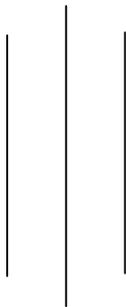


**THE EFFECTS OF GINGER CULTIVATION ON LOCAL
LIVELIHOOD OF HARNAMADI VDC OF MAKAWANPUR
DISTRICT, NEPAL**



A Thesis

**Submitted to the Central Department of Economics Faculty of
Humanities and Social Sciences in Partial Fulfillment of the
Requirements for the Degree of Master of Arts in Economics**



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LETTER OF RECOMMENDATION

This thesis entitled THE EFFECTS OF GINGER CULTIVATION ON LOCAL LIVELIHOOD OF HARNAMADI VDC OF MAKAWANPUR DISTRICT, NEPAL has been prepared by Mr. Rabindra Basnet under my guidance and supervision. I hereby recommend this thesis for examination by the Thesis Committee as a partial fulfillment of the requirements for the Degree of MASTER OF ARTS in ECONOMICS.

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APPROVAL SHEET

We certify that this thesis entitled THE EFFECTS OF GINGER CULTIVATION ON LOCAL LIVELIHOOD OF HARNAMADI VDC OF MAKAWANPUR DISTRICT, NEPAL submitted by Mr. Rabindra Basnet to the Central Department of Economics, Faculty of Humanities and Social Sciences, Tribhuvan University, in partial fulfillment of the requirements for the Degree of MASTER OF ARTS in ECONOMICS has been found satisfactory in scope and quality. Therefore, we accept this thesis as a part of the said degree.

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ABBREVIATIONS & ACRONYMS

ADB	:	Agricultural Development Bank
ANOVA	:	Analysis of Variance
BOP	:	Balance of Payment
CBS	:	Central Bureau of Statistics
FY	:	Fiscal Year
GDP	:	Gross Domestic Product
NGO	:	Non-Governments Organization
INGO	:	International Non-Government Organization
GO	:	Government
MT	:	Metric Tones
NPC	:	National Planning Commission
T.U.	:	Tribhuvan University
UN	:	United Nations
UNDP	:	United Nations Development Programme
WB	:	World Bank
IMF	:	International Monetary Fund
UNICFF	:	United Nation Children's Fund
VDC	:	Village Development Committee
WDR	:	Word Development Report
DDC	:	District Development Committee
NH	:	Number of Households
Ha	:	Hectare
ADB	:	Asian Development Bank

Chapter -One

INTRODUCTION

1.1 Background of the Study

Ginger plant which is botanically known as *zingiber officinal ROCS*, is an important cash crop cultivated in *Harnamadi VDC* as well as in various parts of Nepal. It is a kind of subtropical crop usually grown under the soil as an erect personal herb with thick Rhizomes belonging to the ungiaceae family. Generally it has 3 foot height with a greenish yellow color, surrounded by base of the leaves. The product of ginger is “Rhizome” of plant itself, which lies inside the soil along the roots. It is mainly used as spice for domestic cooking purpose, flavoring materials in the food industry, for flavoring biscuits and bakery products. It is used by manufactures of confectionery soap, shampoo and other precooked, canned food, soft drinks, pickles’ chutney, meat processors, fish sweet, vegetable alcoholic and allopathic medicines and syrups has also got importance from different point of view.

The word ginger is derived from “Rhizome” and it is said to have originated from south/east Asia. Moreover, it is believed that it was cultivated in china as early as 4th century B.C. later on the Spaniards introduced ginger in Jamaica and other island of the West Indies, ginger became a cash crop of Asia. Once it was imported to Europe in the 15th century. It is found that in the 15th century, Arab introduced the ginger in East Africa and Portugal in 16th century. But whatever the history of ginger cultivation in previous days, now a days ginger is introduced by different countries in the world i.e. Nepal, India, China, Japan, Jamaica, Nigeria, Thailand, Taiwan. In Nepal ginger is cultivated in the various hilly districts like, Ilam, Jhapa, Makawanpur, Salyan etc. (Sharma, 2004).

Since, Nepal has largely an agro-based economy majority of the people still rely on agriculture, which has remained the major source of employment and income. Agriculture contributes the large share of the GDP. Obviously, the country can not steer the trajectory of sustainable development in the absence of agriculture development. In the logic of this undeniable fact, the agriculture is accorded the topmost priority in previous development plans. Agriculture business promotion policy 2063 (2006) has been executed aiming fostering the national and global markets there by developing the strong foundation to make the agricultural practices some commercial and competitive (survey, 2008/09)

In Nepal land is divided into three part (Himal, Pahad and Terai). Total area of Nepal is 1,47,181 square kilometers. There is 3091 square kilometers (21%) agriculture land cultivated and 1032(7%) square kilometer agriculture land uncultivated. Agriculture contributes in GDP 34.6% (2064/65).

Large population of the Nepalese majority population depend upon agriculture. There are two types of agriculture, one cash and cereal croup, Cash crops are crops which are produced for sell and not for consumption by the farmers and their families.” (Moore; 1967:33) Among various cash croups, the ginger is one of the main croup of Nepal now a days. The ginger is root-stalk and spice having a thickness of main’s ginger and it has been mostly used as spice and medicine for thousand year. It gives special flavor and sharp test. It can be mixed in various foods the dried ginger tastes for a long time.

In Nepal, ginger is cultivated in more then 60 districts. However, the main export oriented, professional ginger producing districts are Salyan, Ilam, Nawalparasi, Dhankuta Makawanpur, etc. According to the report published by agriculture information section, there is 14007 (6.36%) hector of land cultivating ginger and its total production 1,61,171 metric tons (2064/65) out of total production in the country and 60% is exported in the fresh and dried form. The ginger cultivation requires 20.3^oc of temperature and 1500 to 3000 mm rain in an average. Ginger includes different crop rotation and it is also grown as a mixed crop or inter crop with maize and vegetable. A piece of 25 in young “Rhizome” is used as a seed and is planted in Falgun-Baishak (February-April) and harvested in Manishir-Magh (November-January). It is generally cultivated on Upland (Bari). It absorbs to much nutrients from soil. So, to prevent it from disease and to increase its production it is better to cultivate on the same land after two or three years gap and by changing the place from time to time. It is noted that mulching is also necessary to present from heavy drought rain and to minimize weeds.

Ginger is an important cash crop which is cultivated in most of the hilly region of Nepal. Makawanpur district also belongs to the same region where ginger farming has been lunched since past few years as a cash crop. The area under the ginger cultivation is increasing slowly and gradually due to the attractive income obtained from it.

1.2 Statement of the Problem

At present, hilly farmers are attracted to cultivate the ginger. Many people in hilly region are cultivating ginger. There are so many problems concerned with ginger production such as lack of transportation, lack of market lack of warehouse, lack of seed and fertilizer, lack of loan etc. However, farmers' economic condition has changed by

ginger cultivation. Ginger has been one of the major cash crops in Nepal, which plays important role in national economy. It is important not only to export but to have foreign exchange and its nutritional value as well. Either for the trading purpose or for its nutritional value, ginger has been proved important crop. So, in order to achieve the following objective the proposed statement of the problem is effect of ginger cultivation on local livelihood in Harnamadi VDC, Makawanpur district.

This study aims at finding the answers to following questions:

1. Are the ginger producers satisfied from the present market price?
2. Is the economic impact of ginger cultivation satisfactory on local farmers?
3. What are the difficulties and problems facing ginger farming in the area?
4. What are the measures to solve the problems of ginger cultivation?
5. Can ginger cultivation change the life of people?
6. What the government can do in the area of promoting ginger cultivation in Nepal?

1.3 Objectives of the Study

The general objective of the study is to ensure the economic effect on the local level livelihood of ginger cultivation in Makawanpur district.

- i. To assess the present situation of ginger cultivation by local farmers.
- ii. To identify the economic effects of ginger cultivation on livelihood.
- iii. To identify the problem regarding ginger cultivation and suggested appropriate measure to overcome them.

1.4 Significant of the Study

Most of the Nepalese people produced cereal crops rather than cash crop though, the potentiality of ginger cultivation as well as the share of ginger in national economy is high. But, due to the lack of proper use of agricultural resources, a person's sustainability is difficult. Ginger cultivation has contributed the local farmers to improve their economic life style.

The research can be helpful for the improvement and betterment of the present condition of local farmers who are facing a lot of problem like, transportation, market, warehouse, technology, seed, JTA services etc.

This study can encourage the farmers to change their traditional cropping pattern. It will be useful to draw the attention of farmers and concerned authorities towards the crops cultivation and to improve the present situation.

Finally, this type of research can be helpful of the future scholars, researcher, students in related field and it will be fruitful for the government, NGO and INGO, and for other who are interested to help the ginger cultivation in the area.

1.5 Limitations of the Study

The limitations of the study are as follows:

-) The study covers Harnamadi VDC, Makawanpur district. So, its findings may not be applicable to the other parts of nation.
-) The primary data which were collected from structured interview, have been considered 100 percent accurate.

1.6 Organizations of the Study

This is divided into six chapters. In the introductory part, background, statement of the problem, objectives of the study, significant of the study, limitation of the study, organization of the study. Second chapter deals with literature review. In the chapter three it explains about the research methodology, in side the methodology, research design. Source of data, (Primary and secondary) tools of primary data collection, questionnaire, interview, field research), data analysis. Chapter four deals introduction to the study area (about Makawanpur district and Harnamadi VDC) socio-economic status, demographic situation. Chapter five explain the economic effect of ginger cultivation on local farmers has been explained. In the last chapter covers the summary, conclusion and recommendations.

Chapter-Two

LITERATURE REVIEW

2.1 Introduction

Now a days ginger is being popular as a new cash crop in export market. There exists a good deal of literature on ginger cultivation because both Nepalese and foreign people have made series of studies on ginger but not much study undertaken in Nepal.

For preparing this thesis, some books, dissertations, magazines, research articles, journals, websites and various types of published and unpublished report which related to ginger cultivation were consulted. Some of the most relevant literature reviewed are presented below.

2.2 International Review

Anjali M. Bhatia (Bhatia: 1999) has conducted **A study of the potentials of ginger and pineapples in west Garo Hills, Meghalaya, India:** Hill economics in India are based on local resources and dictated by local needs. A majority of the population is dependent on agriculture, and it provides significant proportion of household income. Generally low soil productivity and the subsistence characteristics of agricultural activities restrict the availability of marketable surplus. The processing of agricultural and horticultural products is relevant for these economies because of the many benefits that can accrue from it. Firstly, processing would increase the life of otherwise perishable crops that have to be transported over long distance by low and uncertain road network, secondly with the growing demand for processed fruits and spices from countries that do not produce them, there could be an export potential for them. Thirdly, the advantage lies in the employment creation potential of the processing activity and the diversification of employment opportunities from the growing crops to more entrepreneurial and marketing options. Finally, value addition of commercial crops in the area of production would reduce the involvement of the intermediaries in the marketing of processed foods. All these factors together could result in valuable improvements in the quality of life of hill/mountain population.

The main objective of the study was to examine the feasibility of developing micro enterprises based on existing farm produce especially ginger and pineapples in the west Garo Hills of Meghalaya.

The research design of the study was based on a combination of primary and secondary data collection. Given a duration of only four months an extensive rapid survey

of farmers and markets was undertaken. The selection of markets and villagers for the primary survey and resource assessment were based on secondary data about the main areas producing ginger and pineapples. At the research time, researcher collected the secondary data, published and unpublished records. And primary data was collected by using the PRA (participatory rural appraisal) method. And primary data collection was carried out through structured questionnaire that were administered at the village level and group meeting of villagers.

The distribution of fresh ginger from the district to the final consumer is brightened to buy a chain of middlemen at different stages avoiding the producer's share in the consumer's rupee. With the provision of regulated markets, the surplus middlemen would be eliminated.

Among the options evaluated the most feasible is that of drying ginger using gasifier based years. At the household level, ginger could be dried in the . The latter option doesn't involve any additional cost for drying would be between 10-12 days in bright sunshine. The accompanying prerequisites.. are arrangements for aggregation of small quantities of dry ginger in to marketable quantities.

Sundraj and Tulasidas, (1976), in their book entitled, **Botany of field Crops**, have studied the various aspects of ginger such as botanical description, varieties, ecological aspects, Rhizome's, preparation of dry ginger and its related species. About botanical description they said, it is a herbaceous perennial having the underground "Rhizome"s; aerial shoot leafy, attaining 0.5 to 0.75 meter, leaves sheathing, arranged alternatively, linear Lancelot, about 15 centimeter long carrying single flower which is yellow in color with dark purplish spot. Regarding varieties they made no attempts to classify the varieties evolve new type by selection, hybridization or other method. The local varieties differ in their fiber content, succulence and pungency, in the color of the flesh also there appear to be two distinct types namely, one with yellow flesh and another with yellow and bluish tinge. They further stated best soil for ginger is light, free sandy loam stiff clays, it is always grown from bits of Rhizome, each containing an eye or a bud, and 2.5 to centimeter long. Planting is done at the beginning of the monsoon at spacing of 20 centimeter apart. Regular weeding, as well as frequent mulching with green leaves is necessary every month. It is also raised as an irrigated crop in regions with lower rainfall. Flowering is sparse in ginger.

About Rhizomes they stated that "Rhizome" in ginger is very much branched resembling in shape and irregular hand with fingers. These have circular scars all among their length with small scales adhering to them. The roots arise from among the nodes of

To improve the production and productivity of ginger they have suggested the following steps:

Centric improvement of Rhizomes; introduction of new germplasm or exploitation of existing cultivators; to reduce the cost per unit area; the scarce resource used in the production process may be relocated according to their requirement economic efficiency; effective control for serious disease of ginger consider being important and timely supply of Rhizomes to the growers according to their needs.

Pruthi (1993), in his book entitled **Ginger Cultivation in India**, has carried out a study on 'Indian council of agricultural and research center'. Basically, he has tried to find out the description and distribution of ginger, ginger of commerce or 'Adrak' is the dried underground stem or "Rhizome" of zingiberous herbaceous plant *Zingiber officinale*, which constitutes one of the 5 most important major spices of India, standing third or fourth, competitive with chilies, depending upon fluctuations in world market process and world demand and supply position. Ginger, like Cinnamon, Clove, and pepper is one of the oldest spices of the world. Ginger is cultivated in several parts of the world. India, Jamaica, China, Japan, Taiwan, Australia etc. of these, Jamaica and India produce the best quality ginger, followed by west African Variety. He further stated about the ginger production in India, obviously ginger is grown throughout India. Kerala contributed nearly 40-50 percent of the total production. Ginger requires a warm and humid climate. The plant thrives as well from the sea level to an altitude of 1500 meter in the Himalayas as the optimum elevation being between 300 and 900 meter. A well-distributed rainfalls (150-300) during growing season and dry spells during land preparation as well as before harvesting required for large scale cultivation of the crop. Cold climate during its resting period does not affect the crop. The crop prefers light shade for good growth but shade is not absolutely necessary.

Collier's Encyclopedia **Collier's Encyclopedia** stated about origin and cultivation of ginger in the world. It stated that ginger (*Zingiber Officinale*), a perennial herb of the ginger family, considered to be a native of tropical Asia, from which has been introduced into cultivation throughout the world. The tuberous rootstock has been used as a spice and in medicine from very early times. It was considered as important item of commerce between Europe and East during the middle ages. The plant of ginger grows about 3 feet tall with, grass like leaves and yellowish purple flowers dense spikes 3 inch long on separate stems. It seldom blossoms and fruit is rarely seen. The dried root is used as an aromatic stimulant. The green root supplies condimental ginger. Carefully selected succulent young "Rhizome"s and used for the candied ginger. The two from of

ginger in commerce and the coated unpeeled rot stocks. The name ginger is derived from zingiber, where it was imported to Europe in the fifteen century.

Ganga Prasad Sharma (2004) has conducted **Ginger Production and Marketing in Sikkim: A Case study in Civil Constituency of South District**, Ginger Plant which botanically known as zingiber officinate ROSC is an important cash crop cultivated in Sikkim as were as in various part of India. It is a kind of sub tropical crop usually grown under the soil as an event personal herb with thick scaly Rhizomes belonging to the zingibrarege family and generally it has 3 feet height with a greenish yellow colour, surrounded by base of the leaves. The product of ginger is Rhizome of plant itself, which lies inside the soil along the roots. It is mainly used as spice for domestic cooking purpose, flavrouing matexiars in the food industry, for flavouring biscuits and bakery products. Its used by manufacturers of confectioneries, soap and other pre cooked, canned, foods, soft drink pickles, ch..., meat processor's, fish sweets vegetable, alcohol and non alcoholic beverages. It is also used while making Ayurvedic and Aileopathic medicine and Syrups. They also have importance from export point of view.

This study attempts to analyze production and marketing conditions of multi constituency of south Sikkim. The major objectives of the study are as follow:

-) To show the trend of ginger production and marketing condition. To analyze the problem of ginger production marketing in study area. To recommend effective measure to give the production.
-) The researcher adapted the research methodology which has been used for that study. It is based on field survey. To fulfill the objective of the study some secondary data are also used. He used primary data, interview, questionnaire, group discussion. Similarly, he used secondary data which w.... heed like office record, journal, article etc.

This study was conducted only in a multi constituency of south Sikkim but it tries to discuss method of production, channel of collection marketing of ginger in the sphere of Sikkim and try to make comparison of study are with state. The major findings of the study are as follows:

-) The area of ginger in the multi-constituency is in increasing trend whereas the production of ginger show that it is decreasing
-) 30.75 percent of the total agricultural land in the study area if under ginger cultivation.
-) The seed rate used in the study area is about 7 quintal pre acne of land.

) The living standard of people in the study area is observed increasing from the ginger production. Out of the total production of ginger in the study area 55 percent were sold to market remaining 3 percent is consumed and 45 percent kept for seed. The cost of marketing varies from one market place to another market place, which is due to variation in distance involves. The major problems existing in the ginger production and marketing are decreases and pests, poverty of farmers, absence of double cropping, lack credit facilities, unavailability of virgin land lack of extension services price fluctuation, presence of middlemen, storage facilities high cost of transportation etc.

While standing about the different aspect of ginger cultivation along with it's marketing in the melli-sonstituency. It has been noticed the there were majority of ginger producing suffering from many problems in connection with different physical and socio-economic aspect in the ginger production. Hence in order to solve these problem as well as to promote the yield of it's area and production in the study area following recommended have been made in the research work.

Virgin land is ideal for the successful of production of ginger; hence farmer should practice cultivation in virgin land as far as possible. Once ginger is cultivation in particular land, it is better to leave as follow for at least three to give years until the next cultivation in order to safeguard from diseases as well as to obtain a high yield of it's production.

If the land is not sufficient then it is better to adopt land from others for the crop rotation. Agricultural land should be provided a reasonable interest to the ginger producer. These will motivate them to utilize it the production of ginger in the Melli-constituency. Since disease being one of the major problem in the study area, government should provide extra service is order to provide the technical assistance to the local ginger producer. An attempt should be made to change the attitude of farmers to w.... the adoption of scientific methods in the ginger production. Training should be provided to the local farmers about the modern methods of ginger production. Government should interfere in the price fixing mechanism and have to fix the minimum support price grater then the cost of production and have to be renewed annually in upward direction. Solar dyer for drying ginger in the major producing areas must be necessary and government of concern6

department or by the community groups could be manage it.

Hence, taking one or two measure in isolation might not produce the designed results so all the measures are equal important for the improvement of ginger production and marketing in the Melli constituency.

2.3 National Review

Tej Bahadur K.C. (K.C, 2000) **A case study of ginger production in Rapti zone**, has conducted cash crop farming in Nepal. Nepalese economy is agro based economy. More then, 80% Nepalese people depend on agriculture so people will remain poor keeping view this situation like many other developing countries of the world. Nepal should not dealy in giving importance to the agro industrial enterprises in the rural area. Gains from such activities will help the rural household to meet their daily necessities and to improve their living standard.

He used these objectives, to show the general sketch of major cash crops produced in Rapti zone and Nepal.

-) To identify the key factors responsible for the production of ginger and dry ginger in Rapti zone.
-) To examine an enhancement on the income generation of rural households production of ginger in Rapti zone.
-) To analyze the major problems faced by the growth of ginger and dry ginger production and recommend viable solutions to overcome them.

According to the nature of the research work at hand two types of data were collected i.e primary for the case study of ginger production. And secondary for the cash crop farming in Nepal. On other to obtain the fact and figures, he used to multivariate regression analysis was used to identify the effect relative independent variable. The questionnaire was used (applied).

The researcher has concluded his research as following way:

Importance of Agriculture in Nepal

The researcher has concluded his research as following point.

(a) Importance of Agriculture in Nepal

Agriculture for those countries termed as underdeveloped and developing has been regard as the main of their economy. It is not merely an occupation but a way of life, which for centuries has shaped the thought and outlook of many millions of people. This is applicable to Nepal where 81 percent of the people aged 10 years and above are seen engaged in agriculture which constituted 58 percent of the GDP in 1991. The share of agriculture in 1987 and 1971 was 60 and 69 percent respectively. In the case of total export,

it plays an important role. In 1992/93 agricultural production accounted for more than 50 percent (of the value) of total export. No doubt, this sector can contribute substantially to productive employment export see and supply of raw-materials for agro-based i... as well.

(b) The Cash Crops in Nepal

Among the different sectors and sub sectors of agricultures in Nepal cultivation of cash crops is regarded very suitable in different district and zones because of their multiple use and importance in the economy. Farmers are adopting them from commercial point of view. As a result striking changes in the percentage distribution of total cropped area by temporary crops are visualized. Between 1962 to 1992 the area of cash crops increased by 42% but the position of cereals during the period is only 9 percent. The farmers of Rapti zone are also increasing the area and production for cash crops.

(c) Ginger: The Most Profitable Cash crop in Rapti Zone:

Due to both the highest average area occupied by and highest amount of production in cash crops sector, oilseed, potato and ginger are seen as major cash crops in Rapti zone.

(d) Area and Production of Ginger in Rapti Zone

Ginger is an important and exportable highly valued spice grown in different countries of the world (major countries: India, Africa, Jamaica, Indonesia, Australia, China and Japan). It is also successfully cultivated in Nepal from 100m in Terai to 1500m in mid hills. Especially, the farmers of mid-western, western and eastern development region of country are cultivating it. Salyan, Palpa, Thanahun, Syangja, Kaski, Bhojpur and Ilam are leading district for ginger production in Nepal. The current available figure of area and production of ginger in Nepal show that it is 6,082 hectares and 64,703 mt. respectively. Sixty percent of total ginger production is exported to India in the raw and dry form. The remaining 40 percent is used locally for seed and confectionary purposes.

(e) Marketable supplies of ginger in Rapti zones:

So far as the marketable surplus of ginger in Rapti is concerned, it is about 60 percent of total estimated production . The remaining 40 percent is consumed and kept for seed purpose in Rapti zone. But the marketable surplus of ginger in the study area of Rapti zone is found to be 80 percent of total production and remaining 20 percent was found to be for seed.

(f) Overseas Market of Ginger Produced in Rapti Zone:

No doubt, ginger plays a significance role in earning foreign currencies. Before, 1971/72, it was found to be exported only to the Indian markets. When Nepal re... an

access to overseas market for dry ginger, it became successful to obtain foreign currencies. It is an area of research that the export of raw and dry ginger is only limited to Indian markets.

(g) Ginger among the summer crops turmeric, maize and millet in Rapti zone

Furthermore, it can be said from the profitability point of view, ginger production is seen as the top activity in Rapti zone compared to major cash crops: oilseed, potato, sugarcane and potato and its summer, temporary and upland cultivated competing crops, maize millet and turmeric. The highest rate of net average income from ginger in Rapti zone can be easily uplifted when there will be two new systems introduced in ginger farming. In cropping, being applied in Bhaktapur, Jhapa, Palpa and Syangja and retrieval of mother “Rhizome” system, a new system still not practised in other district of Nepal. The farmers will be much benefited and will have a change of raising their living conditions if new systems are applied in ginger farming.

(h) The role of Ginger Production in the Economy of Rapti Zone

on the basis of the above facts it can be said that ginger is becoming a major cash crops in Nepal especially for the hill farmers of mid western, western and eastern development region of the country and sources of attraction for the parts of other development regions also. Besides its role on the economy of Rapti zone is seen most significant: for the increment of rural income, foreign exchange earning, employment generation, enhancement of saving for investment promotion of agro-based industries, fulfillments of daily necessities of rural household, consequently for poverty elevation and upliftment of living condition of rural household.

(i) Poverty Alleviation Through Ginger Production in Rapti Zone

Besides, the ginger farming of Rapti zone is not free from problems. The recommendation given in this are as followed, carefully and promptly by the concerned authorities the extensive production of ginger in Rapti zone will help to increase income and improve living conditions of rural household and consequently poverty of Rapti zone.

(j) Rapti be Developed the zone of ginger production in Nepal

Last but not the least, it can be said that Rapti zone should be declared as the zone of ginger production in Nepal

The Researcher has Recommendation as follows.

1. Institutional

(a) Nepal for Research Institution:

- J In the context of Rapti zone, a zone of MGRP should be established as soon as possible in an appropriate place with adequate scientific equipment required. Also one district office should be established in a place considered appropriate by the concerned farmers, as a representative of zonal office for instruction to the concerned farmers in each district of Rapti zone. Furthermore, the research work of zonal office should be focused on.
- J Optimum growing condition for ginger (soil, water requirement, temperature, humidity, altitude slope etc.) Improve cultivation practice, Date of planting and harvesting. The relation between .., varieties of seed yielding and fiber development, improved varieties of seed, manure mulching materials and weeding, diseases and pests. inter cropping system and retrieval of mother rhizoma system. Low cost techniques for higher yield as per agro climate conditions, storage for seed and dry ginger, processing, possibility, of alternative ginger products, possibilities of ginger based industries to be established in the districts of Rapti zone etc.
- J Similarly, the researcher focus on: identifying the problems encountered by the farmers in the production of raw and dry-ginger and their solutions. The publication of its works monthly and annually.

B. Multi-Sectoral

In Nepal, ginger farming needs a multi sectoral office for its sound development. The structure of multi sectoral office in Rapti zone should be designed. One central office in Salyan district as the central office of Nepal ginger research programme is already there for making policies, giving direction and running administration. It should support other ginger growing areas of Nepal. Similarly, one zone office at Tulsipur, Dang as a bridge between district offices and central office administration strongly on district office is to be established in five district working as watch dog for the multi-sectoral services given to the farmer by district office. Five district office to be established in Rolpa, Salyan, Pyuthan and Dang should be focus on: credit facilities, supply of improved varieties of seed, technical advice and support, supply of plant protection materials, Regular visit to the farmer scattered in the district, training to the farmers on production, processing, packing selection grading classification and other activities required. Wide publicity of alternative ginger products and their demonstration at district, zonal and national levels. Tour for ginger farmers district to district within and outside of

the zone for ginger production and marketing system price information, buying the ginger produced in the concerned district, opening up a section to record the where function done.

C. Need for an Association of Ginger Farming (AGF):

The function of AGF should be as to identify the problems arising in the cultivation of ginger farming at the local level and suggest solutions to overcome them

- (ii) to send representative to the district level association to apprise it the real situations of ginger farming at local level.
- (iii) To mention the record of ginger farming obtained from the representative of AGF local areas,
- (iv) To hold open discussion among representatives from local areas on the problems of ginger farming of the district and find out solution.
- (v) To coordinate among the offices, organizations and institutions related to ginger farming.
- (vi) To coordinate among the associations scattered at the district of Rapti zone.
- (vii) To convey the real problems of ginger farming of Rapti zone to the government and to propose right solutions also for initiation appropriate action.
- (viii) To play an important role in ginger farming.

D. Necessity of Ginger Industries

Ginger production is increasing every year in Rapti zone. Farmers are cultivating it traditionally as mono-crop only for the purpose of meeting daily necessities like soap, salt kerosene, cloth, spices etc and using traditional flow system for marketing. They are not found much careful about price rates fixed at different level of markets with cost/benefits analysis in the production. As a result the marketing surplus of raw and dry ginger of Rapti zone is following to words Indian market with out giving appropriate returns to the farmers. This is one of the major problems of ginger farming in Rapti zone.

-) Therefore, it is essential to set up different types of cottage and small scale ginger based industries in the district of this zone and large-scale industries in Nepal. Pharmaceutical, food processing, ginger oilsrerin, ginger oil, ginger essence processing industries etc.

2. Physical Infrastructure

(a) Need for Inter-district Road Network

Rapti zone, as other zone of country, is a developing zone and it is not so rich in road networking because it has only fair weather district road in Salyan, Rolpa, Pyuthan and blacktopped district road in Dang district. Due to its different types of physical structure, high mountains, middle mountain, inner Terai and the Terai there are possibilities of establishing the industries; possibilities of cultivation of important cereal and cash crops. As a result for the development of all these sectors and sub sectors enough road networking in the district if Rapti zone is essential.

Most of farmers main income source is ginger. But the growing of ginger is scattered in the districts of Rapti zone and needs adequate permanent road facilities for export of row and dry ginger for marketing.

3. Production system/techniques

(a) Inter cropping and retrieval of mother “Rhizome” System

In this context intercropping and retrieval of mother “Rhizome” may be much more helpful in reducing the total cost in ginger production. Bhaktapur district is found to have the highest earning Rs. 2000/ from inter-crop (chilli) and Syangja is the lowest with Rs. 9600/ha from maize inter crop. Salyan district is found in loss due to its monocrop system. So a wise ginger farmer can sell row and dry ginger by reducing inter cropped income from total cost of production in the case of competition. Furthermore, the cost of the production can be minimized in the cash retrieval of mother “Rhizome” system also after four months of planting the seed “Rhizome” can be retrieved by breaking it from newly born “Rhizome” without any physical loss and can be sold in off season also. The income creeived from such a method can be deducted from the total cost of production, raw and dry ginger can be supplied easily in the market. The farmers of Rapti zone are still unknown about the inter cropping and retrieval of mother rihizome system. so it is seen essential to apply these two system in ginger farming of Rapti zone to benefit the farmers through increase in their income.

Ministry of Agriculture **Women Farmer Development Division**, Singh Darbar, Kathmandu (WFDD; 1992/93) has conducted a study entitled **Women in Ginger Production in Salyan District**, women play an important role in the agriculture production process in Nepal. In Nepal out of total population 50.05 percent population are women and 98 percent of women in Nepal are engaged in agriculture. In much of the communities throughout of the women. On an average women work 10.8 hrs per day

compared to 7.5 hrs for men. In fact women work twice as long as a man and the backbone of Nepalese agricultural economy women are involved in all the aspects of crop production, except heavy intermittent work like ploughing Land preparation and more technical works as fertilizer, application, insecticide application and marketing.

Women are mostly involved in FY M application, planting, sowing weeding, harvesting and in post harvest operation, livestock and poultry rearing. In addition to these agriculture activities, women are responsible for the collection of fuel and fodder, fetching drinking water, cooking food washing utensils house and cloth, feeding and care children. So women are discriminated, underestimated and ignored despite the role is contributory and productive in agricultural development.

Since the studied is closely related to women who are engaged in agriculture, specially in ginger production following aspects of women in ginger is addressed in the study.

-) To find out women contribution in ginger production
-) To find out training need for women farmer in respect to their contribution in ginger production
-) To analyze the effect of ginger production on the improvement of economic standard of rural women.

For the study, researchers selected Salyan district. Because this district is famous for quality and high production of ginger. Ginger crop is grown throughout the district, but researcher selected three VDC famous for good quality and high production of ginger i.e. Marke, Dandagaun and Korbang VDC. A simple questionnaire having the information about women participation indifferent cultivation practices of ginger production were asked to ginger grower. The farmer were selected randomly.

The objective of this study is closely related with the women contribution in ginger production and analysis of the effect of ginger production on the improvement of economic standard of rural women. The scope of this study was not only used as daily consumption but also for selling purpose by women could maintain their daily ginger produced in Salyan exported to different Asian and European countries because the ginger which produced in this area is good in quality.

From survey report, out of the total land owned by the farmers only 5 percent land used for production of ginger in a household. Regarding women participation in ginger production except in marketing of ginger in all most all operations women play companion role in the crop.

Major Findings were as follows:

1. Family Distribution

(a) Family size

The family consists of person living under the same roof of the house, who share income, expenditure and have a common kitchen. The study covers 23 household and 148 person in Salyan district. The average family size of the sampled area is 6 person in a household.

Age Distribution and Dependency Ratio

The sample was taken only from those households who are engaged in agriculture. The population of sampled household is broadly divided into 4 main age groups up to 15 years, (16-30), 31-60 and above 60 years. Basically person in the age group 16-60 years are considered to be economically active population.

The age group 15 and above 60 are dependent population. In the study the economically active population are 63 percent and dependent population 37 percent female population accounts 40 percent and male 60 percent.

2. Operational Landholding

The average size of the landholding is 23 percent ropani per household among the sampled households comprising of 43 percent ropani lowland (khet) and 57 percent ropani upland (Bari)

3. Crop Rotation and Mixed Cropping

In Salyan district ginger is cultivated mostly as sole crop. Some farmer are taking wheat, potato, maize and beans as rotational crop. Some farmer are taking maize, beans and mixed cropping with ginger so that maximum utilization and benefit could get from the same piece of land.

4. Women participation in ginger production

Ginger production operation carries from land preparation to marketing and seed preservation of ginger. The ginger production carries following operations:

(a) Land preparation

Out of the total manpower requirement in production 9 percent of the manpower is required for land preparations out of which 20 percent from men participation and 80 percent from women participation.

(b) Planting of ginger

The main power involvement in this operations is 8 percent which 48 percent from the men participation and 52 percent from women participation.

(c) Weeding

The manpower involved in this operation is 10 percent on which 44 percent participation is by men and 56 participation by women.

(d) Watching and care

Frequent watch and care is needed by this crop for this duty 5 percent manpower is involved on which 51 percent participation by men and 49 percent participation by women.

(e) Harvesting

harvesting of ginger is done by ploughing with spade 9 percent of manpower is involved for this process on which 47 percent man participation and 53 percent women participation.

(f) Transportation

Usually doko is used for the transportation of ginger. IN this operation 5 percent of man power is moved where 40 percent participation from men 60 percent participation from women.

(g) Cleaning

In this operation 6 percent of the manpower is involved where 41 percent participation from men and 59 percent participation from women.

(h) Preparation of

The manpower requirement in sutho preparation is 36 percent were 46 percent men participation and 54 percent women participation.

(i) Marketing

Marketing of ginger is essential need for the farmers because ginger is main cash crops for this area. Since the market place is far from the production area and the tract condition is very poor which make difficulty while walking. Thus women have to fully relay on men in case of marketing of ginger. There was no other means of transport other than to carry on back in doko. For the marketing of ginger 3 percent of manpower is involved in this process. The whole participation is by men.

(j) Seed Preservation

For this process 5 percent manpower is involved where 58 percent participation came from men and 42 percent participation from women.

6. Consumption, storage and marketing of ginger

Ginger production per household is 516 kg. out of this total household production 6kg is kept for home consumption. Ginger is used as indifferent food items prepared at home on an average 98 kg is preserved for seed purpose of next year plantation. Remaining 420 kg of ginger is processed in to *Sutho* to earn cash for the family. *Sutho* fetches good price at market then the fresh ginger. The price of fresh ginger immediately after harvesting is Rs 5-6 and for sutho the price is Rs 25-30 per kg per ropani ginger production is 430 kg. 5 kg for home consumption and 75 kg for seed and 350 kg for cash income.

7. Problems of Ginger production

) One of the questions household, 49 percent of the household said that they need technical assistant to know how new technology evolved for ginger cultivation because farmers are facing a severe disease problem like corrople rotating of “Rhizome” where whole under ground part is affected and very don't know to solve this problem. So technical assistance is very essential for the commercial production of ginger.

) 24 percent of household said the problem of marketing. The market is very far from the production area and also the market facility is very poor. Price of ginger is fluctuating where ever the production is ready price lowers down and when product is not available price up which discourage the farmers to cultivate ginger.

) 18 percent of household showed the problem of transportation. The only means of transport is doko by carrying on the back. The tract is very poor and narrow 3 percent of the farmer said that ginger plantation need some covering like bushes and branches etc. 3 percent of household said the need of frequent training about ginger cultivation such as how to use chemical fertilizer and plant protection measure.

6 percent of the household said about how availability of ginger seed in market. Farmers must reserve seed for the next year plantation. Seed preservation requires space and some times rotting of seed occurs in the pit.

8. Training on Ginger Production

Although, most of households in this district cultivate ginger very few percent have received training on ginger production. Out of the questioned only 13 percent have received training on ginger production despite their vital role in production.

9. Intuition Involved in Ginger Production

Ginger research programme was established as ginger development program in 1977/78.

-) Previously this program was attached with horticulture research situation, Pokhara. From 1992/93 this program has been separated from horticulture research situation and established as ginger research program. The headquarter is at Kapurkot, Salyan beside the Tulsipur Salyan highway.

That Research Recommended the following

-) Research findings about ginger production should be immediately transferred to the farmers field by good extension let work by training, field visit demonstration and farmer tour and research should be based on actual feedback of the farmer.
-) Ginger processing (sutho preparation) is very slow time and labour consuming. So there should be an arrangement to install time and labour saving modern processing plants at appropriate sites. The price of ginger should be fixed as in other cash crops like tobacco etc. So that farmers do not got harshness after harvesting ginger and also the middle man could not exploit the farmers. Related institutions need support to the farmers sot there should have easy accessibility of credit, chemical fertilization and insecticides.
-) Ginger growers in this district are far a way from credit and input facilities because credit and input supply institutions are not dealing with ginger farmers. The market place of ginger is far from the production area and it is difficult to transport heavy load of ginger to the market since women have to look after their daily domestic duties. Women have to completely ready on men for the sale of their production. If there would be easy transport system of .. there is mo... of women.
-) There are Nepalese and Indian businessman at Tulsipur. The price of ginger product in the district is controlled by them. The farmers have to sell their product in low price so if price is fixed the problem could same how solved.
-) There must be training about transportation and marketing of ginger. Research should not only concentrated on filed level but also from field to market level.

The training designed for women farmer should be little different. We know that the role of women is limited upto home and field and are surrounded by their children and daily domestic duties. So it will be better to organize mobile training for women far ment so that they have enough time to learn without any disturbances. So by enhancing the women farmers the production of ginger could increase and this will support the economic standard of women, family district and after all over country Nepal.

Phanindra Bahadur Khadka (2004) has conducted **The effect of Ginger cultivation on local livelihood: A case study of Arun Thakur VDC Sindhuli district** in Nepal. The ginger is cultivated in more than 60 district (Annual Report of Spices: 1997/98). However the main export oriented professional ginger producing district are Salyan, Palpa, Ilam, Nawalparasi, Dhankuta, Dang etc. According to the report published by agriculture information section there is 8800metric tont. One of total production 40 percent fresh and ginger is consumed within the country and 60 percent is exported in the fresh and dried from. The ginger cultivation requires 20⁰-.30⁰c of temperature and (1500-3000 mm) rain in average ginger is included in different croups rotation and is also grown as a mixed crop or inter crop with maize and vegetable. A pic of 25 gm young Rhizome is used as a seed and is planted in Falgun-Baishak. It is generally cultivated on upland. It absorbs too much nutrients from soil. So to prevent it from diseases and increase its production it is better to cultivated on the same land after two or three years gap and by changing the place from time to time it is noted that matching is also necessary to prevent from heavy drought rain and to minimize weeds.

He used these objectives to show the general sketch of major cash crops production in Sindhuli distric.

) To assets the present situation of ginger cultivation of local farmer. To find out the economic effect of ginger cultivation on local livelihood. To suggest the remedies for the father improvement of ginger cultivation.

According to nature of data the research work at hand two types of data were collected ie.e primary for the case study of ginger production. And secondary for the cash crop farming in Sindhuli Nepal. The primary data have been collected from the study area by applying some data collecting instrument, which mainly collected through the open and open and closed questionnaire.

The major findings of that study are presented below.

- J Most of the dwellers of Arun Thakur VDC (60.65%) were found depending on agriculture but few people (4.31%) are involved in service (103%) business and (1.9%) in other sectors expect students (31.9%).
- J Educational condition of people of the study area is not so satisfactory as 46.1 percent people are completely illiterate but on the other hand health status is better as compared to their educational level where 94.8 percent people are healthy.
- J As per the people of Arunthakur VDC they are adopting different occupation. Most of them (60.56%) are involving in agriculture, where cash crops and cereal crops are cultivated. But cereal crops provide them hardly where among the cash crop, ginger is being highly profitable which has created golden opportunity to have income generation after starting ginger cultivation.
- J Most of people (i.e. 92.3%) want to change seed of ginger and want to cultivate by modern ways but the very few (7.7%) people were found in constant level because of the lack of knowledge and unavailability its production.
- J 69.4 percent of ginger production sell their products brokers in house and rest of other sell in local market either it by the help of the labours by carrying own self.
- J Most of people (i.e. 92.3%) want to change seed of ginger and want to cultivate by modern ways but the very few 7.7 percent people were found in constant level because of lack of knowledge and unavailability its production.
- J 51.4 percent want training suggestion, 31.9 percent loan, 11.1 people want price support. 69.44 percent people want transportation, 13.69 percent want market management and 6.94 percent people want J.TA service and modern technology and qualitative seed and very few people want easy access to international market (2.78%). The researcher suggested and recommendation have been made on the basis of data analysis and major findings.
- J Transpiration facilities, the unavailability of virgin land disease, pests lack of modern technology and JTA service are the major problems for the treatment of disease and pests is necessary. Once ginger is cultivated in particular land, it is better to leave barren for at least there to four years still next cultivation in order to retain the facility status of soil and save guard from disease.
- J Since disease being one the major problem in the study area government should provide extra service in other to solve to their problem. In the study area ginger

income is diverging in to other sector. So it should be stopped as for as possible by providing needed facilities at the cheap rate as well as.

-) There should be provision of minimum price fixation by the government to purchase production to ensure farmers. There should be opened financial institution. As a result the ginger farmer can take loan easily to increase the ginger farming.
-) Labour cost very high due to the lack of road facilities. To reduce the labour cost consumption of link road connecting village to highway and market creators are necessary.

Arunthakur VDC should be declared as ginger growing area in the district and need facilities to the promotion of ginger should be provided to the farmer in that district.

Jayandra Lal Shrestha (1977), has conducted **The Market For Nepalese Dry Ginger in the Europe common market**. Ginger is a kind of spic grown by an agricultural process. It is one of the sideline cash crops of western Nepal, particularly Tanahun, Syangja and Palpa districts, Its botanical name is zingiber officinate roscoe. It is codifiend as 075.26. Under "Standard International Trade Classification (SITC-UN code) and 09 10A under Brussels Tarrif Nomenclature (BIN widely) used in the European common market) and as 075.0291 under Nepal Tarrif classification. Of course ginger is grown over a wide area of the tropics although the major area of production are in southern and eastern Asia and Africa. In Nepal, it is grown largely in Tahanhun, Syangja and Palpa and in small scale in most parts of Nepal for domestic purposes. It is an annual crop which is reproduced by means of cutting from the rhizome.

The general direction of international trade is the export from the tropical and semi tropical regions to the European and north American market.

Finding and Recommendation

That present time of port of dry ginger from Nepal is very short of overseas demand. Export possibility emerges only during the production season. More over it is exported only in raw from completely ignoring the market potentiality of its processed products.. There is complete lack of any approach towards producing to world market demand. In this context, a few suggestions are worthy to mention.

-) There is an urgent need to apply a well developed and articulated product development program which should incorporate inter alla, to view the production as a function of world market needs. The production areas should be extended on a trial

production of best quality say Jamaican ginger should be introduced and the possibility intensified.

-) Grading and quality standardization should be introduced so as to earn better price and good will in the international market.
-) Because of promising market for processed product of dry ginger such as oil extraction, ground and product mix, the unit should be industrialized. The industrialization of this unit needs simple technical known on a low investment.
-) Marketing is the ultimate goal of production and as such only the product development program is not sufficient for its healthy growth. It also requires a well defined export marketing program, which is supposed, inalia to fix export target and market for a particular period of time.

Punya Mata Ghimire (2001), has conducted **An Economic Analysis of Household Ginger Production in Jeetpur VDC, Ilam District, Nepal**. Among the important cash crops, ginger is cultivated in more than 50 district of the country. Approximately 6700 metric tons offresh c . ginger is produced from 7501 hectares. The average productivity is around 9.5 mt/n. more specially it is an important cash crops of Ilam, Palpa, Salyan, Syangja, Tanahun, Pyuthan and Rolpa. Malneta of Salyan district is famous for ginger production in Nepal.

The study is closely related to economic analysis of household ginger production (in Jeetpur VDC in Ilam), with the following objectives:

-) To estimate household ginger production on function in relation to four inputs, labour, farmyard, manure, bullock labour and seed.
-) To find the responsiveness of inputs to the output in household ginger production.
-) To find out the marginal physical productivity (mp) of the different inputs labour formyard manure, bullock labour and seed and tin investigate the economic of scale in production.
-) To recovered measure for sustainability of ginger cultivation the study area.

The researcher adapted research methodology which this input output analysis is based on cobb-douglas production function, liniar production function and transcendental production function. The hypothesis this study was that there is a significant statistical relationship between output of ginger and inputs. The researcher taken data two way primary data collection and

secondary data collection. Primary data was collected by the sample method (survey, interview, questionnaire) etc.

-) For the study purpose, altogether 8 models have been fitted to three different types of production function. To see the reflects of four explanatory variables, labour farmyard manure bullock labour and seed, six model are fitted from cobb-Douglas production function and other remaining are model from transcendental. production function. All inputs have been considered in 2 models only, these are model 1 and model-2 but FYM only is significant is model -7. In this analysis the major model is model -1, and other models are derived from it. Where model -7, has been fitted on general linear production function with the same data as model-1, but in non logarithmic values. Similarly model-8 has been fitted on linear.
-) In all model (from -1 model -6) the sum of the production elasticities being less than are shows in diminishing returns to scale operation in Jeetpur VDC for ginger farming.
-) The analysis of data have revealed that the linear and Cobb-Douglas production function (Model-1 and model -7) are not significant different with respect to the values of coefficient of multiple determination (R^2) and coefficient of regression (i.e. b_1 , b_2 , b_3 and b_4). IN the both the models FYM is significant accepting alternative hypothesis. Besides, in both model the explanatory power (F-state) is significant.
-) As designed no objective and carried out analysis it can not explained about labour varieties, seed varieties, land pattern, harvesting time, farmer choice marketing etc. In different ways and using other statistical as well as descriptive tools the study will be more be beneficial for the ginger farmers as well as researches.

Major recommendation can be made as follows:

-) Since agriculture has dominant role in terms of its contribution to total income and employment and since the agriculture productivity is low, so by applying new technology, it will increase agricultural productivity.
-) With heavy dependency in agriculture, the villagers are found to have low level of income government should be provided vocational training for establishing small cottage industries. After the establishment of such type of

industries this can reduce heavy dependency in agriculture on one hand and on the other it helps to increase the level of income of the villagers.

-) In all four models (from -1, 4, 5, and 6) the inputs variable labour is found to be significant and the coefficient of labour is not significant in model 3 and model 7. This shows that in this VDC the population depending up on ginger farming have been increasing as the cultivated land for ginger increase.
-) It has been rarely found that high yielding variety seeds flshey (medium bhainse) have been used by farmers. But in all models the variety is not taken because it's frequency is small and is not purchased by local traders so such improve variety cultivation should be enhanced by concerning sectors.
-) The raw ginger or green ginger is not durable, it is like green vegetables. But it can be made durable by, drying it i.e. converted to Sutho so the appropriate technology, facility and market for Sutho should be managed.
-) The price of ginger should be fixed as in other cash crops like tobacco, cotton, etc. so that farmers do not get harshness after harvesting ginger and also the middleman could not exploit the farmers. There are Nepalese and Indian businessman at Ilam the price of ginger produced in the district is controlled by them. The farmers have to sell their product in low price. So if price is fixed this problem could some how be solved.

2.4 Historical Background

2.4.1 Ginger as a cash crop

The family of zingiberaceac originated mainly in the tropical jungle of Asia. Some spices of the family are known as "Wild Ginger" and are collected from forests. On the basis of this fact, it can be easily estimated that jungle is the origin of Zingiber Officinale Rosche, cultivated ginger. India and China are also such Asian countries in the world which have been cultivating ginger from the time immortal. The Spaniards took the plants of ginger from India, Southeast Asia and China to the west Indies and Mexico, and it has reached Africa, the Fizi, Island, and recently Australia.

In most countries, ginger cultivation is in the hands of small farmers who are unable to carryout intensive farming as they an not afford the manurial and protective chemical treatment inputs required to obtain consistent high yield. In Australia though toe total acreage and production is small, mechanized and intensive farming is practiced through cooperatives of small farmers and high yields are gained. In India, the yields

different greatly. Yet, it is the world's largest producer of ginger in terms of land it covers and production.

Ginger is an important spice grown in different parts of the world. India, Africa, Jamaica, Indonesia, Australia, China and Japan are the nations with which used to cultivate ginger. Among them, India, being the largest producing nation, accounts for about fifty percent of the world production. Depending on the flavour, fibre content and price, different sources of ginger are preferred by the industries for different uses. Jamaican ginger is clean with a fine aroma and generally considered superior to other sources. So, it is used in soft drink industry. African ginger is harsh in flavour, rich in extractive and also cheaper. It is used in the meat packing industry. Indian ginger has as strong lemon flavor. It is used for blending purposes.

Furthermore, the concerned source says that Australia has been seen as a country in the world where three crops of ginger are harvested each year:

-) Early crop is harvested in a three weeks period commencing on late February or early March. This early crop of tender, immature “Rhizome”s in used for processing to preserved ginger
-) The mid-crop is gathered in May or June when the Volatile oil and pungent principal content is at a maximum,
-) Late crop is harvested from July to September and used exclusively to produce the dry-spice for the grinding trade. A mid and a late crop are harvested for processing into dried ginger.

Another thing to be noted down here is that the standardization of the ginger whole and in pieces, may be graded on the basis of its size, place of production, fibre and fibrous content and the method of treatment of the “Rhizome”s (Tropical Product Institute: 1973)

Ginger is derived from the “Rhizome”s of *Zingiber Officinale* Rosc, which is an herbaceous perennial, usually grown as an annual. Being the plant of a very ancient cultivation, it has long been used in Asia as spice and originated in South East Asia. It is one of the earliest oriental spices known to Europe and is still in large demand today. Ginger is mainly cultivated in the tropics from Sea-level to 1500m, but it can be grown over more diverse conditions than most othe spices. The “Rhizome”s may be harvested from about 5 months after planting when intended for consumption in a green form as a vegetable. For processing into preserved ginger, the “Rhizome”s must be harvested while they are still immature, tender, succulent and mild in pungency; usually under 7 months

in age. Dry ginger is prepared from mature “Rhizome”s, which have developed a full aroma, flavour and pungency; and harvesting is usually carried out between 8 to 9 months after planting. Unduly delaying harvesting beyond this period results in a product with a high fibre content.

The ginger trade is becoming internationalized. The importance of ginger production in Jamaica, Sierra Leone and Nigeria is on the decline but India is improving its markets in the west in addition to the traditional middle East market. Entrants in recent years include the Eastern Caribbean States, Mauritius, Uganda, Australia and Brazil. So far as the major user countries and exporters of the world are concerned, they are shown in table 15 of the concerned source. According to the table the United Kingdom, The United States of America, Japan and Saudi Arabia are seen as major users and India, Nigeria, Sierra Leone, Fiji, Jamaica, China, Taiwan, East Caribbean States, Australia, Brazil, Nicaragua, Dominican Republic and other countries including France, Indonesia, Neerit, Nepal and Malaysia have been pictured as exporter countries. (Shing and Chandra: 1991)

So far as the quality of dry ginger in the countries of the world's is concerned the Jamaican dry ginger is generally considered superior to other sources owing to its good appearance and to its delicate aroma and flavour. Though India is the largest ginger producing country in the world which shares about 50 percent of the world's total production and it is the largest exporter also. Two types of Indian spice entering the international market are cochin and calicut but the bulk of Indian exports are the rough scraped, whole “Rhizome”, in brief, it can be said that the dry ginger of Nigeria, Sierra Leone, Australia, China and other countries is not so good as Jamaican for international standard.

According to the source given below, India, China, Taiwan, Nigeria, Sierra Leone, Jamaica, Thailand and Australia are the important producers. The United Kingdom, The United States of America and Saudi Arabia are regarded as the countries importing the biggest amount of dry ginger. The source further says that Singapore, Mauritius, Fiji, St. Vincent and St. Lucia are perhaps the best known suppliers of fresh ginger to Western European markets, while Thailand, West Malaysia, Taiwan and the Philippines have attained importance in South and East Asia. (Including Indonesia, Bangladesh and Nepal etc.) occasionally export fresh and dry ginger, but some of these countries have often had to import ginger to supplement local production which was inadequate to satisfy domestic demand. Japan, Sri Lanka and Burma are ginger producers and have substantial local markets for ginger but they are not normally the exporters (Purseglove, Brown, Green and Robbins: 1972)

2.4.2 Ginger as a Cash Crop in Nepal

During the survey period of 1971/72, it was estimated that the total land under ginger would be 830 hectares in Nepal till 1974/75 and the production of green and dry ginger would be 14300 mt. and 21mt. respectively. A detailed survey was conducted by Trade Promotion Center in Tanahu, Syangja and Palpa districts in the fiscal year 1972/72 (TPC : 1972)

It is said that ginger is produced specially in Western and Far western development Region (now MWDR). In far-western development region, Salyan district produces more ginger against Palpa, Syangja and Tanahu districts of the Western Development Region. The share of marketable surplus of these districts is shown as 1795.45 mt, 276.40mt, and 548.76mt. respectively in the year 1976/77 (DFAMS: 1977)

Ginger is grown in the areas of tropical and sub tropical regions but major areas of production are concentrated in equatorial belt. IN Nepal it is mostly produced in the districts of Far Western (now Mid Western D.R) and Western hill regions. The major ginger producing districts are Pyuthan, Rolpa, Salyan, Tanahun, Syangja and Palpa. Besides, It is also grown in small quantity in other hill areas. Nepal has enough surplus of dry ginger for export. The total dry ginger production per year is estimated to be about 2705mt. which is estimated to go up to 3500mt. in the year 1983. About 95 percent of the total production is estimated to be available for export. (TPC: 1978).

Surket and Dailekh districts of Bheri zone and Salyan, Rolpa and Pyuthan districts of Rapti zone were found to be high ginger producing districts in Far Western Development Region (now MWDR) in 1977. However, Rapti zone was found leading others in its export. It had 3429700 kg. raw and 678441 kg. dry ginger for export against Bheri zone which has exported only 37200kg. raw ginger and 7366kg. dry ginger. Low ginger producing districts are not mentioned at that time (TPC: 1977).

Ginger is one of the major cash crops especially for the farmers of the western and mid-western hills of Nepal. Moreover, low risk in production and marketing, major exportable agricultural commodity for earning foreign exchange are seen the positive factors attracting the farmers for the ginger production in Nepal.

The total cultivated area of ginger in Nepal was 2482 hectares with 30286mt. production in 1990/91. Among the major ginger producing districts of Nepal, Salyan district has taken its leading position in its production and productivity as well (NFC/N:1991 sept)

The reason for the low quality of Nepalese ginger could be the traditional style of cultivation and processing method, poor cultivars and wrong harvesting time (APROSC: 1985).

In the country between Nepal proper Kathmandu and Kali river ginger is also a valuable article of cultivation (Francis: 1819:75).

Ginger growing is fairly distributed throughout the mid-hills of the country. It is a major source of cash income to the hill farmers of Western mid-western and eastern parts of the country. Ginger producing areas of the country are concentrated in some of the mid-hill districts of Salyan, Syangja, Palpa, Tanahu, Kaski, Bhojpur and Ilam etc. It is also an important source of cash income to the farmers around the Kathmandu Valley. The total area and production of ginger in Nepal in 1990/91 was estimated to be 3470 hectares and 20656 mt. respectively. National consumption and seed purposes of ginger is estimated to be 40 percent of the total production while the remaining 60 percent is exported in fresh or dried-form.

Apart from the above facts, the concerned source concludes that ginger grown as an inter-cropping is more profitable than mono-crop cultivation and the varieties Ilam, Salyan and Bhojpur are good varieties in terms of quality and productivity (GRP: 1991/92).

Ginger is one of the major sources of cash income to the farmers of mid-hills and the terai areas of Nepal and is regarded as cash-crops of particular importance in Gandaki, Koshi, Mechi, Rapti, Bheri, Lumbini and Bagmati zones. The varieties named Ilam, Bhojpur and Salyan are high yielding and fibreless cultivars and it was seen that they did yield high rate of return in the field of Pokhara and Salyan districts (GRP: 1993/94).

Ginger, being the major cash-crop of mid-hill farmers, is grown successfully from the terai (100m) to mid-hill (1500m) of our country. Salyan, Palpa, Tanahun, Syangja, Bhojpur and Ilam lead the other districts for ginger production. But Salyan and Bhojpur districts are famous for the high yield of ginger production. The total area and production of ginger in Nepal in 1995/96 is estimated to be 6082 hectares and 64703 mt. respectively. High cost production, unavailability of quality seeds, "Rhizome" rot disease and storage rots are regarded the major bottlenecks for ginger production in the country (GRP: 1995/96).

Conclusion:

Almost all, available related literature by different native and foreign scholars, had been written books, article, research paper was reviewed regarding ginger cultivation. All the above studies are found on production, consumption and export volume of ginger at the micro level. All these studies point out the importance of ginger production for the national or local economy. None of these studies based on influencing factors of ginger cultivation, production and marketing. Hence, this present study has proposed aiming to identify the effects of ginger cultivation on local livelihood and marketing, problems and effective measures to solve the problems at micro level, where reference to Harnamadi VDC of Makwanpur district in Nepal.

Chapter-Three

RESEARCH METHODOLOGY

3.1 Research Design

This research attempts to analyze the effect of ginger cultivation on local farmers on the basis of the specific objectives of this research. Mainly, the analysis is based on the result of the collected data where the specific area is defined in the case study. Hence, the researcher has adopted descriptive research design but the outcomes have been described qualitatively and quantitatively. Similarly, the researcher used secondary data also.

3.2 Nature and Source of Data

A. Primary Data

This study is primarily based on the primary data. The primary data had been collected from study area by applying instruments like;

- (i) Questionnaire method
- (ii) Interview
- (iii) Field survey: The researcher visited the field and observed the research area.

B. Secondary Data

This study also used secondary data. The secondary data had been collected by consulting various related published and unpublished official records. The source of secondary data were such as CBS, NRB. Ministry of agriculture, T.U. Central Library, Nepal Agricultural Research Centre. Similarly, district profile of Makawanpur, district, Agriculture office Report, Makawanpur, Village Development Committee Profile of Harnamadi VDC and Economic Survey etc.

3.3 Sample Size and Procedures

There are more than 60 districts cultivating ginger in Nepal. On the basis of purposive sampling, Makawanpur district was selected for field study. District Agriculture Office of Makawanpur district announced that there are five ginger cultivation pocket and Harnamadi VDC is one of them. So the researcher selected Harnamadi VDC as the sample. Because of the researcher belongs to that area and it was convenient collect data and information on ginger in that VDC. Although there are nine

wards in the VDC, five wards (5, 6, 7, 8 and 9) have been selected on the basis of stratified random sampling method.

There are 943 households in that Harnamadi VDC. Among them, almost 700 households have been cultivating ginger in the aforesaid area. However, there are 600 households in the selected five wards where as only the 500 households have been cultivating ginger a long time among 20 percent (100 households) had been selected applying the fixed sampling method from each selected wards. Both the male and female had equal chance to be selected from the selected household.

3.4 Data Collection and Procedure

To collect the data regarding the effects of ginger cultivation on local livelihood, the researcher visited from door to door himself and the closed ended questionnaire have been filled up on the basis of respondent's answer, where as the open ended questionnaire have been filled up by the respondent themselves. The researcher made group discussion in the study area.

Out of 500 households, 100 households have been selected, taking 20 percent sampled number from each selected sampled wards by the help of the fixed sampling method.

Table no. 3.1

Sampled households in the study area

Ward no.	Households number of ginger cultivation	Percentage	Total number of selected households
5	221-116	20	20
6	133=70	20	20
7	218=111	20	20
8	225=121	20	20
9	146=82	20	20
	500	100	100

Source: Field Survey, 2066

3.5 Instruments Used in Data Collection

The instruments used for data collection in the study area are as follows

The researcher developed two types of questionnaire forms. A closed ended form was prepared for ginger cultivators to get the factual information, which are helpful to measures the above mentioned specific objectives of this study (see, Appendix A)

An open ended questionnaire form was developed for businessman to identify the present condition of ginger marketing (see appendix-B)

3.6 Data Analysis

Data analysis is the heart of this study. So this is a major part of data processing. After collecting the data, the researcher had analyzed them for factual information. Data have been analyzed as follows,

3.6.1 Qualitative Data Analysis

Qualitative data had been collected by using group discussion and interview and have been analyzed descriptively.

3.6.2 Quantitative Data Analysis

To analyze the data quantitatively sample, average, tables, bar diagram, pie charts, and graphs, have been used. The data of ginger production of five years and its market price have been collected.

Chapter- Four INTRODUCTION TO STUDY AREA

4.1 Introduction to Study Area of Makawanpur District

4.1.1 Introduction to Study Area

Development region	:	Central development
Zone	:	Narayani
District	:	Makawanpur
District Headquarter	:	Hetauda
Nagar	:	1
VDC	:	43

4.1.2 Geographical Situation

Total area of district: 242600 hectare

Hemisphere: 27⁰ 10' northern to 27⁰40' northern hemisphere.

Latitude: 84⁰41' eastern to 85⁰31' eastern latitude

From sea level district situation: (166 Raigaun) and (2584 Simvanjyang)

Boarder of district: East (Lalitpur, Chavre and Sindhili west Chitwan) North

Dhading and kathmandu, south: Bara, Parsa, Rautahat.

Table no. 4.1

Land utilization situation

Land utilization	Percentage
Forest area	59.14
Agriculture area	25.15
National park area	6.19
Industrial area	0.66
Bush & grassland	2.03
River (khala and Bagar area	6.83

Source: District profile, 2066

4.1.3 Landownership Situation

Table no. 4.2 : Land ownership situation

Particular	Household	Particular	Households
No landholding	0.8	0.1 to 0.2	13.5
0.2 to 1 hectare	67.3	1 to 2 hectare	15.5
2 to 5 hectare	2.4	5 to 10	0.3
above 10 hectare	0.2		

Source: District Profile, 2066

4.1.4 Climate

South to east: Torrid, frigid and temperate zone

Average rainfall: 2535 ml (2002)

Average annual maximum temperature: 30.3 se

Average annual minimum temperature: 16.6 se.

4.1.5 Kind of Soil

Domat, Balaute, Chimtaile, Ratomato

4.1.6 Irrigation Area (land)

Total area: 242600 he total irrigation area: 12402 hectare

Total cultivated land : 41338 hectare

Annually irrigation area 7068 hec. present cultivated land: 36634 hec.

Seasonally irrigation area 5324 hec.

4.1.7 Exported and Imported goods

Mazi, vegetable potato, fruits, ginger soybean, beans . (exported)

Paddy, rice, Dal, Oil, wheat floor

4.1.8 Distribution of Population in Makawanpur district

Table no. 4.3

SN	Male	Female	Total	Total Percentage
1	199144	193460	392604	1.7

Source: CBS, Census 2001

SN	Male	Female	Total	Total Percentage
1	221849	216252	438101	

Source: CBS, Population Projection, 2063

4.1.9 Distribution of Age Group

Table: 4.4

1	Age group	Total population (9)	Male %	Female %
2	0-4	48212 (12.28)	24538 (6.25)	23574 (6.04)
3	5-9	56692 (14.44)	28542 (7.27)	28150 (7.17)
4	10-14	55318 (14.09)	28307 (7.21)	27011 (6.89)
5	15-19	4232 (10.78)	20965 (5.34)	21358 (5.45)
6	20-64	173727 (44.25)	88275 (22.51)	85352 (21.74)
7	65 above	16332 (4.16)	8480 (2.16)	7852 (1.97)

Source: Census 2058

Total literacy percent in Makawanpur district

Male	Female	Average
72.6%	53.9%	63.4%

4.2 Human (development) index (2004)

Table 4.5

SN	Particular	Nepal	Makawanpur
1	Human development	0.471	0.479 (31 th)
2	Gender development	0.452	0.486
3	Gender employment	0.285	0.408
4	Human poverty	35.6	0.408
5	Average life expectively	60.98	55.75
6	Educational index		0.438
7	Social empowerment	0.406	0.371
8	Economic empowerment	0.337	0.331
9	Political empowerment	0.646	0.699

Source: District Profile, 2066

4.3 Introduction of the Study area Harnamadi VDC

The study area of this research is Harnamadi VDC, which is situated at the east of district. This VDC is located at the distance of 16km far from the district headquarter and it is nearer from the Mahendra Highway. It is broader with Chhatitwan VDC in the east, in the south Rautahat district, Makawanpur Gadi VDC in the north and Hatiya VDC in the west. It is one of the developing VDC of Makwanpur district, which is largely populated with Brhamin/Chhetri, Adibasi/Janajati and Dalit etc. Most of population of this VDC are engaged in agriculture and other sectors. There is one college and two secondary schools. There are three primary and lower secondary schools. There is one health post. There is electricity. Transportation and communication facilities are also available. (field survey)

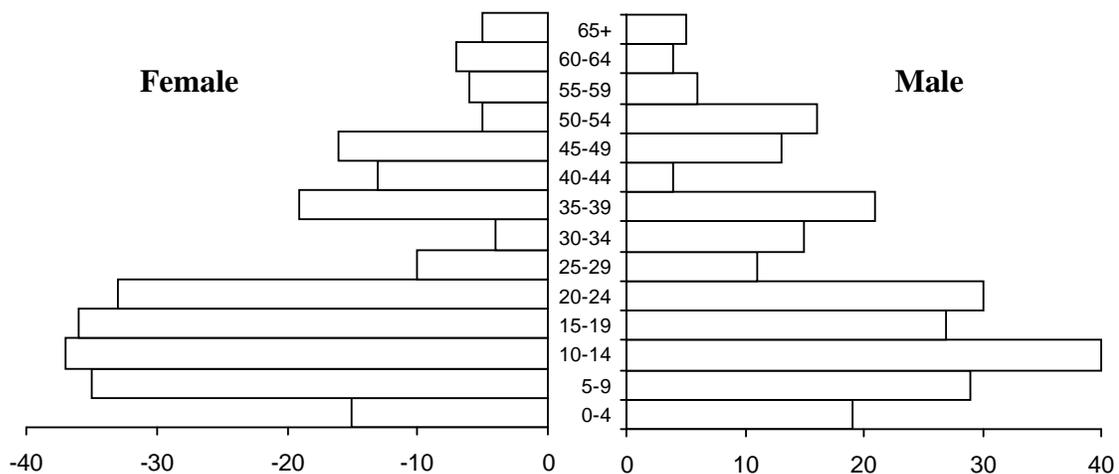
4.3.1 Demographic Characteristics

Population growth rate is very high in Nepal. The annual growth rate is now estimated 2.25 percent. The national census of 2001 put the total country population of 23.3 million. The mountains contain 7.2 percent of the population. 46 percent are in the hill and 46.8 percent terai. (CBS, 2001). Most of people of Harnamadi VDC of Makawanpur district was 6259. Similarly, the total population of Makawanpur district 392604 (Male: 199144 and female: 193460)

4.3.2 Age and Sex Structure

Two characteristics of the population that receive the most attention in demographic analysis are age and sex. Although, sex is a personal characteristics of a person, information on sex can normally be obtained without difficulty. Questions on age, however, may be subject to be different interpretations in different cultures. The age sex composition of a population is important in demographic analysis for various reasons. The age sex structure is the producer of past trend in fertility, mortality and migration. Influences in turn the current levels of birth, death and migration rates. Moreover, the age sex composition of a population has significant implications for the reproductive potential manpower supply, school attendance, household formation, child mother health care and family planning services delivery ageing etc. The sex ratio is usually expressed as the number of males per hundred females. It can also be expressed as as number of formal per 100 males. The sex ration of population in Makawanpur district is 1.034 census (CBS, 2001). A population age structure may be considered as map of its demographic history. Population researchers often graphically illustrate the age composition of a population by used of the population pyramid. Graphically analysis of age sex distribution (age-sex pyramid) technique has become a standard method in evaluation of all population data.

Figure 4.1
Population Distribution Pattern of the Study Area on the Basis of Sex and Age



Source: Appendix 'C'

The age and sex structure provide the composition of total population. The above pyramid gives the age and sex structure of the study area. From the above pyramid it was found that 256 i.e. 50.8 percent are male and 248.1 i.e. 49.2 percent are female among the total population 504.

4.3.3 Economically Active Population in the Study Area

Dependency ratio between economical active and inactive population of study area shows the proportional of economically active are inactive population. The age and sex structure of population shows that of the total population 59.7 percent are young and 5.6 percent are old population.

Table 4.6
Distribution of sampled population by age and sex

Age	Sex				Total	
	Male		Female		Number	Percentage
	Number	Percentage	Number	Percentage		
<15	88	34.4%	87	35.1%	175	34.7%
15-59	152	59.3	169	60.1	301	59.7
60+	16	6.3	12	4.8	28	5.6
Total	256	100	248	100	504	100

Source: Field survey, 2066

The table 3.6 shows the information about population of study area on the basis of dependent and independent. It was found that 175 i.e. 34.7 percent of the respondent were less than 15 years out of them were 88 male and 87 were female. It is also a in active population. Similarly, where 59.7 percent (301) economically active population in the study year and 40.3 percent were economically inactive population. But child labour are use in productive activities and above 60 years population also are actively worked in the labour market. So there is no barriers age to work in developing countries.

4.4 Social Characteristics of the Study Area.

4.4.1 Literacy Status

The educational condition of people of Harnamadi VDC is so better than 43 VDCs of the Makawanpur district. Educational status is so satisfactory comparatively other Nepalese VDC.

Table no. 4.7**Literacy of the study area by sex and ethnicity**

Literacy	Sex					Ethnicity								
	Male		Female		Total	%	Brahmin/Chhetri		Janjati/Adibasi		Dalit		Total	%
	No	%	No	%			No	%	No	%	No	%		
Illiterate	9	3.7	18	7.5	27	5.6	11	4.8	7	4.2	9	9.9	27	5.6
Literate without schooling	10	4.1	7	2.9	17	3.5	7	3.0	5	3	5	5.5	17	3.5
Primary Level	71	28.9	70	29.2	141	29.0	69	30	51	30.9	21	23.1	141	29
Lower Secondary Level	68	27.6	65	27.1	133	27.4	64	27	44	26.7	25	27.5	133	27.4
Secondary Level	63	25.6	60	25.0	123	25.3	58	25.2	42	25.5	23	25	123	25.3
Higher and above	25	10.2	20	8.3	45	9.3	21	9.1	16	9.7	8	8.8	45	9.3
Total	246	100	240	100	486	100	230	100	165	100	91	100	486	100

Source: Field Survey, 2066

This table no. 4.7 shows, 27 i.e. 5.6 percent people are literate. This table shows 94.4 percent population literate. So we can say most people are educated in this study area. Female education also satisfactory 7.5 percent female are illiterate. So researcher find 3.3 percent female are highly educated. Similarly the researcher find out ethnicity wise education is also better.

In this study area dalit is also educated. Most of 91 (100%) Dalit, 8.8 percent higher educated, this data provided 9.9 percent Dalit are uneducated. They (9.9%) are influence by traditional system. So it indicates most of people are educated in this study area. And It is found 18 people are under school going age. It shows people are aware to gain knowledge. This situation is economically better for the country.

4.4.2 Health Status

There is one health post in this village. The health post is in middle of Harnamadi VDC and district Hospital is also nearer from this VDC. In this study area there is one ambulance and one MBBS doctor, two health assistants and one ANM and women volunteers are easily available in this village.

Table no. 4.8
Health Status of the Study Area by Sex

Health	Sex				Total	
	Male		Female		Number	Percentage
	Number	Percentage	Number	Percentage		
Healthy	250	97.6	240	96.8	490	97.2
Morbid	5	2	6	2.4	11	2.2
Disable	1	0.4	2	0.8	3	0.6
Total	256	100	248	100		100

Source: Field Survey, 2009

In order to study the health information of the respondents, the researcher was found 97.2 percent people are healthy and 0.6 percent people are disabled. This percent (0.6) are suffering from life long diseases.

4.5 Economic Characteristics of Study Area

This section deals with factors related to the economy of Harnamadi VDC. This includes the land and food production, farming occupation and expenditure pattern of people Harnamadi VDC.

4.5.1 Landholding Size by Ethnicity

Landownership is still he most important index of wealth in Nepal. However, the possession of land is greatly valued among the people of Harnamadi VDC. It is valued

not simply as a factor of production but as continuous sources of income and security. In the other hand, it is index of social status and prestige also.

Table no 4.9

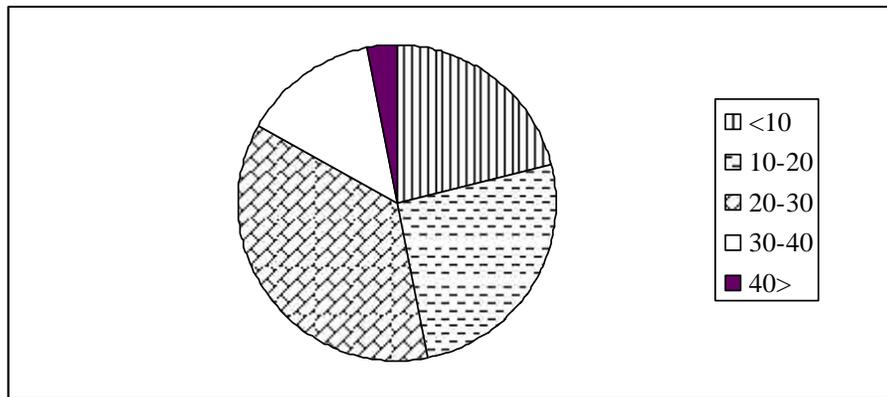
Landholding Size Ethnicity of the Study Area in Hector

Land size	Brahmin/Chhetri	%	Adibasi/Janajati	%	Dalit	%	Total	%
<0.34	7	14.9	6	17.6	8	42.1	21	21
0.34-0.68	10	21.3	10	29.4	6	31.6	26	26
0.68-1.02	20	42.6	12	35.3	4	21.1	36	36
1.02-1.35	7	14.9	6	17.6	1	5.3	14	14
1.35>	3	6.4					3	3
Total	47	100	34	100	19	100	100	100

Source: Field Survey, 2009

Figure no. 4.2

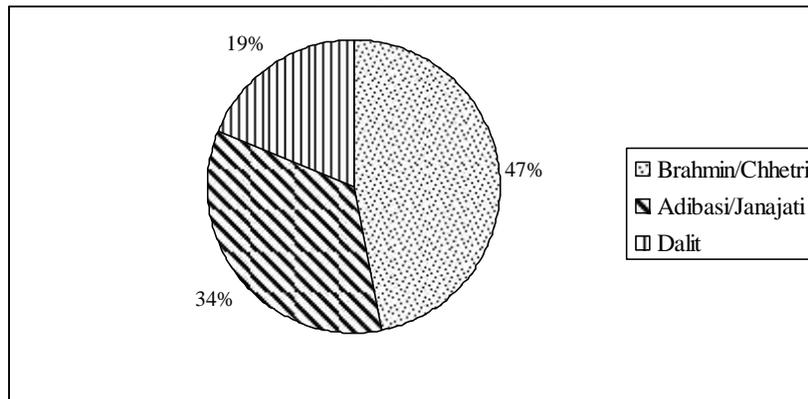
Landholding size by household of the study area



Source: Based on. 3.9

Figure no. 4.3

Landholding size by ethnicity



Source: Based on. 3.9

The above figure no. 4.2 state that 3 households percent have more than 1.35 hec. of land which is used by Brahmin/Chhetri and 36 households used 0.68-1.02 used 36 percent and figure no.4.3 state that 47 percent of land is hold by Brahmin/ Chhetri, 34 percent of land hold by Aadibasi/ Janajati and 19 percent of land hold by Dalit.

4.5.2 Food Grains Sufficiency

During study period, it was tried to find out whether the annual production of food grain were sufficient to meet the daily requirement for one year or not. However the level of food production and consumption determines the poverty of people or nation.

Table no. 4.10

Food sufficiency situation by family size

Family size	Sufficiency		Insufficiency		Surplus		Total	
	No.	%	No.	%	No.	%	No.	%
<5	27	49.1	0	0.0	24	70.6	51	51.0
5-9	19	24.5	11	84.6	5	14.7	35	35.0
>10	9	16.4	2	15.4	3	8.8	14	14.0
Total	55	100	13	100	34	100	100	100

Source: Field Survey, 2066

The table no. 4.10 shows only 13. i.e (13%) households out of 100 households do not produce sufficient quantity of food grains for one year. And remaining 87 i.e. (87) households produce sufficient quantities of food grain for one year. It shows most of households were maintain their food sufficiency.

Table no. 4.11

Period of food insufficient by family size

Family size	3 Months		6 Months		9 Months		12 Months		Total	
	N	%	N	%	N	%	N	%	N	%
1-5	3	75	6	85.7	1	50			10	76.9
5-9	3	25	1	14.3	1	50			3	23.1
10+										
Total		100		100		100				100

Source: Field Survey, 2066

The table no. 4.11 state that 13 households can't produced their food sufficiency. 7 households i.e. (53.8%) households maintain 6 months and 2 households maintain 9 months and 4 households maintains 3 months only.

Table no. 4.12

Food maintaining source by food deficit households

Title of the source of fulfilling necessity	Number	Percentage
Having only one time in a day		
Having half meal two time in a day		
Earning from employment	7	53.8
Taking borrow from villagers		
Others source	6	46.2
Total	13	100

Source: Field Survey, 2066

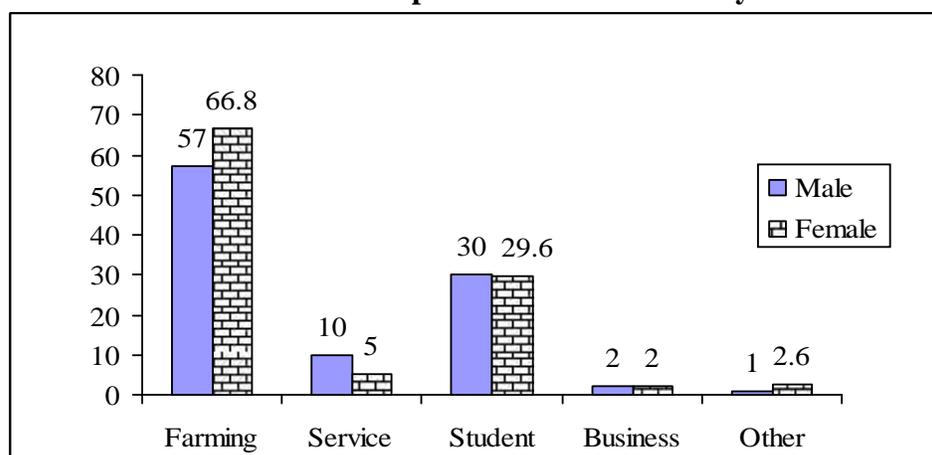
The table no. 4.12 shows employment is main source of fulfillment of shortage of food sufficient i.e. 53.8 percent employment and 46.2 percent other sources of maintaining shortage of food. It 46.2 households get from other source like income from ginger.

4.5.3 Occupation Status of Study Area

The economically active population is generally defined to "comprise all those person who contribute to the supply of labour for the production of good and services disregarding whether they actually were employed at the time of enumeration of not during data collection period. According to labour force approach economically active population consists of all persons who during a specific period of time (a week, a month or , year) were practicing some profession or occupation or seeking employment. Agricultural occupation continue to domestic as a major occupation of the economically active population in Nepal. Through the share of category of occupation in the total economically active population declined significantly from 94 percent in 1971 to 60 percent in 2001 (CBS, 2003)

Figure no. 4.4

Occupational Distributions by Sex



Source: Field Survey, 2066

In order to study the occupation of the respondents, the researcher was focused on agriculture, service, business and labour. It was found that 60.56 percent of the respondent were engaged in agriculture as their means of livelihood whereas 4.31 percent of them in service, 31.90 percent were student 1.3 percent in business and 1.94 percent in other.

4.5.4 Annual Income and expenditure

The economic condition of Harnamadi VDC was medium before starting ginger cultivation,. Agriculture is the main occupation and chief source of income. In addition to this animal husbandry, service, poultry farming, pension drawing, wage labour are also the subsidiary source of income. The method of agriculture is traditional and crud but nowadays villagers use machine to plough. There is no irrigation facility so they depend on he monsoon for irrigation.

4.5.4.1 Major Source of Income

The major source of cash income in Harnamadi village are ginger farming. Besides these, the people earn good money by working different kind of occupation, like government service, business, and to salting labor time also. But the major source of cash earning is agriculture there is no doubt.

Table no. 4.13

Major Source of Income of Sample Population

Major Source of Income	<50000		5000-10000		10001-200000		200001>		Total Household	
	N	%	N	%	N	%	N	%	N	%
Foreign Employment	-	-	-	-	2	6.9	1	8.3	3	39
Business	-	-	6	15.8	1	3.4	1	8.3	8	8
Small and Cottage Industry	2	9.5	-	-	-	-	-	-	2	2
Livestock/Cropand Agriculture	6	28.6	11	28.9	2	6.9	-	-	19	19
Ginger Production	10	47.6	18	47.4	21	72.4	9	75	58	58
Services	2	9.5	3	7.9	2	6.9	1	8.3	8	8
Others	1	4.8	-	-	1	3.4	-	-	2	2
Total	21	100	38	100	29	100	12		100	100

Source: Field Survey, 2066

The table no. 4.13 indicates information about major source of income of those households who have been selected as a sample population of the study area. It shows that 58 (58%) households earn from ginger production, maximum income source is ginger production. Similarly, service and small cottage industry is (2%) lowest income source of this study area. Average income source is livestock/crop and agricultural product 19 percent take place. Thus this table shows ginger production is main source of income of Hanamadi VDC.

Table no. 4.14
Major Source of income by ethnicity

Major Source of Income	<50000						50001-100000						100001-200000						200001>						Total	
	B/C		Aa/Jan		Dalit		B/C		Aa/Jan		Dalit		B/C		Aa/Jan		Dalit		B/C		Aa/Jan		Dalit			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Foreign employment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	50	1	100	3	3
Business	-	-2	2	18.2	-	3	3	13.6	1	10.0			1	7.1	1	11.1	-	-		-	-	-	-		8	8
Small and Cottage Industry	-	-	-	1		16.7					1	16.7													1	2
Livestock/ crop and agricultural product	1	25	4	36	2	33.3	6	27.3	2	20	1	16.7	1	7.1	2	22.2	-	-	-	-	-	-	-		19	19
Ginger Production	3	75	5	45.5	3	50	12	54.5	6	60	4	66.7	8	57.1	6	66.7	5	7.1	4	57.1	2	-			58	58
Service	-	-	-	-			1	4.5	1	10	-	-	4	28.6			1	16.7	1	14.3					8	8
Other Source	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		2	28.6					2	2
Total	4	100	11	100	6	100	22	100	10	100	6	100	14	100	9	100	6	100	7	100	4	100	1	100	100	100

Source : Field Survey, 2066

The above table no. 4.14 shows that ginger is the main source of income ethnicity also. 58 (58%) households main income source is ginger. Similarly 19 percent livestock/crops and agricultural product. Lowest income source is other source which is 2 percent covered total income of respondent households. Similarly 3 percent covered by foreign employment and 2 percent cottage industry covered. Service covered 8 percent so researcher concluded that the agricultural product cover 79 percent covered by other (foreign employment, service, business and others)

4.5.4.2 Expenditure Pattern of the Study Area

Expenditure is also an important indicator to measure the living standard of people. There is a positive relationship between expenditure and standard of living. If expenditure pattern is high, the standard of living also becomes high. People spend their income to get good and services, which give satisfaction to the consumers. That is why, expenditure has become a natural phenomena after invention of the money. In this way, the dwellers of Harnamadi VDC spend their income mainly on education, health, food and non food item which is represented by the following table.

Table no. 4.15

Pattern of expenditure items by expenditure range in (000)

Expenditure	Amount of expenditure						Total	
	<50000		50000-100000		100001>			
	N	%	N	%	N	%	N	%
Foodable items		10		3		2		
Non-foodable goods		14		12		7		
Education	31	61	37	67	32	70	100	
Health		13		15		17		
Social Ceremony		2		2		4		
Others								
Total	31	100	37	100	32	100		

Source: Field Survey, 2066

Table no. 4.15 shows 31 households spend their income on in their children education and 2 percent income spend social ceremony and 13 percent income spend in their health care. Which is income below 50000. Similarly, who has 50000-100000 income they spend their children education 67 percent and 15 percent health care and 3 percent social ceremony. Likewise who has 1 lakh above income they spend 70 percent on in education, 17 percent health care and 2 percent foodable items. So researcher concluded most of people are aware to education, they are aware their health. According

to them researcher found without education development impossible. So they spend their money income in education.

4.5.5 Access to Basic Socio-economic Service in the Study Area

Access to basic socio -economic is also major indicator of economic development. Researcher easily predicate that the necessity of people on the basis of their access to basic socio-economic service is inevitable. So there is highly correlation between economic development and access to socio economic service. Now a days, government sectors, NGOs, INGOs as well as private sectors have been investing on socio economic service. Information of access to basic socio economic service to local people is presented below.

Table no. 4.16

Level of access to basic socio economic service

Access of Socio economic Services	Yes	%	No.	%
Educational Institution	100	100		
Drinking water	100	100		
Toilet/garbage management	100	100		
Health post/Hospital	100	100		
Electricity service	100	100		
Telephone service	100	100		
Transportation (concrete road)	100	100		
Market	100	100		
Financial Institution	100	100		
Community institution	100	100		
Irrigation facilities			100	100
Informal education and training centre			100	100
Maternal child care organization			100	100
Agricultural development institution			100	100
Platform			100	100
Religious place	100	100	100	100

Source: Field Survey, 2066

The table no. 4.16 shows 16 indicator of access of socio economic service, 11 indicator are 100 percent access of people and 5 percent indicator are access of people. This table and the researcher find, the study area there is 100 percent lack of irrigation facilities. So researcher concluded rest of them have accessed the above services.

Chapter- Five

ECONOMIC EFFECT OF GINGER CULTIVATION ON LOCAL LIVELIHOOD

5.1 Ginger Farming Activities

Agriculture is the main occupation of the people of Harnamadi VDC. The production of crop is cultivated two seasons per year. The soil is medium for production yield of crops production. Another reason that the technology which is employed in their agricultural activities is not very modern. To use high developed technology is feasible because economic condition and land is plane. But the irrigation system is impossible. People depend on monsoon. The farmers of Harnamadi VDC use plant ginger in the month of Falgun, Baisak (February-April) and harvest in that month of Manshir Magh (November-January)

5.1.1 Motivation Towards Ginger Collation

It has already been mentioned that Nepalese economy is based on agricultural sector which is major source of livelihood for people. There are so many crops cultivated which can be divided in two parts i.e. cereal and cash crops. Among cash crops, ginger also belongs to the same crop group.

The specific name of ginger is *Zinglibber officinale Rose*, which was imported to Europe in the 15 century according to the people of village, ginger farming started on professional basis in this village from 2052/53 B.S.

At that time, some farmers visited eastern part of Nepal and observed. They saw and bought some kg and started cultivation, then some year after, they were it professionally. According to them they are motivated by which shows this table

Table no. 5.1

Factors initiatives of ginger cultivation

Responses	Households	Percentage	Remarks
Agricultural office	-	-	-
Own self	9	9	
Demonstration effect	91	91	
By no government Office	-	-	-
By VDC	-	-	-
Others			
Total	100	100	

Source: Field Survey, 2066

The table no. 5.1 shows information about ginger farming activities. It indicates that 91 percent households had done ginger farming as a profession influenced by demonstration effect and 9 percent by own inspiration. The researcher concluded that ginger cultivation is influenced by demonstration effect.

5.1.2 Ginger Cultivated Land

Different types of crops are cultivated in different time period. Cultivating the different types of crops, farmers should not lose completely. Therefore, farmers on are devoted in to different crops. Ginger cultivation land of the study area is listed below.

Table no. 5.2

Relationship between total land and ginger land in hectare

Total Landholding size	Ginger Cultivated Land									
	<0.102		0.12-0.20		0.24-0.30		0.34>		Total	
	N	%	N	%	N	%	N	%	N	%
<0.34	5	100	3	10.7	5	10.2	7	38	20	20
0.34-0.68	-	-	5	17.9	17	34.7	5	27	27	27
0.68-1.02	-	-	13	46.4	13	26.5	3	16.7	29	29
1.02-1.35			7	25	11	22.4	2	11.1	19	19
1.35>			1	3.6	3	6.1	1	5.6	5	5
Total	5	100	28	100	49	100	18	100	100	

Source: Field Survey, 2066

The table no 5.2 indicates relationship between total land and ginger cultivation land of the study area. It shows that in households having less than 0.101 hectare group no of households used 0.34 hectare. Here found that who has large land size they cultivate less land size. It is found that neither low or high landholders used or cultivate high ginger farming. Middle landholders cultivate higher ginger farming as compared to high landholders. There might be moderate land holding size in high level but low level land holders might have been in low level.

5.1.3 Production Pattern of Ginger

Agricultural production has a great role not only in developing countries but also in developed countries. Regarding Nepal, various types of agricultural goods are produced. Ginger also belongs the same category production of ginger is influenced by the family members which is shown in the following table.

Table no. 5.3**Production Pattern of Ginger by Households Members**

Family size	Production of ginger in 2065						Total	
	<10 quintal		10-15		20>			
	N	%	N	%	N	%	N	%
<5	8	57	37	74	23	63.9	68	68
5-9	4	28.6	11	22	12	33.3	27	27
10>	2	14	2	4	1	2.8	5	5
Total	14	100	50	100	36	100	100	100

Source: Field Survey, 2066

The table no 4.3 shows 14 households produced below 10 quintals and 10-15 quintal produced by 50 households and 36 households produced above 20 quintal. Similarly, below 50 family size produced 68 percent 5-9 family size produced 27 percent and above 10 family size produce 5 percent only. From produced more ginger.

4.1.4 Production Quantity of Ginger and its Monetary Value

Production refers to the transformation of resources in to output of goods and services. It has an important role in the national economy either it be in urban or in rural economy. The production of agricultural goods helping to boost up national economy by exporting surplus production in foreign market. But the agricultural product in Nepal is not satisfactory all to the lack of availability of modern technology. So, the producer are forced to produce in traditional way, which only provided low level of profit. The study area is also facing the same problem, which is below in the table:

Table no 5.4**Production Quantity and its Value of Ginger Cultivation**

Ginger Cultivated Land (in hectare)	No. of Households	Production (in quintal)	Average Price	Total income
<0.102	9	108	3500	378000
0.12-0.20	37	900	3500	3150000
0.24-0.30	41	1476	3500	5160000
0.34>	13	550	3500	1925000
Total	100	3034		10619000

Source: Field Survey, 2066

Note: Total income= pd×AP (PD= production, AP= Average Price)

The table no 5.4 shows that 41 households cultivate 0.24-0.30 hectare, they were earned Rs. 5166000 and 37 households cultivate 0.12-0.20 hectare, they earned

Rs. 315000. 100 households produces 3034 quintal of ginger one season and they earned Rs. 106119000. In conclusion it can be said that higher the ginger cultivation higher the production as well as higher the amount of income level.

5.1.5 Ginger and Non-ginger Income

Comparative Analysis of Ginger and non ginger Income

The producer gets income by selling their production in the market. Here is divided into two types of income i.e. income from ginger and income from non ginger which is very helpful to find out the effect of ginger cultivation on local farmers. The table shows clearly.

Table no. 5.5

Comparative analysis ginger and non-ginger income

No. of Households	Income from ginger (in 000)	Income from non ginger (in 000)	Percentage share of ginger income to total ginger income	
9	378000	916000	41.3	Low
37	3150000	2975000	51.4	Moderate
41	5166000	2274000	69.4	High
13	1925000	578000	76.9	Highest
100	10619000	6743000	-	-

Source: Field Source, 2066

This table no 5.5 shows 91 households level of income is increased by the cultivation of ginger. 91 percent households income status upgraded. In the conclusion, higher ginger cultivated land have great role to change the economic effect on local farmers.

5.1.6 Saving and Household Member Structure

Generally there is inverse relationship between saving and household member. If the household member is low, saving becomes high but it is not always true because it depends on their factors of production. People who have more factors production, they have more saving and vice versa. Saving pattern of the study area is shown on the table.

Table no. 5.6

Saving Pattern of Ginger Cultivation by Households Members

Household Size	<10000		10000-20000		20000-30000		30000>		Total	
	N	%	N	%	N	%	N	%	N	%
<5	2	33.3	17	51.5	25	73.5	19	70.4	63	63
5-9	2	33.3	14	42.4	8	23.5	7	25.9	31	4
10>	2	33.3	14	6.1	1	3	1	3.7	6	6
Total	6	99.9	33	100	34	100	27	100	100	100

Source: Field Survey, 2066

The above table no. 5.7 shows that 100 percent are capable to save income from ginger and other sources. The researcher find out 17 family size high the saving pattern is low and vice versa if landholding size it high saving pattern is high and vice versa. Large family size might be high expenditure patter. So researcher conclude that low family and high producer save more and vice versa.

5.1.7 Saving of the Ginger Producers By Own Production

There is positive relationship between income and saving, it is said that saving is the positive function of income i.e. $s = f(y)$, where $s =$ saving, $f =$ function, $y =$ income. If the income is high, saving also high and vice versa.

Table no. 5.7

Saving from ginger cultivation by their production

Production in quintal	Saving	Number
<10	14	14
10-20	50	50
20>	36	36
Total	100	100

Source: Filed Survey, 2066

The table no. 4.7 shows, saving from ginger cultivation which is based on their production. Who produce less save and who produce high high save but this table show middle class household or producer save more 50 percent and other save 50 percent (14+36)

5.1.8 Investing Sector of the Ginger Cultivators

Drawing the assumption of classical economist, "A rational person does not hold money idle." According to them, money is demanded just for transaction. So people does not hold money with them on the basis of classical assumption, we can say that people invest their saving in different sector. The investing sector of the study area are as below.

Table no. 5.8
Investing sectors of ginger cultivators

Investing sector	No. H.H.	Percentage
Land/housing	27	27
Ornaments	9	9
To agriculture sector	6	6
Education sector	51	51
Social ceremony	4	4
Others		
Missing system (not surplus)	3	3
Total	100	100

Source: Field Survey, 2066

The table no 5.8 shows information regarding investing sector of ginger cultivators who have succeeded to save income from ginger selling. The people are aware because they invest their saving their children education in 51 percent. Similarly, other 49 percent other so many sectors. According to them (study area's people) education is the first step of the development. So they invest that sector.

5.2 Cost of Ginger Farming

The term cost may be defined as the value received in exchange of goods and services excluding profit and distinguished from money which is only medium of exchange. However, the value of an article is itself an abstract concept and depends upon the marginal utility price policy helps the farmer/producers in deciding where to produce, how much to produce. The incentive price of production gives the incentives to the ginger growers and price of ginger is based on the establishment of marketing network in the earlier period there was not proper price in the field of ginger production sector. Farmers faced the situation of darkness as price failure and price domination.

5.2.1 Cost of Ginger Cultivation

Every producer should bear the cost producing goods and services. So, cultivating ginger, the ginger farmers should invest some thing at first, which determines the level of profit. During the cultivation period, the ginger farmers have to do different types of activities by investing time, money and labour as its cost. The cost of ginger farming in different activities is presented below.

Table no. 5.9
Cost of Ginger Cultivation per Kattha/ (in hectare 0.034)

Areas of cost for ginger production	<500		500-100		1000-1500		1500>		Total	
	N	%	N	%	N	%	N	%	N	%
Land preparation	3	3	97	97					100	100
Seed							100	100	100	100
Planting	11	11	57	57	27	27	5	5	100	100
Manuring	18	18	82	82					100	100
Mulching	3	3	97	97					100	100
Weeding	3	3	97	97					100	100
Earthling up	33	33	67	67					100	100
Harvesting	9	9	91	91					100	100
Warehouse	74	74	26	26					100	100
Pesticides	26	26	74	74					100	100
Others	-	-	72	72					100	100

Source: Field Survey, 2066

The table no. 5.9 depict information regarding cost of ginger cultivation. It shows that 100 percent household used pesticides and 100 percent people used seed. The researcher find out each farmer used pesticides. And 100 percent households' cost is very high. Farmer are not easily available quality seed and pesticides and man power (JTA).

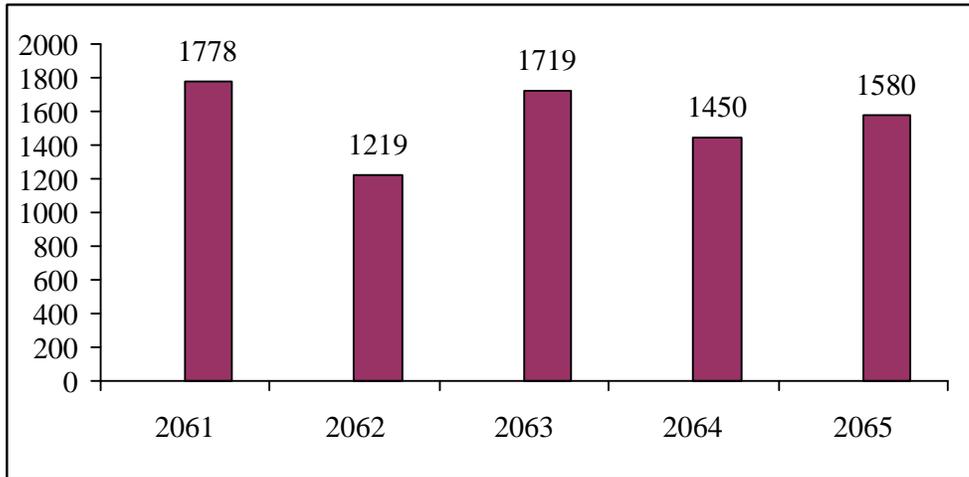
5.3 Production and Price trends of Ginger

5.3.1 Production trends of ginger during five years

Production trends ginger, is not smoothly increasing it is fluctuation because there are so many reason behind to increase and decrease ginger production. Sometimes time seeds problem, sometime pesticides and technician (JTA) sometime mention problem but all things combination is better at the same period, the production increases which trend is shows by bar diagram which below.

Figure no. 5.1

Production trends of ginger during five years (2061-2065 in quintal)



Source: See appendix D

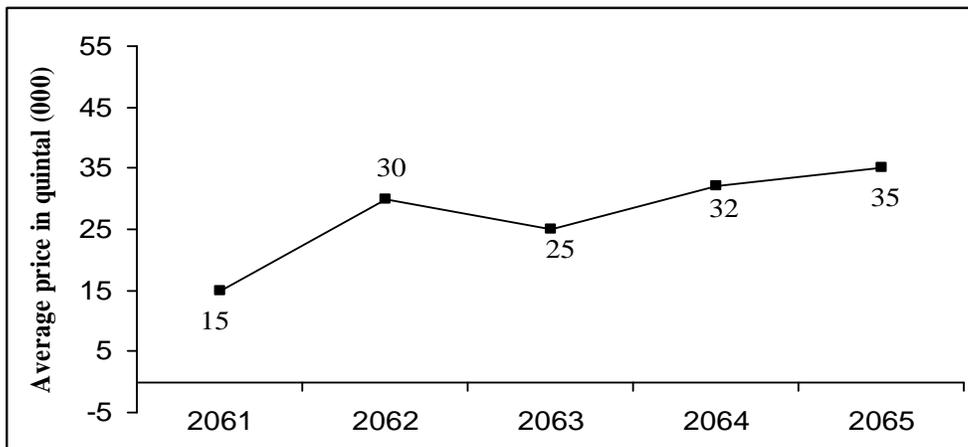
The figure no. 5.1 shows that the production of ginger of five years data. It show that in 2062 and 2063 B.S. when the total production become highest i.e. 1778 and 1779 quintal. 2062, 2064 and 2065 the production became low. In the question of researcher why production getting low? According to them (farmers) there is lack of quality seed, pesticides. JTA and the ginger farming suffering from so many diseases.

5.3.2 Average price tend of ginger

Price is determines of production. If price is high the producer produce more otherwise, the producer can't encourage so ginger cultivator get more price they cultivate more. Hence the researcher present five years trend of average price which below.

Figure no. 5.2

Average price trend of ginger during five years



Source: See appendix D

The figure 5.2 shows that, 2061 the price of ginger 15 and figure 401 shows same period production is highest. When price was 30, the production decreases in 2063. When price is 250 the production increase in 2063. Similarly when price was 32 the production of ginger decreases in 2065 B.S. The production increases, the price also increase, the price was 35 per kg at the same year price is highest among the five year period the level of production and demand did not decline in average manner. That is why prices of ginger increase through production in Harnamadi VDC is higher as compared to previous three years data i.e. supply of ginger could not cope with demand of ginger in the market.

5.4 Impact Indicator of Ginger farming

Indicator, measure the peoples status, if people are educated healthy, socially rich, good (balance) . So many things are the indicator. In Harnamdi VDC people are modernized by the farming of ginger cultivation, before ginger cultivation their life status was low, now their life status shows After ginger cultivation certainly (high). The researcher group discussion each area about their own income and categorized the level of present households.

Table no. 5.10

Impact indicators of ginger farming

Indicator	No. of households before ginger farming			No. of households after ginger farming		
	Low	Moderate	High	Low	Moderate	High
Improve in Income	100.00	00	00	00	70.00	30.00
Improve in Health	71.00	2900			100	
Improve in Education	00	100	00	00	00	100.00
Improve in Entertainment	29.00	71.00	00	00	100.00	71.00
Improve in Drinking water	00	100.00	00	00	100.00	00
Improve in Expended Social Festival	70.00	30.00	00		100	
Improve in Level of food	100	00	00		100	
Improve in Housing condition	100				100	
Improve in Home appliances	100				100	
Improve in Land	13	87			100	
Improve in Clothes	61	39			61	39
Improve in Cattle and buffalo		100			100	
Improve in Goat/ shepherd		100			100	
Improve in Local road	100				100	
Improve in Establishment of mills	100				100	
Improve in Electricity/solar		100			100	

Improve in Poultry farming	100					100
Improve in Other facilities	71	29			100	

Source: Field Survey, 2066

The table no 5.10 depict information regarding impact indicator of ginger farming. It shows the living standard of people heavily charged after ginger farming.

4.5 Technology Adaptation of Ginger Farming by Local Farmers

Today's world is being very small due to the invention and expansion of communication and transportation. We can reach everywhere with in moments. There is high competition to innovate for unique invention. For it, all credit goes to new technology. There are different types of economic policies which can be followed to transfer to the new teaching i.e. globalization, liberalization and privatization.

The main goal of the producers is profit maximization and cost minimization by adopting the different types new technology. Using new technology, cost of goods and services becomes less. Ultimately, it makes the high amount of profit. Despite this future of new technology, all producers do no want to follow easily because they have to confidence to increase the production level. So, some producers produce by using their traditional method at constant position.

4.5.1 Ginger Farmers and Improved Seeds

Seeds also play a crucial role to determine the production level. Classical seed can not give high productivity whereas modern seeds is beneficial for the ginger cultivators. Each and every think of maximizing their production so that the farmers want to change the seeds which is given below.

Table no. 5.11
Response of ginger farmers towards using improved seed

Production of ginger	Willingness to seed		Not willingness to seed			
	N	%	N	%	N	%
<10	14	100	-		14	100
10-20	49	86.00	7	14.00	50	100
20>	36	100			36	100
	93	100	7	100	100	100

Source: Field Survey, 2066

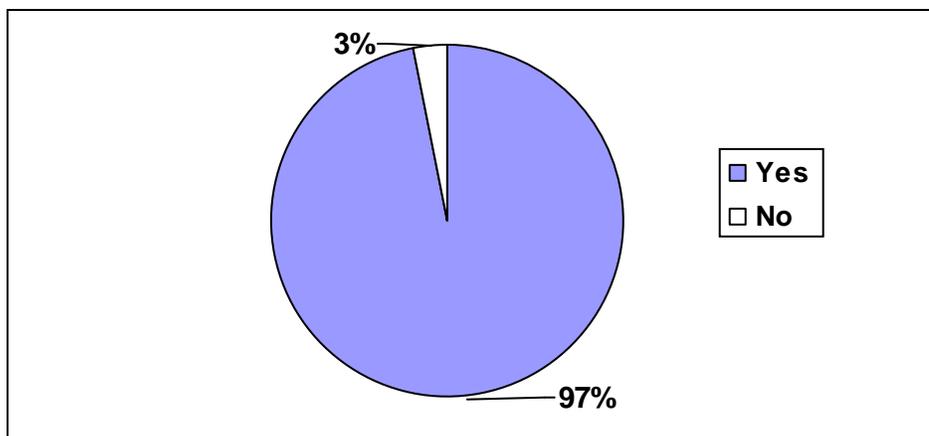
The table no. 5.11 shows the information of the ginger farmers who want to change seeds or do not want to change the seeds of ginger on the basis of production. This table shows 97 percent households want to change seed and 7 percent of households are in neutral. It can be said that most of the ginger cultivators want to change the ginger seeds to increase the production level but a few farmers don't want to change the seed due to the lack of confidence.

5.5.2 Ginger Farming and Production Technique

In Nepal still, agricultural goods are produced in traditional way because of the lack of the availability of modern technology. Due to this food, production pattern is not satisfactory as compared to cost. The ginger farmer, who want to cultivate or not by modern way it below in figure.

Figure no. 4.3

The sample population willing to cultivate ginger using modern technique



Source: Table no. 5.11

The figure no. 5.3 clears that almost all the households use local seed only. But in case of ginger farming 97 percent house want to change and want to use modern farming technology where only 3 percent households do not want to use modern farming technology.

Agriculture is the backbone of the crop production of our country. The quantity of the crop production determines the economic status of the people. Generally greater size of land holding indicates higher in the production and income level. But the productivity per unit of cultivated land is low due to lack of irrigation and unavailability of modern agriculture inputs such as chemical fertilizer, improved seeds, in pesticide and other agricultural inputs and technology.

The agricultural production in any region generally depends. Upon the existing ecological factors. The quality of soil, amount of manure used, irrigation facility and timely cultivation and continuous care of plant determines the quality and quantity of crops production. The respondents of Harnamadi village often used traditional method of agriculture. But nowadays villagers use tractors to use plough and other labourer used.

Another fact is agriculture production is directly affected by the availability of irrigation facilities. Irrigation is the most important factor for the agriculture development but as observed there is not irrigation facility. During the field survey it was observed that

the crops were not grown well. Although, many farmers in the study area were aware of the use of chemical fertilizer improved seed and pesticides. In the conclusion 97 percent farmer are interested to adopted new technique to make high income where as 3 percent farmers were found in the constant position. The reason of constant might be they are satisfied with present production.

5.6 Marketing of Ginger

Agricultural production beyond producer's requirement necessities the availability of efficient marketing system. Something happen to the ginger production and efficient marketing system gives incentive to the ginger growers to increase their production. This marketing system plays a vital role to develop the ginger production sector also. But there is no sufficient marketing facility near the study area.

Similarly, most of the ginger growers do not have experiment about marketing system. Most of ginger growers are not interested to sell their production at market by themselves. Thus very few of the ginger growers are compelled to sell product at their home to the middleman or contractor at low price.

5.6.1 Ginger Selling Market

Attention to explain the factors determining the price and rate of output for a particular commodity must take into account the nature of its market. Each producers sell their productions in different market either it be industrial or agricultural goods. Regarding the farmers of the study area, they sell their ginger mainly by two way i.e. local market and broker in house it is cleared in below table.

Table no. 5.12

Ginger selling market of the study area

Selling place	<10 Quintal		10-20 Quintal		20> Quintal		Total	
	N	%	N	%	N	%	N	%
Local market	13	92.9	50	100	30	83.3	93	93
Broker in house	1	7.1			6	16.7	7	7
In international market								
In city market								
Total	14	100	50	100	36	100	100	100

Source: Field Survey, 2066

The table no 5.12 shows ginger setting in different market. It shows that in households having less then 10, 10-20, 20 quintal group selling 93 percent in local market similarly 7 sell in broken in house. It can be conclude that 93 ginger sell in local market and other 7 percent sell in broker in house.

5.6.2 Season for Ginger Selling

The producers who produce goods and services, consider demand for their production. If demand is high, the producers supply their production in large amount and vice versa. Basically when the price increases, then producer sell their own goods which is in the table

Table no 5.13

Season for ginger selling of ginger producer by their total ginger production pattern

Responses' alternative	<10 quintal		10-20		20> quintal		Total	
	N	%	N	%	N	%	N	%
Harvesting period								
In planting time								
When price increases	11	78.6	47	94	36	100	94	94
When they feel need								
Randomly	3	21.4	3	6			6	6
Total	14	100	50		36	100	100	100

Source: Field Survey, 2066

This table no. 5.13 asserts season for ginger selling of producers on the basis of their total production pattern. It shows that 94 percent households sell their product, when price increases and only 6 percent households sell their product randomly.

4.6.3 Methods of Ginger Selling

Produced goods and services can be supplied by using various mediums on the basis of availability of factors. The medium of ginger selling which are used in the study area has been introduced in table.

Table no. 5.14

Methods to be used by ginger farmer to sell the ginger in market

Responses' alternative	<10 quintal		10-20		20> quintal		Total	
	N	%	N	%	N	%	N	%
Self carrying	13	92.9	37	74	27	75	77	77
By transportation								
By labour	1	7.1	13	26	9	25	23	23
By carts								
Others								
Total	14	100	50	100	36		100	100

Source: Filed Survey, 2066

The table no. 5.14 shows the medium used by ginger farmer to sell the ginger in market. It shows that 23 percent households use to sell by labour and 77 percent farmers used self carrying to the market. The ginger farmers of Harnamadi VDC sell their ginger either by self carrying or by labours because of not lack of transportation facilities. It was found that all ginger is sold by using the labour and self carrying due to the market is very nearer.

5.7 Problems and Suggestions Raised By Ginger Cultivators

Nepalese economy depend upon agriculture. Nepalese economy is facing so many problems. Agricultural sectors facing problems. Main obstacle to increase the agricultural production is on the one hand government which can't provide fertilizer, pesticides and qualitative seeds on time. On the other hand farmers have no capacity to buy needed equipment and materials. Therefore, to increase the agricultural products in large quantity, the government should solve these problems.

5.7.1 Problems of Ginger Cultivation

Nepal is underdeveloped, infrastructure less poor and not having skilled manpower country. That is why agricultural sector has also been suffering from various types of difficulties for a long time. So the problem of ginger cultivation is mentionable which is shown on the table.

Table no. 5.15

Differences to get fertilizer, pesticides and seed JTA (manpower)

Types of problems	No. of Households	Percentage
Difficult to get	8	8
Difficult to get on time	89	89
No. sufficient	3	3
To get easily		
Others		
Total	100	100

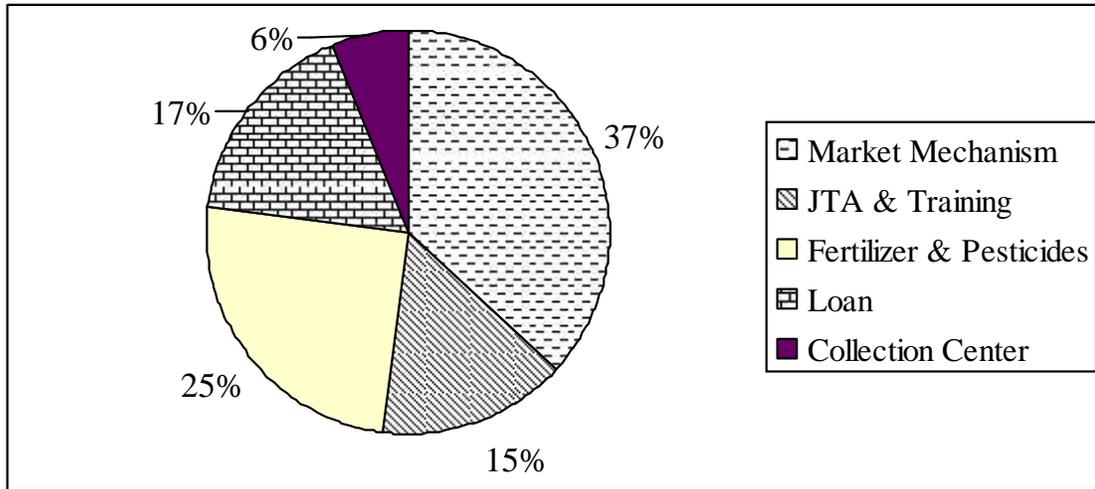
Source: Field Survey, 2066

The table no. 5.15 shows information regarding difficulties to get fertilizer, pesticides, and seed of good quality and manpower (JTA) in the study area. It shows that cent percent people are facing any problem. 100 percent households are suffering any kinds of problems.

5.7.2 Suggestion to Increase the Ginger Production

The farmers are suffered from so many problems which is the main obstacle to increase the level of production. The farmer will really get rid of the problem if the government pays its attention to eradicate the realized difficulties. The suggestions is below in figure.

Figure no. 5.4
Suggestion of sampled population for government authority to make more increasing ginger farming



Source: Table no. 16

The figure no. 5.4 shows information regarding suggestions of sampled population for government authority to make more incensement of ginger farming out of 37 percent respondent suggest price mechanism. Similarly 15 percent JTA 25 percent tanning, 17 percent fertilizer and pesticide and 17 percent loan and 6 percent suggest collection centre. If government and local government manage such problem ultimately problems are remove easily.

Table no. 5.16
Suggestion for ginger cultivation by the ginger cultivators

Suggestions	Number	Percentage
Transportation facilities	15	15
Specific and easy market management system	37	37
JTA services and modern technology	15	15
Easy access to international market	8	8
Total		

Source: Field Survey, 2066

The table no. 5.16 shows information regarding suggestion for ginger cultivation by the ginger cultivators. 100 percent households suggested so many suggestions to improve production of ginger.

Chapter Six

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

Among various cash crops, ginger is one of the main cash crops. The ginger is a rootstalk and spice having a thickness of man's finger and it has been mostly used as spices and medicine for thousand years. It gives special flavor and sharp taste. It can be mixed in various food. The dried ginger lasts for a long time. Besides spices, it is also used as a medicine.

In Nepal, the ginger is cultivated in more than 60 districts. However, the main export oriented, professional ginger producing districts are Salyan, Palpa, Ilam, Nawalparasi, Dhankuta, Syangja, Tanahu, Pyuthan, Dang, Makawanpur etc. According to the report published by agriculture information section, there is 14007 hectares 6.36 percent of total agricultural land of cultivating ginger and its total production is 162271 metric tons out of total production, 40 percent fresh and dried ginger is consumed within the country and 60 percent is exported in the fresh and dried form. The ginger cultivation required 20.30°C of temperature and 1500-3000mm rain in average. Ginger is included in a different crop relation and also grown as a mixed crop or inter crop with maize and vegetables. A piece of 25.60gm young "Rhizome" is used as a seed and is planted in Falgun-Baishak (February-April) and harvested in Manshir-Magh (November-January) It is generally cultivated on upland (Bari). It absorbs too much nutrients from soil so to prevent it from diseases and increase its production it is better to cultivate the same land after two or three years to time. It is noted that mulching is necessary to prevent from heavy drought, rain and minimize weeds.

We can in conclusion say that on the basis of above mentioned things, ginger is being an important cash crop, which is cultivated in most hilly region, Makawanpur district also belong to the same region where the ginger farming has been launched since the few years as a cash crop. The area under the ginger cultivations increasing slowly and gradually due to attractive income obtained from it.

Economic condition plays vital role in the living of the person. In case of people of Harnamadi VDC, the economic condition is satisfactory that majority of them live above the poverty line. Most of them are indulged in agriculture which hardly support them for a year, other sources are labour, business, livestock service etc.

In case of people of Harnamadi VDC, they are adopting different professions. Many of them are depending on agriculture, which provide them hardly bread only for a

year. Their poor economic condition keep them away from balance diet and good education and lead the deteriorating living condition.

In regarding level of access to basic socio-economic services in the study area. It was found that 100 percent households have accepts to educational institution, drinking water, toilet/garbage management, health post/hospital, electricity service, telephone service, road, community, intuition, religious place to basic socio economic services in the study area.

In regarding season for ginger selling of ginger production. 94 households sale their ginger when price increases. 6 percent household sell when they fell necessity and randomly. It was found that only two ways of ginger selling i.e. self carrying and by labour. As another cost non ginger cost is higher them ginger cost but income of ginger is higher then non ginger income. As the further motive factor of ginger cultivation 91 percent demonstration effect... influence and rest of them influences by won self 77.8 percent household have succeeded to save but rest of them no. on the other hand 90 were not satisfied with the present market price and rest 10 percent have so little satisfied about the market price.

6.2 Conclusion

This research plays vital role for the identification of problems analysis of their research and findings measure/solution to problems solving of concerned area. The main objective of the study is to find out the economic effect of ginger cultivation on local farmers. The study was survey of the study area.

The study was conducted at VDC of Makawanpur district where ginger farming made drastic change on the ginger cultivators life style. Despite the study area is very small in itself, it tries to find out present production situation economic effect ginger cultivation on local farmers, method cultivation. The major findings of this study are presented below.

-) Most of the dwellers of Harnamadi VDC (60.56%) were found depending on agriculture but few people (4.31%) are involved in services, (1.3%) business and (1.94%) other sectors expect students (31.90).
-) Education condition of the people of the study area is so satisfactory 94.4 percent people are literate and only 5.6 percent completely illiterate but on other hand, health status is better as compared to their educational level where 99.40 percent people are healthy.
-) As for the people of Harnamadi VDC they are adapting different occupation. Most of them (60.56) are involving in agriculture, where cash crops and cereal crops are cultivated. But cereal crops provided them only bread, among cash

crop, ginger is being highly profitable which has created golden opportunity, to have income generation after starting ginger cultivation.

- J Due to the unavailability of basic socio-economic service, the living standard in study area is low.
- J About 13 percent households can't maintain food for a year from their own production. So they have to buy it from the local market by selling ginger and employment.
- J It was found that almost 91 percent people of the study area had been involved in ginger farming by demonstration effect. Rest of them had been involved by self motivation (9%).
- J Most of the people (i.e. 97) want to change seed of ginger and want to cultivate by modern way (specific approach) but the very few (3%) people were found in constant level because of lack of knowledge and unavailability of its production.
- J The first position is held by livestock/crops and agricultural product as the major source of income and income from other sector is very little as compared to income from ginger crops. But greater expenditure were found on education by them.
- J 77 percent of ginger producer sell their ginger self carrying and rest of sell in local market either it by the help of the labours or by carrying own self.
- J 94 percent of ginger producer sell their production when price increases and rest of them (6%) sell their ginger randomly.
- J During the research period it was also found that annual income from ginger was equal to Rs. 1061900. This income is earned by using ginger cultivated land. Where as annual income from other crops was equal to 674300. This income was earned by their source of income. Therefore, ginger farming is more profitable agricultural product.
- J Ginger income is higher than non ginger income by 14.3 percent in average but it has been diverted to passive sector such as well as active sector their children education and other sector. Ginger being a profitable cash crop, the farmers were investing their income in this sector, so it is a better situation of the study. Major cause of diverting into passive sector, there is no financial institution, specific market, JTA service pesticides fertilizer and qualitative seed so on.
- J It is found that price and production has highly been fluctuating during the period of five year. To happen this, various external factor are responsible. Such as curtailing of local marketer's "Rhizome" rot and wilt unnecessary blockade etc.

- J More than half (51%) people invest their increase in their children education and rest of them invest in other sector (i.e 6%) agriculture, land/ housing 27 percent, 9 percent ornament and other sector 3 percent invested.
- J 91 percent people are not satisfied with the present price of ginger but rest them 9 percent are constant because of the price fluctuation, which makes them unsatisfied.
- J The average cost of ginger production is lesser than non ginger farming because the farmers grow two or three kinds of crops at per kattha land during year but ginger is only one time at per kattha during a year as well as only at a few percent of total land is cultivated. Ginger but non ginger crops is cultivated at large level. As a result there was found the effect of law of returns to scale and law of variable proportion. But the net profit of ginger is higher then other.
- J Farmer had been commercially farming since more than five years in the study area. But according to them, the productivity has been decreasing slowly and gradually. The lower productivity is mainly due to lack of modern technology and another reason such as fatal disease like “Rhizome” rot and will. In some case it was found that the whole ginger in the farm was damaged and rotten, price of ginger has also played a vital role in change the total production, which is highly fluctuated each and every years.
- J The ginger production is considered to be the top most income earning crop in the agricultural sector in the study area as compared to another agricultural production and business.
- J The living standard of people reside in the study area is observed increasing from the ginger production. The ginger farming has been effective on improving the living standard of low, modern and high level people in study area.
- J The cost of marketing various from one market place to another market place which was due to variation in distance.
- J The major problems existing in the ginger production and marketing are absence of double cropping lack of sufficient transportation, facilities disease and pest, lack of credit facilities, JTA service, modern technology, specific market facilities high cost of labours, wage price fluctuation extension of services and unavailabilities of virgin land etc.
- J 37 percent want better marketing mechanism, 15 percent want JTA facilities /training , 25 percent want fertilizer and pesticide, 17 percent want loan, 6 percent collection centre.

- J Most of the people of the study area were lived far from the specific and easy market mechanism. So 37 percent people want market situation 15 percent transpiration facilities, 15 percent want JTA service and other modern technology as well as the same present pesticides. Fertilizer and qualitative seed and very few people want easy access to international market (8%).
- J Despite suitable topology and high economic value, the production of ginger face many problems from its initial stage to marketing. The disease and pests and the major short-coming factors in the production of ginger. Besides these absence of double cropping, unavailability of sufficient virgin land, lack of credit facilities, illiteracy and poorness of farmers, uncertain character of monsoon, quality of seed used lack of extension service, 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 shortcomings in the process of ginger production and marketing. Despite of these problems, the future of ginger in the Harnamadi VDC seems to be good.

6.3 Recommendations

6.3.1 Need for Ginger Research Institutions and Labs

In spite of the fact that ginger has several of its characteristics such as it is source of earning has nutritional elements, this cash crop has yet not received much attention from the concerned authorities. Its importance was realized as an exportable crop only 1970 and it was placed in Nepal's fifth plan (1977-1982). Consequently "The ginger development program" was established in 1977 as a unite of horticulture research station in Pokhara. In 1992, it was shifted to Salyan district and renamed as "Nepal Ginger Research Program".

No doubt, Nepal Ginger Research Program (NGRP) established in Salyan district is a central office of information available, it can be said that it has no any research branch in Makawanpur district and elsewhere in Nepal.

In the context of Makawanpur district, a district office of NGRP should be established as soon as possible with adequate scientific equipment required. Furthermore the research work of district office should be focused on.

Implications

- (i) Optimum growing condition for ginger soil, water requirement, temperature, humidity, altitude, slope etc.
- (ii) Improved cultivation practice, date of planting and harvesting.

- (iii) The relation between soil, varieties of seed, yielding and fibre development, improved varieties of seed, manure, mulching materials and weeding, diseases and pests.
- (iv) Inter cropping system and retrieval of mother rhizome system, low cost, techniques for higher yield as per agro-climate conditions, storage for seed any dry ginger, low cost technique for dry ginger processing, possibilities of the ginger based industries to be established in the district and other part of Nepal.
- (v) Identifying the problem encountered by the farmers in the production if raw and dry ginger and their solutions.
- (vi) The publication of its work monthly and annually.

6.3.2 Inter-cropping and Retrieval of Mother Rhizome System

The quality of raw-ginger mainly depend on favorable climate, soil condition and seeds rhizomes more or less fibrous content, and the quality in dry ginger deserves the above factors along with the level of processing procedure. In this context inter cropping and retrieval of mother rhizome may be much more helpful in reducing their total cost in ginger producing. Bhaktapur district is found to have the highest earning from inter crop (chilly) and Syangja is the lowest inter crops. So a wise ginger farmers can sell their row and dry ginger by reducing inter cropped income (an extra income) from total cost of production in the case of competition. Furthermore, the cost of production can be minimized in the case of retrieval of mother rhizome system also. After four months of planting the seed rhizome can be retrieved by breaking it from newly-born rhizome without any physical loss and can be sold in off season also. The income received from such as method can be deducted from the total cost of production, raw and dry ginger can be supplied easily in the market

Implications

- (i) The farmers of Makawanpur distinct are still unknown about inter cropping and retrieval of mother system. Therefore, it can seen essential to apply these two systems in the ginger farming of Makawanpur district to benefit the farmers through increase in their income.
- (ii) If their income increases, increases their economic status. If increases their status decreases their poverty and they contribute to national development.

6.3.3 Need for Multi Sectoral Office for Ginger Development

In Nepal, ginger farming needs a multi-sectoral office (central, zonal and districtwise) for its should development. The structure of multi-sectoral office Makawanpur district should be designed as following:

Implications

- (i) One central office in Salyan district as a central office of Nepal ginger Research Program is already there for making policies, giving direction and running administration, it should support other ginger growing areas of Nepal.
- (ii) District office to be established in Makawanpur district should focus on credit facilities, supply of improved varieties of seed, technical advice and support, supply of plant protection materials.
- (iii) Regular visit to farmers scattered in district, training to the farmers on production, processing packaging, selection grading, classification and other activities required.
- (iv) Wide publicity of alternative ginger products and their demonstration at district, zonal and national levels. Tour for ginger farmer district to district within and out of the other ginger production and marketing system.
- (v) Price information, buying the ginger produced in the concerned district.

6.3.4 Need For Association of Ginger Farmers

An active association of ginger farmers (AGF) is a felt-need in Makawanpur district at local, district and zonal level. The body of AGF at the local level in each district should be formed by ginger farmers living in concerned area through election. The function of AGF should be to identify the problems arising in the cultivation of ginger farming at local level and suggest solutions to overcome them, (II) to send representative to the district level association to appraise it of the real situation of ginger farming at the local level.

Implications

In order to operate the AGF at different levels, 5 to 10 percent of income come from the selling of raw and dry-ginger be deposited in a “Help Fund” by the farmers cultivating ginger besides these the farmer representatives from the local level should themselves manage a “membership fund fee” fixed annually on the basis of common consensus among producers, furthermore support from government it essential for the effective functioning of AGF. Disease ginger production may considerably help alleviate poverty in the district and government should be committed to providing a package towards this direction.

6.3.5 Necessity of Ginger Based Industries

Ginger production is increasing every year in Makawanpur district. Farmers are cultivating it traditionally as a monocrop only one for the purpose of meeting daily necessities like soap, salt kerosene, cloth, spices etc. and using traditional flow system for make ting. They are not found much careful about price rate .. at different levels of

markets with cost benefit analysis in the production. As a result, marketing surplus of raw and dry ginger of Makawanpur district is following towards Indian markets without giving appropriate returns to the farmers. This is one of the major problems of ginger farming in Makawanpur district.

Implication

Therefore, it is essential to set up different types of cottage and small scale ginger-based industries in the districts of this district are and large scale industries in Nepal. Pharmaceutical food processing, ginger oleorierin, ginger oil, ginger essence processing industries etc. may be some of the industries which can be established in order to achieve the above objective.

6.3.6 Need For Financial Institution

Financial institution are establish its helps the capital formation. But in Nepal financial institution ore city oriented, thus institution are not village remote place oriented so remote villagers not reach access in the financial institution. Similarly, if such institution establish, it institution provide lone facilities both local marketers and farmers, such loan facilities are made accessible to the ginger growers, the farmer can loan for promptly when they are in dry head for credit during different place of gingers growers.

6.5.7 Need for Better Market System

Implications

- (i) The storage, facilities in each ginger producing farmers are must urgent marketing of through consumer cooperative and government regulated market is necessary to reduce middle man who are enjoying the large amount of producer's share on consumer's rupees.
- (ii) If market system in better the local level's marketers and farmers are benefited. They are not cheated by the other larger business man. There also aware of price mechanism.

6.3.8 Need for Training and Other Facilities

Implication

If such types trainings are provide new farmer who are not cultivated ginger they are known about the so many benefit about cash crop and their attraction is increase. And who are producer ginger they are known as well as its importance and other knowledge of its problems. So training provide lots of information about pesticide new seeds and other problems.

6.3.9 Need for Transport Net Work

Extra cost borne by the ginger farmers of Nepalese farmers at present are threefold production cost of raw ginger, production cost of dry. Ginger and transportation cost in the process of ginger production. Makawanpur district as another district of the country, is developing district and not so rich in road networking because it has only one Hatiya raigau motor Bato if other road built, there are possibilities of establishing new industries, possibilities of cultivation of important cereal and cash crop. As a result for the development of all these sectors and subsectors enough road networking in the inter village of the Makawanpur is essential.

Implication

Most of the farmers are adopting ginger farming as their main source of income and main basis for their economy. But the growing of ginger is scattered in the VDC of Makawanpur and it needs adequate permanent road facilities for export of raw and dry ginger for marketing.

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Appendix A
HOUSEHOLD QUESTIONNAIRE FOR GINGER GROWERS

District: Makawanpur VDC: Harnamadi Ward No.: 4

Interview Date:

1. Name and caste of house owner.....
2. Total family member
3. Recent member

Group A

4. Give the details of your family and educational condition.

SN	Male	Age	Female	Age	Education*	Health**	Occupation	Remarks
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

*1. Illiterate 2. Literate 3. Primary level

4. LS. level 5. Secondary level 6. Higher and above

**1. Health 2. Morbid 3. Disalled

Land holding and production

5. Give the detail of family and land utilization and production pattern.

Land		Katha	Production of last year (Muri, Pathi Kiogram)											Remark
			Paddy	Maize	Wheat	Mustard	Junelo	Black millet	Soybean	Ginger	Turmeric	Veg& Fruits	Prevailing price muri,	
Own Land	Khet													
	Bari													
	Khoriya													
Rented land	Khet													
	Bari													
	Khoriya													
Rented outland	Khet													
	Bari													
	Khoriya													
Total														

6. Give the details of your housing goods.

a) Valuable goods b) Invaluable Rs. c) Other invaluable in Rs. pots Rs.

7. Please, give your yearly major sources of house hold income and expenditure (major sources of household income and expenditure)

SN	Sources of income	Total income (last year)	Remarks	SN	Expenditure of last year	Total Expenditure	Remarks
1.	Foreign employment			1	foodable goods		
2.	Business				Paddy, rice, maize		
3.	Small and cottage industries				wheat/floor and maize		
4	Selling goat, cow, buffalo				Potato/vegetable		
5.	Milk, curd, ghee and vegetable				meat/fruit		
6.	Chicken				Milk, ghee, curd		

	and selling and vegetable						
7.	Hen, pigeon, selling pigs				Tea, sugar		
8.	Agricultural labour				Mustard oil, spices		
9.	By pottering			2.	non foodable goods		
10.	Selling cash crops				Kerosene, electricity fire wood		
11.	Selling foodable crops				Soap		
12.	From interest				Drinking water		
13.	Carpenter plumber and mason				Clothing		
14.	Doko, Namlo, Mat selling etc.				Worship, materials		
15.	If any others a) b) c)				Tobacco, wine and gambling		
Total					Total		

Food sufficiency

8. Can you afford annually by your own income?
9. If not, how many month?
 - a) 3 months
 - b) 6 six hths
 - c) 9 months
 - d) 12 ths
10. If it is saved, how much
 - a) paddy b) maize c) millet
 - d) pulse e) others
11. How do you maintain if you have not enough food?
 - a) having only one time b) having two times half

- c) earning from employment
- d) Taking loan form others
- e) Others

Access to Basic socio-economic service

13. Information about the basic socio economic services in which your access is or not.

SN	Area of socio-economic services	Types	Distance from house		Access	
			km.	metre/sq.	Yes	no
1.	Educational institution					
2.	Drinking water					
3.	Toilet/garbage management					
4.	Health post/ hospital					
5.	Electricity					
6.	Telecom service					
7.	Transportation					
8.	Market					
9.	Financial institution					
10.	Community organization					
11.	Irrigation facilities					
12.	Non formal education and training centre					
13.	Maternal child welfare organization					
14.	Agricultural development institution					
15.	Platform					
16.	Religions place					
17.	Others					

Ginger farming activities

Tick on the correct answer

13. By whom are you motivated to cultivate ginger first?

- a) agriculture b) self motivation c) demonstration effect
d) by NGO e) others
14. Have you got any loan?
If yes, in Rs.
a) government b) VDC c) From NGO
d) ADB Nepal e) from businessman f) others
15. If you are supported by government
a) advice b) loan c) price support d) warehouses
e) others
16. If you got loan,
Amount of loan Rs..... Rate of interest
17. If you are helped by VDC,
a) Suggestion b) Loan c) training d) storage
e) others
18. If you are helped by NGO,
a) suggestion b) loan c) training d) storage
19. If you are helped by businessmen,
a) suggestion b) loan c) training d) storage
20. If you are helped by any others place,
a) suggestion b) loan c) training d) storage
21. Where do you sell ginger?
a) local market b) brokers in house c) international market
d) city market e) others
22. When you sell your ginger?
a) after harvesting b) planting period c) when price increase
d) when falls necessary e) no timely (randomly)

23. How ginger is transported to market?
 a) self carrying b) by vehicle c) by laborers
 e) by cart e) others

24. Production cost except ginger (in laboures day) per kattha

SN	Activities	Maize	Paddy	Millet	Wheat	Mustard	barley	Soybean	Other	Cost in labour day	prevailing wage rate
1	Land preparation										
2	Seeds										
3	Planting										
4	Manuring										
5	Fertilizer										
6	Carrying fertilizer										
7	To care of crops										
8	Pesticides										
9	Weeding										
10	Crop storage										
11	Others										
Total	Total										

25. Production cost of ginger (in labour day) per Kattha

SN	Particulars	Cost	Labour day	Prevailing local wages	Remarks
1	Land preparation				
2	Seed				
3	Planting				
4	Manuring				
5	Buying fertilizer and mulching				
6	Weeding				
7	Eathing up				
8	Harvesting				
9	Storage				

10	Pesticides				
11	Others				
	Total Cost				

26 Out of your total land, how much of it is cultivated by ginger?

Group B

Impact indicator of Ginger Farming

27. Before ginger cultivation
cultivation

After ginger

SN	Before ginger cultivation	Low	Moderate	High	After Ginger Cultivation	Low	Moderate	High
1	Average household income				Average household income			
2	Health condition				Health condition			
3	Educational status				Educational status			
4	Recreation				Recreation			
5	Drinking water				Drinking water			
6	Social ceremony				Social ceremony			
7	Level of food				Level of food			
8	Housing				Housing			
9	Household goods				Household goods			
10	Size of land				Size of land			
11	Clothing				Clothing			
12	Main petting animal				Main petting animal			

13	Poultry				Poultry			
14	Ship/goat				Ship/goat			
15	Local road				Local road			
16	Mill and water mill				Mill and water mill			
17	Electricity/solar				Electricity/solar			
18	Others				Others			
	Total				Total			

28. Price, income and total production of ginger last 5 years

	Year	Production (quintal)	Price	Revenue
a)	2061 B.S.	.....	.....	.....
b)	2062 B.S.	.....	.....	.....
c)	2063 B.S.	.....	.....	.....
d)	2064 B.S.	.....	.....	.....
e)	2065 B.S.	.....	.....	.....

29. Do you feel difficulty to get fertilizer, pesticides and qualitative seed?

- a) hardly getting b) difficult to get on time c) no sufficient
d) easily getting e) others

30. If you saved income from ginger cultivation?

- a) Yes b) No

31. If you save, how much annually?

- a) <5000 b) 5000-10000 c) 10001-15000
d) 15001-20000 e) >20000

32. In which sector, have you invested your saving?

- a) land/house b) ornament c) to cultivate ginger

farming

- d) studying children e) in religious and recreamental function
f) others

33. Do you want to change ginger farming method?

- a) Yes b) No

34. Do you want to cultivate in modern ways?
 a) Yes b) No
35. Generally, which types of ginger do you sell?
 a) Green b) dry
 Why
36. Are you satisfied with present prevailing price?
 a) Y b)
 Why.....
37. What should be done by the government to increase the ginger farming?
 a) loan b) price support c) management
 d) training/suggestions e) others

Group C

38. What support you want to receive for selling ginger from the government?

39. What kind of ginger marketing system do you expect in order to get more batter than at present?

40. What types of suggest you give other who are not cultivate ginger?

41. How does you encourage new generation to involve in ginger cultivation?

42. If cash crop cultivation stop the brain drain?

43. How you suggest to involving other people ginger production?

44. What are your suggestion for the further increment in the production of ginger?

45. What are the major factors/reasons for the production of more ginger?

46. What are the suggested items for the increment raw ginger?

47. Are you satisfied with government policy?
.....
48. What should be done by the government to market management?
.....
39. At last, what is your own view regarding the ginger farming?
.....
.....

Appendix B
OPEN ENDED QUESTIONNAIRE

Name of the respondent:

Interview Date:

Age: Address: VDC: Ward No.

1. When have you devoted to ginger business sector?
Ans.....2.
- How much ginger do you collect from ginger producer?
Ans.....3.
- How much benefit is earned or not?
Ans.....
4. How much price is fluctuated in the ginger?
Ans.....5.
- What is the reason behind price fluctuation?
Ans.....6.
- What are the problems you have realized in the ginger business?
Ans.....7.
- Have you got any institutional help to promote selling?
Ans.....8.
- What are the remedies to solve the problems of ginger farming business?
Ans.....9.
- Are the peasants satisfied with present price?
If not, Why Ans.....

10. Have you created confident environment for the ginger cultivator?
Ans.....
If yes, how? Ans
11. How can the ginger farmers be motivated for more ginger production by price mechanism?
Ans.....
12. What is you opinion regarding the ginger business?
Ans.....

Appendix -C

Population Distribution Pattern of Study Area on The Basis of Sex and Age

	Sex				Total	
	Male		Female		No.	%
	No.	%	No.	%		
0-4	19	7.42	15	60.4	34	6.74
5-9	29	11.32	35	14.11	64	16.74
10-14	40	15.62	37	14.91	77	12.69
15-19	27	10.51	36	14.57	63	15.27
20-24	30	11.71	33	13.06	63	12.50
25-29	11	4.29	10	4.03	21	4.16
30-34	15	5.85	11	4.43	26	5.35
35-39	21	8.28	19	7.66	40	7.93
40-44	11	4.29	13	5.24	24	4.76
45-49	15	5.85	16	6.45	31	6.15
50-54	16	6.25	5	2.01	22	4.36
55-59	6	2.34	6	2.41	11	2.18
60-64	11	4.29	7	2.82	18	3.57
65+	5	1.95	5	2.01	10	1.98
	256	100	248	100	504	100

Source: Field Survey, 2066