importance of education for betterment of the profession.

It was mentioned that academic education was not only sufficient to solve the problems of farmers but it needs proper vocational knowledge. It was important factor which types of education is required to solve the farming problem. We should know the type of problems and how that can be solved? Already realized practical based education or specific training course helps to solve the problems regarding several subject matters like practices of domestication, food, special food, care of animals (milking) during their pregnancy, during the birth of calf and

their babies etc. The following figure 5 shows the nature of education that farmer prefer for their better achievement.

Figure 6 Specific education helps in professionalism

Source: Field survey, 2012

In the above figure, we found that most of the farmers were in the side of skill based training and only few were in the side of academic education. It was found that 68% of total informants are advocating for the vocational training which helps them to manage the risk, to get more achievement in many aspects like production of bio-gas, selling of bio- manure etc.

Hence from different perspective farmers felt the great importance of education. The occupation is empowering them so that they can do schooling for their children. They were accepting for the betterment of their profession by proper education which can directly help them in their occupation.

4.2.1.3 Family structure:

The family size and structure has an important role for the occupation. The brotherhood, respect and enthusiasm definitely help to pass life in better way. The nature of family also plays important role for the income. Family in nuclear or joint type gives the information about the number of people involving for the care of cattle and other milk giving animals. Livestock farming i.e. farming milking animals is labour intensive work.

The family with daughter, son, father, mother, brother, sister and others relation with family head is called joint family and the family with only couple with unmarried children is called nuclear family. The following table 4.2.5 and figure 7 show the nature of family of participants.

Table 4.2.5 Nature of family

Family structure	Total	%
Nuclear	30	30
Joint	70	70

Figure 7 Nature of family

Total	100	100

Source: Field survey, 2012

In the above figure and table we found that most of the family involving in the domestication of milking animals was joint in nature. There were many members who can contribute in many aspects of occupation. 70% of total informants were found to be in joint family where as only 30% of total informants were in nuclear family. So it signifies that more family member more the work easier.

4.2.1.4 Age group of family member:

The age group of the family members is considered to analyze productive or not age group. The field work is directly related with age of family members. Old aged and children also play a significant role in this profession. Normally grazing which is one of the major works of this profession is done by such aged people and children of family. The following table 4.2.6 and figure 8 shows the condition of population according to age group in the family.

Table 4.2.6 Age group of family member of respondents

Age group (years)	Less than 10	11-20	21-30	31-40	41-50	51-60	More than 60	Total	Percent	Average per house
Male	73	72	93	30	25	42	20	355	48.49	3.55
Female	110	70	92	20	50	10	25	377	51.51	3.77
Total	183	142	185	50	75	52	45	732	100	7.32
Percent	25	19.39	25.28	6.83	10.25	7.10	6.15	100		

Source: Field survey, 2012

Figure 8, Population of family member of respondents

Source: Field survey, 2012

By the field survey it was known that majority of the family member of the farmer were age level of 21 years to 30 years which means large member of family can contribute in the production sector. From the table and figure we found that the children who can not do direct labour are below 10 years; covering one fourth of the total population. Similarly the members in the adolescence were 19.39% where as must effective age groups for labour i.e. age between 21 years to 30 years were covering 25.28%. The population of age range from 31 to 40 years was 6.83% as well as the 10.25% was covered by the population of age from 41 years to 50 years. 7.10% and 6.15% respectively were occupied by the family members of age range from 41-50 years and 51- 60 years respectively. Similarly the total percentage of female members was 51.51% where as male members was 48.49%. Alone family member working for the milk production means they can substitute hired labour, which definitely reduces the potentiality.

More the family members more the labor as the human resources for the production of milk, so family member are also the labour of own work. The family member also affects the productivity. This was accepted by the farmer too. The following table 4.2.7 and figure 9 shows the relation of family member with productivity of milk.

Table 4.2.7 Relation between productivity and number of family members

Figure 9 Relation between productivity and number of family members

Parameter	Number	Percent
Yes	95	95
No	5	5
Total	100	100

Source: Field survey, 2012

The above table and figure signifies that 95 respondents i.e. 95% of total respondents were accepting the number of family as a human resource and they said that the labour easily be distributed among many people which ultimately helped to increase the productivity where as only 5 members i.e. 5% of total respondents didnot believe more production can be done by more members of family.

Hence from this study 95% farmers felt livestock farming for milk is labour intensive job like grazing, bringing grass, milking, cleaning, and collecting the manure and many more. They emphasized that without human resource it is not viable for the livestock farming.

4.2.1.5 Religion:

Most of the respondents were from Hindu religion. They were considering the cattle as a goddess Laxmi where as they have high loyalty to their pets. But due to lack of respect in the Hindu religion some of the so called Dalit were being to Christian are following totally opposite culture that from Hindu. Also few Muslim behave opposite of Hindu culture. Following table 4.2.8 and figure 10 shows the religion of respondents.

Table 4.2.8 Religion of respondents Figure 10 Religion of respondents

Religion	Number	Percentage
Hindu	66	66
Buddhist	10	10
Muslim	11	11
Christian	8	8
Others	5	5
Total	100	100

Source: Field survey, 2012

From the above table and figure, most of the respondents were following Hindu religion. Form the above table we found that 83 participants were following this religion which was 83% of total respondent. Similarly 10% respondents were following the Buddhism, 11% follow Muslim and during the survey a few of respondents who were from so called Dalit community are following Christian too. The percent of Christian was 8%.

4.2.1.6 Health and sanitation:

Health condition is considered as very important for the society because a healthy person can perform work properly and think correctly. Good health represents good social life and economical status of the household head and his/ her family. There is one saying 'if wealth is lost nothing is lost but if health is lost everything is lost' which signifies the importance of health. The proper cleanness, proper use of toilet, sufficient water for drinking and cleaning etc are the key features of good heath. The milk production is basically physical work, so good health is the indicator of the better production. The following table 4.2.9 and figure 11 gives the number of permanent toilet users and had proper sanitation system.

Table 4.2.9 Use of toilet Figure 11 Use of toilet

Parameter	Number	Percentage
Yes	85	85
Temporary	12	12
No	3	3
Total	100	100

Source: Field survey, 2012

The above table and figure shows that most of the respondents were using permanent toilet. About 85% of total respondent were using permanent toilet and 12 respondents i.e. 12% of total were using temporary toilet. We found only 3% of the respondents were not using toilet.

4.2.1.7First priority of respondent for their treatment

In the study area there was a health post and three private hospital/Nursing Home. Most of the participants were aware of health but still a few do not believe hospital or health post first. The

following table 4.2.10 and figure 12 represents first choice of respondents about traditional treatment way or hospital treatment.

Table 4.2.10First priority of respondent for their treatment

Priority	Number	Percentage
Dhami/ Jhakri	6	6
Local heath posts	45	45
Government hospitals	30	30
Private hospitals/ Nursing home	19	19
Total	100	100

Source: Field survey, 2012

Figure 12First priority of respondent for their treatment

Source: Field survey, 2012

From the above table and figure, there were still a few participants who prefer first *Dhami/ Jhakri* for their treatment. They felt hospitals were very expensive and out of their capacity. The percent of participant who felt such was 6% where as most of the participant depend upon local health posts, 45% of total participant were dependent upon the local health posts and 30% depend on medical or clinics. Likewise 19% choose private nursing home and hospitals for their treatment.

4.2.2 Economic condition of respondents:

Economic status of a person represents his/ her properties either static or dynamic, land or money, numbers of cattle or shed for the cattle etc. In the study area, economic perspective of farmers were the amount of land, income sources, number of milk giving animals in home, market, amount of milk production per day etc.

4.2.2.1. Land

Land is a permanent property of the people from which they can get lots of things for their life as well as they can get grass for their livestock too. More land of farmer meant more work on it and get more benefit from it. The following table 4.2.11 and figure 13 shows the amount of land ownership by household head.

Table 4.2.11 Amount of land owned by respondents

Figure 13 Amount of land owned by respondents

Land size (Kattha)	Number	Percentage
Less than 10	54	54
11-20	13	13
1-2 biga	16	16
More than 2 biga	17	17
Total	100	100

Source: Field survey, 2012

While interpreting the above table and figure, we found that most of the farmers had less amount of land. They were doing their occupation within a small territory. Most of the people who were migrated from other places are spending life with just a home for them and a shed for their milking animals. During the survey it was found that few of the respondents were domesticating animals in the rent home and rent land too. During the research it was found that about 54% of total respondents had less than 10 kattha of land. About 13% of total had the land between 11 to 20 kattha. Similarly 16% had the land between 1-2 biga and those who were staying in this place for the long time and transforming the domestication of a single cow into a profession by domesticating many cattle and buffalos had more land. About 17% of the respondents had more than 2 biga of land.

4.2.2.2 Income:

During the research it was found that not all of the farmers had income source from domesticated animals but they have other sources of income too. Some of the family members were involving in government service, small business too. The following table 4.2.12 and figure 14, shows the numbers of respondent who had income other than selling of milk.

Table 4.2.12 Sources of income other than milking animals

Figure 14 Sources of income other than milking animals

Income source	No	Percentage
Only milking animals	68	68
Government job	2	2
Private job	18	18
Business	10	10
Foreign employment	2	2
Total	100	100

Source: Field survey, 2012

Above table and figure shows that most of the farmers were depending upon only livestock. Most of them did not have other source than milking animals. During the survey, it was found that about 68% of total respondents have only milking pets as income source where as 2% of total respondents had extra income from government job, 18% are working on the private sector like working in the private schools and private organizations, 10 of respondents had business and about 2% were involving in foreign employment too. Here the data shows the employment of family member of the participants.

4.2.2.3 Number of milking animals:

The socio-economic condition is directly related to the professionalism of the farmers. The number of milking animals (cattle and buffalos) represents his/ her status in the society and it is the indicator of income of the farmers. The given table 4.2.13 and figure 15 gives the number of cattle and buffalos holding by the farmers.

Table 4.2.13 Number of milking animals holding by farmers

Figure 15 Number of milking animals holding by farmers

Numbers of Cows and buffalos	Number of farmers	Percentage
≤2	45	45
3	18	18
4	21	21
5	12	12
> 5	4	4
Total	100	100

Source: Field survey, 2012

From the above table and figure it is found that most of the farmers had only one or two milking animals. So its clear that due to lack of space, investment and labors the farmers were not able to commercialize their profession. It was found that about 45% of total respondents farmers had less or 2 milking animals where as 18% had 3, 21% had 4 and 12% had 5 milking animals. From the research it was found that about 4% of total respondents were able to commercialize their profession. They were holding more than 5 such animals.

4.2.2.4 Milk Production:

We know that the number of cattle and buffaloes is directly proportional to the amount of milk production per day. Obviously more number of domesticated animals gives more amount of milk. The table 4.2.14 and figure 16 given below show the amount of milk production per day by the respondents.

Table 4.2.14Amount of milk production per day

Figure 16 Amount of milk production per day

Amount of milk per day (liter)	Numbers of farmers	Percent
Less than 5	42	42
6-8	21	21
9-12	21	21
13-15	12	12
More than 15	4	4
Total	100	100

Source: Field survey, 2012

From the above table and figure, we found that the amount of milk production was directly related to the number of the milking animals. We found the same result that more amount of milk production to the numbers of milking animals i.e. cows and buffalos. From the result about 42% of farmers were getting nearly 5 liters from their cattle where as the 21% of farmers were producing 6-8 liters of milk per day. 21% and 12% of farmers were getting 9-12 liters and 13-15 liters of milk per day. The farmers were holding 4% milk-giving-animals were producing more than 15 liters of milk per day.

4.2.2.5. Market:

The production of milk and number of cattle and buffalos are directly related to the income of the farmers. Farmers sell their milk after consuming in the home. Some farmers sell in to the neighbor, some take it to household in the urban area. Most of the farmers were selling their product to the local milk collection centre and dairies. The following table 4.2.15 and figure17 describes about the market of the milk of the farmers.

Table 4.2.15 Market of the milk of farmers

Market	Number	Percent
Urban house hold	7	7

House hold in the same VDC	10	10
Local dairy	**71**	**71**
Shop	12	12
Total	100	100

Source: Field survey, 2012

Figure 17 Market of the milk of farmers

Source: Field survey, 2012

From the table and figure given above it was found that most of farmers i.e. 71% of respondents were selling their milk in the local dairies and collection centers where as 12% of them were taking towards the shop specially it was found that their market is Tandi and Narayangarh About 10% of them were giving home delivery service in the same VDC where as about 7% were deriving the milk to Urban household.

4.2.2.6 Income from milk:

The number of cattle and buffalos holding, the amount of milk production and the price of the milk directly affect the income of farmers. Those farmers who were getting proper value of milk and having more milking animals have high income than that of the farmers having low numbers of pet and getting low price of their product.

The table 4.2.16 and figure 18 given below elaborates about the monthly income of farmers. During the research it was found that those who have large number of buffalos and cattle have sound income and those who have less number have obviously low income which was just sufficient to conduct the daily life.

Table 4.2.16 Monthly income of farmer from their milking animals

Figure 18 Monthly income of farmer

Monthly income (Rs)	Number	Percentage

Less than 3000	42	42
3000-5000	21	21
6000-7000	21	21
8000- 10000	12	12
More than 10000	4	4
Total	100	100

Source: Field survey, 2012

About 42% of total farmers were earning nearly Rs 3000 per month where as about 4% of total farmers were earning more than Rs 10000 per month. According to the farmers they have to spend about Rs 1500 per animal per month. So, by the above figure we conclude that farmers were earning moderate types of earning which is neither more nor less.

4.2.2.7 Investment:

While purchasing the milking animals some of the farmers were using their own property which is inherently transmitted to them where as a few were getting loan from their known and few are from Bank. In the research it was found that some of them were also benefited by NGOs and others organizations.

Here the table 4.2.17 and figure 19 given below, shows the source of their investment to buy their milking pets.

Table 4.2.17 Source of investments of farmers Figure19 Source of investments of farmers

Source of investment	No	Percentage
Self	33	33
Local merchants	13	13
Relatives	26	26
Bank/ finance	24	24

NGO/ organization	4	4
Total	100	100

Source: Field survey, 2012

From the above table and figure it was found that 33% of them were self investingwhere as about 13% of total respondents were getting loan from local merchants and 26% of them were borrowing from their relatives. It was found that 24% of them were getting loan from bank and finance companies and 4% of them were found to be supported by NGOs and other social organizations.

Hence, farmers got loan or they invest, later on they produce in the market and earn. But most of the earning is invested to conduct daily activities. Utilization of income shows the area of the expenditure. Farmers were utilizing their income primarily in food, cloths, children education and daily required goods. As they earn more then they utilize in other sectors. Such as purchasing of land, improve housing condition, building of proper water tap and toilet, and improving the livestock shed or increasing the number of livestock. They used to save it in the bank, purchase the land or home in the urban area etc. The given table 4.2.18 shows the utilization of earned money from livestock farming (farming of milking animals).

Table 4.2.18Ways of utilization of income

Area	Number	Percentage
Food and daily expenditure	100	100
Land purchase	20	20
Construction of house and improvement	5	5
Health and sanitation	80	80
Children education	78	78
Land purchase in urban	-	-
Bank balance	23	23
Live stock purchase	64	64

Religious function	10	10

Source: Field survey, 2012

The above table reflects that all of the participants used their income for daily activities and food. And 78% of them used the same income for the schooling of their children. 80% of them used same income for health and sanitation and within a year. It was found that 64 of them have used the saving to purchase new milking animals. 5% of them used the income to make shed, or maintenance of the house 23% and 10% of the respondents have used same income to keep in bank and to perform religious functions.

Hence, farmers were involved in different economic activities which were possible due to the production of milk. Although the production of milk is a hard job, it is totally a physical work and most of the farmers had to contribute in this sector. All the time at least one member should involve with the pets but also the income gained by it and way of life style that can be obtained is really an inspirable.

4.2.3. Problems of milk production farming:

As other sector this sector is not free from the problems. Farmers were facing different kinds of problem in this profession. Some of the problems are listed below:

Labor

Social view

Market and Cost

Health of animals etc

4.2.3.1. Labour:

Labour aspect is one of the major problems in this profession. Most of the family member had to involve for caring of pets, management of grass, management of manure etc. It was not comfortable to hire extra labour from outside because most of them were conducting their occupation as a traditional manner. So, it had not properly professionalized. Even the school

children had to involve for different types of work. It was found that most of children were getting very low time in home for reading.

4.2.3.2. Social view

It is another aspect of farmer which is considered as a problem because the farmers were not seen in good way in our society. They were considered and called them as unknown people and even *Pakhe* too. So, the society was not creating the positive attitude towards the farmers, youths were compelled to repel from the profession. Also the people tendency of going to foreign countries was maximum which is waving the profession in young sector.

4.2.3.3. Market:

Market is a major difficulty in this occupation. As research has already shown the attitude of farmers for the cost that they got for their product. Due to the characteristics of dairy and local milk collection centre farmers feel as if they were being cheated.

4.2.3.4. Health of animals:

Health of animals is a major problem of the farmers. There were 2 private vets in this VDC but they seem to be more expensive and being unsuccessful to identify the problem of animals due to lack of trained and qualified manpower. Due to the same reason there was not a trend to consult with specialist when the health condition of animal adverse. The following table 4.2.19 and figure 20 shows the trend of using specialist for their milk giving animals.

Table 4.2.19Use of specialist for milking animals Figure 20 Use of specialist for milking animals

Specialist	Number	Percent
Self	60	60
Dhami/ Jhakri	7	7
Private vet	33	33
Total	100	100

Source: Field survey, 2012

Above table and figure, it was found that 60% of total respondents were using indigenous technology and herbs by self and help of neighbor for the treatment of cattle and buffalos where as still 7% were using *Dhami and Jhakri*, and 33% of them were calling specialist from private vet.

4.2.4. Future Plan:

During the research it was found that most of the farmers were satisfied with the profession and some of the farmers want to change the profession due to involvement of all family members. The farmers who want to change the profession were being attracted towards the labour work in foreign countries as well as in the gulf countries. And few were interested in professional vegetable farming too. During the survey about 70% of the farmers did not want to change the profession but they want to promote the same profession. They were planning to hire some other labour as well.

Nowadays the concept of co-operative is developing into various communities. During the research it was found that farmers were incorporating to each other and trying to establish an organization which helped farmers and their profession in various aspects.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary:

While finding the socio- economic status of milk producing farmers, the case study research method is used to find the socio- economic status of the farmers of VDC of Chitwan ,district. In the study household heads are the target to which questionnaire was developed. The questionnaire was randomly filled and while filling questionnaire house head was consulted as far as possible but in the case of absence of the household head the help from the other members was taken. Many semi-structured, structured and some open questions were discussed. During the observation and home visiting the data were found regarding production, marketing and constraints in the livestock farming of milking animals. From the key informants the researcher was able to know their reality of life, way and standard that they are spending.

Jutpani, VDC of Chitwan, district is dominating by Hindu according to their number. But Brahman, Yadav, Muslim Chettri are also major ethnic groups of this VDC. Some of the members of Brahman, Chettri were in different occupation than agriculture but most of them were involving in the agriculture especially livestock farming for milk.

The highest percent of heads were in age group 41- 60 years followed by the age group of 31- 40 years. The majority of house hold heads were between 41- 60 years contributing 42% and age group of 31- 40 were covering 39% of total respondents.

The study was done in such a group where almost are following Hindu religion. Out of 100 respondents 66 were Hindu, 10 were from Buddhism, only 6 were from Christian religion, 7 were from Muslim religion. The Christian were also derived in the religion from Hindu within the few years. And literate and illiterate percent was found to be only 51% and 18% respectively where as 4% of the total respondents had passed more than high school level, 12% passed high school level, 17% passed middle school. During the research it was found that majority of the family members of the respondents were living in the joint family which contributed about 70% where as nuclear family just contributes 30%. Among the family member the majority are from 21 to 30 years which was contributing 25.28% of total respondents which is followed by the age group of teenagers. The percentage of old aged i.e. more than 60 years was the least and was just 6.15%. So summarized that the labour aspect of the family was high and the number of member who can give significant contribution is increasing day by day.

In the study it was found that although the farmers are depending upon the agricultural work but they were holding very less amount of land. Most of respondents i.e. 54% of them were holding less than 10 kattha of the land where as only 17% were holding more than 2 biga of the land.

The market of the milk is increasing day by day. The consumers are increasing. Most of the farmers sell their milk in the houses in the urban area where they got some more that they were getting in the local household or in the milk collection centre or in the dairies. But around 71% of the total respondents were selling their milk in the dairy which sometime create problem of less price of milk. There were 3 local dairies in the Jutpani, VDC and there was one milk collection centre in the same VDC of DDC.

Most of the farmers were utilizing their income in the normal household work like food and others. All the farmers were investing the milk income for the food where as about 5% were using to maintain their house or for new construction. About 78% were utilizing for the child education. About 64% has used the income for the purchase to increase the number of milking of

animals. The area was highly dominated for by the Hindu and Buddhist religions. So farmers were using a few of income for the religious works like *Tithi, Shrada, festival, temple work* etc.

The social institutions play a great role in the dissemination of knowledge and provide services for the betterment of this area. Institutions were also resources provider agencies which help to farmers for livelihood generation to an environment level. From this study it come to know that many government and non- government agencies were included in this sector to improve package of practice and increase productivity, ultimately to raise the living standard of the farmers but again these agencies were found to be using their very low efficiency. That is why the role of the government organizations and NGOs seemed not able to show their real potentiality.

Farmers were earning with respect to the number of milking animals that they were holding. About 42% of total respondents were earning nearly Rs 3000 per month where as about 21% were getting between 3000 to 5000 rupees but the research shows the handsome income of the farmers, about 4% of them were earning more than 10000 rupees per month which is considered as the better income in our context.

Although the farmers have fine earning but there was a lot of problems in this profession. The main problem was that it is directly related to amount of labour invested. But due the trend of undervaluing by the society towards such farmers it is not in the first choice for the most of the youth. In Jutpani, VDC we found most of the facilities of the urban area but also the accessibility of health center of animals was not systematic. Farmer's couldnot get a trained and qualified person for the treatment of their pets. Lack of proper guidance and availability of the medicines and technician is really problem for the farmers.

Conclusion

The domestication of milking animals for the production of milk is concluded as a popular job and it answers the questions of growing demand of population by regular supply of milk. Further it directly support the income generation through better use of unemployed or semi employed human resources in the rural area mainly involved in agriculture occupation.

The occupation based on milking animals is a suitable profession because in this profession the locally available resources like hay, grass, straw etc are used. It includes optimum use of land resources, human resources, co-ordination with market and so forth. The continuation of

involvement of farmers in a particular profession is guided by certain experience gives positive impact and reflects the conditions of the farmers.

In this socioeconomic conditions study of milk producing farmers of Jutpani, VDC ward number 9, it acknowledged that the farmers on the milk producing profession have great opportunity to improve socioeconomic condition of community. It is possible through the better use of the human resources i.e. labour aspect of family and use of modern technology too; it needs a professional transformation too.

During the management of pets, marketing and all the works related to the occupation and by long experience of milk production and its marketing farmers have achieved the knowledge related to this farming which may be better than that by an academic person of the same field.

Hence by the proper management of the locally available resources the livestock farming especially for the milk production is improved. The livestock farming not only improves the socio- economic status of the farmers but also contributes the beneficial achievement in the national production and help to improve the economic condition of the country. The domestication of milk production animals not only help to supply demand of the milk but also help for the production of the bio- fuel which may help to control present hot cake of energy crisis. Similarly it significantly reduces the consumption of chemical fertilizer which helps to increase the long term productivity of the land and control the national investment in chemical fertilizer.

During the study it is realized that it is just limited to cover the condition of milk selling farmers, other area could be important field for further study. Also consumer's status could be other part for further study. I analyze from the research finding that, there is the possibility of milk profession that 70% people want to magnify the animal husbandry. Market is the other opportunity for selling product by which farmers are lured on husbandry. They got good rate of milk product;and is dtill the deficient of milk product by which shows the possibility of profession.

Recommendation:

During the milk production farmers are feeding lots of Chemicals (Vitamins and Calcium) and packed items like *Dana* for the high production in the short interval of time which ultimately hamper the health of the pets. The farmers should be aware and take precautions with hazards of these artificial things. They should be educated for the better use of natural resources and certain

amount of chemicals and *Dana* for the proper production. The field survey found that they are using medicines as per their own prescription but they need proper guidance and well advice in this field.

The commencing researches should focus the study about the introduction of milk drying machines so that the milk demand could be more. Similarly, the accessibility of the market, transportation, and professionalism should be a part of the research.

It is recommended that the future research should focus on the availability food of animals, hygienic aspect of milk, and management of organic manure in the agriculture as well as for the production of bio- gas and collection of milk and long term store of milk by drying

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ANNEXURE: I

Household Survey Questionnaire

1. **General Information:-**

Name: - Age:-

Religion: - Marital Status:-

Caste: -

Education:-

Illiterate Literate Middle school High school Above

VDC: Birpur Ward No:- 9

2. **Social aspects:-**

i. Family

a. Family System: - Joint nuclear

b. Family Size:-

Age group (Yrs)	Male	Female	Total
Below 10			
10-20			
20-30			
30-40			

40-50

50-60

60 above

c. Do you think family size help in livestock farming for milk?

Yes No

d. How does family member help in productivity? Please mention.

ii. Education:-

i) Do you send your children in school/college? Yes No

a. If yes which types of schooling are you giving them?

Government Private

b. If not, why?

ii) Do you think livestock farming for milk helps you to send your children in school/ college?

Yes No Not compulsory

iii) Do you think formal education from school and college helps in your profession?

Yes No Not compulsory

iv) Do you think you need some vocational education in this field?

Yes No

v) How does such specific education help in your profession? Please mention.

iii. Health and sanitation:

a. Where do you go for your treatment?

Dhami/ Jhakri Local health posts clinics private hospitals/ Nursing homes

b. Are you using toilet? Yes yes but temporary No

3. **Economic**

a. How many lands are you holding? (in Kattha)

Less than 10 10-20 1-2 biga more than 2 biga

b. What are your sources of income?

Milking animals government Job Private Job Business foreign employment

c. How many numbers of cattle and buffalo do you have?

No of cows No of buffaloes

d. How many liters of milk do you sell everyday?

Less than 5 5-8 9-12 13-15 More than 15

e. Where do you sell your production (milk)?

Urban house holds Neighborhood houses Local dairies/ collection centers shops

f. How much do you earn every month? (In Rs)

Less than 3000 3000- 5000 5000-7000

8000-10000 more than 10000

g. From where you got money for investment?

Self Local Merchants Relatives Banks/ Finances NGOs/ Organizations

h. In which sectors do you use your income?

Food and daily expenditure	Land purchase	Construction and improvement of house and shed
Health and sanitation	Children education	Land purchase in urban area
livestock purchase	Bank balance	
religious function	Others	

4. What are the problems that you are facing in this profession? Please mention.

a.

b.

c.

d.

5. How do you treat your cattle and buffalos?

Self Dhami/Jhakri Government vet Private vet

Questionnaire for specialist:

1. What is the number of farmers who come to you for your advice every day?
2. Do you have sufficient stock of medicine?

Yes No others

3. Basically which is the most occurring disease in the milking animals?

4. What are the programs that you follow to increase the productivity?

5. What is schedule to visit farmer?

6. How farmers can increase their productivity?

7. How can you measure the milk produced by farmers is hygienic or not?

8. Do you have some future program to help farmer? What kind of help?

ANNEXURE: 2

(Photographs)

(Taking interview with farmers)

(Household Survey with farmers)

(Birpur VDC and its structue, snaps while taking data)

APPENDIX I

MAP OF STUDY AREA