

**SOCIO-ECONOMIC IMPACT OF ORANGE AND JUNAR
CULTIVATION IN KAMALAMAI MUNICIPALITY-11
OF SINDHULI DISTRICT**

A Thesis

**Submitted to the Central Department of Economics, Tribhuvan
University, Kirtipur, Kathmandu, Nepal in Partial Fulfillment of the
Requirements for the Degree of**

MASTER OF ARTS

in

ECONOMICS

By

GANESH K.C.

Exam. Roll No.: 280933

TU Regd. No.: 5-1-33-60-96

Central Department of Economics

Tribhuvan University

Kirtipur, Kathmandu, Nepal

SEPTEMBER 2018

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Nepal is predominantly an agricultural country where 78 percent population is still engaged on agriculture with 0.61 hectares of average land holding per family. The share of GDP of this sector till FY 2016/017 was 36.30 percent. 48.50 percent of the total population was male, while the female comprised 51.50 percent of the population. Men owned 90 percent and women owned 10 percent of the private land in Nepal (CBS, 2018).

Agriculture (including forestry) in Nepal provides direct employment to six and a half million of the labour force which is four-fifths of total economically active population. Four and a half million labourers are self employed, and over two million work as wage laborers. Almost half of the wage workers are part-time workers, coming from marginal and small holdings. Another one million labourers are full time farm wage workers. These workers are landless and subsist on wage income. Out of every 10 full time wage workers, 7 work as casual workers, and 3 work under a permanent labour relationship generally interlinked with credit and land relationships (Sharma, 2010).

Over two-thirds of Nepal's labor force is engaged in agriculture. Out of this number 80 percent population is under the poverty line. One decade long conflict having a profound impact on the agricultural sector, as land owner are displaced to urban areas and agricultural production falls as consequence. The National Living Standards Survey 2010/11 found that landholdings are becoming smaller by reducing from the average size of 1.1 hectares in FY 2003/04 to 0.8 hectares in FY 2010/11. The quality of agricultural land, water and forest resources is diminishing, as the result country is facing the problems of food security. About 28 percent of Nepal's total area is classified as cultivated land (including grass land). The national cultivated landholding per capita in 2001 was 0.175 hectares. In the Terai, which has the greatest proportion of the population, the average per capita landholding in 2010 was 0.167 hectares. Average per capita landholding in the hills was 0.162 hectares, and in the

mountain was 0.301 hectares (CBS, 2011). The 2011 National census of Agriculture found that about 75 percent of Nepal's cropped area is planted mainly with legumes, oilseeds and vegetables. Cash crops make up an extremely small proportion. Rice is the most important crop, with 92 percent of holding growing it. This is followed by wheat and maize. Agricultural land is either flat or terraced, and may be irrigated or rain fed, although the latter is more common (CBS, 2011).

Agriculture is the backbone of the Nepalese economy. To improve the living standard of the people at large, it is very necessary to exploit agricultural potentialities. The agriculture sector needs to have a change from subsistence status to an industrial and profitable business so that productive employment and income are generated from this sector for the benefit of the poor people and may serve the objective of alleviating poverty (Acharya, 2010).

'Orange' is a tree of the family reticence, (Rue or orange family) native of China and Indo-China, and as a fruit, the important fresh fruit for international commerce and trade. Columbus brought the orange to the West Indies, and its known as orange tree, Orange was well established in Florida before 1565 and it was grown in California by 1800. It's believed that, orange is a native fruit of tropical regions, Asia, especially China and India. It was brought into Europe from China before the end of the 15th century. The Spaniards took it to the new world in the 16th or 17th century. The Genus citrus, such as orange, lemon, grape, etc are supposed to have about 30 species of plants, all are native to the old world. The spread of sweet orange was the most important of all the citrus fruits and it reached Europe from its original home China by 1498. The sweet and mandarin orange is the principal species produced commercially in the following countries, listed in order of importance in economy, viz., USA, Brazil, Mexico, Spain, Italy, Israel, Egypt, Argentina and Turkey. Mandarin orange originated in China (Cochin China). Shan people who migrated towards the south- west (that is Assam) from East China might have been brought it to India prior to the beginning of the Christian era.

Orange and junar cultivation is not concerned only with economic rise but also concerned with ecology. Orange and junar tree can play important role by balancing the declining environment condition due to deforestation and also help the environment by stopping land slide and land degradation and another important role is

the growing appreciation of the dietary value of citrus fruit. Orange and junar is the richest sources of vitamin C (ascorbic acid), phosphors, sugar, citric acid, Iron and salts etc and also provides vitamin 'A'. Fruit plants provide food security through the increase of purchasing capacity from the income generated by high value crop orange and junar.

Orange as simply used in this study is called mandarin orange or 'Tan-ger-ine' in English and 'Suntala' in Nepali is an important species in 18th century USA, and major species in Nepal too. In Nepal Khoku located in Dhankuta district was the first area to grow mandarin orange.

Most of the periodic plans of Nepal have given priority to agriculture sector because Nepal is an agricultural country and without its development economic development is impossible. In Fifth five-year plan (1975-80), priority was given to the cultivation of fruits with another view to commercially discouraging fruit import from India.. In Seventh five-year plan priority was given on expansion of citrus area in the country. Fourteen districts of Nepal have been identified as renowned 'citrus pockets of Nepal'. In Eighth five-year plan, citrus fruits cultivation area was targeted to expand under the horticulture expansion programme. In Ninth five year plan, Citrus fruits were pointed out to help increase the farmer's income in mid hills, so the programme were launched in potential pocket area with priority and in Tenth five year, it is planned to expand the area of citrus fruits cultivation.

The orange and junar cultivation can play a vital role to increase agriculture production rise-up. Then orange and junar can also be source to improve the socio-economic condition in our case. In Nepal, citrus fruit especially orange and junar is grown in 55 districts. Dhankuta, Kaski, Dailekh, Syangja, Ramecchap, Dhading, Gorkha, Tanahun, Lamjung, Sindhuli etc are the main districts for orange and junar and junar cultivation with the viewpoint of commercial aspect.

1.2 Statement of the Problem

Our agriculture system is primitive and traditional. The illiterate people are engaged in agriculture sector. The population growth has increased rapidly but agricultural production has not been increased accordingly with the population. Presently in

Nepal, percentage of the people living below the absolute poverty line is 25.5 percent (CBS, 2011). Due to traditional method of cultivation, the production of food grain cannot cope with the increasing population. For solving their problem of unemployment, the people of hilly region must cultivate high value crops like fruits. In view of the geographical and climatic diversities of Nepal, there exists a great prospect of the production of seasonal fruits. The concern for nutritious food for growing population, increase in the number of foreign tourists and the fast growing urbanization have necessitated to increase the products of horticulture crops in order to meet the increasing demand. Fruit production can contribute stable income generation for rural farmers. It can assist in transforming the traditional food-crop oriented farming system to high income generating agricultural activities. Citrus-based fruits generate five times more income than that of food crops in mountainous area (Ghimire, 2011). So the fruit production can be brought more efficiently and proved more productive than other productions. Citrus fruit is one of the most effective productions in hilly reason. If the citrus fruit product rises up then it can play a vital role to increase agricultural production, so fruit production is the most important crops to cultivate in hilly area. Orange is one of the most important species of citrus fruit that can be cultivated for income generation.

At present, hill-farmers are attracted to cultivate the orange. In many parts of hilly region, farmers are cultivating orange for the commercial purposes. According to the Citrus Development Committee, 55 districts are cultivating orange in Nepal. Despite of the profitable fruit production, there are many problems in the way of orange cultivation, such as lack of proper modern techniques, lack of irrigation facilities, lack of transportation, lack of proper market, and cold storage. Ever than orange production has helped to rise up the farmers' Socio- economic condition.

The researcher's main attention is to focus on socio-economic impact of orange and junar and junar cultivator in the study area. It is a case study of Kamala Mai Municipality-11 of Sindhuli district, which is declared as the pocket area for orange and junar cultivation by District Agriculture Office, Sindhuli. Therefore, this study will be oriented toward investigating the following research questions in Kamala Mai Municipality-11.

- What are the socio-economic characteristics of the orange and junar grower in the study area?
- What is the socio-economic change after orange and junar cultivation?
- What are the complexities and problems in orange and junar cultivation in study area?
- What are the prospects of orange and junar cultivation with proper suggestions to overcome the problems faced by farmers?

1.3 Objectives of the Study

The general objective of the proposed study is to evaluate the socio-economic impact of orange and orange and junar cultivator in Kamala Mai Municipality-11. In order to achieve this objective the study has the following specific objectives.

- To show the socio-economic characteristics of the orange and junar grower in the study area,
- To assess the socio-economic change after orange and junar cultivation in the study area,
- To identify the complexities and problems in orange and junar cultivation.
- To analyze the prospects of orange and junar cultivation with proper suggestions to overcome the problems faced by farmers.

1.4 Significance of the Study

Most of the poor people are living in hilly region of Nepal. So, it is essential to uplift the socio-economic condition of those people. For this purpose, it is better to cultivate high value crops especially citrus product because of its favorable climatic condition. This is important to know the existing situation of citrus production, problems of such region and way of solution also. To some extent, this case study can be generalized for some of the hilly region of Nepal regarding the citrus production, particularly orange.

This research can be helpful for the improvement and betterment of the present condition of local who are facing a lot of problems like lack of transportation facility, lack of irrigation, fruit diseases, lack of systematic market, lack of cold storage etc.

This research is based on field survey. The information generates a new concept with its own nature. Hence, this research can be helpful for future scholars, researchers, and students in the related field and as well as for the policy makers for formulating more effective and suitable economic policy, and NGOs and INGOs who are working in the concerned sector.

1.5 Limitations of the Study

This study has following limitations:

- This study limits the area of orange and junar farmers in Kamala Mai Municipality-11 of Sindhuli district. It cannot be generalized in the national level. So, it can be representative to some extent only for hilly region regarding orange and junar production.
- The study covers the period from FY 2015 to FY 2017 AD.

1.6 Organization of the Study

This study is divided into five chapters. The first chapter is introductory chapter, the second chapter deals with the review of literature. Third chapter presents the research methodology, which includes research design, nature of data, sampling techniques, tools and methods of data collection. The fourth chapter analyzes with the socio-economic and demographic structure of the study area. This chapter also entails orange cultivation in agricultural practices and the chapter five summarizes the problems and suggests recommendations. This research work also consists of alphabetical list of reference and appendices.

CHAPTER II

REVIEW OF LITERATURE

2.1 Review of International Context

Ghosh and Singh (2010) reviewed the citrus production in south Asia in present condition. The authors have been made to review the current status of citrus production, constraints management, research and trade in different countries of south Asia. In depth analysis made in their directions clearly shows some commonalities of problem and prospects among the countries of south Asia.

The authors reveal that in south Asia, Citrus is a very important crop. Comprising of six countries namely India, Pakistan, Bangladesh, Nepal, Bhutan and Srilanka. In south Asia two countries India and Pakistan shares 95% of the total citrus production. Only in certain parts of India and Pakistan Commercial sericulture exists and Bhutan and Nepal have traditional but expanding citrus Industry.

The studies have shown that with transfer of sound production technology and its adoption, orange and junar industry in Nepal should grow well and the Nepalese orange and junar can make good in roads in India, Bangladesh and Chinese town lying near the border even after meeting the needs of growing domestic market.

FAO (2012) conducted the study about 20 million tons of citrus that are processed annually. This amount represents almost 40 percent of world output of citrus. Two countries, the United States and Brazil, account for over three quarters of the volume processed with a share of almost 80 percent, orange and junar account for the largest part of all citrus fruit processed concentrated orange and junar juice, mostly in the form of FCOJ is by far the most important item in international trade in citrus Juice. It accounts for about 85 percent of exports of all types concentrated and single strength Juices. Exports of concentrated orange and junar Juice increased dramatically during the last two decades.

FAO in its report focused on the citrus fruit Juice. The purpose of the report was to review the major developments, which have been taken place in 2010 to 2012 in production and consumption of citrus Juice in particular concentrated juice, and to

analyze the underlying factor responsible for the dynamic growth of international trade in these items. Finally, in view of the very fast expansion in output of citrus for processing and processing capacity in some areas, especially attention is given to the outlook for international trade and possible market problems, which could arise in the future.

Shrestha (2013) reviewed the role of fruit production in rural development of Mandarin orange and junar production in Bangkok rural area. The study stated agriculture as the major sources of income of that rural area and because of that the fruit farming have been expanded. Mandarin orange and junar are leading crop of the community, which average cost of production is 1.55/kg. Based on the data, benefit cost ratio is calculated Rs.2.65 and indicates that if farmers invest Rs. 1 during the productive stage he could receive worth Rs. 2.65. Thus the orange and junar farming is beneficial one.

The conclusion of the research was that the people of Karendanda have produced more orange and junar and they have earned many rupees from it. The income from the orange and junar production has helped to improve the socio-economic condition of their people in Karendanda. The altitude of the people towards education has become posited and they have started sending their children to modern school, ornament and dressing. They have changed their food habit and housing structures. The perceptions of the people on primary health care and sanitation have been increasing year after year. Because of the accelerated economic growth due to the orange and junar production, the people of Karandanda have undergone a significant socio-economic change.

Chhetri (2014) studied on orange cultivation in Sikkim of Sakyong Revenue Block of West Sikkim. The study found that the trend of production of orange is increasing, but sometime fluctuation due to physical condition such as hailstone, high rainfall etc. The conclusion of the research is that the orange cultivation has a positive impact in rural economy. The socio-economy status of this study area is up-graded by orange production, but the people are not adopting the orange cultivation from commercial point of view. The impact of development does not seem to be encouraging. If the farmers develop it in an organized manner, it will remove their backwardness, poverty and illiteracy.

Paris (2015) stated that agricultural research in Israel is based on close cooperation and interaction between scientists, consultants, farmers and agriculture-related industries. Israel's semi-arid to arid climate and shortage of high quality water are major constraints facing Israeli agriculture. Through extensive greenhouses production, vegetables, fruits and flowers are grown for export to the European markets during the winter off-season.

Paris stated that dry farming on a subsistence level was practiced in the Land of Israel for over 2000 years. The forerunners of agricultural research were the teachers and instructors of the Mikveh Israel agricultural school, established in 1870. The pioneers of many of the early farming settlements cultivated experimental plots supervised by an agronomist. Arriving in the country with little or no previous agricultural experience, this kind of experimentation was vital for the development of such crops as grapes, citrus and almonds. Arab agriculture revolved primarily around dry farming, with barley, chickpeas, sesame and olives predominating. The few German Templer villages were based on relatively large farms of dry farming of wheat and barley.

Ashley (2015) observed that in commercial farming, women often face higher barriers to entry than men. This vulnerability of women is due to the nature of their employment within the system. Men tend to occupy higher status higher pay positions, whereas women are generally found doing work for wages and are often the first to be let go during times of market fluctuations. They have less access to information related to commercialization namely starting a business, technologies and market related information. Within the household, even if a woman were in the lead position in the business she could very well have access to the resources yet still face a barrier when engaging in market transactions. Men are often in those positions of trader and buyers which essentially the gateway to the market.

2.2 Review of National Context

At present, orange and junar are popular as a new cash crop and it is explained as a high value crop. So it may be the indicator to improve the economic status of Nepalese. For the reason, it is quite important to study orange and junar cultivation. However, sufficient literatures about the orange and junar production in Nepal have

not been found yet. There is no such study in the case of Kamala Mai Municipality-11 of Sindhuli district. The mentionable aspect is that a few literatures have been written on orange and junar, which are relevant for this study but not the same.

As an agro-based country, the government of Nepal has given high priority in agriculture. Government involvement in agriculture sector in Nepal started in 1937 with the establishment of the Agriculture Council, since then several steps were taken for the agricultural development in the country.

Orange and junar cultivation in Nepal is not considered as a main occupation and small orchards mainly in the Homestead Act as secondary sources of income to most of the growers. In order to develop the citrus industry in country, it is necessary to give commercial touch to the citrus business.

Citrus Crops Development (2011) published annual progressive report of FY 2010/2011. According to the report citrus fruit covers 23663-hector area and the production amount is 139110 metric ton in Nepal. Among that eastern development region covers 5830 hector, central development region covers 6285 hector, western development region covers 6720 hector, mid western development region covers 2896 hector and far western development region covers 1932 hector, in comparison with previous FY 2008/09. The citrus fruit has increased 1240 hectares in this FY 2009/010. The government and private sector distributed 370036 of citrus plants on FY 2009/010. Out of which 9.97% of citrus plants were distributed by government and left of that were distributed by the private sectors.

Shrestha (2011) reviewed that mandarin [citrus reticulate Blanco] is one of the most important sub-tropical fruits crops in the middle hill [650m-1400m] of Nepal. This paper result that during the harvesting season [Nov-Jan] there is glut in the market leading to the low price as well as spoilage where as during the period of shortage, price go up. As a result, the economy benefit of this crop is not reaching to the farmers. So the LARC, founded by Department for International Development [DFID] of the British government for storing designed and tested a low cost cellar store as a post harvest technology at Tapu village in 1991. This research paper suggest that mandarin could be safety stored for three to four month with out loss in the

quality and quantity of the stored mandarins. From this research, it is felt that the cellar store is serially acceptable and economically profitable to the people.

Shrestha (2011) reviewed the book and said that in recent past, the government, semi government and private organizations working on agricultural development in Nepal has realized that fruits are very important in human nutrition as well as for improving the rural economy. The study has also agreed that fruit tree plantations help in the preservation of ecology of fragile hills and mountains provided the trees are planted scientifically. Lately more and more emphasis on improving fruit tree culture and care has emerged in government and private sector to narrow the gap between the demand for fruits and their supply.

NARC (2011) examined annual report and report revealed that the citrus is one of the most important and popular fruits crops grown in the hills of Nepal. It is grown commercially at different climatic condition like; tropical and sub tropical and even in some favorable part of temperate regions. This reports focus that the core problem is the low production and low market price at harvesting time. It is caused mainly due to the small area under citrus, lack of suitable varieties for growing in different seasons. (Early medium and late) and poor management practices. Poor fruit quality and lack of suitable storage methods are the main reason for low market price at harvest.

Ghimire (2011) reviewed the article on the orange and junar production and its impact. The study have reviewed that most of the Nepalese people expect governmental help even for small piece of work. But in contrast to the citizen of east-northern part of Sindhuli demonstrate their power and became an example of country. As we all know, Sindhuli is the high temperate zone of Nepal and even in such a zone, people of Kamala Mai Municipality-11 are success in growing orange and junar are increasing their economic status day per day. Due to the hard work and activeness of the curious farmer of Tamin this area now become a 'pocket' zone of orange and junar farming in Sindhuli district.

Around 8 thousand plants are planted in 40 Bigha and more than 50% plants are giving their product. Now the orange and junar of this area is not only qualitatively delicious but also quantitatively productive. People of this area are earning around 18

lakhs rupees per year from orange and junar farming and the main market of the orange and junar of this area is Mugling Bazar.

Paudel (2011) reviewed the Fruit Development in Nepal and dealt with the importance of fruit production in Nepal because of its agro-climatic condition and geo-physical location. The research has shown the major problems of the farming in the region, which related to technical supports and serves, agricultural inputs, irrigation and storage facilities and markets. Similarly in study researcher recommended to the governmental and non-governmental organization to establish the industries and to solve the problem related with orange and junar cultivation of the Karendanda VDC.

Shrestha (2011) analyzed the hilly part of the Sindhuli district i.e. Kamala Mai Municipality as the study area for research. The available materials, relating to orange and junar production and socio-economic impact, have been reviewed in the below: Besides direct benefit from the production, it also beneficial in other different purpose. When trees get old it can meet the demand of timber and firewood. So it's farming should be extended in the locality. The marginal price of the fruit crops becomes acceptable due to the highest productivity.

Shrestha (2011) highlighted the orange production and socio-economic change in Syangya. In this study the researcher has stated that the orange production has become one of the most important alternative economic activities in Karendanda. The main objective of the research was to throw some light on the orange production and socio-economic change in Karandanda VDC of the Syngja district.

Rajbanshi (2012) explained the mini research project and has stated that in Manakamana VDC Orange Plantation is one of the important agricultural activities, but inspite of many efforts of different institution of government and other organization, it is still true that the return to the mandarin growers have been limited and that the economic activity has not enhanced the level of income of the farmers to a desired level. This apparent reason for this situation is the assurance of diseases and pests and the existence of marketing problems when the production is good. Identification of crucial determining factors related to production, distribution and

processing of mandarins must have been starting point to devise ways to resolve the existing problems.

Rai (2013) examined the orange cultivation in Eastern Hill Region. In that thesis paper the writer has stated that Agriculture play an important role in the entire economy of Nepal. There are several types of agriculture in Nepal i.e. cereal crop farming cash crop farming, livestock raising, horticulture etc. Among of these citrus is the dominant horticultural crops and orange is an important citrus, which is especially in the Hilly region of the country. In the study area, after analyzing the different socio-economic parameters of farmers, the study concluded that the socio-economic status of orange and junar growers is higher than non-growers. In terms of literacy status, occupation, land holding size and food sufficiency the orange and junar grower has better position than non- grower. The orange and junar cultivator is facing a lot of problems such as non systematic care and management in orange and junar cultivation, lack of commercialization and modernization lack of irrigation facility, improved sapling, chemical fertilizer, aged chemical, insecticide pesticide. Instead of problem, farmers in the study are still optimistic for the future prospect orange and junar.

Sapkota (2015) stated farmer's choice and farmer's voice on the use of local versus modern inputs on peri-urban agriculture in Kathmandu Valley. This study has taken 20 vegetable growers as samples. In this study he has attempted to explore some contradictions. During this study, he has found that the local farmers have been trying for long time to sustain agricultural production through using indigenous compost and farm and manure system. Recently, an increasing number of Nepalese farmers are going into the commercial production of vegetables, especially in the peri-urban areas or areas with good roads and market access. However, more rural farm households in Nepal, constrained by a low literacy, low rate of technology adoption, and an inefficient use of resources. This leads to high costs of production and the loss of cost advantages compared to imported vegetables. However, with improvements in efficiency, Nepal could improve its comparative advantage in the vegetable production and marketing. Such increased efficiency could help to close the current productivity gap in the vegetable productivity (currently 1.2.8 mt/ha, but potentially 17 mt/ha: MOAD 2014) allowing vegetable farmers not only to meet the increasing

domestic demand for vegetables but also to export vegetables to the neighboring countries.

Gurung (2016) studied about vegetable farming as a base of livelihood in Basantapur VDC of Tehrathum district. For this study, he has taken 91 household as samples. In this study, he has attempted to analyze the socio-economic condition of farmers, role of women in vegetable farming and access of farmers in markets. He has found out the improvement of farmers living standard, improvement of women such as rate of wage, role of women in house management, number of girls student and so on. He analyzed that the vegetable farming is hugely contributed by women participation.

Chapagain (2017) conducted about changes in farming system of eastern Nepal. In this study, he has attempted to analyze the farmer's farming practices from the subsistence production to the commercial production. For this study, three small villages were selected. During his study, he has found that the farmers of Yolma and mixed village adopted the cash crops farming immediately after the construction of the road and getting easy access to the marketing opportunities but the Yakha farmers were not adopted immediately impact of their economic, social and cultural condition of living not only agricultural landscape and environment.

2.3 Research Gap

The gap will look into socio-economic impact of orange and junar cultivation in Kamala Mai Municipality-11 of Sindhuli district. The conclusion of the research is that the orange and junar cultivation has a positive impact in rural economy. The socio-economy status of this study area is up-graded by orange and junar production, but the people are not adopting the orange and junar cultivation from commercial point of view. The impact of development does not seem to be encouraging. If the farmers develop it in an organized manner, it will remove their backwardness, poverty and illiteracy.

In the study area, after analyzing the different socio-economic parameters of farmers, the study concluded that the socio-economic status of orange growers is higher than non-growers. In terms of literacy status, occupation, land holding size and food sufficiency the orange grower has better position than non-grower. The orange

cultivator is facing a lot of problems such as non systematic care and management in orange cultivation, lack of commercialization and modernization lack of irrigation facility, improved sapling, chemical fertilizer, aged chemical, insecticide pesticide. Instead of problem, farmers in the study are still optimistic for the future prospect orange. So this study has examined the socio-economic impact in study area.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Selection of the Study Area

The present research is concentrated in Kamala Mai Municipality-11, which is the pocket area for orange and junar cultivation in Sindhuli District. Kamala Mai Municipality-11, one of the leading orange and junar producing mid-hill area of Nepal, is selected to study the overall impact of orange and junar production on the daily life of the people living in this area. The following reasons are there behind the selection of Kamala Mai Municipality-11 as the study area.

- Kamala Mai Municipality-11 is one of the leading area for orange and junar production in Sindhuli district.
- No previous studies have been carried out in this village on this similar topic.
- Kamala Mai Municipality-11 being the home village of researcher, the familiarity of various aspects of Kamala Mai Municipality-11 is accessible and appropriate to collect required information for this study.

3.2 Research Design

The present study basically follows descriptive method. Using the descriptive method, the acquired data and information has analyzed and results have been derived.

3.3 Nature and Sources of Data Collection

The nature of the study is descriptive as well as analytical. The study is based on primary as well as secondary data. The primary data was collected from the study area, by direct contact with the people applying data collection instruments. On the other hand, the secondary data were collected through different sources such as Central Bureau of Statistics (CBS), Agricultural booklets and annual report published from the agriculture communication section.

3.4 Universe and Sampling

The climatic condition of six wards is favorable for orange cultivation in Kamala Mai Municipality i.e. 1, 2, 3, 4, 7 and 11 wards. It was really difficulty for collecting data from all households in term of time, money and labour. So, it can be expensive, quite tedious and time consuming. That is why a researcher has prepared purposive sampling method. Three hundred households were taken as universe in ward no. 11. The researcher has taken sixty households from ward no.11 as sample and all of the households are familiar to the orange and junar cultivation. Most of the household fully depends on orange and junar production.

3.5 Tools and Techniques of Data Collection

Primary data was collected by structured as well as unstructured questionnaire. Many information like religion, Caste/ethnic, family size, family structure, occupation, land holding size, income source etc are collected through structured questionnaire. Information were collected about the history of orange farming in Kamala Mai Municipality-11, problem facing by them, government help and other demands of farmer from the interview.

3.5.1 Questionnaire

A set of questionnaire has been prepared and in depth interviews has been carried out. The respondents are made to understand the question first and then answer. Thirty seven questions are close ended while three are asked for respondents' views and ideas are left open for respondents to express their ideas freely.

3.5.2 Case Study

Data was collected on the basis of case study during the field visit. Ward secretary and leader of orange farmer were taken intensive interview to know their life style, problems of orange cultivation, their feeling and living condition of the people and other activities, which related to the socio-economic aspect.

3.5.3 Key Informant Interview

Interview schedule for key informant interview: Three persons have been identified as key informants. They are secretary of ward office, President of local Farmer's group,

District Agriculture officer. Information obtained from key informants is used as major guide for designing questionnaire.

3.5.4 Focus Group Discussion

Member in group association with common goal considered as functional group caused the focused group. Focus group discussion has been done to the orange farmers of Kamala Mai Municipality-11. The discussions are about traditional occupation, necessary of government agencies advice, vegetable orange farming prospect, their perception involvement, involvement of new generation and the challenging factors of their survival. The outcomes of the discussion were fruitful.

3.6 Methods of Data Analysis

The collected primary data has been classified, tabulated, and interpreted according to the requirement. Frequency and percentage are used for analyzing the quantitative data and the qualitative data are described, explained and logically analyzed.

CHAPTER IV

DATA ANALYSIS AND PRESENTATION

4.1 Economic Activities

Nepal is an agro-based economy. So agriculture is the pre-dominant occupation in Nepal. About 80percent of active Nepalese population is involved in agriculture. Kamala Mai Municipality-11 is no exception. The majority household of Kamala Mai Municipality-11 depends upon agriculture. The following table shows the economic activities in Kamala Mai Municipality-11.

Table 4.1: Composition of Economic Activities in Kamala Mai Municipality

| Economic Activities | Household | Percent |
|-------------------------|-----------|---------|
| Paddy and Wheat farming | 520 | 31.56 |
| Fruit cultivation | 315 | 19.12 |
| Vegetable farming | 264 | 16.02 |
| Manufacturing | 11 | 0.67 |
| Trade/Business | 339 | 20.57 |
| Transport | 14 | 0.84 |
| Services | 111 | 6.73 |
| Others | 74 | 4.49 |
| Total | 1,648 | 100.00 |

Source: CBS, Population Census, 2011

Table 4.1 depicts that the economic activities in Kamala Mai Municipality-11. The major household depends upon agriculture activities like paddy and wheat production, vegetable farming and fruit cultivation, which is equal to 31.56 percent, 16.02 percent and 19.12 percent respectively. Similarly 0.67 percent of household depend upon manufacturing, 20.57 percent depends upon Trade/Business, 0.84 percent of household depends upon Transport and 6.73 percent household have service activities and 4.49 percent household depends upon other activities like wage labour.

4.2 Development Infrastructure in Kamala Mai Municipality-11

Basic infrastructures are needed for the development of the country. Some development activities have started in Kamala Mai Municipality-11. Transport

facilities are the most important infrastructure to develop the country. In Kamala Mai Municipality-11, main road has touched partially in some wards. Nepal is one of the hilly countries with the high potentiality of yielding various citrus crops. Hence, various research works have been carried out in different geographical regions. Kamala Mai Municipality-11, one of the leading orange producing mid-hill of Nepal, is selected to study the overall impact of orange production on the daily life of the people living in this area. Education is a means through which human being may bring a better life. In Kamala Mai Municipality-11, there are thirteen primary schools, two secondary schools with one plus two college. There are primary boarding schools and lower secondary school. The literacy rate of Kamala Mai Municipality-11 is 68.76 percent (CBS, 2011).

The development infrastructures are not distributed homogenously in the nook and corner of the VDC. Highway is found as pro-development to generate its infrastructures.

4.3 Demographic Characteristics

Demography is the scientific study of human populations, primarily with respect to their size, their structure, and their development. And demographic characteristics mean those activities, which are related and concerned with population.

4.3.1 Demographic Characteristics of Study Area

Different types of population characteristics are included in demographic characteristics. Total population, compositions of the population are included in demographic characteristics. Thus, it shows the population characteristics mathematically.

4.3.2 Population Composition by Age of 60 Sample Households

The total population of the sampled households are 400 from 60 households and it presents as the basis of different population composition.

Population composition by age is one of the most important characteristics in demographic analysis. Although, age is a personal characteristic of a person, information on age can normally be obtained with out difficulty. Age composition is a

process of studying the population characteristics because the total population is divided into different age group. Children, young and adult from the major age groups of the population in any society. The age composition of the sampled household in Kamala Mai Municipality-11 is presented in table.

Table 4.2: Composition on the Basic of Age of the Population of 60 Sample Households

| Age group | Number of population | Percent |
|--------------|----------------------|---------|
| 0-14 | 112 | 28.00 |
| 15-59 | 248 | 62.00 |
| 60 and above | 40 | 10.00 |
| Total | 400 | 100.00 |

Source: Field Survey, 2018

Table 4.2 reveals that the age structure of population of study area. It shows that the economically active population (age group 15 to 59) is the higher number, which consists of 62 percent. The age group of 0-14 years consisting of 28 percent and that of 60 years and above consisting of 10 percent.

4.3.4 Population Composition by Sex

Population composition by sex is second most attention in demographic analysis. The sex ratio is usually expressed as the number of males per hundred females. It can also be expressed as a number of females per hundred males. The sex composition of the sampled household in Kamala Mai Municipality-11 is presented in table.

Table 4.3: Composition on the Basis of Sex of the Population of 60 Sample Households

| Sex | Number of population | Percent |
|--------|----------------------|---------|
| Male | 206 | 51.50 |
| Female | 194 | 49.50 |
| Total | 400 | 100.00 |

Source: Field Survey, 2018

Table 4.3 shows that the sex structure of population of study area. It shows the male population comprises 51.5 percent and female 49.5 percent.

The male population is quite higher than the female population. The causes of lower percentage of women are that most of the daughters have already been married at an early age and sons are not married yet in the sample households. Since married daughter leave the birth house for their husband's houses located mostly in other areas and or other district.

4.3.5 Distribution of Population by Caste/Ethnicity

Nepal has been described as a garden of various ethnic groups. Hundred-ethnic/Caste/ethnic group are present in Nepal (CBS, 2011). People of various caste/ethnic groups live scattered in different parts of the country. In almost every part of the country the community is mixed and people of different caste/ethnic group live together peacefully. The caste/ethnic distribution of the sample households in Kamala Mai Municipality-11 is presented in table.

Table 4.4: Distribution of Respondents by Caste/ethnicity

| Caste/ethnic group | No. of households | Percent |
|--------------------|-------------------|---------|
| Brahmins | 40 | 66.67 |
| Gurung | 13 | 21.66 |
| Magar | 4 | 6.66 |
| Newar | 2 | 3.33 |
| Pariyar | 1 | 1.67 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.4 reveals that in Kamala Mai Municipality-11, the household of Brahmin is highest which is equal to 66.67 percent. The second highest household number is Gurung, which is equal to 21.66 percent. The table also shows that Magar are 6.66 percent, Newar are 3.33 percent and Pariyars are 1.67 percent.

4.3.6 Family Size

The total number of the family member is called family size. Most of the families in Nepal have large size because mostly people live in joint family. The

average family size of Nepal is 5.83 (CBS, 2011). The average family size of sampled household in Kamala Mai Municipality-11 is 6.66.

4.4 Socio-economic Characteristics

Social and economic factor are closely interrelated to each other. They become cause of change in either factor. Economic improvements consequently bring positive social changes, whereas favorable social factors are required to bring about progress in economic status of people living in a particular community.

4.4.1 Distribution of Population by Occupation

Agricultural continues to dominate as a major occupation of the economically active population in Nepal. About 60 percent of economical active populations are engaged in agriculture. So, agriculture is still predominating occupation in Nepal. The composition by occupation of the sampled household in Kamala Mai Municipality-11 is presented in table.

Table 4.5: Composition on the Basis of Occupation

| S.N. | Occupation | Number of Respondents | Percent |
|------|--------------------|-----------------------|---------|
| 1. | Agriculture | 50 | 83.33 |
| 2. | Government Service | 4 | 6.67 |
| 3. | Business | 6 | 10.00 |
| | Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.5 shows that the 83.33 percent of selected households were engaged in agriculture, where as 10 percent were engaged in Business and 6.67 percent were engaged in government service.

4.4.2 Distribution of Population by Education

Education is a means through which human being may bring a better life. But one may get education either formally or informally. The informal type of education is dominated in primitive societies. As one moves from primitive to more civilized societies, the education process becomes more and more institutionalized and formal.

The informal process of offering education is still regarded as the integral part of education. The literacy rate of Nepal is 65.1 percent. The composition by the education of the sampled household in Kamala Mai Municipality-11 is presented in table 4.6.

Table 4.6: Distribution of Respondents on the Basis of Education

| Level of Education | Number of Respondents | Percent |
|--------------------|-----------------------|---------|
| Illiterate | 25 | 41.19 |
| General literate | 30 | 51.42 |
| X–XII | 3 | 4.54 |
| College | 2 | 2.80 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.6 shows that the composition of respondents on the basis of education in Kamala Mai Municipality-11. The illiterate respondents are 41.19 percent general literate is 51.42 percent, grade X to XII is 4.54 percent, and college level education is 2.8 percent.

4.4.3 Tiffin in the Selected Household Before and After the Orange Cultivation

“Food is important for human being to carry out economic activities and occupations. Sufficient amount of food and nutrition, the means to increase the efficiency is necessary for human capital formation which can play a significant role in economic development.” Food habits of different households are different. The food habits of rich people and poor people are not same. Rich people can afford to eat high quality of food (delicious and nutritious) and they don’t have to face scarcity of food. But the food habit of poor people are just opposite than rich people.

The food habits of Kamala Mai Municipality-11 farmers have slowly undergone changes, because of their increasing income. Income determines the habit of Tiffin system. The distribution of Tiffin habit before and after orange cultivation in sampled households in Kamala Mai Municipality-11 is presented in table.

Table 4.7: Distribution of Respondents on the Basis of Tiffin

| Description | Number of respondents before orange cultivation | Percent | Number of respondents after orange cultivation | Percent |
|-------------|---|---------|--|---------|
| Poor | 23 | 38.33 | 1 | 1.66 |
| Normal | 37 | 61.67 | 36 | 60.00 |
| Good | | | 23 | 38.64 |
| Total | 60 | 100 | 60 | 100.00 |

Note:

- Poor tiffin means which has not plenty of nutrition and delicious
- Normal tiffin means which is made in home having nutrition
- Good tiffin means which is made in home, plus purchasing from the local market.

Source: Field Survey, 2018

Table 4.7 shows that the availability of Tiffin before and after orange cultivation. Before orange cultivation, 38.33 percent household has poor, 61.67 percent household has normal and nobody has good condition to have Tiffin. Where as after orange cultivation 1.66 percent households has poor, 60 percent household have normal and 38.34 percent households has good contrition to have Tiffin.

In the past, most of the families were not able to provide sufficient tiffin because of their low income, but after earned more money from orange cultivation; they have changed their concept of food habits and started to have tiffin in daytime. They released the importance of nutrition food and tiffin. This can be concluded that orange cultivation is able to improve living condition of people.

4.4.4 Drinking Water Availability in the Selected Household Before and After the Orange Cultivation

Water is most important requirement for human beings. We cannot live without water. Drinking water shows the development of country. Good condition of drinking water is the positive change of social condition. Most of the villagers in Nepal have no enough pure water to drink.

Availability of drinking water before and after orange cultivation in sampled households in Kamala Mai Municipality-11 is presented in table.

Table 4.8: Distribution of Respondents by Drinking Water

| Description | Before | Percent | After | Percent |
|-------------|--------|---------|-------|---------|
| Poor | 17 | 28.33 | | |
| Normal | 42 | 70.00 | 41 | 68.33 |
| Good | 1 | 1.67 | 19 | 31.67 |
| Total | 60 | 100 | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.8 expressed that the drinking water in the selected households before and after the orange cultivation in Kamala Mai Municipality-11. Before orange cultivation 28.33 percent households have poor, 70.00 percent households has normal and 1.67 percent household has good condition to access drinking water. Where as after orange cultivation no respondent households are poor, 68.33 percent households have normal and 31.67 percent has good condition to access drinking water.

Initially, even farmer were not able to consume pure drinking water, source of which was remote, because of their low income. How ever, now most of the farmers have their house furnished with tap which they can consume pure drinking water. After earned more money from the orange cultivation they have become more conscious towards health and realized the importance of clean and pure drinking water. So it can be concluded orange cultivation able to improve living condition of people.

4.4.5 Health Condition in the Selected Household before and after the Orange Cultivation

Health care is the basic preventive and curative measures of health of the people. Educated people are more conscious toward health than uneducated people. So, health's related with education.

Healthy person can work more efficiently than unhealthy one. A healthy person has lot of stamina. He/she can do hard work. He/she can achieve whatever He/she likes.

He can digest whatever he eats. He can run his life in meaningful way. So some says, “Health is wealth”.

Distribution of health condition before and after orange cultivation in sampled household in Kamala Mai Municipality-11 is presented in the following table.

Table 4.9: Distribution of Respondents on the Basis of Health Condition

| S.N. | Description | Before | Percent | After | Percent |
|------|-------------|--------|---------|-------|---------|
| 1. | Poor | 18 | 30.00 | | |
| 2. | Normal | 41 | 68.33 | 35 | 58.33 |
| 3. | Good | 1 | 1.67 | 25 | 41.67 |
| | Total | 60 | 100.00 | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.9 explains that the health condition in the selected before and after the orange cultivation in Kamala Mai Municipality-11. Before orange cultivation 30.00 percent household has poor. 68.33 percent households have normal and 1.67 percent households have good condition to access health facilities. After orange cultivation no respondent households have poor. 58.33 percent households have normal and 41.67 percent households have good condition to access health facilities.

Before orange cultivation most of the households were not able to save money and provide adequate nutritional tiffin and pure drinking water to their family that contributes poor health and sanitation. When the people started to raise surplus income from the orange cultivation, they were able to have adequate nutrition foodstuff and arrange safe drinking water to their family member. They now spend some money in the primary health care of the family. They are also aware of sanitation. All above supportive factor contributed to improvement health of orange farmers and in other hand good health plays instrumental role to increase in living condition of people.

4.4.6 Cloth and Ornaments Availability in the selected Household before and after the Orange Cultivation

Better Cloth and ornaments is a symbol of civilization. The high-income group uses better cloths and ornaments. So, better cloths and ornaments indicate the high economic condition.

Distribution of cloths and ornaments before and after orange cultivation in sampled household in Kamala Mai Municipality-11 is presented in table 4.10.

Table 4.10: Distribution of Respondents by Availability Condition of Cloth and Ornaments

| Description | Before | Percent | After | Percent |
|-------------|--------|---------|-------|---------|
| Poor | 39 | 65.00 | 6 | 10.00 |
| Normal | 20 | 33.33 | 37 | 61.66 |
| Good | 1 | 1.67 | 17 | 27.34 |
| Total | 60 | 100.00 | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.10 analyzed that the cloth and ornaments in the selected households before and after orange cultivation Kamala Mai Municipality-11. Before orange cultivation 65.00 percent households has poor, 33.33 percent households has normal and 1.67 percent households has good condition to access cloth and ornaments in the selected households where after orange cultivation 10.00 percent households has poor, 61.66percent households has normal and 28.34 percent household has good condition to access cloth and ornaments in the selected households.

Along with their growing living standards, farmers are now interested toward the expensive jewellery and new seasonal clothes which were only the dream in the past. However, due to increasing income rate, farmers are able to afford those materials. They have started to buy new clothes for their children in special occasions and festivals, so it can be concluded orange cultivation able to improve living condition of people.

4.4.7 Housing Structure in the Selected Household before and after the Orange Cultivation

Housing structure shows the economic condition. Because high-income level of people used to build better house with cement, rod and poor people build their house with stone and soil.

The housing structure of Kamala Mai Municipality-11's farmer had small and common traditional houses. The economic condition was not good before orange production. They were very poor so their house structure was also poor. But after orange production their income increases which let them to build their house in good condition. The following table shows the housing structure of sampled households of Kamala Mai Municipality-11

Table 4.11: Distribution of Respondents by Housing Structure

| Description | Before | Percent | After | Percent |
|-------------|--------|---------|-------|---------|
| Poor | 43 | 71.66 | 14 | 23.33 |
| Normal | 17 | 27.34 | 33 | 55.00 |
| Good | 0 | 0.00 | 13 | 21.67 |
| Total | 60 | 100.00 | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.11 depicts that the housing structure in the selected households before and after the orange cultivation in Kamala Mai Municipality-11. Before orange cultivation 71.66 percent households has poor, 28.34 percent households has normal and 0.00 percent households has good condition of housing structure in the selected households. But after orange cultivation 23.33 percent households has poor, 55.00 percent households has normal and 21.67 percent households has good condition of housing structure in the selected households. From above table it can be concluded orange cultivation able to improve living condition of people.

Table 4.11 shows that in the past, most of the farmer used to live in congested small house, because they do not have sufficient money to build up modern big house. Only a few rich people have large and modern house, but now most of the farmers have converted their small have in to the attractive wooden home with galvanized steel

ceiling, while others, these who have low increasing income rate has maintained their cottage, and few of them built modern cemented house.

4.4.8 Distribution of Respondents in Income Sources

Majority people of Kamala Mai Municipality-11 depend on agriculture sector. The main income source of Kamala Mai Municipality-11 is agriculture. The following table 4.12 shows the distribution of sample households by main income source.

Table 4.12: Distribution of Respondents in Income Sources

| Income Sources | Number of Respondents | Percentage |
|-----------------------|-----------------------|------------|
| Agriculture | 50 | 83.33 |
| Agriculture + Service | 10 | 16.67 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.12 shows that in Kamala Mai Municipality-11, the main income sources of people is agriculture, which is equal to 83.33 percent. The second highest income sources adopting in Kamala Mai Municipality-11 is service plus agriculture, which is equal to 16.67 percent.

4.4.9 Land Holding Size

Land ownership is still the most important index of wealth in Nepal but the system of division of property; land is divided into smaller and smaller pieces. Thus the land holding capacity is also decreasing generation after generation. However, the possession of land is greatly valued among the people of Kamala Mai Municipality-11. It is valued not simply as a factor of production but as continuous source of income and security. In the other hand it is and index of social status and prestige also. The composition by land holding of the sampled households in Kamala Mai Municipality-11 is presented in table 4.13.

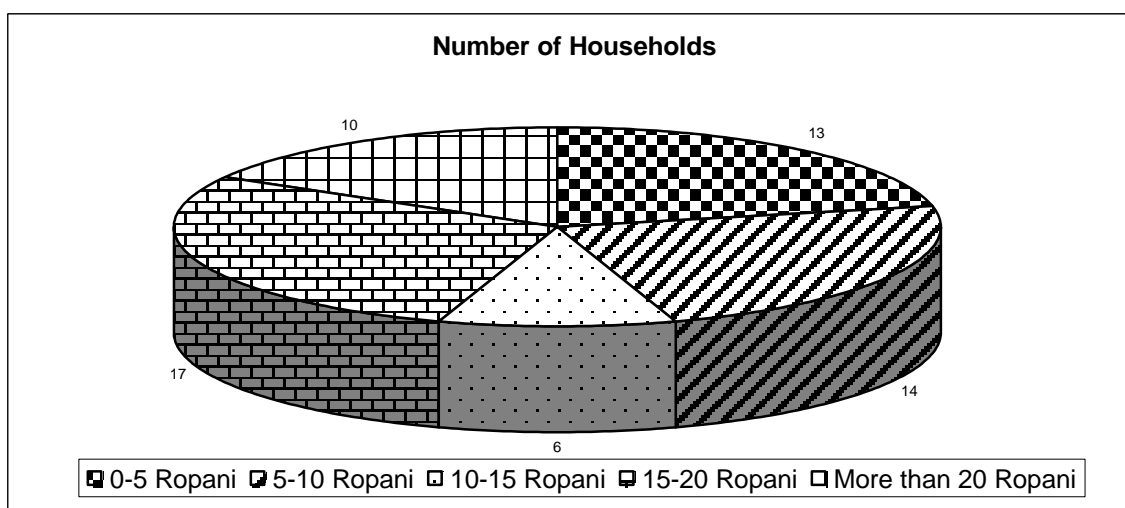
Table 4.13: Distribution of Land Holding Size of Respondents

| Size (In Ropani) | Number of Households | Percentage |
|-------------------|----------------------|------------|
| 0-5 | 13 | 21.67 |
| 5-10 | 14 | 23.33 |
| 10-15 | 6 | 10.00 |
| 15-20 | 17 | 28.33 |
| More than 20 | 10 | 16.67 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.13 reveals that the distribution of land holding size of households in Kamala Mai Municipality-11. The household of people having 15-20 Ropani is highest which is equal to 28.33 percent. The second highest is 5-10 Ropani which is equal to 23.33 percent. The table also shows that 0-5 Ropani, 10-15 Ropani, and more than 20 Ropani land holding size is equal to 21.67 percent, 10 percent and 16.67 percent respectively.

Figure 4.1: Land Holding Size



Source: Based on the table 4.13

4.4.10 Saving of Selected Households Before and After the Orange Cultivation

Saving is income not consumed. It is one of the most important and perhaps the chief sources of investment. Saving has a great significance as a capital formulation to develop the Country. The saving condition of selected households before and after the

orange cultivation in selected households in Kamala Mai Municipality-11 is presented in table 4.14.

Table 4.14: Distribution of Respondents by Saving Condition

| Description | Before | Percent | After | Percent |
|-------------|--------|---------|-------|---------|
| Saving | 10 | 16.66 | 40 | 66.66 |
| Not saving | 50 | 86.34 | 20 | 33.34 |
| Total | 60 | 100.00 | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.14 depicts that the saving condition of selected households before and after the orange cultivation. Before orange cultivation 16.66percent households were able to save and 83.34percent households were not able to save. But after orange cultivation 66.66percent households have been able to save and 33.34percent households have not able to save in selected households. From above table it can be concluded orange cultivation able to improve living condition of people.

4.4.11 Orange Cultivation in Different Types of Land

Physical feature of Nepal is biodiversity where Hill, Mountain and Terai characterize the country.

Kamala Mai Municipality-11 lies in hilly area, so the land is up landed. The different type of land where the orange is cultivated in selected households in Kamala Mai Municipality-11 is presented in table 4.15.

Table 4.15: Distribution of Respondents by Types of Land

| Types of Land | Number of Households | Percentage |
|---------------|----------------------|------------|
| Khet | 0 | 0.00 |
| Upland | 35 | 58.33 |
| Pakho | 24 | 40.00 |
| Near forest | 1 | 1.67 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.15 shows that the types of land for orange cultivation. The households of people cultivating orange in uplands 58.33 percent, 40.00 percent in Pakho and 1.67 percent in near forest.

4.4.12 Annual Income and Expenditure

The economic condition of Kamala Mai Municipality-11 was extremely low before starting orange cultivation. Agriculture is the main occupation and the normal sources of income. Animal husbandry, service, wage labor are also the subsidiary sources of income. Traditional and crude method of agriculture the income is very lower. Then people shifts to orange cultivation for better income.

Now a days the major source of cash income in Kamala Mai Municipality-11 is orange cultivation. Besides this, the people earn good money by working in different parts of Nepal and India. Thus these sources of income are supposed to contribute substantially to the economy of Kamala Mai Municipality-11. People from selected households of Kamala Mai Municipality-11 depend upon agriculture. The main income source is from orange cultivation. The total income of selected households is about Rs 2340000. Where the percentage of income contributed by orange is 90.11 percent.

The main income source of selected households is agriculture, Business and Services. The annual income of selected house in Kamala Mai Municipality-11 is presented in table 4.16

Table 4.16: Total Income of Selected Households

| Income in average (In Rs) | Number of Respondent | Percentage |
|---------------------------|----------------------|------------|
| 10000 | 5 | 8.33 |
| 20000 | 6 | 10.00 |
| 30000 | 17 | 28.33 |
| 40000 | 13 | 21.67 |
| 60000 | 19 | 31.67 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.16 reveals that information about the total income of selected household in KamalaMai Municipality-11 area. It shows that 5 (8.33 percent) household earn Rs. 10000, 6 (10.00 percent) households earn Rs 20000, 17 (28.33 percent) household

earn Rs 30000, 13 (21.67 percent) households earn Rs 40000 and 19 (31.67 percent) households earn Rs 60000.

All people who produce some things want more profit and want to save much money. But all of them are not getting success succeed to save. The farmer who product in minimum cost and sells in maximum price only success to save money. The person who able to save money did not hold money idles as the classical economists assumption. A rational person does not hold money idle. On the basis of assumption people invest their saving amount in different sector.

After orange cultivation the people of Kamala Mai Municipality-11 have able to save some money and they spend in many sector. They are being capable of spending money in many activities such as education for their children, medicine, spent in ceremony festival, marriage on fixed asset.

All of the people who earned much money by the orange production have been spent in different Sector. The expenditure pattern of selected household in Kamala Mai Municipality-11 is shown on the table 4.17.

Table 4.17: Total Expenditure Priorities of Selected Household

| Priorities | Number of Respondents | Percent |
|---|-----------------------|---------|
| Education | 24 | 40.00 |
| To fulfill the scarcity of tiffin and cloth | 19 | 31.67 |
| Medicine | 3 | 5.00 |
| Ceremony, festival, marriage | 9 | 15.00 |
| Fixed Assets | 5 | 8.33 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.17 indicates that information about the total expenditure of selected household in Kamala Mai Municipality-11 area. It shows that 24(40.00 percent) household incur expenditure on education, 19(31.67 percent) household incur expenditure on tiffin and cloth, 3(5.00 percent) household incur expenditure on medicine, 9(15.00 percent) household incur expenditure on ceremony, festival, marriage and 5 (8.33 percent) household incur expenditure on fixed assets.

4.5 Orange and Junar Production

Orange production is the most profitable occupation in Kamala Mai Municipality-11. In present, Orange and Junar cultivation has increased by the point of commercial view. This chapter has described about the related activities of orange cultivation and production in selected household in study area.

4.5.1 Major Crop Before Orange and Junar Cultivation

During study period, it was tried to find out whether other crop dominate orange cultivation or no. Before orange cultivation maize was the major crop. The distribution as a major crop before orange cultivation in selected household in Kamala Mai Municipality-11 is shown in the table.

Table 4.18: Distribution as Major Crop Before Orange Cultivation

| Size | Number of Households | Percent |
|----------------|----------------------|---------|
| Maize | 52 | 86.68 |
| Vegetable | 3 | 5.00 |
| Paddy | 2 | 3.23 |
| Millet | 1 | 1.67 |
| Millet + Maize | 2 | 3.33 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.18 expressed that information regarding distribution as major crop before orange cultivation in the study area. It shows that 86.67 percent households have maize. Similarly 5.00 percent households have vegetable, 3.33 percent household have paddy, 1.67 percent have millet and 3.33 percent have millet plus maize.

4.5.2 Land Covered by Orange Cultivation

About 31.41 percent of land is covered by orange cultivation. From the selected household in Kamala Mai Municipality-11. Every year the cultivated land is increased due to the orange farmers increased their cultivation. The composition of land covered by orange cultivation in selected household is shown in the table below. Because of pocket area in Sindhuli district for orange cultivation government have paying

attention on Kamala Mai Municipality-11. The composition land covered by orange cultivation in selected households in Kamala Mai Municipality-11 is presented in table 4.19.

Table 4.19: Land Covered by Orange and Junar Cultivation

(In Ropani)

| Land Size | Number of Respondents | Percent |
|--------------|-----------------------|---------|
| 0-10 | 13 | 40.38 |
| 10-20 | 14 | 30.35 |
| 20-30 | 6 | 25.00 |
| 30-40 | 17 | 33.82 |
| More than 40 | 10 | 27.50 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.19 indicates that the relationship between total lands and Orange and Junar cultivated land of study area. It shows that 13 household have 0-10 ropani land, 40.38 percent of their land is cultivated by Orange, 14 household have 10-20 ropani, 30.35 percent of their land is cultivated by Orange, 6 household have 20-30 ropani, 25 percent of their land is covered by Orange, similarly 17 household have 30-40 ropani, 33.82 percent land is covered by orange cultivation and 10 household have more than 40 ropani, 27.5 percent of their land is cultivated by orange.

4.5.3 Factors for Encourage to Orange and Junar Cultivation

Nanda Bahadur Thapa is the pioneer of orange cultivation in Sindhuli district. He cultivated 5 orange plants in 1966 AD for his own prospect. After producing the orange, then other villagers also interested to cultivated orange. Now people are cultivating orange for the professional point of view.

The factors for encouraging orange cultivation in the related household in Kamala Mai Municipality-11 is presented in table 4.20.

Table 4.20: Factors for Encouraging Orange and Junar Cultivation

| Responses | Number of Respondents | Percentage |
|----------------------|-----------------------|------------|
| Self Motivation | 48 | 80.00 |
| Demonstration effect | 12 | 20.00 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.20 shows that factor for encouraging orange cultivation on Kamala Mai Municipality-11. 80.00 percent households were encouraged by self-motivation and 20percent household and were encouraged by demonstrated effect.

4.5.4 Reasons for Encouraging Orange Cultivation

Farmer of Kamala Mai Municipality-11 has increased orange cultivation year per year. Most of the people of Kamala Mai Municipality-11 have started orange cultivation for the commercial point of view. Most of the people of selected household depend on orange production. The reason for encouraging orange cultivation in selected household in Kamala Mai Municipality-11 is presented in table 4.21.

Table 4.21: Reasons for Encouraging Orange and Junar Cultivation

| Description | Number of Respondents | Percent |
|-------------------------|-----------------------|---------|
| Attractive Market Price | 46 | 76.66 |
| Higher Production | 10 | 16.66 |
| Employments | 1 | 1.67 |
| Lower Cost | 1 | 1.67 |
| Other | 2 | 3.34 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.21 examined that the reason for encouraging orange cultivation market price, 76.66 percent households said attractive market price, 16.66 percent households said higher production, 1.67 percent households said for employment, 1.67 percent households said for lowest cost and 3.34percent said other reasons.

4.5.5 Sources of Orange and Junar Plants

Orange and Junar plants are very important factor for the cultivation of orange, as the improved seeds and plants give better product. The source of orange plants in selected household in Kamala Mai Municipality-11 is presented in table 4.22.

Table 4.22: Sources of Orange Plants

| Description | Number of households before three year | Percent | Number of households at present | Percent |
|--------------------|--|---------|---------------------------------|---------|
| Local Nursery | 56 | 93.33 | 53 | 88.33 |
| Self Nursery | 4 | 6.67 | 4 | 6.67 |
| Agriculture office | | | 3 | 5.00 |
| Total | 60 | 100.00 | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.22 depicts that the sources of orange plants of selected households before and after three years. Before three years 93.33 percent household have brought from local nursery and 6.67 percent households have brought from self-nursery. But at present 88.3 percent households have brought from social market, 6.67 percent from self-nursery and 5percent household have brought from agriculture office.

4.5.6 Availability of Chemical Fertilizer, Pesticide and Improved Seeds in the Selected Households

Chemical fertilizer, pesticide, improved varieties seeds and agricultural tool are very important for orange cultivation. These components play major role in the sector of agriculture. In the absence of this component the product may not be qualitative product. So, the farmer should know how to use of these components in the orange cultivation. The availability of chemical fertilizer, pesticide and improved seed in the selected household in Kamala Mai Municipality-11 is shown in the table 4.23.

Table 4.23: Availability of Chemical Fertilizer, Pesticide and Improved Seeds in the Selected Respondents

| Description | Number of Respondents | Percent |
|---------------------------|-----------------------|---------|
| Difficulty to get | 23 | 38.33 |
| Difficulty to get in time | 16 | 26.67 |
| No sufficient | 3 | 5.00 |
| Easy to get | 18 | 30.00 |
| Varying to more than 40 | 10 | 16.67 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.23 depicts that the availability of chemical fertilizer, pesticide and improved seeds in the selected households for orange cultivation. From this table we conclude that majority of households feel difficult to get chemical fertilizer pesticide and improved seeds from respective offices/market.

4.5.7 Provision of Training in the Orange and Junar Cultivation

Training is one of the most necessary components in any work for its success. Before a year government has not paying attention on Kamala Mai Municipality-11 but after Kamala Mai Municipality-11 being, as a pocket area for orange cultivation. Government has taken a few attentions. There is no well-developed technology in Kamala Mai Municipality-11. The distribution of sample households by training in Kamala Mai Municipality-11 is presented in table 4.24.

Table 4.24: Distribution of Respondents Training

| Description | Number of Respondents | Percent |
|-------------|-----------------------|---------|
| Trained | 19 | 31.66 |
| Untrained | 41 | 68.34 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.24 shows that in Kamala Mai Municipality-11, the household of people obtaining training while orange cultivation is lowest, which is equal to 31.66 percent. The most of the people are untrained, which is equal to 68.34 percent.

4.5.8 Loan Facilities

Loan is one of the factors for the investment. More investment gives us more profit. Loan can be the source of capital.

Loan practice in Kamala Mai Municipality-11 is in critical condition, because most of the selected farmers are not aware of loan facility from ADB/N. The loan practice in the selected households in Kamala Mai Municipality-11 is shown in the table 4.25.

Table 4.25: Distribution of Loan Practices

| Description | Number of Respondents | Percent |
|----------------------|-----------------------|---------|
| Loan from ADB/N | 6 | 10.00 |
| Ignorance about loan | 54 | 90.00 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.25 explained that most of the people are ignorance of loan faculties, which is equal to 90 percent, and using loan facilities from ADB/N is lowest, which is equal to 10 percent.

4.5.9 Storage Facility

Storage facility is very important for the occupation of orange cultivator. Because of the storage facility the orange can preserved for a long time. It helps to get more profit from the orange production. But there is not storage facility in Kamala Mai Municipality-11. So farmer are compelled to sell their orange immediately. At that time the price rate is low.

4.5.10 Starting of Orange and Junar Cultivation in Study Area

Nanda Bahadur Thapa is the pioneer of orange cultivation in Kamala Mai Municipality-11. He started to cultivate orange in 1966 AD then other people also started to cultivate orange. The number of years to start orange cultivation in selected household in Kamala Mai Municipality-11 is presented in table 4.26.

Table 4.26: Starting of Orange and Junar Cultivation in Sample Household

| Description | Number of Respondents | Percentage |
|------------------|-----------------------|------------|
| Less than 5 year | 3 | 5.00 |
| 5-10 years | 25 | 41.67 |
| 10-15 years | 14 | 23.33 |
| 15-20 years | 16 | 26.67 |
| More than 20 | 2 | 3.33 |
| Total | 60 | 100.00 |

Source: Field Survey, 2018

Table 4.26 depicts that the starting period of orange cultivation in Kamala Mai Municipality-11; 5-10 years old orange cultivation is highest which is equal to 41.67 percent. The second highest households adopting in Kamala Mai Municipality-11 is 15-20 years, which is equal to 26.67 percent. The table 4.26 shows that in Kamala Mai Municipality-11 there is less than 5 years, 10-15 years and more than 20 years, which is equal to 5percent, 23.33percent and 3.33 percent respectively.

4.5.11 Marketing of Orange and Junar

Efficient marketing system is very important for agricultural producer. It plays a vital role to develop the orange production sector also. Producers sell their production in different market. Most of the farmer sells their product mainly by two way i.e. local market and broker. There is not sufficient marketing facility near the study area; because there is no transport facility in production area.

Sindhuli Bazar is the near market of orange farmer in Kamala Mai Municipality-11. But out of sixty selected household 45 household sold their orange in Sindhuli bazaar and rest of them sold their orange and Junar in Kathmandu.

4.5.12 Cost of Production

The term “cost” may be defined as the value received in exchange of goods and service excluding profit and distinguished from money, which is only the medium of exchange. However, the value of an article is it self and depends upon the marginal utility. In simple cost means the value of the inputs needed to produce any goods or service. This has to be measured in some units or numeral, usually money.

Every farmer should bear the cost of producing goods and services, so for cultivating orange, the orange farmers should invest something at first, which determines the level of profit. During the period of cultivation to product, the farmers have to do different types of activities by investing time, money and labor as it selected household in Kamala Mai Municipality-11 is presented in table 4.27.

Table 4.27: Cost of Orange and Others Crops Production

(In Ropani)

| Description | Orange | Vegetable | Paddy | Maize | Average of non orange |
|------------------|---------|-----------|--------|--------|-----------------------|
| Land preparation | 1431.25 | 215.00 | 225.00 | 250.00 | 230.00 |
| Plant | 211.87 | 95.00 | 117.50 | 112.50 | 108.33 |
| Sowing | 135.00 | 63.33 | 675.00 | 75.75 | 68.86 |
| Manu ring | 305.625 | 131.66 | 70.00 | 70.25 | 973.00 |
| Weeding | 604.375 | 375.00 | 68.75 | 120.50 | 188.08 |
| Pesticides | 290.00 | 243.33 | 23.75 | 154.50 | 140.52 |
| Harvesting | 659.285 | 325.0 | 68.75 | 191.50 | 195.08 |
| Total | 3637.41 | 1448.32 | 641.25 | 995.00 | 1028.17 |

Source: Field Survey, 2018

Table 4.27 depicts that the information regarding cost of orange and other crops cultivation. It shows that in order to produce orange the total amount Rs 363741 cost is required in different activities such as for land preparation, plant sowing, manuring, weeding, pesticides and harvesting. Similarly in order to produce vegetable the total amount Rs 1448.32. Cost is required in different activities such as for land preparation, plant, sowing, manuring, weeding, and pesticides and harvesting. But in order to produce paddy, Rs 641.25 cost is required in different activities such as for land preparation, plant, sowing, manuring, weeding, pesticides and harvesting, which is very low as compared to other activities. In order to produce maize the total amount Rs 995 cost is required in different activities such as for land preparation, plant, sowing, manuring, weeding, pesticides and harvesting.

The cost of production of orange is higher than other crops like maize, paddy, vegetable and average of non orange.

4.5.13 Production, Selling and Income of Orange and Junar

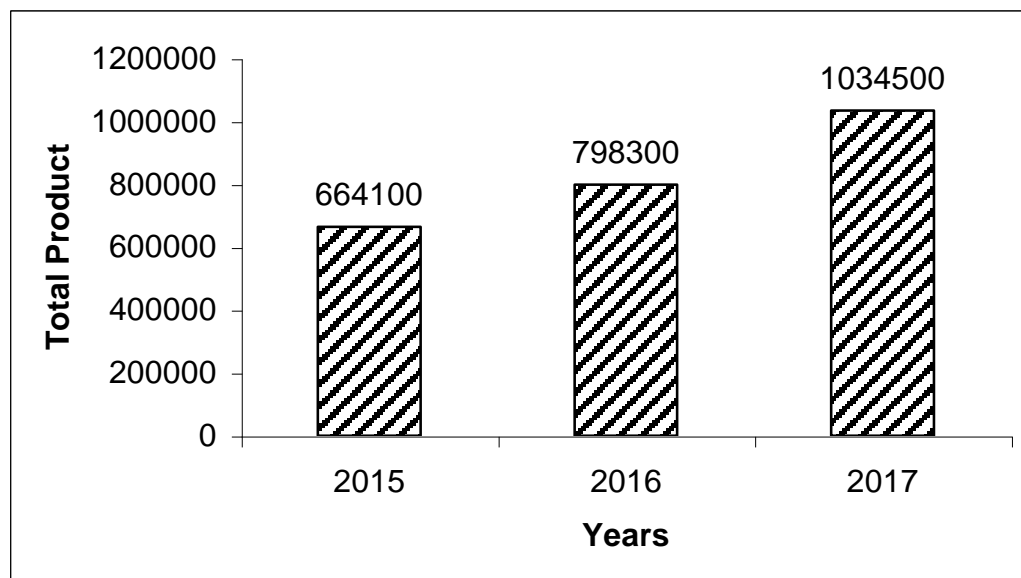
Orange is a cash crop. Nowadays orange has being famous fruit in Nepal. Orange production has been increase year per year in Nepal and Kamala Mai Municipality-11 also follow the path for increasing orange cultivation.

Table 4.28: Orange Production of Selected Households of the Study Area

| Year | Production in pieces | Selling per piece (Rs.) | Income (in Rs) |
|-------|----------------------|-------------------------|----------------|
| 2015 | 664100 | 1.33 | 888233.75 |
| 2016 | 798300 | 1.63 | 1301229.42 |
| 2017 | 1034500 | 2.03 | 2108655.83 |
| Total | 2496900 | | 4298119.00 |

Source: Field Survey, 2018

Figure 4.2: Production Trends of Oranges During Three Years (In pieces)



Source: Based on the table 4.28

Table 4.28 depicts that the orange and junar production of selected households in Kamala Mai Municipality-11. From the figure 4.2, it can be said that the production of orange of three years data. It shows that in 2017 when the total production became highest i.e. 1034500 pieces, the average selling price increase to highest point i.e. Rs. 2.0383 during three-year period. The total production increase from 664100 pieces to 798300 pieces durine 2015 to 2017. Price is also increased from Rs. 1.3375 per pieces to Rs. 1.63 respectively. The level of production and demand did not decline in average manner. The first reason may be; due to Nepal Bandha in neighboring village and district and another reason may be so-called economic blockade and unusual curfew being tagged by self-interest in the different part of the country. The production of orange could not become possible as usual manner by all the farmers and in all the fields. That is why prices of orange increased though production in

Kamala Mai Municipality-11 is increased i.e. supply of orange could not cope with demand of orange in the market.

4.6 Socio-Economic Change After Orange and Junar Cultivation

‘Change is the law of nature. What is today shall be different from what it would be tomorrow. Our needs keep on changing. To satisfy our desire for change and our changing needs, social change becomes a necessity. Society’s change is autocratically determined by economic factors and economic change and social changes are co-related.’

4.6.1 Economic Change in Kamala Mai Municipality-11

Orange cultivation in Kamala Mai Municipality-11 is the most favorable, profitable fruit production. It helped to improve the economic condition of farmers in Kamala Mai Municipality-11 by increasing their real income. About 90 percent of income is contributed by orange production in selected households. The sampled households have earned Rs. 2108655.833 in 2016 from orange production. After orange production, farmers are able to save money for the future security. With their surplus money, they have become able to buy fixed assets, seasonal clothes and jewelleryes. They are able to send their children to the School/ College, to improve housing condition and better Tiffin. They have changed their activities related with the economic condition.

4.6.2 Social Change

"Socio change is a complex phenomenon in which the cause and effect relationship is not clear. No single cause produces a single effect in the social world. There is always plurality of causation. Several factors or causes operate together in relation to produce the same result".

Social change is a universal phenomenon. Social change occurs in all societies. Social change is community change. It does not refer to change in the life of an individual or the life patterns of several individuals.

Every activity in the society influences everyone in society and also causes social change. Technological innovation, better education, modernity in life style leads to socio change. Modernization is the result of technological innovation which a society leaves the conservative and traditional things and adopts new things. It is a result of social change through better education, change in social behaviour, political awareness and co-operation.

Social change occurs in all over the world and speed of social change is not uniform in each society. Prior to orange cultivation in Kamala Mai Municipality-11, the process of social change was very slow, but when people started to cultivate orange commercially, there was sign of unprecedented change in the socio-economic aspect of the people. They have changed their previous occupation and started to cultivate orange commercially. They have started to send their children in better school. Their drinking water, health and sanitation conditions have been better than before and social and political awareness have been increased. Now days, orange cultivator of Kamala Mai Municipality-11 takes part in agricultural exhibition, trainings, seminar related to orange cultivation as well as taking part in social work. To cope with the problem of orange cultivation, framers have formed four orange cooperatives society, where they share their experiences, problem and alternative solutions related to orange cultivation. Their interest to read newspaper, agricultural bulletins and listen radio programs proves that socio-economic status has been improved better than before.

4.7 Complexities and Problems in Orange and Junar Cultivation

It is obvious from the field survey that the people of the study area are positively benefited from the orange cultivation. Orange cultivation plays a vital role in the development of rural economy of the mid-hill people. It provides the additional cash to the farmers by generating so many employment facilities. Though the orange cultivation is unorganised, it can be the most reliable and regular income of the concerned farmers. Despite the complexities, the farmers keep on the profession with full vigour and strength. The complexities lies in the study area can be categorized in two major groups:

Primary: Improved Seed, Fertilizer, Loan, Irrigation, Diseases etc.

Secondary: Transportation Facility, Marketing, Storage, Pricing, Trainings etc.

4.7.1 Lack of Improved Seed

Lack of improved seed is one of the vital problems of the study area. The farmers are obliged to use the traditional seed because of the lack of the modern seed. The farmers collect the ripen seed of orange and make a nursery themselves. After six months, they take out the plants from nursery and plant in the suitable place. To make the orange production successful, improved seed is the major factor.

4.7.2 Lack of Transportation

The study area lacks of proper transportation as other most of the hilly region of Nepal. The study area is at least four K.M. far from the Siddhartha highway. A temporary road connects the study area with the highway but it its too expensive and less reliable. To reach the major road farmers have to pay high vehical fairs. It is known from the field survey that the farmers are being victimized due to the lack of proper road facilities.

4.7.3 Lack of Proper Government Policy

For long-term development of orange cultivation regarding the orange cultivation should be clear, transparent, without dispute and prompt. There is not any proper policy regarding the orange cultivation. If a farmer gets heavy loss due to natural calamities, there is not any provision of compensation or insurance. So, the farmers have to face the loss themselves. It hampers the involvement of the farmers in the orange cultivation.

4.7.4 Lack of Technical Knowledge

Fruit farming appears to be more technical than other field crops with respect to their particularity in the factorial requirement such as soil, climate and cultivation practics. The farmers are unknown about the use of fertilizer, the proper distance from one

orange plant to the other etc. The farmers are victimized by the diseases in the orange plants. They are unaware about the diseases of plants and they are also unable to get proper help from JTA, TT etc. Most of the orange farmers are in technical problems.

4.7.5 Lack of the Proper Marketing

Market is one of the most important elements to make any sector successful. Due to the lack of marketing, the orange remain unsold, damaged and rotten too. There is not any storage facility in the study area therefore; the farmers are compelled to sell the orange in cheap price. Main market and selling centers are Sindhuli and Kathmandu, which are 100 and 80 KM far from the study area respectively. The government should pay attention in rural marketing through improved agricultural inputs, feeder roads.

4.7.6 Problems of Diseases and Pests

Suffering from various diseases and pests is another problem of orange cultivation in Kamala Mai Municipality-11. About 17 percent households have pointed out that orange plant is suffered from some sort of diseases and pests i.e. citrus psylla, leaf mosaic, leaf roller, leaf spot, Gummosia, citrus die back and some kind of ant which destroy it. They have also reported that these disease and pests cannot be easily eradicated because they cannot easily get pesticide and insecticide as well as technical help to control it. However, nearly 10 percent people in the study area have spent 2 to 3 percent of its income for metabolism.

4.7.7 Problems of Land

In the study area, some people do not have their own land to cultivate orange plants. The people cannot hire the land because orange production takes long time to give output and production. So, low level group of people cannot involve in this occupation. To raise their living standard, land must be provided to the people who have very less amount of land.

4.8 Prospects of Orange and Junar Cultivation

Though there are several problems of orange cultivation and they limit the development of its cultivation, there are still sufficient possibilities to promote the orange production in Kamala Mai Municipality-11. So, many people of the area are practicing the orange cultivation now.

There is no modern technique of orange cultivation and training. Due to favorable climatic condition and increasing demand of orange, the local orange growers are still interested towards its cultivation. It takes long time to give return but the return is profitable. Orange cultivation is one of the profitable and good occupation which can be accomplished by illiterate, literate, educated, male, female, service holder and other normal people also. The cultivation can be done in leisure period when the people are not engaged elsewhere. People should not be engaged whole year rather they invest partial time for the orange cultivation. The people remain busy especially in the time of ripping the fruit and applying manure only. It can be done as a partial job as well. It provides employment opportunity and cash income to farmers.

Government sectors have to provide them training, modern seeds, modern technique of orange cultivation and management of storage to develop the orange cultivation and living standard of this area's people. Many people of the rural area are migrated by the problems of unemployment. So, to reduce the problem of migration, orange cultivation may be an instrument. The people of this districts are trying to make juice factory and storage house of orange. Orange of Sindhuli district are being exported to Bangladesh and other south Asian countries also. Orange growers are forward in every aspects of life and have higher economic status than non- orange growers. By the above causes, many people are interested towards orange cultivation for economic improvement. So, in Kamala Mai Municipality-11, there are many prospects in orange cultivation.

Case Study 1

Hira Bahadur Thapa Magar was a pioneer orange farmer of Sindhuli district. According to his elder son Nanda Bahadur Thapa Magar, he brought ten orange plants from Manakamana and planted for their own purpose. Then in 1972 AD, he added additional ten plants and started to cultivate orange commercially in 1980 AD. The plants gave its production in 1984 AD and he started to sell the orange commercially in 1984 AD. For the first time, he sold 600 pieces of orange in 500 rupees. After the increase in production and attractive market price he added more orange plant started more commercial farming ever than before. Orange production started to give its good income from 1993 AD. Now in his orange garden he owned 450 orange plants and among them 300 plants gives its product. The cultivation of the orange is in the area of thirteen Ropani and two Anna. In 2003 AD he was able to earn approximately one lakhs ruppes from the orange cultivation.

In the past, he was in the Indian Army. His economic condition was not good until that time because of low income. As he returned home, he was attracted towards the orange production, because of its attractive market price. He gave emphasis on orange cultivation and started to get the returns from orange, which increased his income. First of all he managed to bring pipeline water supply to his house for drinking water and irrigation purpose. He spends some money in family health care. He is more conscious of the family education. At present, he has built modern cemented house in Sindhuli Bazar. His house is well furnished with all the facilities such as TV, Telephone and Motorbike for his son. Today, he is one of the richest person in his village. The orange production has helped him in improving his life standard and socio-economic status.

At presently he seems more satisfied from the orange production and thinking to expand his business in the future to cultivate orange more commercially.

Case Study 2

Hari Bahadur Nepal, one of the leading orange farmers in Kamala Mai Municipality-11. He is just 31 years old with under SLC. There are nine members in his family with widow mother. His father started planting orange in 1973 AD, who was the second man to start cultivate orange in Kamala Mai Municipality-11. Hari Bahadur Nepal is the highest income earning person from the orange production. He earned 3,30,000 rupees in 2013 AD. He is the president of Kamala Mai Municipality-11 Agriculture Group of Ward no. 4. Out of total land, 75percent of land is covered by orange. Agriculture Office helped him with technical knowledge, free cost of plants, agriculture tools in subsidies cost. In the beginning, he had taken ADBs loan, but now does not need He was awarded with first prize for the quality production of orange in the Sindhuli district. Before orange cultivation his economic condition was very poor. So he stopped his study. But after orange cultivation his economic condition has been improved. From the income of orange production, he has build modern house with well facilities. There is a not difficulty of pure drinking water for him. He is more conscious of his family health, sanitation and education. His younger brother study in college level, though most of has family member were illiterate. He is increasing property day per day. He has struggled a lot in his life. At present, he has some Bank balance and as well as reputation in the village because of his hard work. According to him, his socio-economic status has highly improved because of orange cultivation.

Case Study 3

Thakur Parsad Khanal, the JTA for Kamala Mai Municipality-11, appointed by the DAO-Sindhuli, is assigned with the duty of providing the orange farmers with technical help and guide them to produce quality oranges. According to him Agriculture office has helped the farmer by distributing agricultural tools in soft-prices, seeds and plants in free of cost to increase their production. Agricultural training, seminar and exhibitions are conducted for increasing their skill and capability.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Nepal is basically an agricultural country. As an agro-based country, agriculture sector is very important factor to improve socio-economic condition of Nepalese people. Agriculture is the major source of livelihood for the people and major economic backbone of country. Most of the land in Nepal lies in hilly region. So the hilly part of the country is suitable for the high value crop like citrus fruit that can generate good income to the farmers and be helpful in uplifting their socio-economic status.

Orange has become one of the most important fruit that is cultivated from the commercial point of view in Kamala Mai Municipality-11. Farmers are interested to invest money in orange cultivation. So, this study focused orange cultivation in Kamala Mai Municipality-11 as a major factor to get positive change in living standard of the farmers. The main objective of this research was to show the importance of orange cultivation as a major source to progress socio-economic condition of farmers.

In this study, data for research were collected through structured questionnaire, unstructured interview, participant observation and case studies. Working on the topic "Socio-economic condition after orange cultivation in Kamala Mai Municipality-11" the design for the research is an exploratory as well as descriptive. The primary and secondary data have been used in the study. Sixty households are taken from six wards as of purposive sampling technique. The total population of sampled households is 400, where 51.5 percent is male and 49.5 percent is female.

Major Findings

- Orange cultivation is increasing every year in Kamala Mai Municipality-11. 31.44 percent land is covered by orange cultivation in the study area. The farmers were found interested to increase orange cultivation because of its

attractive market price. Their self-motivation encourages the farmer to cultivate orange. Every year they sell thousands of pieces of orange. In the year 2015 AD, 664100 pieces of oranges were sold giving the farmers with the income of 0.88 million rupees that increased into 798300 pieces and 1.3 million rupees of total income from orange in the year 2016 AD.

- During 2017 AD, the selected households sold 1034500 pieces of oranges earning the income of more than 2.1 million rupees in a single year. This increased income shows the change of economic condition of the orange cultivators. Out of total 60 households, 50 households depend solely on agriculture and the rest 10 households on agriculture plus service.
- Most of the orange farmers are not well trained about the cultivation process. Out of total selected household, 68.34 percent and 31.66 percent are trained and untrained respectively. Similarly most of the farmers are ignorant about loan facilities and facilities of cold storage are also not available in the area. The literacy rate of the study area is about 59 percent where most selected population of the farmers is simply literate. And only 7.34 percent of the selected populations are educated from 10 classes to college level.
- Most of the farmers of Kamala Mai Municipality-11 were found using seed plants from the local nurseries. Among them 88.33 percent lend seed plants from local nursery, 6.67 percent use from their self-nursery and 5 percent borrow it from District agricultural office.
- Chemical fertilizers, pesticides, improved variety of seeds and tools are important factors for the good quality of production. There in Kamala Mai Municipality-11, out of selected households, 38.39 percent households have difficulties to get these factors of agricultural production in any effort, 26.67 percent have difficulties to get them in time, 5 percent get them insufficient in quantity and only 30 percent households have easy access upon these factors.
- Sindhuli Bazar and Kathmandu are the major markets for Kamala Mai Municipality-11's orange cultivators. . Orange production has helped to boost up the socio-economic condition of farmers of Kamala Mai Municipality-11. Their income has been increased, which helped them to save surplus money.
- After orange cultivation, 66.66 percent of selected households are able to save surplus money for the purpose of future uses. Their socio-economic condition

and level of literacy has been increased after orange cultivation. Their health and sanitation condition has been improved than before. Their life style such as housing structure, cloths, ornaments and Tiffin has been improved. This scenario shows the improvement of socio-economic condition of those orange cultivators in relation with their status prior to adopting it. Besides this the farmer are facing a lot of problems such as transportation, irrigation etc. It is of concerned that the government does not assist them.

5.2 Conclusion

It is summarised that from the commercial point of view it came to know that the orange cultivation is the most outstanding profession for the farmers of Kamala Mai Municipality-11. It is evident from Hira Bahadur Thapa Magar, the pioneer of orange cultivation in Sindhuli district, who had cultivated just 10 orange in 1966 AD, now became an inspiration for others as 31.43 percent of total fertile land is used up for orange cultivation in these days. The cover land of orange plants has been increasing year per year.

It is known that the socio-economic condition of the orange farmers of Kamala Mai Municipality-11 is better today. The income of farmers is increasing day per day, which led them to save some money for their future planning. The parents started to send their children to the good school. They have changed their living standard. Most of the farmer put on neat and clean clothes. They have begun to participate in social works. The political awareness has also been increased.

It is concluded that the farmers of this area are facing many difficulties such as irrigation, transportation, well-organized market etc. They are still out of reach of government assistance. Out of total selected households, majority of them are not getting sufficient chemical fertilizer, pesticide and improved varieties of seeds and tools.

5.3 Recommendations

The orange cultivation is very profitable agricultural practice for the Kamala Mai Municipality-11 at the point of commercial view. Based on field survey, the output

shows that the socio-economic conditions have been changed on positive ways. The climatic condition and soil characteristic is appropriate and suitable for orange production in Kamala Mai Municipality-11. Their living standard has been improved. Beside the positive points, some of the recommendations that can be suggested for improvement of orange cultivation and farmers' status are as follows:

a) The orange and Junar farmers have to pay attention to the following points:

- The farmers have to learn orange cultivation adopting modern technologies.
- The orange growers have to invest on orange cultivation by using the ADB's loan facility.
- The orange cultivators have to use plants from agricultural office for the better output.
- The orange cultivators have to pay attention to control insects, pests and diseases

b) The Government sector, NGOs, INGOs needs to pay more attention in the following.

- The orange cultivators have been suffering from the lack of transport facility. So, the transport facilities are necessary for reducing the marketing cost of orange. As being a pocket area of orange production it is very necessary to provide the farmers with facilities of transportation.
- The orange cultivators are suffering from lack of irrigation facility. Orange production will increase up if provision of irrigation facilities is made.
- There is no facility of cold store. So, cold storage is necessary for storing orange that could be sold as off-season fruit.
- Most of the farmers are not acquainted with the technical knowledge about quality orange cultivation. So, it is necessary to provide technical knowledge to the farmers through trainings.
- Instead of declaring pocket area, the government has not paying much attention to solve the problems faced by the orange growers in Kamala Mai Municipality-11. For the development and extension of the orange production, their problems have to be solved.

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