

CHAPTER ONE

INTRODUCTION

1.1 General Background

Nepalese economy is characterized as an agrarian rural economy. Its employment opportunities outside the agriculture sector are negligible. The role of agriculture in poverty alleviation proved to be crucial from recorded in history. Thus, Nepal should mainly focus on agriculture growth to boost up from precondition to development in economic growth. At present time, about 74 percent people are being engaged in agriculture. It's major source of GDP, which contributes 34 percent of the total in GDP (CBS, 2068). It is also the major source of foreign currency and raw materials for agro-based industry.

The country is characterized by numerous micro-environmental conditions resulted by slope gradient, and dissected land forms. The Hilly region of the country is characterized by terraced upland and highly soil erosion where paddy, maize, millet, wheat and other cereal crops are massively cultivated to fulfill the demand of food and other requirements of the hill people.

There are different types of agricultural activities such as raising livestock, cash crops farming, horticulture etc. The climate of Nepal is suitable for all types of agriculture activities at the sub-tropical temperature.

Among them horticulture is important sector in Nepalese agriculture where there are possibilities for development. The favorable soil and climatic condition of Nepal permits to grow almost all kinds of horticulture crops, which can contribute significantly to the economic growth of the country.

The Nepalese government has put forward the concept of corridor development from the fourth plan (1970-75) that suggest middle hill area as a suitable for horticulture development. It has given additional stress in the fifth plan (1975-80) for the production of fruits with view point maintenance of ecological balance providing nutritive value for people and discouraging import of fruit from India and gain in the seventh plan (1985-90). It has emphasized to the citrus development especially in some middle districts as

prioritized program. Eight Plans (1992-97) aimed to increase annual growth of horticulture by 54 percent. As doing so, Ninth plan (1997/98-02) was based on the long term development concept, which did not only formulate for the five years but also provide theoretical formulations and clear vision for the tenth plan and other to come. It emphasized the horticulture too. Furthermore, tenth plan (2002/03-06/07) focused on communication and diversification of agriculture by cultivation high valued crops to create conducive environment for the participation of private sector and reducing poverty by increasing agricultural production and employment opportunities. In three years interim eleventh plan (2007/08-09/10) had given emphasis on the concept of public private partnership. It has made remarkable achievement within three years of its execution under this programmed Ramechhap Rasuwa selected for sweet orange and Bellapsi respectively. In three years interim twelfth plan (2010/11-12/13) emphasized on the production of horticulture. So, it's achieved production of food crops declined and production of fruit crops increased. However agriculture sector also shares 3.6 percent economic growth rate on national income.

Generally, agriculture products consist of two main types: field crops and horticulture crops. Nepal produces different fruits under horticulture. These fruits divided as tropical fruits and temperature fruits. The sub-tropical fruits are important in our country because middle hilly has such climate which is suitable. Among the various sub-tropical fruits, citrus species are comparatively more suitable for the cultivation as per the agro-climate conditions. Amidst the citrus fruits especially grown in eastern hill of Nepal, orange is one of the major citrus fruits. it is grown all over the world in the areas of tropical and sub-tropical climate where, there is suitable soil and sufficient moisture to sustain the tree and not enough frost to kill them. In Nepal, the climate and condition of mid hill region stretching right from the east to the west ranging between 26.5° to 28.5° N latitude is favorable for sweet orange, lemon, mandarin because of adequate amount of rain fall and suitable soil conditions, and our history also depicts that production of such citrus food have been going on for a long time since our ancestors. Mainly local mandarins are the most important citrus fruit grown particularly Dhunkuta, Sankhuwasava, Bhojpur, Ilam, Panchthar, Khotang, Dhading, Sindupalchok, Gorkha,

Syangjya, Tanahun, Kaski, Palpa, Baglung, Gulmi, Phythun, Dailekh, Lamjung, Rolpa, Salyan, Dadeldhura and Baitadi districts.

Rolpa District is popular for fruit cultivation where the process of orange production has been following from historical area; however, many farmers have not adopted the modern process of orange production for commercialization purpose yet. Lack of knowledge, government support as well as commercial concepts can be assumed for average amount of production. Now, the help of District Agriculture Office, Agriculture Research Center, Agriculture co-operative organization as well as Agricultural Development Bank, the amount of orange production has been increased in Rolpa. It's major sources of income of farmers. So, it plays important role to improve the socio-economic situation of local people in middle belt of Rolpa, Gajul VDC has a long history of orange cultivation. It has been an important and famous area of Rolpa district. The subtropical to temperate climate, diverse terrain favorable soil and good average precipitous has favored orange cultivation in Gajul VDC. The orange production has become main source of income generating for rural people of Gajul, Which plays important role in the socio-economic life of local people.

1.2 Statement of the Problem

Nepal is rich in natural resources, but it is poor in economic aspects and facing the so many problems due to the lack of investment in the processing of natural resources. Agriculture is depending on monsoon. So, that's why to low productivity as well as low per-capita income the balance trade is unfavorable.

Existing climate condition of horticulture is hospitalized for hilly region, so that fruit production produced more efficiently than other production. However, the farmers of rural area have not such patience as they are facing with the problem of survival. Although being a profitable occupation has better prospects in the hilly region as well as in the study area has not increased that extent, as it should be, transportation facility is not sufficient in the study area must of the orange growers are small or marginal land-holders. Moreover, due to lack of knowledge and implementation of the appropriate process of orange production, lack of marketing facilities and diseases that leads to lower the production of orange as compared to other cash crops.

The Bazaar (market) of orange suffers from weaknesses as the accessibility to market by producer. It has very low due to high cost of transportation; ignorance about market condition has large number of middlemen in the channel of marketing such as village traders, supplier's commission, commission agent, buyer's commission. Who works for profit? The middleman enjoys large amount profit which is the loss for the producer. In order to increase the production productivity of orange, improve the marketing system of orange, to study various aspects of orange production and marketing.

So, this study is oriented towards to enquire/investigate the following research questions in Gajul VDC, Rolpa.

- i) What are the existing socio-economic statuses of the orange growers in the study area?
- ii) How much profitable is the orange farming in comparison to other traditional cultivations?
- iii) Find out the, who has better economic status of orange cultivator or non orange cultivator.
- iv) What are the problems and prospects of orange cultivation in Gajul VDC?

1.3 Objectives of the Study

The general objectives of the study are to analyze orange cultivation and its socio-economic status of Gajul VDC. The specific objectives are listed as given below:

- i) To examine socio-economic status of orange grower farmers and non orange growers farmers.
- ii) To identify the problems and prospects of orange cultivation.

1.4 Importance of the Study

Growth of production is not considered with increasing the living standard of the people. But it is also an instrument to solve socio-economic problems. Agriculture production has its immense role in the economic life of the agrarian economy of Rolpa district. For accelerating economic growth proper attention is needed for agriculture

product because the district has agro-based economy. Rolpa is basically a hilly district and its large area is not facilitated from irrigation. But climate condition and nature of the study area suitable for orange cultivation even it is dominated by food grains cropping pattern. This partly satisfies the basic needs of the people.

So, this study comparatively analysis the orange growers (Case group) and other rational real crops growers (control groups). People, it finds out the weakness and strengths part of the orange cultivation in the study area that gives some information's and guideline to them who are facing deferent problems. Lastly, it tries to flash -act the present socio-economic status of study area.

1.5 Limitation of the Study

This study will be limited on the boundary of Rolpa district related with orange cultivation. Therefore the present study is not free from limitations. The major limitations of the study area:

- i) This study is confined to orange production within a Gajul VDC of Rolpa district. So, it represents the extent only of Rolpa district regarding orange product in but may not be generalized to national
- ii) This study concentrates only on orange production within a Gajul VDC ward number three, four, five, six.
- iii) If may or may not represent the socio-economic condition as a whole through only sample size of the study area.
- iv) This study comparative analysis within the sample size not covers the whole universe of the study area.

1.6 Organization of the Study

This study has divided into five chapters. The summary of this study mentioned given below. Chapter one of this study presented an introductory part for the whole study. It deals with the background of the study, statement of problems, and importance of the study.

The entire study is organized into five chapters in order to fulfill the objectives. Chapter one is introduction of the general background, statement of the problems, objectives, significance of the study, limitation of the study and organization of the study. The second chapter is the review of literature, the review of literature includes a short outlook a study regarding socio-economic impact of orange production done by other scholars.

The third chapter is the research methodology which refers to ideology and producers applied during the study. There are research design, population sample procedure, sources of data, data processing procedures. Chapter four analysis the finding result of this study.

Eventually, chapter five is summary, conclusions and recommendations. It includes the short view of the foregoing study discussion about the results and some suggestions to improve orange production.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction

Orange is one of the citrus trees. The subtropical climate is considered the most favorable climatic zone to farm orange or mandarin. An Orange is being a citrus fruit it is basically sour in taste and rich in vitamin C. Oranges are the most cultivated trees fruits in the world and grown in sub tropical and tropical climates. Nepal has suitable climate for orange farming, especially the citrus fruit. Hilly region of Nepal is suitable for fruit production. In Nepal 98 percent citrus groups of fruits production in this region especially western development like Syangja, Kaski, & Tanahun districts. There are 37 percent of total production produce of Nepal. Now a day, in the world top producer of orange is Brazil. However, there is needed for regular exploitation the natural resources orange is also an important source of income generation for produces and employers. Several studies have been conducted on the production consumption and trading of the orange. In the context of Nepal, some studies and institute have conducted research on orange cultivation, production and marketing.

2.2 Theoretical Review

Under theoretical review of literature, the theoretical foundation of the research topic has been covered. For anybody alive there should be necessary of basic needs, it getting by use of income. The household members earned income by different source has non farming and farming sector. Non farming income indicates as income from different sources like employers wage, remittance, business etc. And farming income refers to income from farming sector like as Cereal crops, Lives stock, Cash crops, etc.

Household earned income from trade cereal crops except self consumption. Similarly livestock is also one important parts of income sources in farming sector. Traded of livestock production we can earn income and lastly most important sector of farming income is cash crops. By trade of producing cash we can earned excess income and fulfilled our basic needs. So many cash crops produce in our country like in some,

coffee, Tea, tomato, potato etc. and citrus fruits. On the citrus fruits orange is one of the most important cash crops. Which fruit maximum producing fruit is orange? This is made income back born of hilly reasons farmers. If they have no any trees of orange they can not to fulfill hand mouth problems. So its impact on hilly region is more effective and positive.

FAOSTAT (2011), state that one of the most popular fruits is the orange. Its flavor varies from rich to sour, depending on the variety and the location the orange is grown. There are about so varieties of orange. The most notable being the Valencia. Oranges are the most cultivated trees fruits in the world. Orange trees are grown in subtropical and tropical climates. All orange producing countries combined produce approximately 70 million tons of oranges.

Like most citrus fruits such as lemon and mandarin orange provide a perfect source for vitamin C. To prevent scurvy, many citrus trees were planted along trade routes by Portuguese, Spanish and Dutch sailors. They planted the trees in Brazil, central and South America and South Africa. Now a day the orange is consumed all over the world, most notably in the form of orange juice. The top 10 orange producing countries which provide most of orange are explain as.

Turkey 1.73 Million tones , Indonesia 1.82 million tones , Italy 2.47 million tones, Egypt 2.58 million tones, Spain 2.83 million tones , Mexico 4.08 tones , India 4.57 million tones, China 6.21 million tones, united states 8.08 million tones and Brazil 19.81 million tones. Brazil is a top orange producer country in the world. In this country income sources one strong part is orange producing also.

Government of Nepal (2008), reported that in the project area, the orange sub sector holds much potential and could in the future serve as driver for improved livelihoods and rural development. Cultivation of oranges provides a much higher income than cereal crops. The gains in income can be shared by smallholder farmers also who are in majority number. Benefits could also reach to very poor marginal farmers and vulnerable groups, provided that employment opportunities are created by increased

production and commercialization of oranges both at the production and post-production level. Commercialization will increase cash of the households and benefits to women will also be realized. But at the same time numerous factors constrain stakeholders in the process of commercialization. The constraints are not only for smallholder farmers, but for also other stakeholders including private sector, NGOs, Line Agencies, and financial institutions. Technology constraints exist both on production and post-production systems; limited access to markets, credit, and information and a poor infrastructure are almost universal. All these constraints in place today are preventing the sub sector from reaching its true potential. The highly seasonal natures of the crop as well as its short shelf life are also important obstacles and contribute to the large irregularities in supply. As a result of this, most traders are unwilling to adopt any form of marketing strategy around this product and producers faced uncertain markets with low returns. The problem therefore seems to be that of a failure in the coordination of the entire chain and various forms of intervention are needed in order to allow this sector to develop. For this, both the government as well as certain NGOs can play a key role in assisting the farmers and the private sector. Risk is another key factor constraining commercialization. Low risk bearing capacity of poor and vulnerable groups seriously constrains adoption of new orange cultivation technology. Thus, individuals, particularly small farmers themselves will face enormous difficulty in resolving above constraints. They can be successful, however, if they establish linkages and partnership among themselves. The paucity of effective farmer organizations, producer associations, trade association, and coordination mechanism among stakeholders is well realized by stakeholders themselves as a major obstacle to their further commercialization. Implementing intervention programs targeting the productive capacity of small-scale growers through strengthened linkages would thus be an effective way at improving the overall performance of the sector when considering the vulnerable yet important position these growers hold. Improving the flows of technical information between and to small-scale growers as well as increasing their access to capital would thus be required. Simultaneously, an effort would have to be made in improving the marketing position of growers: growers need more direct access to markets and even to exporters in order to increase competitive pressures on the intermediary who often is able to appropriate excessively high rents within the sector. By

creating producer cooperatives/clusters and by linking farmers to processors, trade channels and exporters, significant advances could be made in this regard.

The Kathmandu Post (2012), Nepal has producing oranges and sweet oranges worth Rs. 11.50 billion fiscal year 2010/11, up.12 percent year on year. According to the agriculture ministry production of citrus fruits, particularly oranges and sweet oranges, reached 230, 173 tones. Based on the current market price Rs. 50 per kg, the output is worth Rs. 11.50 billion. According to ministry's states, 179, 494 tones up from 174,868 tons in the previous year.

The area under orange farming has increased 2.13 percent to 14, 913 hectares in the last fiscal year. Orange is cultivated in over 68 districts particularly in the hills and mountains. Syangja district becomes the top orange producing district in the last fiscal year. The Syangja district produced 12, 571 tons followed by Lamjung with 10, 525 tons Salyan 9. 883 Tons, Tanahun 9, 258 tons, Gorkha 7,220 tons and Terhathum 6,933 tons. Similarly, the production of sweet orange increased marginally to 50,679 tons in the fiscal year from 50,518 tons in the previous year. The area where sweet oranges are grown rise 2.94 percent to 4,089 hectors in the last fiscal year. The output of sweet oranges jumped to 50, 518 tons from 27,846 tons in a decade.

Sweet oranges are grown on 4,089 hectors. Sindhuli district is the top sweet orange producing district. The district grew 25,258 tons of sweet orange. In 2010- 11 followed by Ramechap with 12,151 tons and Dhankuta with 2,300 tons. According to agro experts, demand for fruits surpasses output. Nepal contains varied climatic condition suitable for growing fruits the area under cultivation is comparatively low.

Chutraj Gurung, program director of the fruits Development directorate, said that the rise in citrus production was mainly due to timely rainfall decline in pests and the government's subsidy scheme for farmers.

Currently the government provides a 75 percent subsidy on saplings of oranges, sweet oranges and other citrus fruits. "A viability of inputs and access to road networks

have encourages farmers to grow fruits." Gurung said. "Demand for fruits is a bit higher than supply."

According to him, the level of demand for saplings of citrus fruits in recent years shows that production and the area under cultivation will increase significantly. The government has identified citrus fruits as a high value cash crop. In addition, the productive life of citrus trees is long, and planting them once provides continuous production for a long period which lures farmer to grow them. According to government states, the export of orange and sweet orange juice has been growing. China and India are the major market for Nepali juice. It is posted on 2012-01-02 10M 17.

GoN (1989), has reported that mid hill with attitude ranging from 750 to 1350 meter as the suitable for growing mandarin orange cultivated. In 47 out of 75 districts however commercial cultivation has done only in 12 districts. Mandarin plantation has long flourished in western development region of Nepal with surplus production. However, during 1970's it was insufficient only to meet local demand due to citrus greening disease (CGD). In some VDCs of Syangja and Tanahun districts the plant production steadily growing up to 10-12 years then at the after wards citrus trees and its productivity was steadily declined due to the two caused parasitic organism and non-parasitic or management factors. The parasitic organism is bacteria, virus, fungi and pests. However the management factors are malnutrition, physical and chemical properties of plant, moisture and rainfall condition, soil types and its depth and another cultural practice.

NARC (1999), has published annual report. According to the reports 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 likes, tropical and sub tropical and even is 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 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.

Shrestha and Verma (1997), In Nepal, systematic horticulture development activities started only after the creation of agriculture development board in 1937. Later on in 1955, Department of Agriculture with horticulture section was established in place of Agriculture Development Board. The other important steps taken by the government towards the development of horticulture was the establishment of horticulture farms at Godawari, Chauni and balaju in Kathmandu valley. After the establishment of horticulture farms, plants of different fruits were introduced as the mother plants and subsequently sapling of selected cultivation were multiplied by methods of vegetative propagation for the first time in Nepal. On the other hand, establishment of citrus research substation of Malepatan, Pokhara in 1961 and citrus research station at Paripatle in Dhankuta 1962 was the first step taken by the government to create institutional organizations required for citrus development in Nepal. In the same way, while two researches established of these stations, trials and studies on different aspects of citrus cultivation were started for the first time in the country. Citrus is the main fruit crop commodity of Nepal in terms of area coverage, production and export potential. Realizing the importance of citrus development in rising the economic level of mid- hills farmers.

According to them Master plan for horticulture Development (MPHD) in Nepal prepared for ministry of Agriculture in 1991 by Asian Development bank (ADB) serve as the framework for the short medium and long-term development of the horticulture sub-sector in Nepal.

Orange cultivation in Rolpa district is not a new practice. It has popular since long. Although the actual starting times was not fix. Firstly it has been cultivate for only self consumption then after later the trend of orange production is increasing day by day. It has suitable climate condition, suitable soil and altitude and profitability of its cultivation. The production of orange has been slightly increasing, particularly due to the increasing number of farmers or plants and its relative importance is high in market place is far from the production area and the tract condition. It is which make difficult while walking thus women have to full relay on men in case of marketing of orange. There was no other means of transport other than to carry on back in (doko). However, the

production is not proportional increasing rate of farms. But it is fluctuation year by year due to some constraints such as, drought, hailstone, storm disease pests and effect of climate change etc. Thus, the production of orange but there is an increasing trend in general.

According to (DADOR) Annual book of district agricultural orange production of Rolpa, in Rolpa district 640 metric tons in 2069 B.S. and 625 metric tons in 2068 B.S. So there were also increasing total production of orange by some tones. But in productive sectors production 320 metric tons in 2069 and 317 metric tons in 2068. The producer who has 25 trees of orange and more than 160 metric tons in 2069 and 157 metric tons in 2068 B.S. was produced so it shows that orange production in Rolpa district increasing but slowly due to the many constraints which are presented above.

2.3 Empirical Review

There are many scholars and researchers that have devoted their time orange research. Their effort to find out the problems of orange cultivation and solutions are considered as valuable contributions. However, only few literatures of scholars and researcher had been reviewed in order to know about the existing socio-economic status of orange cultivator and non-cultivator. The research researches about the empirical literature.

Aryal (2005), studied about the impact of orange production in rural economic activities of Khilung Deurall VDC on Sangja district. According to him orange cultivation started in Khiluing Deuralt from 1974/75. But occupational production of orange in this VDC started in 1978/79 initially they have no knowledge how much ropani of land that they started, but in 2004, the amount of land is only 30 households who cultivate orange, in fact there is no clear figure of employed persons under its cultivation but people spend one or two hours per day for its care. The sample households had a net production of orange 6,702,000 in year 1999 and 8,610,000 in the year 2004. It concluded that the level of income in study area is slightly increasing. The sum of total cost of 27 years at 10 percent discount rate is Rs. 41085.07. It is clear that NPV is 11718.04, which is positive this encourages the orange cultivation in study area. Brokers

compelled the producers to sell their orange in cheaper price. This is providing that they buy the orange in Rs. 10 to Rs.15 per kg in the garden and sell in Rs. 25 to Rs. 30 per kg in the market of Butwal.

Beside these problems and limitations farmers in the study area are still optimistic for the future prospects of orange. People are being attracting day by day for its cultivation. However, for the development of orange cultivation if the study area, it is necessary to remove the above mentioned problems and should be organized. Systematic programmed about orange cultivation for this purposes, there should be both government as well as public involvement in this context.

Basnet (1998) made a thesis on the topic “Orange Cultivation Problems and Prospects: A Case Study of Armala VDC of Kaski District” with the specific objectives of identifying socio-economic condition of orange growers, status of orange growers, changing behavior of the orange growers, problems and prospects of orange production. This study has examined that the socio-economic condition of farmers have been improved day by day in this study area in each and every field such as education, income, health land area sanitation water etc. This study found that the orange production has been increased due to the reason; orange growers have been changing their behavior income, expenditure, living standard etc. This study has also found that the problems were found such as lack of irrigation facility, unorganized market, lack of storage, lack of road net work; improve plant lack of chemical fertilizers etc. Besides these problems, this study found the horticulture is orange farming began about one decade ago in the study area. The farmers have been motivated to cultivate orange orchard for new economic source. They wanted to extend their orange fruit cultivation area. Other farmers who have not cultivated orange, they are interested to grow orange because it was cash crops and developed as commercial occupation in the study area.

Paudel (2011), this studied with the objective of reporting socio-economic changes. Which brought about the orange farming was conducted in the Syangja district. Where, orange cultivations life style is the major findings of this study are presented as: The study areas people are adopting different occupation. Most of them are involved in agriculture where cash crops and cereal crops are cultivated. But cereal crop, Orange is being highly profitable which has created golden opportunity to have income generation

after starting orange production. There are about 11 percent cannot maintain food for a year from their own production so they have to buy it take the local market by selling orange and employment. It found that 87.14 percent people of the study area had involved in orange farming by demonstration effect. Rest of them had been involved by self motivation(12.6 percent) 75 percent of orange producer their production whey price increases and rest of them(11.4 percent) sell their orange randomly. The first position is held by livestock/crops and agriculture product as major income from orange crops. But greater expenditure was found on education by them.

The orange production is considered to be the top most income earning crops in the agricultural sector in the study area as compared to another agriculture production and business. Economic status change in people reside in the study area is observed increasing from the orange production. The orange farming has been one of the works on effective on improving the living standard of low, modern and high level study area. The major problem existing is in the orange production and marketing are absence of double cropping lack of sufficient transportation facilities, JTA service, modern technology, specific market facilities and high cost of labors, wage price fluctuation extension of services.

Despite suitable topology and high economic value, the production of orange faces many problems from its initial stage of marketing. The disease, pests and the major short coming factors in the production of orange besides this absence of double cropping unavailability of sufficient land, lack of credit facilities. Illiteracy and poorness of charmer's uncertain monsoon, quality seed used lack of extension services, presence of middlemen, lack of grading and standard of weight lack of transport facilities, storage facilities, price fluctuation, lack of market information etc are the another short comings in the process of orange production and marketing. Despite of these problems the future of orange in Karendanda Syangja seems to be good.

Chhetri (2002), studied about the oranges cultivation in Sikkim with specific objectives of indentifying socio-economic status, farm size of orange production trend, problems and prospects of orange production. This study has found that the orange production as the major source of the economy, which comprises to cereal crops in the study area. This study used primary data, population 617, among them 97 household were

selected as sample to meet the specific objectives. This study has concluded that the orange farming has a successful profession because orange production was more important fruit than cereal crops like maize, millet and other orange growers were the best quality of life each and every field like education, income, health, social status, nutrition. But non growers of orange were not so good in this field in each and every sector. This study stated that the orange growers have been attractive towards day by day. But the farmers have used to the traditional method to produce of orange in this area. There were lacks of chemical fertilizer, lack of irrigation facility, insecticides, lack of accessibility of main markets and on organized market system. Besides of these problems, farmers have been produced to increase day to day. Farmers are interested to produce of orange and transformed from cereal crops to cash fruit field.

Thapa (2005), researched a thesis on the topic 'A Study of Orange Cultivation In Western Hill Region: A Case Study of Sankar Pokhari VDC of Parbat District' with specific objectives of indentifying the main determination of orange cultivation, distribution of orange cultivation. The access to the market and factors in flouncing, socio- economic status of orange growers with non growers problems and prospects of orange cultivation. Primary and secondary data were used. The sample size of the study was 25 percent of the households. Method of data and analysis were used descriptive. This study has stated that Nepal produces mandarin sweet orange and acid limes on commercial scale, of which mandarin is the most important role in the hill economy. Orange is an important citrus which is grown especially in the hilly region in the country. In the hilly region in the country in the western hill region climatic condition is very good and favorable in this region. It is suitable region for orange production. In this study area ward no. 1,3,5,6 and 7 are chosen for his studies. This study concluded that the socio-economic status of orange growers is higher than non-growers such as education, income, employment health sanitation water in each and every field. There are lacks of commercial, modernization, lack of road net work, lack of chemical fertilizer, lack of irrigation facilities. Besides these problems and limitation farmers in the study area are still optimistic for the future prospects of orange cultivation. Farmers are being attracting towards day by day for its cultivation in the study area it is necessary to remove the

above mentioned problems. This study has recommended that the systematic program should be provided by government as well non government sector.

Combating citrus decline problem in Nepal (2010/12), which was starting with the help of FAD and FAO technically and economically helped this project. This project finding result then recommendations that, challenge of citrus industry in Nepal is to move forward from sub- optimal yield of 10-11 tons per ha. (t/ha) to a level of 15-20 t/ha. Majority of mandarin orchards established during early 80's are experiencing old- age related decline problem. Nutrient mining and disease built up, particularly the phytophthora rot disease, are the main reasons for sub-optimal fruit productivity.

Removal/uprooting of severely declined (25-30 years old), HLB infested and phytophthora damaged trees, even by giving compensations needed. About 80% (102 to 128) citrus pockets surveyed are still in low to moderately declined stage. Rejuvenation technology will be beneficial for such orchards and massive awareness campaign on orchard hygiene and nutrient supplementation will pay dividends.

Furthermore Nepal is still adopting seed propagation in open field nurseries. Encouraging use of grafted plants on disease tolerant rootstock trifoliate orange is a positive governmental intervention. However, bud-wood certification program should be implemented in order to produce certified disease free planting materials in large numbers. The proposal for establishment of "bud-wood certification system" in Nepal should receive priority attention.

Through field survey and indexing, HLB/ Greening disease infected trees have been identified and market in different citrus growing pockets. Such HLB infected trees to be destroyed immediately to reduce the risk of further spread of this deadly disease.

Phytophthora rot disease is the major threat for the citrus (both mandarins and sweet orange) in Nepal. Prevailing intercropping system predisposes citrus trees to infection of this soil borne pathogen. Out of 57 citrus pockets surveyed in 7 projects districts, while phytophthora infection was alarming in 19 pockets in another 15 pockets, trees were phytophthora symptom free. In the apparently disease free pockets, trees the

apparently disease free pockets, budded plants on other rootstocks namely, Rangpur lime, c. Volkamarina, Carrizo Citrange to be tried.

Regionally differentiated citrus development programmers for five developmental regions suggested by the TCP project, need favorable considerations. The suggested programmers for commercialization of citrus including value chain development may be implemented either by launching a " citrus mission" by the national government or through a donor supported project with investment scope for value addition to local citrus, particularly for mandarins and sweet orange.

Presently about one third requirement of citrus planting materials are met by grafted/budded plants. Due to high prevalence of phytophthora in greater part of citrus area, seedling planting must be dispensed with and as general recommendation phytothora tolerant root stock must be in used in the nursery program. Similarly, supplementation of essential nutrients, at least a maintenance dose, to be activated poor canopy, small sized leaves irregular vegetative flushes are indicative of hidden hungers therefore, there must be addressed to sustain fruiting and improved yield.

Mid-hills of Nepal sub-tropical climate and district winter congenial environment for commercialization of viticulture and climate change threats. High growth elasticity in domestic market and vast scope of border trade with populations India, china and Bangladesh will not allow distress sale in foreseeable future. Technology backstopping, however, is a must for realization of commercial success of the unique Nepal orange.

Bhatta (1995) as studied on the topic "Orange cultivation: A case study of Nayagaun VDC of Gulmi district". He has focused on historical development, spatial distribution and the production trend of orange. This study has also explained the physical as well as non physical factors influencing to it. This study has also tried to comprise the orange cultivation with cereal crops in the view point of investment and benefit and found that it is more profitable than cereal crops which have also provided job opportunities for hill people. Despite the previous problems its production trend is increasing day by day.

Shrestha (1995) has made a thesis pointing the role of fruit production rural development. The role of fruit production rural development with the specific objectives of identifying socio-economic status, level of fruit crop production, economic contribution and indentifying major fruit crops in the community; This study has pointed out agriculture as the major source of economy which comprises food grain, fruits, vegetables, livestock's, poultry etc. This study has found 15 species of fruits i.e. Mandarin, sweet orange has been found prominent. The fruit trend is very positive and the expansion was found most rapid in case of mandarin orange, basically due to the market expansion, greater profit, easy to grow, road net work construction, low cost of production and domestic consumption for nutrition. The mandarin share 84 percent of the total fruit production. The farmer has got good price for lemon. This study has also found that the bargaining capacity of produces is very weak; they accept the price as offered by brokers.

Poudel (1997) studied about on orange production and socio-economic changes in Syangja district with specific objectives of identifying determination of orange, marketing system and problems and socio-economic change of the people of Karendanda VDC of Syangja due to orange farming. Out of the 448 households of them 50 households were selected as sample size to meet the above objectives. This study has observed that the social behavior of the Karendanda VDC has stated to change as farmers have started to produce of orange. This study has also found that the cereal crops cultivation has decrease in comparison to the production of orange. The people of the study area, according to him have changed their food habits and housing structures after they have started farming orange. The precipitation of the people on primary health care education and sanitation has changed significantly. People were found to pay more attention to those factors. Hence, the people of the study area have changed their life style as they have started farming orange. This study has found that there are good climatic conditions to produce of orange. Besides these prospects, this study has found the problems of orange as farmers adopting traditional cultivation, lack of knowledge, lack technology lack of credit facilities, disease pest, lack of co-ordination between support services and organization, lack of market centre, unaware the right of price. This study

has suggested that the above problems should be solved by the government as non government sector.

Loundari (2004), studied about an economic analysis of orange production in Purkot VDC of Tanahun district. The main objectives of the study were to estimate the inputs and output relation. This study has used cross sectional data for the year 2004. About 40 households were selected as sample to fulfill its objectives. Cobb-Douglas form of production function was applied through the multiple regression analysis Human labor, Farmyard manure and Chemical fertilizer were considered as independent variables and output was dependent variables. With six models these are defined one by one. In model (i) has found that the farmyard manure was positively significant at 1 percent, 5 percent and 10 percent level of significance. Human labor and chemical fertilizer were negatively significant at the same level of significance. In model (ii) has found that the human labor and chemical fertilizer were positively significant at level of significance. In model (iii) has found that the farmyard manure was positively and chemical fertilizer was negatively significant at level of significance. In model (iv), (v) and (v) were found positively significant at 1 percent, 5 percent and 10 percent level of significance inputs and output relationship. Human labor was significant variable in this study to increase in production by 0.139 kg in model (ii) but model (i) there was inverse relationship between input and output. It has suggested that the proper used of human labor increase the orange production. Model (i), (iii) and (v) were in positively relation between farmyard manure and output by 0.314 kg and 0.304 kg, in model (ii) and (vi) were positively relation input chemical fertilizer and output by 0.167 kg. This study has suggested that inputs should be accordance with recommended. Among all model, r^2 has a high value of 0.099. The lowest r^2 was 0.003. This study has shown that decreasing returns to scale in orange production.

2.4 Literature Review of Impact Study Related to Comparative Analysis

There are many research works about the socio economic impact. There effort to find out the economic activities of the single trend of impact studies. For example, if they study about the orange production and its impact, they are study only about with orange and they do not care about without orange. Hence related this impact studies research works are few, which are explain as.

Swenson Dave, (2010) this study evaluates regional economic impact gains that might accrue if the region were to increase its fresh fruit and vegetable production to accommodate local or regional demand. The study region is composed of 10 counties: Adair, Adams, Audubon, Cass, Guthrie, Harrison, Mills, Montgomery, Pottawattamie, and Shelby. This area includes some of Iowa's most rural areas, yet it also is strongly influenced by the metropolitan reach of Omaha and Council Bluffs to the west and Des Moines on the east, which also serve as potential markets.

There were two production scenarios evaluated in this research. The first has farmers in the 10-county region producing enough of 22 fruits and vegetables to meet the amount of local consumption that would be expected to occur during a typical Iowa growing season. That estimation process concludes that satisfying local fresh fruit and vegetable demands for that growing season would result in

-) 902 acres of new fruit and vegetable production. The farm-gate value of that production would be \$2.42 million in sales, and the potential retail value of that produce would be \$5.2 million.
-) Considering all linkages to the regional economy, that level of fruit and vegetable productivity (just considering farm level boosts) would yield a total of \$928,373 in labor incomes and nearly 16 more jobs for the region.
-) The second scenario assumes the region produces for the metropolitan markets on its east and west borders. In doing so, and considering the production incentive reductions that distance creates, satisfying a portion of the fresh fruit and

vegetable demand of those markets with the amounts that can be grown during Iowa's typical growing season would result in:

-) An additional 2,107 acres of fruit and vegetable production in the region that would yield \$4.62 million in direct farm level sales, and fetch \$11.41 million when sold at the retail level.
-) Considering all linkages to the regional economy, that level of fruit and vegetable productivity (just considering farm level boosts) would yield a total of \$1.75 million in labor incomes and nearly 29 more jobs for the region.

When both scenarios are combined, farm level production increases could generate, within the 10-county area, \$2.67 million in labor incomes and the equivalent of 45 jobs.

Oliveira, Moura, Filho, Marco and Urban (2010) this work clearly demonstrates that tomato fruits from organic farming have indeed a smaller size and mass than fruits from conventional growing systems, but also a substantially better quality in terms of concentrations in soluble solids and photochemical such as vitamin C and total phenol compounds. Until recently, the focus has been mainly on yield rather than on gustative and micro nutritional quality of fresh plant products. This might be all right for staple food, but, as far as fruits and vegetables are concerned, it may be argued that gustative and micro nutritional quality matter more than energy supply. Our observations suggest that, at least for fruit and vegetable production, growers should not systematically try to reduce stress to maximize yield and fruit size, but should accept a certain level of stress as that imposed by organic farming with the objective of improving certain aspects of product quality. More research is needed in the future to better understand the links between stress and oxidative stress, on one side, and oxidative stress and secondary metabolism in fruits, on the other side. Also the physiological mechanisms behind the positive effect of organic farming on fruit quality will require additional studies to be conducted.

2.5 Conclusion of the Chapter

In conclusion the previous study showed that there were so many literatures written on the topics of orange production books, articles, research works and project works described the trend pattern, objectives and the impact of the orange production. Impact of orange production in the many literatures saw it's positive of the producer economic status. Before the orange production, poor economic status peoples are in current situation presence with better economic status. Hence after the orange production positively change in different aspect of producers. Like these, improving in health, education, wearing, food, communication etc. Hence its conclusion in one sentence i.e. socio-economic status of orange cultivators is generally positive.

In impact related conclusion there were so many literature written in this topic. But they did not showed clearly impact of orange production hence; in this chapter explain about the review of comparative analysis related to impact study. There were some literature review which discussed impact related comparative study. The economic impact of fruit and vegetable production saw in south west Iowa considering local and nearby metropolitan markets. Study also comparative analysis of local and metropolitan market of fruit and vegetable. They found orange production of metropolitan market oriented and beneficial than local. And lastly, where both scenarios are combined farm level production increases labor income and job. Hence there were also positive impact of fruit and vegetable production in south west Iowa. Similarly other review of literature also analysis comparatively case and control and finding on an average it has positive impact properly or orange cultivator are better-off than other farmers.

There were so many literatures which were written on the topic orange production indifferent books, articles, research works and project works, described the trend of pattern, objectives and impact of the orange production. However, no research work had been done on the topic Socio-Economic Status of Orange Farmers: A Case Study of Gajul VDC, Rolpa District. So the main objectives of this study, is to examine socio-economic status of orange farmers and non-orange farmers. The socio-economic condition of the people in the study area, have orange (case) and have no orange (control)

also. Then comparative studies of the case groups and control groups people which find out whose life is standard. The research presents gap between orange farmers and non-orange farmers. That is an orange related research work it studies about the only orange producers changing economic activities but comparative related research work study about the both case and control groups economic activities. Then it finds out who is superior and what types of impressed to opponent group. Hence, there is gap between the orange production related and comparative related research works

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Area

Geographically, Rolpa is bounded with Rukum in the north, Dang in the south, Salyan in the west, Pyuthan and Baglung in the east. Rolpa is located between 28°08' north latitude and 83°10' to 83°90' east longitudes. The total area of this district is 1879 sq.kms. The total numbers of residential households of the district are 41188. According to population census 2068 the population of Rolpa district is recorded as 43757. There are 51 VDCs in Ropla districts.

Nepal has a great topographical variation which is reflected in the diversity of weather and climate. Most of the hilly areas of Nepal have subtropical temperate climate. The altitude of Rolpa district ranges between 701 m to 3639 m from sea level owing to different parts of Rolpa. We can find both tropical as well as subtropical climate in Rolpa. Temperatures of Rolpa district is from 3.6° c to 31.2°c and rainfall 1388 mm to 1836 mm.

The study area is situated at the mid of Rolpa district which has suitable climate and soil for orange production. It is covered 3648.5565 Hector area of Rolpa district. In this area Khet covers, 121.5795 Hector and Pakho cover 1109.692 Hector areas. Similarly, cultivate area only covers 255.36 Hector. And this area has suitable soil for orange production which was recommended for orange cultivation by DADO Liwang.

The research work has been conducted in the Gajul Village Development Committee (VDC) of Rolpa District. Many research works has been carried out about on orange production, were concentrated only on some limited District i.e. Syangja, Dhankuta, Kaski, etc. Nobody had conducted any research works on orange production in Rolpa District; there it is a suitable area for the extension of orange cultivation. So this study area is located in the mid belt of Rolpa District.

3.2 Conceptual Frameworks

This study employs the concept of socio-economic status to examine the role of orange production in socio-economic indicators in the study area. While this technique is specifically applied to identify the effects of a particular program, the study adopt this approach assuming that the orange cultivator in the study area is regarded as a case and those household who falls on this group are known as case group households. The counterparts who do not cultivate orange offer the basis for providing a comparative judgment with case group households and these households are called control households.

3.3 Rational for the Selection of the Study Area

The researcher has purposely selected Gajul VDC for this study mainly of the reason that is similar to the other VDCs of this district in respect to fresh climate soil productivity and other social economic factors and it represents Rolpa district in the topography feature. The researcher has also selected the Gajul VDC because researcher own house in the same VDC.

Being one of the inhabitants of Gajul VDC, there is less chance of facing problems and difficulties to find the detail information's in various aspects of the study area due to the familiarity with the location to collect data and reliable data. The sample that the researcher has been used here represents the orange cultivators and not orange cultivators of Gajul VDC of Rolpa district.

3.4 Population

Gajul VDC of Rolpa district is the field of this study. There are nine wards in this VDC. But only study about the 4 wards, in these wards total household numbers are 435, with orange farmers 193 and non-orange farmers are 242. Orange farmers knows to who are cultivate for commercially purpose.

3.5 Sample Procedure Technique and Tools

This study is based on 234 household for sample size out of 435 households. There are nine wards of them the researcher has selected only four wards no. (3, 4, 5 and 6) purposely. Because these four ward numbers have local place of researcher so there time control, less chance of facing problems and difficulties to find detail information's in various aspects of the study area due to the familiarity with location to collect data for orange production and also have been produced of orange for a longtime. 234 household have selected from 435, initially we have take total number of households and divided in two parts, with orange producer and without orange producer groups of household, which are denoted by case and control respectively. Then orange producers are divided in different group basis on the time period and numbers of productive trees and from the entire group and without group also taking sample size with the help of random sampling method. This sample size shows by following table.

Table no. 3.1: Sampling Procedure of Ward No. 4

SIZE OF CASE HHs	TIME PERIOD OF CASE HHs	S. S. FROM CASE HHs	TOTAL SAMPEL SIZE OF CASE HHs	TOTAL NO. OF CONTROL HHs	SAMPLE SIZE OF CONTOL HHs	TOTAL SAMPLE SIZE HHs
S. 36	I = 6 M = 12 OLD = 18	1 2 2	5	34	34	51
M. 50	I = 5 M = 17 OLD = 28	1 3 4	8			
L. 20	I = 2 M = 6 OLD = 12	1 1 2	4			
TOTAL 106			17	34	34	51

Table no. 3.2: Sampling Procedure of Ward No. 5

SIZE OF CASE HHs	TIME PERIOD OF CASE HHs	S. S. FROM CASE HHs	TOTAL SAMPLE SIZE OF CASE HHs	TOTAL NO. OF CONTROL HHs	SAMPLE SIZE OF CONTRO L HHs	TOTAL SAMPLE SIZE HHs
S. 26 HHs	I = 4 M = 10 OLD = 12	2 5 6	13	54	54	
M. 23 HHs	I = 4 M = 6	2 3	12			

	OLD = 13	7				81
L. 4 HHs	I = 0 M = 0 OLD = 4	0 0 2	2			
TOTAL 53			27		54	81

Table no. 3.3: Sampling Procedure of Ward No. 3

SIZE OF CASE HHs	TIMEPERIOD OF CASE HHs	S. S. FROM CASE HHs	TOTAL SAMPLE SIZE OF CASE HHs	TOTAL NO. OF CONTROL HHs	SAMPLE SIZE OF CONTROL HHs	TOTAL SAMPLE SIZE HHs
S. 7 HHs	I = 2 M = 3 OLD = 2	2 3 2	7			
M. 8 HHs	I = 2 M = 4 OLD = 2	2 4 2	8	87	30	45
TOTAL L 15			15	87	30	45

Table no. 3.4: Sampling Procedure of Ward No. 6

SIZE OF CASE HHs	TIMEPERIOD OF CASE HHs	S. S. FROM CASE HHs	TOTAL SAMPLE SIZE OF CASE HHs	TOTAL NO. OF CONTROL HHs	SAMPLE SIZE OF CONTROL HHs	TOTAL SAMPLE SIZE HHs
S. 16 HHs	I = 4 M = 7 OLD = 2	4 7 2	16			
M. 3 HHs	I = 1 M = 1 OLD = 1	1 1 1	3	67	38	57
TOTAL 19			19	67	38	57

Where, S. S. = Sample Size. HHs = Households

Types of Group:

- I. Large Group (L):- who has to above 100 trees of orange are lies in large group. Numbers of trees known who is preparing for commercialized purpose.
- II. Medium Group (M):- who has to above 50 and below 100 trees are lies in medium group.
- III. Small Group (S):- who has to below 50 trees are lies in small group.

When they are started commercially production of orange in the study area, we can study divided by three groups.

- I. Initial (I):- It shows before 5 years.

- II. Medium (M):- It shows before 10 years.
- III. Old :- It shows above 10 years.

The above sample procedures are included in following tables as

Table no. 3.5: Composition of Sample Size

WARD NO.	TOTAL NO. OF HHs	CASE HHs	CONTROL HHs	SAMPLE SIZE OF CASE HHs	SAMPLE SIZE OF CONTROL HHs	TOTAL SAMPLE SIZE HHs
3	102	15	87	15	30	45
4	140	106	34	17	34	51
5	107	53	54	27	54	81
6	86	19	67	19	38	57
TOTAL	435	193	242	78	156	234

3.6 Nature and Sources of Data Collection Technique

This study was based on primary as well as secondary data. The primary data had been collected through the field survey. The survey was conducted by taking personal interviews with orange cultivator and non-orange cultivator peoples of the Gajul VDC by using the structured questionnaire. Similarly, secondary data were gathered from published and unpublished sources like; books, journals, magazines, articles etc.

3.6.1 Questionnaire

The questionnaire was designed in such a way that it becomes possible to garner as much information as possible in all socio-economic aspects of households. The entire questionnaire was divided into different sectors, ranging the coverage from household profile to household information on health, education, income, and expenditure and information access. A separate section was designed for the households in case group that provided data on only orange production related aspects.

3.6.2 Data Gathering Procedure

The data were collected per household or farmers primary field survey by using a random sampling technique. The data were collected by interviews. An appropriate questionnaire was prepared covering all the area necessary for the purpose of the present

study. This type of technique is necessary and important when detail information of respondent is essential.

3.9 Presentation and Data Analysis

The data collected from the field through questionnaire, after completion of interviews required information were sorted out and data were tabulated in required form and under several columns and rows. The systematic analysis is made using quantitative techniques. To analysis the quantitative data fundamental operations along with simple statistical tools such as percentage, ratio, average, etc have been used. Beside these tables, charts, diagrams etc are also used for the presentation of the findings. Study is mainly comparative analysis of the various socio-economic aspects of case and control household of Gajul VDC

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

This chapter is mainly divided into three parts according to pre-determined objectives of this study. Firstly the analysis is concerned with socio-economic status of sample household and finally, problems and prospects of orange cultivation in Gajul VDC of Rolpa district are examined.

4.1 Socio-Economic Status of Household

In this chapter explain about the socio-economic status of orange growers and non-growers of the sample household in the study area. And analysis assesses major socio-economic indicators of orange cultivators and other. These indicators show socio-economic status of study area, which fulfill the first objective of the research work.

4.1.1 Population, Gender and Age Group

The total population of the study area (sampled population) is 1170. Out of the total population of the study area; which includes 48.9 percent are males and 51.1 percent are females with 234 sampled households presented as different series family background.

Out of the total population of 1170 people in the sampled population, 598(51.1%) are females and 572 (48.9%) are males. The female population is higher than males' population. The main cause of the lower percentage of males' population is that males have migrated for employment.

Table 4.1: Population consumption by Gender

S.N.	Gender				Total	
	Male		Female		Number	Percent
	Number	Percent	Number	Percent		

1.	572	48.9	598	51.1	1170	100
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Source: Field Survey, 2013

Distribution of population by age group determines the level of human resources and its further potentiality to carry out any kind of activities. Distribution of population by age group in the study area was highly varied with national level in all the age groups. This showed the uneven situation of the study area as compare to national situation. Thus, field survey 2013, compared with the census of 2011.

Table 4.2: Population Distribution by Age Group

Age group (year)	Case group		Control group		Total no	Total percent	National level (%)
	No	Percent	No	Percent			
<14	135	34.17	287	37.03	422	36.07	33.22
15-59	217	54.94	407	52.52	624	53.33	58.8
>60	43	10.89	81	10.45	124	10.60	7.98
Total	395	100.00	775	100.00	1170	100.00	100.00

Source: Field Survey, 2013

In the study area the total population below 14 are 422(36.07%). Comparing between two groups, there are 135(34.17%) in case group and 287(37.03%) in the control group. So, it shows there is more percent population below 14 years lie in control group than case group. In the same way, the comparison of population between study area and national level, there is higher population in study area than national level. Similarly, in the age group of 15 to 59, there are 624(53.33 %) as total in the study area where 217 (54.94 %) in case group and 407(52.52%) in control group. It means there are more percent of population in case group than control group. The comparison between study area and national level, there is higher percentage of population in national level than study area. The age group above 60 are 124 (10.60%) as total population of study area where 43(10.89%) in case group and 124(10.60 %) in control group. There is no any significant difference between case and control group. Higher the percentage of the

economically active population, lower will be the dependent population. Lower dependent population shows positive prospects of the economy. The comparison between study area and national level, there is more variation in study area than national level. According to above table, there is more difference between study area and national level because of poverty and education that cause unskilled population at the increasing rate in the study area and dependency population percent is more than national levels.

4.1.2 Health Status

There is one Health Post in this village Dahalanga. The Health Post is in middle oGajul VDC and district hospital is also near from these wards. In this study area there is one Health Assistant, one CMA, one ANM and Women Volunteer easily available in this village.

Table 4.3: Health Status of the Study Area

Health status	Case groups	Control groups	Total
Total healthy population	378 (95.70%)	735 (94.84%)	1113 (95.13%)
Morbid	12 (3.03%)	25 (3.23%)	37 (3.16%)
Disable	5 (1.27%)	15 (1.93%)	20 (1.71%)
Total	395 (100.00%)	775 (100.00%)	1170 (100.00%)

Source: Field Survey, 2013

In order to study the health information of the respondents the researcher has found 95.69 in case group and 94.84 percent people in control groups most people are healthy but 3.03 percent people in case group and 3.23 percent in control group of the people are morbid. Similarly, 7.27 percent case group people and 1.93 percent control group of people are disable. So, according to this case study 2013, in this study area if we compare health status of case groups and control groups, we can find case groups health status is better than control groups.

4.1.3 Population Distribution and Family Size by Ethnic Groups

By ethnicity, Gajul VDC is belonging different castes and ethnic groups like Brahmin, chhetri, Kami, Damai etc. The distribution of household's number, their population and family size are shown in given table.

Table 4.4: Population Distribution and Family Size by Ethnic Group

Ethnic Group	Case groups HH And population in percentage	Control groups HH And population in percentage	Total HH And population in percentage
Brahmin	23 (26.58%)	31 (20.26%)	54 (22.39%)
Chhetri	38 (47.59%)	77 (49.68%)	115 (48.97%)
Dalit	17 (25.82%)	48 (30.06%)	65 (28.63%)
Total	78 (100.00%)	156 (100.00%)	234 (100.00%)

Source: Field Survey, 2013

Out of the total population of the study area Brahmin are 26.58 percent in case groups and 20.26 percent are in control groups .And in total as a total, Brahmins population is 22.39 percent of total sampled population. Similarly Chhetries are 47.59 percent in case groups and 49.68 percent in control group. And in total population of Chhetris population is 48.97 percent of sampled groups. It takes large size of population in the study area. Again the population of Dalit is 25.82 percent in case groups and 30.06 in control group. So, there is 28.63 percent Dalit in total. This study finds out that total population of Brahmin is less than other Chhetri and Dalit but more of them have involved in case group or orange farming, because of being good at economic activities, education etc. And Dalit are less involved in case group or economical activities due to the lack of education, poverty etc. this ethnic group is dominated by Brahmin and Chhetri groups. It is clearly shown by the above table also.

4.1.4 Main Purpose of Orange Cultivation

Most of the households of Gajul have started Orange Cultivation from the occupational point of view and some of households have cultivated orange for self consumption in addition to occupational point of view. Nobody has started the cultivation of orange only for self consumption.

Table 4.5: Main purpose of orange cultivation

SN	Description	Household	Percent
1	Commercial purpose	61	78.21
2	For self consumption and commercial production	17	21.79
3	Total	78	100.00

Source: Field Survey, 2013

Table 4.5 shows that out of 78 households, 61 (78.20%) households are practicing the orange cultivation from the occupational point of view and 17 (21.79%) households have been practicing the orange cultivation as occupation and for self consumption. So, according to this table, commercial (main) production purpose is high.

4.1.5 Food Sufficiency

Food sufficiency is one of the major indicators of socio-economic status of the people. Most of the people in the study area have lacked the food sufficiency; it is due to insufficiency of land, lack of modern techniques of cultivation and other so many problems. The actual figure of the study area is presented in the table below.

Table 4.6: Food Sufficiency

SN	Food sufficiency situation	Case HHs and percentage	Control HHs and percentage	Total HHs and percentage
1	Balance	31 (39.74%)	47 (30.13%)	78 (33.33%)
2	Surplus	14 (17.95%)	16 (10.26%)	30 (12.82%)
3	Deficit	33 (42.31%)	93 (59.62%)	126 (53.85%)

4	Total	78 (100.00%)	156 (100.00%)	234 (100.00%)
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Source: Field Survey, 2013

Out of total orange cultivators, about 39.74 percent households are in food balance condition, 17.95 percent are in surplus and remaining 42.31 percent are in deficit. However among non cultivators, 30.13 percent are in balance, 10.26 percent are in surplus and 59.62 percent are in deficit. Thus, the orange cultivators have better food status than orange non-cultivator regarding food sufficiency. In the study area 33.33 percent households are balance, 12.82 percent households are surplus, and 53.85 percent households are deficit in the whole sample size. This situation of food sufficiency is not satisfactory in comparison to the national poverty line.

4.1.6 Occupational Structure

Agriculture is the dominant economic activity of orange cultivators as well as non orange cultivators. Out of the total economically active population, they are categorized into two groups namely case and controls.

Table: 4.7: Difference in occupational structure

SN	Types of occupation	Case groups	Control groups	Total
1	Agriculture	135 (62.21%)	243 (59.71%)	378 (60.58%)
2	Services	36 (16.59%)	53 (13.02%)	89 (14.26%)
3	Business	15 (6.91%)	23 (5.65%)	38 (6.09%)
4	Labor	12 (5.53%)	55 (13.51%)	67 (10.74%)
5	Foreign employment	19 (8.76%)	33 (8.11%)	52 (8.33%)
6	Total	217 (100.00%)	407 (100.00%)	624 (100.00%)

Source: Field Survey, 2013

Out of total economically active population 34.78 percent (217 persons) peoples are orange Cultivators and 65.22 percents (407 persons) peoples are non-cultivators. Agriculture, service, business, labor and foreign employment are the major occupation

in the study area. Out of total economic active orange cultivators, 62.21 percent are involved in agriculture, 16.59 percent are in service, 6.91 percent are engaged in business, 5.53 percent are involved in laboring and 8.76 percent are in foreign employment. Whereas the involvement of economic active people of non-orange cultivators is found slight different as 59.71 percent in agriculture, 13.02 percent in service, 5.65 percent are in business, 13.51 percent are in laboring and 8.11 percent are in foreign employment. In the total of study area 60.58 percent are involved in agriculture, 14.26 percent are in service, 6.09 percent are in business, 10.74 percent are in laboring and 8.33 percent are in foreign employment. There is more percentage of peoples are involved in agriculture in both groups however involvement in service and business are found small in size but almost similar to the orange cultivator with non orange cultivators. But involvement of labor in non-orange cultivator group is greater than orange cultivators group. The above table shows that the involvement of business and service is not grater in orange cultivators than non-cultivators, but the situation of labor is just vice-versa.

4.1.7 Motivation towards Orange Cultivation

As it is already mentioned that Nepalese economy is based on agriculture sector, which is major source of livelihood for these peoples. There are many crops cultivated which can be divided in two parts i.e. cereal and cash crops among cash crops. But orange belongs to the cash crops.

Table 4.8: Motivation towards Orange Cultivation

Responses	Household	Percent Remarks
District Agriculture Development Office, NGO, INGOs and Tools of Communication	13	16.67
Demonstration effect	48	61.54
Own inspiration	17	21.79
Total	78	100.00

Source: Field Survey, 2013

The table 4.8 shows information of motivation towards the orange cultivation about orange farming activities. It indicates that 61.54 percent households have done orange farming as a profession influenced by demonstration effect and 21.79 percent by own inspiration. Similarly, in lastly 16.67 percent by District Agriculture Development Office, NGO, INGOs, Tools of Communication etc. The researcher concluded that orange cultivation is influenced by demonstration effect.

4.1.8 Literacy Status

Education is one of important parameter to uplift the economy. It helps to generate the living status, income opportunity, creative power etc. in the study area as well as national level. The condition of educational status in the study area is presented in table 4.9.

Table 4.9: Educational Level of the People in the Study Area

SN	Level of education	Case group	Control group	Total
1	Illiterate	70 (17.72%)	243 (31.35%)	313 (26.75%)
2	Literate	73 (18.48%)	214 (27.61%)	287 (24.52%)
3	SLC level	119 (30.13%)	174 (22.45%)	293 (25.04%)
4	Higher level education	133 (33.67%)	144 (18.58%)	277 (23.67%)
5	Total	395 (100.00%)	775 (100.00%)	1170 (100.00%)

Source: Field Survey, 2013

The sampled households are 1170 persons. Out of this total population, 313 (26.75%) persons are found illiterate in the study area. According to this table, illiterate persons are 70 (17.72%) in case group and 243 (31.35%) are in control group. So, we find that comparatively more illiterate persons are in control group. Similarly, 24.52 percent are literate in total given as literate group. Here literate means the persons those who can read and write easily are known as literate. In this level, case group contains 18.48 percent people and in control group, 27.61 percent are literate. In comparison, more percentage of peoples are in control group. 293 (25.04%) persons have passed SLC in

the study area. 30.13 percent persons have passed SLC in case group, and 22.45 percent people have passed SLC level in the control group. We find that case group persons are passing SLC level more than control groups. The percentage of people who have attained higher-level education in the study area can be considered satisfactory. It is because of 23.67 percent of the people are found have passing I.A., B.A and above level. Higher level of education is found in case group i.e. 33.67 percent and in control group, higher level education is passed by 18.58 percent people. So, we find that more of case group contains passing higher level of education than control group. Lastly we have found that control group has more illiterate than case group and case groups has more literate or passed higher level of education than control group.

4.1.9 Livestock Raisings

Livestock is an integral part of agriculture. It is also an important economic activity in hilly region which supports to rise up the economic condition of the farmers. It plays a vital role in agriculture productivity, farm power and income for households and nutrition for family. In Gajul VDC, most of the farmers keep buffalo at least one. In the same way, cattle, goats and sheep are also common. Cow and buffalo are kept for milk and mature, where as goat and sheep are kept for meat. The types and number of livestock is given in table 4.10.

Table 4.10: Number of livestock (by sampled households) in the study area

Types of livestock	Case groups			Control groups		
	No. of households	Total No. of livestock	Average No. of holding	No. of households	Total No. of livestock	Average No. of holding
Buffalo	69	81	1.17	130	191	1.47
Cow/ox	56	119	2.13	141	305	2.16
Goat/sheep	31	190	6.12	136	916	6.74

Source: Field Survey, 2013

Table 4.10 shows the situation of livestock in the study area. There are 234 sampled households in the study area. Out of total sampled household is consisted of 78

households in case group and 156 in control group. Out of total case group, 69 households keep buffalo in an average 1.17 per household where as out of total control groups only 130 households keep buffalo in an average 1.47 per household. Due to laboring and engaged in different factors of job some of case and control groups household have not kept buffalo. Similarly 56 and 31 households of case group kept ox/cow and goat/sheep in an average 2.13 and 6.12 respectively. But the amount of ox/cow and goat/sheep in control group in an average is 2.16 and 6.74 respectively. All of these types of livestock enhance the economy but there is no great discrimination in livestock rising in the study area in both groups.

4.1.10 Annual Income Earning

So many people in Gajul VDC are under the poverty line because of low economic activities. More respondents are engaged in agriculture. Agriculture, business, poultry, and trade are other important source of income. To find the actual income is not possible because respondents do not want to respond the truth due to fear of different things like paying tax to the government, social problems etc. however, the researcher has exercised to take the real picture of income as much as it possible. The nature of income of different groups in the study area is presented in table 4.11.

Table 4.11: Annual Income Distribution in Thousand

Income categories	Case groups HHs	Percent	Control Groups HHs	Percent
below 50	11	14.10	62	39.74
50-100	38	48.72	53	33.97
100 and above	29	37.18	41	26.28
Total	78	100	156	100

Source: Field Survey, 2013

Out of 78 households of case group, 14.10 percent household earn below 50 thousand annually and in control groups, 39.74 percent household earn below 50 thousand annually. Comparatively more percent of this category of household are in control group. There are 48.72 percent households in the case group earning 50-100

thousand per year where the percentage of control groups is 33.97 in that level. The highest percentage of people in case group who earn between 50-100thousand per year is 48.72. There are 37.18 percent of people in case group and 26.28 percent in control group those who earn more than 100 thousand. So, it shows that more people of case group earn higher income than control group from orange production. So, economic status is of case group is stronger than control group.

4.1.11 Excess to Finance for Establishing Orchards

Loan is also essential thing to support orange produces. For development of agriculture, AD B has provided loan to orange producers in the research area. This bank has provided loan for different purposes such as for planting orange, establishing and protecting orchards. This type of credit has played a vital role in orange production in the study area. Similarly, financial institute, village merchants are also other source of loan to orange producers.

Table 4.12: Distribution Numbers of Households by Sources Excess to Finance

S.N.	Sources	No. of Households	Percent
1.	ADB, Financial institutions	15	19.23
2.	Village merchant	41	52.56
3.	Self maintain	12	15.38
4.	Relatives	10	12.82
Total		78	100.00

Source: Field Survey, 2013

Table 4.12 reveals that only 12.82 percent households have taken loan from relatives, 15.38 percent households maintain themselves, 52.56 percent households take from village merchants. It means more percent of households take from village merchants and only 19.23 percent households take loan from financial institutes, ADB. There are fewer households taken loan from ADB than village merchants due to the complex loan distribution system and complicated administration procedures.

4.1.12 Saving Pattern

Saving pattern is one of the important parameter to measurement socio-economic status of people. It helps to generate the higher living status, uplift the economy, income opportunity, production activities as a form of capital and investment etc. in the study area as well as National level. The condition of saving pattern in the study area is presented in following table 4.13.

Table 4.13: Saving Pattern of Households

SN	Types	Case	Control	Total
1	No Saving	19 (24.35%)	58 (37.18%)	77 (32.91%)
2	Saving <50000	26 (33.33%)	71 (45.51%)	97 (41.45%)
3	Saving >50000	33 (42.31%)	27 (17.31%)	60 (25.64%)
4	Total	78 (100.00%)	156 (100.00%)	234 (100.00%)

Source: Field Survey, 2013

The above table 4.13 shows that 100 percent households are not able to save their income from any sources. The researcher finds out 19 (24.35%) families are not able to save their income from orange production in case group, and in control group, 58 (37.18%) households are not able to save their income from any sources. But in case group, 26 (33.33%) households are able to save below 50 thousands and in control group 71(45.51 %) households are able to save below 50 thousands. Similarly, having high saving or above 50 thousand, case group are 33 (42.31%) and in control 27 (17.31%) households. It was the saving pattern of past one year. According to this table most of higher saving households lie in case group. But non saving group lies in control group, comparing the two groups case and control. But more middle class saving group lies in control group than case group. Hence according to this study, case groups life standard is better than control group. It can be shown by above table.

4.2 Problems of Orange Cultivation

Orange cultivation plays a significant role for rural economic development in Hilly region. It can provide additional cash income to the farmers by generating so many employment opportunities. It can be the additional option to uplift the poor economic status of the farmers. But fruit cultivation is still infantile and unorganized in Nepal. Thus there are so many problems in the orange cultivation.

There is a potentiality of orange cultivation at Gajul VDC in Rolpa district, but the local farmers have faced different problems in orange cultivation as indicated by local people, which have been presented below:

Hailstone: The most fearful natural calamity is hailstone and its impact is dread full. If the large sized hailstone falls, it will destroy whole orange orchards. Farmers of the study area are suffering from impact of hailstone again and again. Only one method to protect orange farm is to cover the trees with net but it is very expensive. So, farmers cannot use it. Thus, hailstone is the main constraint of orange orchard of the study area.

Technical Problems: 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 practices, inputs such as water, fertilizer, pesticide etc. have positive effect only when they are technically appropriate or optimal. For e.g. Fertilizer application will exhibit its beneficial response under definite sets of conditions. However, in the study area the farmers should have knowledge about such condition. They cultivate orange in tradition way. Technically, they are very poor. They are not aware of the modern management system especially, with regard to orchards. The farmers do not have proper idea of using chemical like fertilizer, pesticide, insecticide etc. They have also reputed the non availability of agriculture credit, lack of timely supply of agriculture inputs as well as lack of storage facility for their production.

Technically low priority has been accorded to fruit research in this area. Because of this season farmers of this area are not familiar with high quality tools and improve technique that can be in orange cultivation. They are using traditional methods in orange farming JT and JTA provide insufficient service to the real practitioners.

Problems of disease and pests: Suffering from various diseases and pests is another problem of orange cultivation in Gajul VDC of Rolpa district. About 70 percent households have pointed out that orange plant is suffered from some sort of diseases and pests i.e. Citrus psylla, leaf miner, leaf mosaic, leaf roller, leaf spot Black fly Citrus die back and some kind of ant which destroy it. They have also reported that these diseases and pests cannot be easily eradicated because they cannot easily get pesticide and insecticide as well as technical help to control it. However, nearly 53 percent people in the study area have spent 2 to 3 percent its income for metabolism.

Problems of seed: In the study area, most of the farmers use local varieties of seeds. Local seeds suffer from pest and diseases. Very few farmers use to buy seed from other growers during planting time. They also reported that good qualities of seeds are not available at the time of planting at reasonable price. Hence, unavailability of improved and good quality seed is one of the major problems in orange production.

Problems of Market: Farmers are facing the difficulties of marketing in the study area. There is not enough marketing facilities such as weekly or monthly Haat Bazaar, similarly, there is no marketing collection center as well as marketing information center. There are no organized co-operative bodies providing Marketing facility.

The nearly Sulichaur bazaar and district head quarter Rolpa, observe only a small fraction of the total product. Hence the main market centers are Dang, Butwol and Nepalganj which are 160 KM far from the study area. Similarly most of the orange growers do not have any marketing experience.

Problem of Irrigation: Irrigation is essentially the artificial application of water to overcome deficiencies in application of water to overcome deficiencies in rainfall for growing crops. It is not of the most important factors for orange cultivation. Orange cultivation requires frequent and light irrigation in dry seasons. Watering orange plants before and after harvesting season makes the plants very healthy. However, in Gajul VDCs study area is lack of irrigation for orange cultivation. Mostly, orange trees are

planted dry and terrace surface which seriously suffer from shortage of water in dry seasons. It reduces the quality and quantity of orange production.

Problems of Low Price: About 78 percent of sampled households have pointed out that they should sell their production in low price; it is because middle man and brokers compel to sell their orchards in cheaper price. This proves that, according to the respondent brokers buy the production RS 30-35 per kg in months Kartic and Mangsir and Rs. 35-40 in month of Paush and Magh but sell in the market of Dang, Nepalganj in Rs. 40-45 respectively in these months. Also, there is no storage facility in the study area. So, price of orange range is not fixed due to marketing facility and middle man and broker's constraints.

Problems of Tools and Technique: Technically low priority has been accorded to fruit research in this area; not only this area but also in the whole state people of farmers of this area not familiar with high quality of new tools and improved technique about the orange production. They are using traditional methods of cultivation. Hence lack of appropriate tools and techniques are creating important problems for orange cultivation.

Lack of Financial Institution: Most of farmers live below the poverty line. So they cannot effort sufficient money for the cultivation and till today they are reluctant to approach the money lenders. It needs good amount of capital for introducing scientific methods, fertilizers, skilled labors and transportation etc. The farmers are deprived of the facilities of credit (bank) and for led to grow local varieties of oranges which has less productive capacity.

Problems of Transportation: Among the major problems of orange cultivation in the study area, lack of transportation is dominant one. There are some village roads which are no graveled, however they facilitate to the orange growers to extend it but most of the orange orchards are not linked with such roads. So the people in the study area are obliged to use labor for transportation of orange. Orange is carried on human back for a certain distance then by small vehicles. Farmers have to pay Rs. 50-60 per doko (40-50 kg) of orange to carry from the study area to the market road sides, and it takes 25 minutes to 1 hour per trip. Due to the unavailability of road and unorganized market

system. The farmers have to insure extra monetary burden in the study area. More percent of the total farmers are facing these problems.

4.3 Prospects of Orange Cultivation

There are several problems in orange cultivation, but there are still sufficient possibilities to promote the orange production at Gajul VDC of Rolpa district.

Because of favorable climate, increasing demand of the orange and other local variety; the local orange growers are interested towards its cultivation. So, they have good achievements of production. Although the government and private sectors also focuses on to produce orange production in local area. Continuous cultivation of cereal crops has resulted the decline of soil fertility. Increasing population in marginal land creates various environmental imbalances and many kinds of natural disasters like landslide, flood, desertification, soil erosion, etc. Thus orange production plays an important role for balancing the declining environmental condition in one hand and on the other hand it finds that orange cultivation is more beneficial as compared to the cereal crops giving a good source of cash income. Moreover, the cultivation of orange generate additional employment opportunities and establishing subsidiary industries i.e. plucking, packaging, processing and distributing etc. It will help new employment opportunities to the people which can help to reduce the problem of migration. But farmers have to practice judicious use of chemicals, insecticides and pesticides to control the pest and also to use manure and fertilizer for further production in a balance way. Besides these, farmers need training in orange orchard management including planting, picking, packaging and use of scientific tools to enable them to produce more and fetch at high price.

Nowadays, continuous increasing population has encouraged the demand of fruit in an orange production. In the context of orange cultivation, it has better prospect not only in the study area but also in the whole part of Nepal.

Particularly in case of Gajul VDC, the whole sample orange growers have agreed with its good future prospects. And non-growers are also interested to cultivate it. Moreover, they have informed that they will try as soon as possible.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

Among various cash crops, orange is one of the main cash crops. Orange plantation in Rolpa has started a long time ago. So still in old plants also has seen Rolpa district. At present, it is become one of the important agriculture activities in the study area. Even many efforts of different institutions of government of Nepal and other organizations, it is still true that the returns from the orange production has been limited level and this economic activity has not enhanced the level of income of the farmers to a desired level. Identification of crucial factors is related to the production, distribution and processing of orange which must be at the starting point of production to resolve the existing problems in device way. With this perspective, study under taken to provide appropriate socio-economic change, problem, prospects and marketing of orange.

Furthermore, we can say that on the basis of above mentioned things, orange cultivation is an important cash crop which is cultivated in most parts of Hilly region of Nepal. Rolpa district is also belongs to the same region where the orange farming has been started from last few years as a cash crop. The area of orange cultivation has been increasing gradually due to attractive income detained from it.

Socio-economic condition plays vital role of the people. In case of people of Gajul, the economic condition is satisfactory that the people are in the poverty line. Most of them are indulged in agriculture which hardly supports their income. Their annual income is also supported with business, livestock remittance etc.

In case of people of Gajul VDC, they are adopting different professions. Many of them are depending on agriculture which provides them hardly sustainable life for a year. They have poor economic condition, keeps them away from balance diet and good education which lead the deterioration living condition.

In the stage of socio-economic service in the study area, it was found that 100% households have accepted educational institution, drinking water, toilet, health post, electricity, telephone, road, institution, religious place etc.

Orange sales in only in harvesting time .It means most of the people sale oranges in harvesting period due to the lack of storage. Few households people sale their orange when price increases. It was found that orange is transported in two ways for selling orange i.e. self carrying and by labor. For the motivation factor of orange cultivation, 61.54 percent households are inspired by demonstration effect, 21.79 percent households are motivated by themselves and rest are by District Agriculture Development office, NGOs, INGOs,. They are not completely satisfied with current market price of orange.

The main objectives of this research to do Comparative study between orange growers (case) group and non orange growers (control) group in terms of literacy status, health, income, expenditure, saving, livestock raising etc. This research work, finds the social status of the people in Gajul VDC of Rolpa district has been changed due to orange production such as better literacy rate, schooling child from government institution to the private institution, housing condition etc. then life standard of orange growers is better than non-orange growers.

Even there are so many prospects of orange cultivation, there are still some problems existed in the study area, like Problem of technical knowledge, problem of disease and pests, marketing problem, irrigation problem unavailability of lone, problem of hailstone are major problems which exist in the study area.

5.2 Major Findings

The main objectives of this study are to report comparative analysis between case and control group or to find out the socioeconomic changes by orange cultivation at Gajul VDC of Rolpa district. While they have engaged in orange production and their life have been drastically change. The major findings of this study are presented below:

1. Educational condition of the people of study area is satisfactory. In the study area, 73.25 percent people are literate and 26.75 percent are completely illiterate. In particular case groups there are 82.28 percent people literate and 15.98 percent people illiterate. Then in control group 68.65 percent are literate and 31.35 are illiterate. Hence, education status of case group is better than control group.
2. The people of the study area are adopting different occupations. Most of them are involved in agriculture where cash crops and cereal crops are adopted by them .But cereal crops have been only bread for them. Among cash crops, orange is being highly profitable which has become main means to generate income after orange production.
3. More percentage of households is in case group. 48.72percent households are earning 50-100 and then 37.18 percent households are earning above 100 thousand income categories. But in control group, more percentage of households are there that 39.74 percent and 33.97percent lie in below 50 and 50-100 thousand income categories respectively. So it shows that having higher income households are more in case group than control group.
4. In population distribution of the study area, there are more percent of Brahmin and Chhetri involved in case group than Dalit. But in control group, there are few numbers of Brahmin and Chhetri are in involved. So, it shows that economic condition of the Brahmin and chhetri is better than Dalit. There are 78 households in case group. Where, 78.21 percent have involved occupational production and 21.79 percent in both occupational and consumption purpose.
5. In saving pattern of case group, there are more percent those who saves their income above 50 thousand than control group but non-saver are more in control group than case group. So, saving pattern is better in case group than control group.
6. Furthermore, number of livestock in the study area is comparatively no more difference between case group and control groups. But in comparison, control group show more livestock than case group in total.
7. Health status of the study area of case groups is better than control group where healthy person are 95.69 percent in case group but 94.84 percent in control group.

Morbid and disables population are more in control group than case group. Hence we can say that case groups' health status better than control group.

8. In Case groups, 52.56 percent households take loan from village merchants and 19.23 percent from ADBN, financial institutes, 12.82 percent from relatives and 15.38 percent household maintain themselves. So, in conclusion there is not available the facility of government and financial institutes.
9. Livestock and crops are main occupation in agriculture adopted by the people of the study area where orange cultivation is major income source of them. The orange production is considered to be top income earning crops in the agriculture sector in the study area as compared to other productions.
10. Despite this suitable topology and high economic value, production of orange face many problems from its initial stage in marketing. Disease and pests and the major short coming factors in the production of orange. Besides these absence of double cropping unavailability of sufficient land, lack of credit facilities, illiteracy and poorness of farmers uncertain monsoon, use of quality seeds, lack of extension services. Presence of middleman, lack of grading and standard of weight, lack of transport facilities, storage facilities price fluctuation, lack of market information, lack of JTA service etc. are the other short comings in the process of orange production and marketing. Despite of these problems, the future of orange at Gajul VDC of Rolpa district seems to be good.

5.3 Recommendations

The following recommendations as revealed by this study could be helpful for improving the orange production of study area.

1. Authentic micro level research and study should be done to find different aspects of orange cultivation.
2. The traditional farming method should be changed into modern method and technology. Training facilities should be provided to the local farmers time to

time. Irrigation facility is so weak in the study area. So, there should be development of irrigation.

3. Market mechanism should be managed in order to provide reasonable price of product. The existing system of marketing and storage are not systematic because of locating far away the main market centers from product area. Most of the growers are being exploited by middle man/broker. So emphasis must be given for the development of organized marketing system.
4. There should be management of insecticides, pesticides, agricultural tools and improved seeds for orange growers. Similarly there should be established storage and processing industry which may reduce to damage fruits during the period of harvesting and marketing period.
5. Due to the favorable climate, soil and landscapes at Gajul VDC of Rolpa district, there are the best prospects for orange cultivation.

APPENDIX

**SOCIO-ECONOMIC STATUS OF ORANGE FARMERS: A CASE
STUDY OF GAJUL VDC,ROLPA DISTRICT**

QUESTIONNAIRE FOR HOUSEHOLD SURVEY 2013

IDENTIFICATION AND ELIGIBILITY												
NAME OF RESPONDENT.....												
HOW MANY PERSON LIVES IN THIS HOUSEHOLDS.....												
THIS HOUSEHOLD IS IN CASE OR CONTROL GROUP..... 1=CASE, 2=CONTROL												
WARD NUMBER.....												
INTERVIEW DATE.....												

Namaste, my name is Yakendra Thapa and I am working as part of research to fulfill the requirement of M.A. thesis entitled Socio-Economic Status of Orange Farmers: A Case Study of Gajul VDC Rolpa District. We are carrying out a survey of households to assess the socio-economic status caused by orange production. We would like to ask a few questions about income, expenditure and other relevant information about your household. Please try and answer every question, but if you are not sure then please give the best answer you can. The information you provide will be strictly confidential.

Respodent	
Non Respodent	

SECTION1: GENERAL INFORMATION OF HOUSEHOLD MEMBER

LINE NO Q.1.1	HOUSEHOL MEMBERS Q 1.1.1	SEX Q 1.1.2	AGE Q 1.1.3	MARITAL STATUS Q 1.1.4	NO. OF CHILDREN Q 1.1.5	EDUCATION Q 1.1.6
	The names of the persons who usually live in your household, starting with household head.	Is (Name) male or female? 1=Male 2=Female	How old is (Name)?	What is (Name)'s current marital status? 1=Married 2=Unmarried 3=Widowed 4=Divorced 5=Separated	Ask only female members Write '00' if the member does not have any children.	Write '00' if member has not ever attended school. Write 97 for Nursery to KG 01-09=Grade 1 to 9 10=completed SLC 11=Intermediate (not completed) 12=Intermediate (completed) 13=Bachelors (not completed) 14=Bachelors completed/Higher 96=Not formal education 98=Don't know
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Occupation of household:

What is the occupation of household head? (household head means the father/mother of case and control group)	GOVERNMENT JOB	1
	OWN BUSINESS	2
	WAGED LABOR	3
	AGRICULTURE	4
	FOREIGN EMPLOYMENT	5
	UNEMPLOYMENT	6
	OTHER.....	7 (SPECIFY)

SECTION 2: EDUCATION AND HEALTH

LINE NO. Q. 2.1	DROP OUT Q. 2.1.2	SCORES Q. 2.1.3	STUDY HOURS Q. 2.1.4		WORKING AT HOME Q. 2.1.5	
List the line no. of all the family members who is between 5 to 20 years and those currently studying	Did (Name) stop going school? 1=Yes 2=No	What is the score secured by (Name) in his/her last completed grade? (Interviewer, please ask for the Percentage and Division)	How many hours does/did (Name) spend studying at home? (Write '00' if don't study at home)		Does (Name) help in household work? (Ask the no. of hours the member spend working at home) (Write '00' if don't work at home)	
			%	Div	Hr	Min

3.3	How often do you or anyone in your household listen to radio?	Everyday1 A few times a week.....2 Once a week.....3 Less than once a week.....4 Never5	
3.4	What kind of programs do you listen to radio?	News1 Entertaining2 Others3	
3.5	How often do you or anyone in your household watch television?	Everyday1 A few times a week.....2 Once a week3 Less than once a week.....4 Never5	
3.6	How many times to go to P.C.O (public communication office)?	Phone at home 1 Minimum 15 minute 2 15-30 minute 3 31-60 minute 4 Above 60 minute 5	
3.7	During last one month how many times do you phone call incoming and outgoing?	No any call.....0000 Don't know.....9999	
3.8	What are the most important sources of your information regarding government activities, such as Constitution Drafting, Peace Process and other government programs? (Rank the different sources starting 1 for the most important)	Relatives, friends and neighbors1 Newspapers2 Radio3 Television4 NGOs.....5 Business man.....6 Politician.....7 Community leader8 Agent of government.....9 First Second..... Third..... (SPECIFY)	

SECTION 4: GENRAL INFORMATION ABOUT HOUSEHOLD:

Q. NO.	QUESTIONS	CODING CATOGORIES	SKIP
4.1	What is your religion?	HINDU 1 BUDDHIST 2 MUSLIM 3 CHRISTIAN 4 OTHER5(SPECIFY)	
4.2	What is your ethnicity/ caste?	ETHNICITY-----CASTE.....	
4.3	Main material of the floor?	NATURAL FLOOR.....1 SOIL.....2 ANIMAL DONG.....3 RUDIMENTARY FLOOR.....4 FINISHED FLOOR.....5 CIMENTED FLOOR.....6	

		OTHER7 (SPECIEFY)	
4.4	Main material of the roof?	STRAW.....1 CIMENTED.....2 TIN, TILE.....3 SLET.....4 OTHER.....5	
4.5	How many rooms did/ does the house have?		
4.6	You or your family members agriculture land have?	Yes.....1 No2	5.10
4.7	How many land in your family which is good for farming?	Kattha.....1 - - - Bigha2 - - - Ropani3 - - - Above 99.....995 Don't know.....998	
4.8	Does this household own any livestock?	Yes.....1 No.....2	
4.9	How many this type of animals or polutry? No = 00 Above 99 = 99 Don't know = 98	Buffalo Cow/bull Goat..... Sheep..... Chicken..... Duck	- - - - - - - - - - - -

SECTION 5: HOUSEHOLD INCOME (5.1.1 AGRICULTURE INCOME OF LAST ONE YEAR)

CROPS	INCOME			EXPENDITURE
	UNIT QUIENTEL/K.G.=1 MURI/PATHI=2	TOTAL PRODUCTION	PRICE PER UNIT	How many expend to these total production. (Including seed, fertilizer, chemical, labor cost...etc)? 5.1.1.5
5.1.1.1	5.1.1.2	5.1.1.3	5.1.1.4	
PADDY				
MAIZE				
WHEAT				
BARLY				
MILLET				
OIL SEED				
PULSE				
VEGETABLES				
1				
2				
3				
4				
FRUITS				
1				
2				
3				
4				
OTHERS				
1				
2				

3				
4				

(5.1.2 SALLING INCOME OF LIVESTOCK)

Show the question number 4.8 about livestock and decide.

INCASE YES
.....goes to Q.N. 5.1.2.1

INCASE NO
.....goes to Q.N. 5.4.1

During last one year you have sell or buy any livestock?

YES	1	
NO	2	GO TO Q.N. 5.2.1

	SALLING			BUYING		
	UNIT 5.1.2.1	PRICE 5.1.2.2	TOTAL 5.1.2.3	UNIT 5.1.2.4	PRICE 5.1.2.5	TOTAL 5.1.2.6
BUFFALO						
COW						
BULL						
GOAT						
SHEEP						
CHICKEN						
OTHER SPECIFY						

5.2 Expenditure on livestock during last one year.

	feed expenditure 5.2.1	medical expenditure 5.2.2	veterinary expenditure 5.2.3	transportation expenditure 5.2.4	other expenditure 5.2.5	total expenditure 5.2.6
BUFFALO						
COW						
BULL						
GOAT						
SHEEP						
CHICKEN						
OTHER SPECIFY						

5.3 Livestock product income.

Does your household make any income through the sale of livestock product?

YES	1	
NO	2	Goes to Q.N.5.4.1

PRODUCT	UNIT LITER=1 MANA=2 K.G.=3 NUMBER=4	TOTAL PRODUCTION	PRICE	TOTAL INCOME
5.3.1	5.3.2	5.3.3	5.3.4	5.3.5

5.4 Income and expenditure from owned business.

Q.N.	QUESTIONS	CODDING CATOGORIES				SKIP	
5.4.1	You and your family members are participate in economic activities like: Hotel, prepare doko, sweeper, khukari, charge the mobile receive the money and take tuition? YES.....1 NO.....2	Write the line number of household member.					
		*	Activities	Starting date	Income per month		Expenditure per month

5.5 wages income of household:

You or your family members are work in wages?

YES	1	
NO	2	Go to Q.N. 5.6.1

LINE NO. OF HOUSEHOLD MEMBER 5.5.1	TOTAL EMPLOYED MONTH 5.5.2	CASH WAGE PER DAY 5.5.3	REAL WAGE PER DAY 5.5.4	TOTAL INCOME 5.5.5

5.6 Remittance Income of Household:

Q.N.	QUESTIONS	CODDING CATOGORIES	SKIP
5.6.1	You or your family members receive remittance income during last one year?	
5.6.2	You or your family members receive the pension during last one year?	
5.6.3	You or your family members receive the old-age allowances during last one year?	

SECTION 6: QUESTIONS ABOUT ORANGES (THIS PART ONLY CASE GROUP)

Q.N.	QUESTIONS	CODING CATOGORIES	SKIP
6.1	How many area/land capture orange production and how many grower trees or non grower trees?	Area --- grower tree --- non grower tree --- (ropani) (unit) (unit)	
6.2	When did you start orange production?	0-5 year.....1 5-10 year.....2 Above 10 year.....3	
6.3	Firstly when did you information about the orange production?	Radio.....1 Television2 Newspaper3	

		District agriculture development office...4 Relatives5 Organization.....6 Neighbor/Friends7 Nursery center8 Other9	
6.4	Firstly who decided about the orange production in your family? (if answer are not appropriate then record the line no. of household head)	<input type="text"/>	
6.5	Before orange production in which occupation did you involve?	Food Crops1 Fruits.....2 Vegetable3 Cash crops.....4 Other5	
6.6	Initially how much expend in orange production?	-- --	
6.7	How did you recover that expenditure?	From wages or salary1 From sale the properties.....2 From saving3 From take loan4 Other5	7.1
6.8	Where did you take loan for orange production? (if only take loan)	Relatives/neighbor/friends.....1 Money lender.....2 Saving group (mother group).....3 Financial institution (bank).....4 Other5	
6.9	How much did you taking loan?	-----	
6.10	How many year or month did you pay the loan?	Year Month.....	
6.11	Did you pay the loan completely?	Yes1 No2	7.1
6.12	How many rupees are you not paid? (only if answer is no)	-----	
6.13	What are the problems in orange production?	Technical problem.....1 Lack of market.....2 Low price.....3 Low productivity4 Transportation problem.....5 Lack of appropriate labor.....6 Other7	
6.14	What is the bad effect of climate change in orange production?	Transportation1 Problem of stock.....2 Lack of appropriate price.....3 Lack of market.....4 Other5	
6.15	Any impact seen in your orange garden while climate change?	Yes1 No.....2 Normal impact.....3	
6.16	If you see the problems what do you think alternative way?	Change in this occupation1 Not change in this occupation.....2 Go to foreign3 Searching job.....4 Other5	
6.17	Impact in your annual income from orange		

production?	Rs.....	
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SECTION 7: UTILITY (THIS PART ALSO ONLY CASE GROUP)

Q.N	QUESTIONS	CODING CATOGORIES				SKI P
7.1	What did you aspect before orange production?	To do self consume.....1 To do increase income.....2 To improve standard living.....3 To whole expenditure of home.....4 To improve education level of child.....5 To get TV/phone.....6 To get electricity/solar.....7 Other.....8				
7.2	Have you any problem in during orange production?	Yes1 No.....2 Yes, currently.....3				
7.3	Currently have you any problem in orange production?	Yes1 No.....2				
7.4	How did you solve the problem in the garden? Self.....1 Relatives/neighbor/friends.....2 Technician of agriculture office.....3 Other.....4			technician	expenditure	
		Harmful insect	1			
		Fruits daises	2			
		Virus	3			
		Other	4			
7.5	How many times do you irrigation in orange garden?	One time per month.....1 Three time per year.....2 Two time per year.....3 One time per year.....4 Don't.....5				
7.6	How many times you involve in cultivate land?	One time per month.....1 Three time per year.....2 Two time per year.....3 One time per year.....4 Don't.....5				
7.7	Do you use fertilizer?	Yes.....1 No.....2				
7.8	Which fertilizer do you use?	Organic fertilizer.....1 chemical fertilizer.....2				
7.9	Do you get the any helpline about the orange production by any specialist or technician during the starting period?	Yes1 No2				
7.10	What do you think about the increase your orange production?	Yes.....1 No.....2				
7.11	Do you satisfy your owned orange cultivation?	Fully satisfy1 Satisfy2				

		Not satisfy.....3	
7..1 2	Do you any economic problem after involve in orange cultivation?	Yes.....1 No.....2	
7.13	Is your daily life gone smoothly while you involve in orange cultivation?	Yes.....1 No.....2	
7.14	Do you sell your product in time?	Yes.....1 No.....2	
7.15	Is your production taking appropriate market?	Yes1 No.....2	
7.16	If no, what are the reasons?	Lack of appropriate market.....1 Stock problem.....2 expensive transportation expenditure.....3 Agent4 Other5	
7.17	In short period, An orange cultivation change in your family?	Buy new land1 Construction a new house.....2 Treatment the old house.....3 Enroll of child a standard school.....4 Savings.....5 Other.....6	
7.18	If do you savings, then how many save in one season?	Rs.....	
7.19	How many get total income in one season?	Rs.....	
7.20	How many spend from your income?	Rs.....	
7.21	What is your orange price?	Per unit Rs..... per K.G.....	
7.22	What do you think about your future?		
7.23	What do you say these people who do not involve in orange cultivation?		

SECTION 8: THIS PART ONLY CONTROL GROUPS.

Q.N.	QUESTIONS	CODING CATOGORIES	SKIP
8.1	What are your main sources of income in your family?	Food crops.....1 Cash crops.....2 Poultry.....3 Job4 Remittance.....5 Business.....6 Other7	
8.2	If it is food crops, from it daily life of your family is running easily?	Yes1 No.....2	
8.3	If you have no then how do you collect income to recover rest expenditure?	Wages.....1 Sell of livestock.....2 Remittance.....3 Other.....4	
8.4	From where did you get necessary goods like seed, fertilizer and other	Form Headquarter1 Form local market.....2	

	things?	From self village.....3 Other4	
8.5	Do you satisfy in your occupation?	Yes.....1 No.....2	
8.6	If you have lots of income what do you do?	Food crops.....1 Fruit cultivation.....2 Poultry.....3 Other4	
8.7	What do you think about orange cultivation?		
8.8	What are the causes of orange production in your field?	1 2 3 4	
8.9	Do you like orange cultivation? Why?		

CODING OF CASTE:

bramhan	chhetri	Dharti	gurung	kami	kirati	magar	thakuri	muslim	newar	pariyar	rajbansi	Sanyasi	Other	Dont know
01	02	03	04	05	06	07	08	09	10	11	12	13	15	16

The end thank you!

REFERENCES

- Aryal, L.P (2005). *Impact of orange production in Rural Economic Activities: A case Study of Khilung Deurali VDC on Syangha District*, Unpublished M.A. Thesis Submitted to the Central Department of Economics, Tribhuvan University, Kirtipur, Kathmandu.
- Basnet, K. B. (1998). *Orange Cultivation Problems and Prospects: A Case Study of Armala VDC of Kaski District*. An Unpublished M. A. Thesis Submitted to CEDECON, TU, Kirtipur, Kathmandu, Nepal.
- Bhatta, B.D.(1995). *Orange Cultivation: A Case Study of Nayagaun VDC of Gulmi District*. An Unpublished M.A Thesis Submitted to the CEDECON, T.U., Kirtipur, Kathmandu, Nepal.
- CBS (2011). *National Population and Housing Census*, Report Central Bureau of Statistics, Kathmandu, Nepal
- Chhetri, N.B. (2002). *Orange Cultivation: A Case Study of Sakyong Revenue Block of Western Sikkim*, Unpublished M.A. Thesis submitted to Central Department of Geography T.U. Kirtipur, Kathmandu, Nepal.
- DADOR, (2011/12). *Annual Agriculture Development Program and Achievement*, Report District Agriculture Development Office of Rolpa.
- FAO, (2010/12). *Combating Citrus Decline Problem in Nepal*, Annual Report of Horticulture Development of Program, Kirtipur, Kathmandu, Nepal.
- FAOSTAT, (2011). *Top Ten Orange Producing Countries*, available from: <http://www.seriousrankings.com/top-10-orangeproducingcountries/#ixzz2dwSoiiql>

- Ghosh and Singh (1995). *Citrus in South Asia*, article Oxford and IBH publishing Co. Limited, New Delhi RAPA Publication.
- GoN,(2008). *Product Chain Study Mandarin Orange*, Ministry of Agriculture and Cooperatives Department Project, Project Management Unit Biratnagar, Nepal.
- GoN, (1989). *Production of Mandarin in Western Development Region*, Working Paper No. 66, Pokhara Lumle Agriculture Centre.
- Laundari, Bishow Raj (2004). *An Economic Analysis of orange production, A Case Study of Purkot VDC*, Unpublished M.A. Thesis Submitted to the Central Department of Economics, Tribhuvan University, Kirtipur Kathmandu.
- Mony, (2012). *Production of Citrus Fruits*, report published on The Kathmandu Post Daily News Paper.
- MOF (2012/13). *Economic Survey*, FY 2012/13 Government of Nepal, Ministry of Finance, Kathmandu.
- NARC, (1999), *National Agriculture Research Centre Annual Report*.
- New Era (1989). *A study on viable processing Alternatives and Effective marketing strategies for mandarin in Dailekh*, Kathmandu New Era.
- NPC (1992/1997). *Eight Five Year Plan*, Kathmandu, National Planning Commission.
- NPC(2007/2010). *Eleventh Three Year Plan*, Kathmandu, National Planning Commission.
- NPC (1975/1980). *Fifth Five Year Plan*, Kathmandu, National Planning Commission.
- NPC (1970/1975). *Fourth Five Year Plan*, Kathmandu, National Planning Commission.
- NPC (1997/2002). *Ninth Five Year Plan*, Kathmandu, National Planning Commission.

- NPC (1985/1990). *Seventh Five Year Plan*, Kathmandu, National Planning Commission.
- NPC (2002/2007). *Tenth Five Year Plan*, Kathmandu, National Planning Commission.
- NPC (2010/2013). *Twelfth Three Year Plan*, Kathmandu, National Planning Commission.
- Oliveira, B. Aurelice, Moura, Filho, Marco, and Urban (2010). *The Impact of Organic Farming on Quality of Tomatoes Is Associated to Increased Oxidative Stress during Fruit Development*, the paper ABO MRAM.
- Paudel, Chintamani (2011). *Socio Economic Impact of Orange Production*, Unpublished M.A. thesis, submitted to the Central Department of Economics Tribhuvan University Kirtipur, Kathmandu.
- Poudel, N.N. (1997). *Orange Production and Socio-economic Changes in Syangja district: A Case Study of Karendanda VDC*. Unpublished M.A. Thesis Submitted to the Central Department of Sociology, T.U., Kirtipur, Kathmandu, Nepal.
- Shrestha, B.M. (1995). *The Role of Fruits Production in Rural Economic Development in Bunkot VDC of Gorkha District*. An Unpublished Thesis Submitted CEDECAN, T.U., Kirtipur, Kathmandu, Nepal.
- Shrestha, P.P. and Verma(1997). *Development and Out Look of Citrus Industry in Nepal*, Horticulture Development of Program, Kirtipur, Kathmandu, Nepal.
- Swenson, Dave (2010). *The Economic Impact of Fruit and Vegetable Production in South West Iowa Considering Local and Nearby Metropolitiation Market*, Department of Economics, Iowa State University. Available from: www.leopold.iastate.edu/Pubs-and-papers/2010-01-fruit
- Thapa, N.B (2005). *A Study of Orange Cultivation in the Western Hill Region: A Case Study of Shankerpokhari VDC of Parbat District*, An Unpublished M.A. Thesis Submitted to the Central Department of Geography, T.U. Kirtipur, Kathmandu.

Upadhyay, U.P. (1979), *Fruit Marketing in Nepal with Special References to Orange Marketing in Eastern Hill*, Unpublished M.A. Thesis Submitted CEDECON, T.U. Kirtipur, Kathmandu Nepal.

Web Sources:

www.mof.gov.np

www.cbs.gov.np

www.google.com

www.wikipedia.com