

# **SOCIO-ECONOMIC PROFILE OF FARMERS: A CASE STUDY OF RUMTEK VILLAGE OF EAST SIKKIM**

A Dissertation in Partial fulfilment of requirements for the award of degree of  
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SRM University, Sikkim

In Partial Fulfilment of requirements of award of the Degree of

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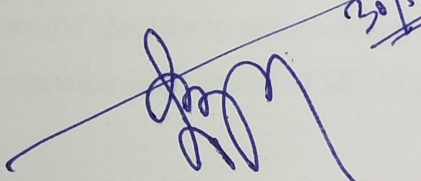
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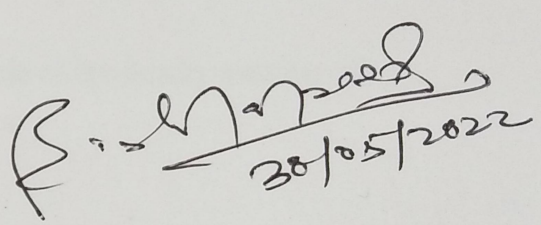
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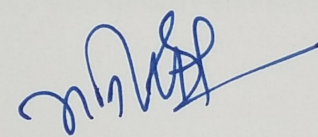
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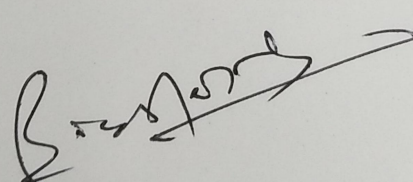
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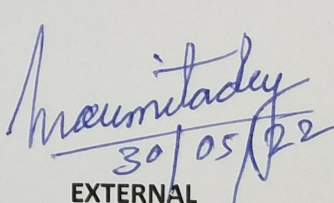
  
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## **ABSTRACT**

The socio-economic profile of the farmers of the Rumtek village of East Sikkim has been studied in this study. The crops considered for the study are food crops: paddy and maize as well as cash crops. Farmers are cultivating both the crops in a traditional manner and the farming technique is traditionally organic. Initially the farmers used chemical fertilizers and pesticides but for about last fifteen years they are doing the farming using local manure. The inputs (fertilizers) used in all the crops are same. The farmers use both the hired labour and family labour for the cultivation of the crops. The hilly terrain land and the traditional technique of cultivation have resulted in higher cost for the production. The hired labour and bullock labour constitute highest share of cost of about 80 to 90 percent. The profit out of the crops is quite low. The almost all the famers have livestock in their houses and the crops are also the major source of the fodder for animals, and this is the reason why the farmers are doing food crop cultivation despite having low return of the crops.



**SOCIO-ECONOMIC PROFILE OF FARMERS: A CASE  
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# **CHAPTER 1**

## **INTRODUCTION**

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## **INTRODUCTION**

### **1. Introduction**

Agriculture, as a source of livelihood, is the largest sector in India. While its output share fell from 28.3% in 1993-94 to 16.4% in 2016- 17, employment share declined from 64.8% to 48.9% over the same period (MoSPI, 2021). Therefore, almost half of the workforce in India still remains dependent on agriculture. Given the low share of this workforce in the GDP, on average, it earns much lower income than industry and services. Therefore, progress in agriculture has a bearing on the fate of the largest proportion of the low income population in India.

The output per hectare, which is a common measure of agricultural productivity, remains low for many crops when compared to many other countries. There are also large regional variations within the country. Reasons include low and faulty input uses, poor access to modern technology and no real technological breakthrough in recent times. Second, on average, farmers do not realize remunerative prices due to limited reach of the minimum support prices (MSP) and an agricultural marketing system that delivers only a small fraction of the final price to the actual farmer. Third, the farm size of the majority of the household has declined to unviable levels inducing farmers to leave land and look for better job opportunities elsewhere. Because land leasing laws make it risky to lease land, increasingly, productive land is being left uncultivated. This is also being observed in Sikkim as many cultivable land have been converted into barren land.

India is a country rich in human resources by virtue of its demographic dividend. India is the country with the second largest population in the world. Amongst a population of about 1.3 billion, about 68.84 per cent live in rural areas (Census 2011, GoI) which comprises more than two third of the total population. About 57.8 per cent, that is 9.02 crore out of estimated 15.61 crore rural

households are engaged in agriculture (NSSO, 2012-13). In spite of a significant share of Indian population deriving livelihood from agriculture, the Indian agricultural scenario is quite pathetic. Farmers are quitting agriculture and youth are migrating to urban areas as farming gradually becomes an unprofitable venture. Indian agriculture suffers from low productivity, land and irrigation issues, pressure due to urbanisation and increase in population, natural vagaries, fluctuating prices, market risks and economic insecurity. The increasing number of farmer suicides bear proof of this very fact. Indian agriculture is at crossroads and the need of the hour is not only to make farming as profitable venture to attract and retain those who want to quit farming but also enhance agricultural productivity and hence income to solve the issue of disguised unemployment in agricultural work force of India. The possible solution to this problem can be skill development in agricultural sector

Agricultural productivity and efficiency is at the centre of many of the debates, policies and measures concerning the farming sector. The emphasis placed by the Sustainable Development Goals on agricultural productivity underlines the many reasons for which additional research on statistical frameworks for productivity and efficiency targeted to developing countries is necessary.

In parallel to global initiatives, such as the 2030 Agenda for Sustainable Development, several countries have introduced policies to improve agricultural productivity, especially in countries where agriculture is a major economic sector and the productivity gap among the primary sector and other industries and services is the widest. Enhancing productivity in agriculture is important because of its effective contribution to poverty reduction through better food security and higher farm incomes.

Research on the measurement of agricultural productivity is not new and can be traced back to the classical theory of economic growth. More recently, Solow (1957), Diewert (1980), Ball et al. (1997);

Ball & Norton (2002), among many others, have made essential contributions towards developing a better understanding, measuring and analysing agricultural productivity.

A better understanding and measurement of efficiency in agriculture is required in the context of lower availability of key resources and production factors, such as land or water in adequate quantity and quality.

Indicators of labour efficiency and its impact of on farm output thereby ensuring the food security are useful for policy-making and monitoring, especially in developing countries where smallholders and family farms are predominant.

## **1.2 Research Questions**

1. Does the farmers possess essential skills required for farming activities?
2. Does farmers' skills influence farm output?

## **1.3 Objectives of the Study**

1. To evaluate the farmers' skills in the farming activities.
2. To examine how farmers' skills influence the farm output.

## **1.4. Research Methodology**

### **1.4.1 Data Source**

This study is mainly based on primary data.

#### ***1.4.2. Sources of Primary Data***

Primary data has been collected by conducting field survey with a interview schedule (asking questions on family status, total agricultural holdings of the households, type of crops shown, total output, skills and the experience of the farmers ) by conducting interview with farmers and the experience members with respect to farming during the month of May 2022

#### ***1.4.3. Study Area***

The Rumtek village of East Sikkim

#### ***Sample design and Sample Selection***

Given the large size of the farmers around 100 farming families in the village and with time constraint the present study purposively selected 45 per cent of households from the village which were selected as per the convenience.

#### **4.3 Technique of Analysis**

Simple Descriptive statistics have been used.

# **CHAPTER 2**

## **LITERATURE REVIEW**

## **Chapter 2**

# **LITERATURE REVIEW**

### **2.1. Introduction**

India accounts for only about 2.4 percent of the world's geographical area and 4 percent of its water resources but has to support about 17 percent of world's human population and 15 percent of the livestock. Agriculture accounts 14 percent of the nation's GDP; about 11 percent of its total export; principal source of income of about half of the population and a source of raw material for large number of industries (State of Indian Agriculture 2012-13).

The state of Sikkim has 62,000 farming families who own an average of 1.9 ha of farm land and do the farming in the traditional way. Taking this as an advantage, the State Government initiated to promote the organic farming in the state. Sikkim also has some advantage of continuing traditional farming since the farmers of the state are cultivating with knowledge and skills based on organic farming. The possession of variety of agro-climatic conditions and an emerging new class of educated farmers wanting to make agriculture a professionally viable vocation, there is a good potential of making the organic farming a success (SIKKIM towards Fully Organic State by 2015, 2012, FS&ADD and H&CCDD, Government of Sikkim).

For Sikkim, this generates hope of improving soil health of largely marginal hill farmland, reducing the cost of inputs and developing cash crops and agro-enterprises with an aim to offer



opportunities of employment. The vibrating tourism industry gets better boost with the success of the organic farming as the organic farming can become a matter of greater interest for the visitors on the aspects like having organic food and to see the organic activities involved there in the agriculture practices. The State has the enormous opportunities to develop niche based organic agriculture business enterprises providing self employment to educated youth and improving states' economy. The farmers of Sikkim can avail the benefit of increasing both in terms of income generation as well as employment generation since the international market for organic product is growing at the rate of 30 percent and World organic food sales jumped from US\$23 billion in 2002 to over US\$62 billion in 2010 (SIKKIM Towards Fully Organic State by 2015, 2012, FS&ADD and H&CCDD, Government of Sikkim). Production of organic product in large scale for the purpose of export can help the economy of the state to boost towards greater height of development. Owing to unique agro climatic conditions and farming practices, there are larger opportunities for high-value products such as cardamom, ginger, orange, tea, kiwi fruits, passion fruit and many types of mountain vegetables and food-grains. The cultivation of these crops through organic method has more potential for national and international markets (SIKKIM towards Fully Organic State by 2015, ed. 2012, published by FS&ADD and H&CCDD, Government of Sikkim). The government has targeted to transform the state to fully organic by 2015 and the work is going on in the entire state.

The fertile land, the topography and the climatic condition of the state largely support agriculture. The cropping pattern of the State has over the years transformed from cereal dominated subsistence agriculture to high value, cash crop dominated commercial agriculture. However, the cultivation of the food crops has not lost significance as the topography and the climatic conditions largely support the cultivation of these crops in the state. Agriculture, horticulture and animal husbandry constitute a mainstay of the largest segment of Sikkim's population. Maize, paddy, wheat, barley and buck wheat are the main cereals and potato, ginger, cardamom and mandarin are the major commercial/horticultural crops grown

in the state. Since all these crops are being growing organically, there is huge potential of capturing the local, domestic and international market for the organic produces by the state.

## **2.2. Agricultural Productivity**

The main goal of every farmer, whether he has a small or big land hplding, is to have a productive farm. Aiming to be productive, farmers are faced with many factors limiting farm's productivity, such as available land, weather conditions, crops, market access, farmer's knowledge, lack of new technologies and other. Farm productivity is important for many reasons; from providing more food, better competitiveness on the agricultural market to personal benefits to the farmers, such as income, health and wellbeing, as well as being able to increase the outputs of labor. According to an economic definition, farm or agricultural productivity is the ratio of agricultural outputs to agricultural inputs. In other words, the higher the agricultural outputs, the farm will be more productive.

## **2.3. A general definition**

“Productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use” (OECD 2001b). At its most fundamental level, productivity measures the amount produced by a target group (country, industry, sector, farm or almost any target group) given a set of resources and inputs. Productivity can be measured for a single entity (farm, commodity) or a group of farms, at any geographical scale. The measure should reflect the ultimate purpose for the inquiry. If for example, the purpose is to compare productivity between farms, then measures that are micro-based are required. If the need is to evaluate national agricultural policy at the country level, then macro measures are required. This same analogy can extend beyond the sector to the national economy. While the desired purpose can vary, the measurement issues associated with deriving the different indicators are the same. However, data requirements may differ depending on the type of indicator: farm-level productivity measurement for one

commodity and one input (for example, labour productivity of maize farms) may only require basic information on output quantities and input use, while producing aggregated measures generally requires pricing outputs and inputs.

Similar to most indicators, a single statistic rarely, if ever, tells a complete story to provide policy-makers and analysts with sufficient information to unambiguously prescribe the best policy. For example, a productivity measure for agriculture that is often cited is crop output per land area (commonly referred to as crop yield), with a higher yield corresponding to higher productivity. It quickly becomes apparent that the challenge with this and similar measures rests with how they are interpreted. Continuing with this example, a higher yield may be indicative of improved fertilization practices (use of a better fertilizer and/or more efficient application), land of higher quality allocated to the crop, the use of a better-educated workforce or more efficient use of capital. However, it may also just be explained by basic factors beyond the farmers control, such as the soil conditions and even the weather.

## **Discussion**

Productivity measurement has its origins in the microeconomics “theory of the firm” in which, after simplifying assumptions, it can be shown that inputs can be combined optimally to allocate scarce resources, allowing firms to maximize profits subject to a cost constraint or to minimize costs subject to an output constraint. Both will result with an input allocation that is efficient or optimal.

Productivity is studied because, through increased productivity, firms (or industries, or countries) can better allocate scarce resources to other pursuits. It leads to higher national income by virtue of this reallocation, by more efficiently using inputs and by reallocating the “surplus” to other endeavours. Both results stem directly from the analysis of productivity. In its simplest form, productivity measures describe the relationship between the production of a commodity — good or service — and the inputs used to

produce that commodity. It can be the relationship between one or more products and one or more inputs. Either way, all production, sold or not, and all inputs, whether they are paid for, should be correctly valued.

As productivity measures describe how the transformation of inputs into products is affected by efficiency and technological change, it follows that productivity measures are often volume based. However, in some cases, efficiency and technological change may not be factors behind increased productivity. One example would be if production were to double in response to a doubling of output prices caused by an external shock.

Most farms produce multiple commodities with many inputs. While it is technically possible to define multi-product output in terms of physical measure (kilogrammes or joules, for example), it is simpler to convert volumes to monetary values to perform the aggregation. The aggregation of different inputs is also generally done using values. In this case, productivity change is measured by comparing the productivity between two periods using the prices of a fixed reference period. The difference is, therefore, only attributable to quantity or volume changes and not due to price variations. The factors affecting the farm output are Size of Farm, Rate of Production, Intensity of Cultivation, Labour Efficiency, Inputs used, Capital Efficiency etc.

Chauhan et al. (2003) in Gujarat, found that majority (80.00%) of the persons involved in poultry enterprise had medium to high level of orientation towards development of skill in their farm workers. Popat et al. (2004) in Gujarat, developed an objective test to measure skills of farmers in handling and operation of sprinkler irrigation system. The experts were requested to assign weight to each item out of 100 for each of two dimensions i.e. relative importance and difficulty in performance. Kalra et al. (2006) in Punjab, reported that lack of skilled labour was main constraints in pruning and training of peach plants, which was faced by about half of the peach growers who faced constraints in pruning and training of the peach plants (86.36%).

Kaur et al. (2010) in Punjab, revealed that 95.63, 94.20 and 84.05 per cent of the respondents opined that the training programmes brought positive change in them in terms of skill, knowledge and attitude respectively. Reddy et al. (2012) in Andhra Pradesh, found that there was high skill improvement only in agriculture (69.62%) followed by animal husbandry (59.23%) and horticulture (46.92%) areas. Only 23.46 per cent of the respondents expressed high skill improvement, followed by low (27.31%) and medium (49.23%) categories, respectively.

Sharma et al. (2014) in Punjab, reported that there was an overall increase in milk production from 6.76 litres to 6.93 litres per animal per day (2.51%). Average milk production per farmer increased from 30.09 litres to 37.82 litres with an increase of 25.69 per cent. It can, therefore, be inferred that dairy vocational training programmes carried out by KVK were instrumental in increasing the productivity and profitability of dairy enterprise. Kumari et al. (2015) in Bihar, stated that out of total trained women maximum 98.00 per cent had high level of skill, 2.00 per cent had medium level of skill and none of these low level of skill regarding apiculture technology. However, in case of untrained women 98.00 per cent had medium level of skill and only 2.00 per cent had low level of skill.

#### **2.4. Skill Deficiency in India:**

According to the estimates of the National Skill Development Policy, presently skills base of the Indian economy is quite low compared to other developed economies of the world. The present vocational training capacity is estimated to be around 3.1 million whereas 12.8 million persons, according to the 61st round of the National Sample Survey Organization (2004– 05). The unorganized sector in the country constitutes nearly 90% of the workforce. Skills in the unorganized sector are acquired through informal apprentice system and the prevailing formal training system does not take care of the required skills. This eventually has

led a huge gap in skill demand and supply. However, in order to reap the benefits of demographic dividend, India will have to equip this manpower to meet the requirement of skilled manpower across geographies.

The study was conducted in Amritsar district of Punjab to study the constraints in the adoption recommended peach cultivation practices on a sample of 110 peach growers. It was observed that most of the respondents were of medium age and educated up to matriculation and had medium land holding, medium family income and low extension contacts. The study revealed that the main constraints in adoption of recommended practices were lack of knowledge, lack of inputs, costly inputs and lack of skilled labour. It is recommended that more emphasis should be given on the practices such as training-pruning, fruit thinning, insect-pest control and disease control in extension training courses and other extension programmes as majority of the peach growers faced constraints in adoption of recommendations regarding these practices.

Somanje, et.al 2021 Agricultural extension is a significant determinant that helps agricultural value chain actors such as farmers increase agricultural productivity, thereby improving income, alleviating poverty and enhancing food security. Empirical studies have shown that agricultural extension training is significant in agronomic practices, diet diversification and nutrition, sustainable agriculture, achieving sustainable development goals 1 (no poverty) and 2 (zero hunger) improving food security, and adopting advanced technologies. The provision of agricultural services must adapt to the changing social, economic, and environmental indicators affecting the entire food system from production to consumption.

## **Research Gap**

The influence of farmers' skills on the farm output has not been studied in Sikkim.

## **CHAPTER 3**

# **AGRICULTURE PROFILE OF SIKKIM**

## **Chapter 3**

### **Agriculture Profile of Sikkim**

This chapter briefly presents the agricultural profile of Sikkim. It gives detail information on trends on paddy, maize and ginger. This chapter will also provide sufficient information while analysing and interpreting the results.

#### **3.1 Agriculture in Sikkim**

Agriculture and allied sectors like forestry and fisheries accounted for 13.7% of the GDP (Gross Domestic Product) in 2013, and about 50% of the total workforce. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India.

As of 2011, India had a large and diverse agricultural sector, accounting, on average, for about 16% of GDP and 10% of export earnings. India's arable land area of 159.7 million hectares (394.6 million acres) is the second largest in the world, after the United States. Its gross irrigated crop area of 82.6 million hectares (215.6 million acres) is the largest in the world. India is among the top three global producers of many crops, including wheat, rice, pulses, cotton, peanuts, fruits and vegetables. Worldwide, as of 2011, India had the largest herds of buffalo and cattle, is the largest producer of milk and has one of the largest and fastest growing poultry industries (Livestock and Poultry: World Markets and Trade, United States Department of Agriculture, 2011).

Sikkim is the 22nd state of India, came into existence with effect from 16th May, 1975 has extended approximately 115 Kms from north to south and 65 Kms from east to west, surrounded by vast



stretches of Tibetan Plateau in the North, Chumbi Valley of Tibet and the kingdom of Bhutan in the east, Darjeeling district of West Bengal in the south and Nepal in the west. The State is located at the foothills of Eastern Himalayas between latitude of 27 degree 49" and 28 degree 10" north and the longitudes of 88 degree 28" and 88 degree 55" East. The state being a part of inner ranges of the mountains of Himalayas has no open valley and no plains but carried elevations ranging from 300 to 8583 metres above mean sea level (MSL) consisting of lower hill, middle and higher hills, alpine zones and snow bound land, the highest elevation 8583 metres, being the top of the Mt. Kangchendzonga itself. Sikkim has been divided into four districts and each district has further been bifurcated into two sub-divisions for administrative purpose except the East district which has three sub-divisions. Out of elevation ranging from 300 to 8583 meters the habitable areas are only up to the altitude of 2100 metres constituting only 20 percent of the total area of the state. The highest portion of Sikkim lies in its North West direction (Sikkim Urban Dynamics, 2013).

## **3.2 Sectoral Composition**

Sikkim is a land of villages. Agriculture, horticulture and animal husbandry constitute a mainstay of the largest segment of Sikkim's population. Agriculture is the main occupation of the people. By and large, Sikkim's wealth is derived from agriculture and forests. However the original inhabitants were not agriculturists. It was started as sedentary farming when Bhutia people migrated to Sikkim. Settled agriculture stepped into Sikkim only with the arrival of Nepali immigrants.

The nature of the terrain and varied micro climatic conditions influence agriculture in Sikkim. Maize, paddy, wheat, barley and buck wheat are the main cereals grown in Sikkim. Sikkim has the largest area and the highest production of large cardamom in India. Cardamom, ginger, potatoes and orange are

important cash crops of Sikkim. A special kind of tea much valued by the connoisseur for its taste and quality is also produced in the state. A government Tea Estate is being developed in Kewzing in the western part of Sikkim. There is one more tea estate at Temi. Both these estates extend over an area of 400 acres. Under horticulture, large quantities of oranges and apple are raised. Vegetables, pineapple and banana are other cash crops of Sikkim.

### **3.3 Land Use Classification**

Agriculture continues to be the backbone of the Sikkim's economy. More than 64 percent of the population depend upon agriculture and related activities for their livelihood. Prior to 1975, the uncertainties about land tenure rights, negligible public investment and over dependence on traditional technologies had made the cost of cultivation very high in Sikkim. Sikkim's agriculture thus remained highly subsistence-oriented. The economy was further plagued by low productivity, negligible marketable surplus and other institutional backwardness. However, in the post merger period in spite of limited area of cultivated land, smaller land holdings, difficult hilly terrain, diverse agro-climatic condition prevailing at short distances, low farm income and lack of adequate supportive infrastructures for agriculture development, the State has achieved to indigenously sustain a larger portion of its food requirement.

**Table: 3.2 Land Use Classifications in Sikkim as on 2007.**

Land type	Percentage	Hectare
Total geographical area	100	709600
Cultivable area	14.91	109068
Permanent pastures	10.14	73947
Land put to non agricultural use	8.70	51200
Barren land	17.70	130230
Land under miscellaneous trees & groves	0.75	5450
Forests	47.3	335640

Source: Economic Survey of Sikkim 2006-07.

Agricultural holdings are well spread over from an elevation of 300 to 3000 meters. Most of the cultivable lands are terraced and farmers have settled on these holdings with established regular cropping system. Out of total geographical area (Table 3.2), marginal holdings and small holdings clubbed together comprise about 50% of all operational holdings and occupy 41% of the total cultivable area, 14.91 % are cultivable area.

Though the large chunk of population of the state depends on agriculture for the source of livelihood, only around 11 percent of the total geographical area is under agriculture. Agriculture is of the mixed type and is mostly done in subsistence level rather than for commercial purpose. However, it has been observed in the last decades that the farmers are driving towards the cultivation of cash crops which are mainly meant for commercial purposes. Cultivators account for the greater majority of the people in the state, their percentage is 57.84 percent (Medium Terms Fiscal Plan for Sikkim 2014-2015 to 2016-2017).

### **3.4 Cropping Pattern**

The cropping pattern of the State has over the years transformed from cereal dominated subsistence agriculture to high value, cash crop dominated commercial agriculture. Eighty percent of the population lives in rural Sikkim. The total cultivable land in the state is around 79,000 hectares. Agriculture in the State of Sikkim is practiced under diverse conditions. The region is characterized by large variations in slopes (0-100%) altitudes (300-3000 m above MSL) and rainfall (200-400 cm). The soil of entire state is acidic in nature (State profile of Sikkim, 2010-11). The above mentioned agro climatic factors by and large affect the management and productivity of the crop either in multiple cropping or under mono-cropping system. Moreover, the choice of crop is mostly consumption oriented and system of cultivation has established in low input, low risk, low yield technology because the primitive forms of agriculture is still most dominant (State profile of Sikkim, 2010-11).

The principal crops of the state are maize, rice, large cardamom. Along with maize and rice, soya bean is raised as intercrops. Wheat, mustard, buck wheat are the important crops. Potato, radish, brinjal, tomato, ladies finger, beans, cow peas, rai, pea, are the important vegetables crops grown in the State. Wide range of fruit crops are also grown successfully in the State. The important fruit grown in the state are mandarin orange, banana, guava, papaya, mango peach, plum pears, apple, etc. Presently mandarin orange is an important commercial fruit crop of Sikkim. Sikkim produces 80% of India's large cardamom which enjoys a high value export market in Pakistan, Singapore and Middle-East. The ginger of Sikkim is also of a good quality and has export prospects. The climate is also ideal for development of mulberry trees and hence the establishment of a sericulture industry (Economic Survey of Sikkim 2006-07).

The state agriculture is predominantly dependent upon rain fed cultivation and giving more priority to mixed cropping. Now, since 2003 onward Sikkim has been branded as state heading towards organic farming. The state is basically an agrarian where approx 65% of the population depended upon agriculture for their livelihood.

In spite of all these prospects, the absence of profitable marketing network and the lack of appropriate processing facilities for manufacturing quality finished products have resulted in most of the produce being sold at uncompetitive prices to other states as raw materials and their true potential has not been exploited.

### **3.5 District Wise Land holding Pattern in Sikkim**

District wise analysis of food production shows that unlike its share in cash crops including vegetables, the contribution of North in the total food basket is much less than 10 percent whereas the West contributes over 35 percent closely followed by the East with over 30 percent and South over 25 percent. Similarly rice is predominantly produced in East (over 40 percent) and West (over 30 percent) and maize in all four districts of North, South, East and West. The increase in production is attributed to concurrent rise in crop area due to double cropping /mixed cropping and the cumulative effect of increased application of improved agricultural inputs. The HYV coverage has been as high as 98 percent in wheat, 41 percent in rice and 40 percent in maize (Economic Survey of Sikkim 2006-07).

Sikkim falls within high rainfall zone and especially in monsoon, the State receives a high precipitation and its annual rainfall exceeds 400mm. The culturable command area, suitable for practicing agriculture, is approximately 1,09,000.00 ha. Rain fed agriculture is a predominant feature and only about 15% area is under irrigation (Annual Report of Sikkim, 2011-12). In Sikkim only minor irrigation is feasible as the agriculture lands are available in small patches in between the rugged terrains and at the foothills.

The land holding, production and productivity of some major crops (rice, maize and potato, ginger and cardamom) grown in state are depicted in Table 3.3. East district has largest operated area of 34450 ha followed by south and west. However, the state has an average of 2.11 ha per economic holding.

**Table: 3.3 District Wise Land Holding Pattern**

Particulars	Unit	North	East	West	South	State
Operational holdings	Numbers	5124	20271	12854	14448	52697
Area operated	Hectares	15444	34450	29336	32072	111302
Average area per holding	Hectares	3.01	7.7	2.22	2.28	2.11

Source: 1) Sikkim-A Statistical Profile, 2006-07; 2) Deptt. of Commerce & Industries, of Sikkim.

2) Sikkim: A Statistical Profile 2011-12

## **3.6 Area, Production and Productivity of Major Food Crops of Sikkim**

### ***3.6.1 Paddy***

Paddy is most important staple cereal crop of Sikkim grown in all places having warm and humid climate with shallow water. This crop is used for human consumption and there is large variety of its kind. The residual of the crop (Paraal in local language) is the main source of animal fodder.

The share of paddy as the main food item, in the total food production has been hardly 20 percent. The per capita availability of paddy in the state is 158 gms/ day which is far below the National average of 417 gm during 2001-02 (Economic Survey of Sikkim, 2006-07). This shows that the State is deficit in paddy production which is the staple food of the State therefore the State is dependent on import of rice from outside the State. The low availability of paddy as a major crop in the state is also attributed to shrinking of the land under paddy cultivation due to several developmental activities (Economic Survey

of Sikkim, 2006-07). The trend of area under the paddy production is declining slowly. But the trend of production and productivity has an increasing trend. The declining area under paddy is due to the relative increase in the substitution of cash crops farm for food crops. Table 3.4 shows the fact that even though area under paddy crop is declining from 14.74 thousand hectares in 2003-04 to 11.92 thousand hectares, the production has increased from 21.19 thousand tonnes to 23.44 thousand tonnes and the productivity has increased from 1437 kg per hectare to 1966.44 kg per hectare. Fig 3.1 shows the productivity trend for paddy.

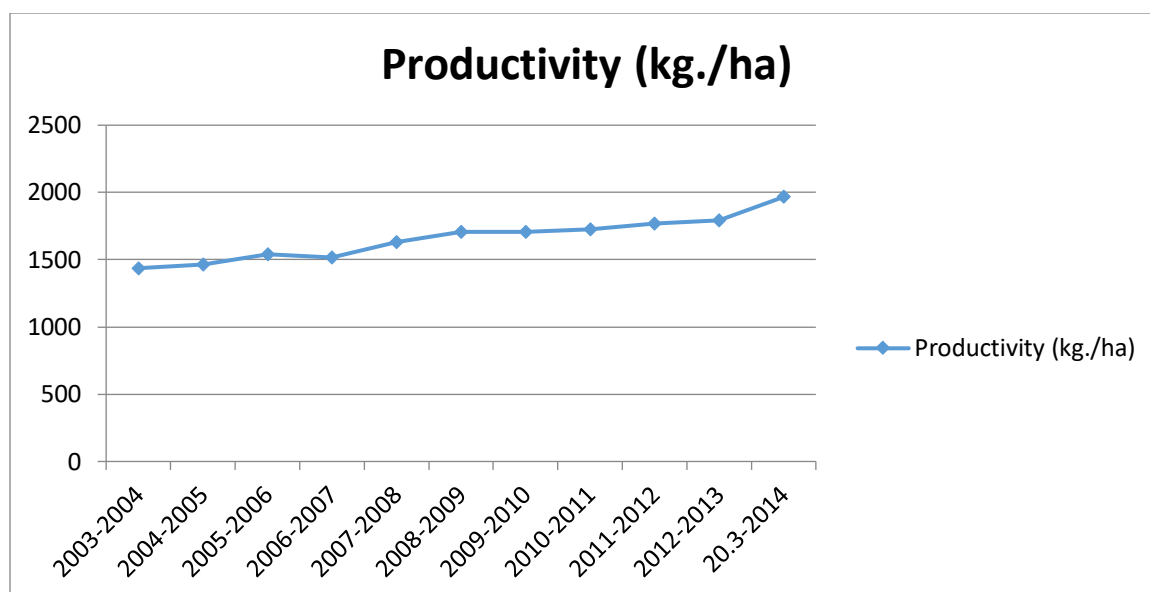
**Table: 3.4 Area, Production and Productivity of Paddy in Sikkim.**

	<b>Year</b>	<b>Area (000' hectares)</b>	<b>Production (000' tones)</b>	<b>Productivity (kg./ha)</b>
1.	2003-2004	14.74	21.19	1437.00
2.	2004-2005	14.74	21.61	1466.00
3.	2005-2006	14.74	22.69	1539.35
4.	2006-2007	14.15	21.45	1515.90
5.	2007-2008	14.00	22.85	1632.14
6.	2008-2009	13.00	22.23	1709.23
7.	2009-2010	12.27	20.93	1705.79
8.	2010-2011	12.14	20.97	1727.63
9	2011-2012	12.03	21.18	1770.50
10	2012-2013	11.92	21.34	1790.27
11	2013-2014	11.92	23.44	1966.44

**Source:** Annual Reports, Food Security & Agriculture Development Department, Government of Sikkim, 2013-2014.

**Fig: 3.1 Trend Line of Productivity of Paddy**





**Table: 3.5 District wise area, production and productivity of paddy (2011-12) (figure in the brackets is percentage out of 100%)**

Paddy	East	West	North	South	Total state
Area (000' ha)	4.95 (40.7)	3.97 (32.7)	1.00 (8.23)	2.22 (18.28)	12.14 (100)
Production ('000 tones)	8.67 (41.3)	7.21 (34.38)	1.14 (5.43)	3.94 (18.78)	20.97 (100)
Productivity (kg/ ha)	1752.0	1817.00	1140.00	1778.20	1723.00
Productivity (per acre)	709.01	735.31	461.53	719.61	697.27

**Source:** Annual Reports, Food Security & Agriculture Development Department, Government of Sikkim, 2013-2014.

Table 3.5 shows the district wise area, production and productivity of paddy in Sikkim. Out of total area under paddy in Sikkim 12.14 Tha (Thousand hectares), 40.7 % i.e. 4.95 Tha belongs to East district followed by West 32.7 %. That is why the samples have been collected from East and West

districts. Similarly out of total paddy production, 20.97 thousand tonnes, around 80% of paddy production is in East and West districts (41.3% and 34.38% respectively).

The State is in deficit of paddy production which is the main staple food crop of the people. To meet the demand of the population state has to depend on import of rice from outside the State. The less availability of paddy as a major crop and decrease in its total production in the state is in fact attributed to shrinking the land under paddy cultivation due to several developmental activities taking place in the state (Economic Survey of Sikkim, 2006-07). The area under the crop has decreased as well as the production has also not shown improvement during the period of last 10 years i.e. between 2003-4 to 2013-14. Though the productivity has been improved but since the land under the crop has shrink, the hope for the improvement in the quantity of the output is very less. Hence, rethinking and execution of effective policy implication with regard to the restoration as well as improvement of the crop's production is urgently needed.

### ***3.6.2 Maize***

Maize is the most important cereal crops of Sikkim. It is grown over an area of about 36,000-40,000 hectare which is about 35-40% of total cultivable area (Economic Survey of Sikkim 2006-07). Maize is part of the staple food item in Sikkim; its production contributes over 50 percent of the total food grains production in the State. The crop is largely used as animal fodder.

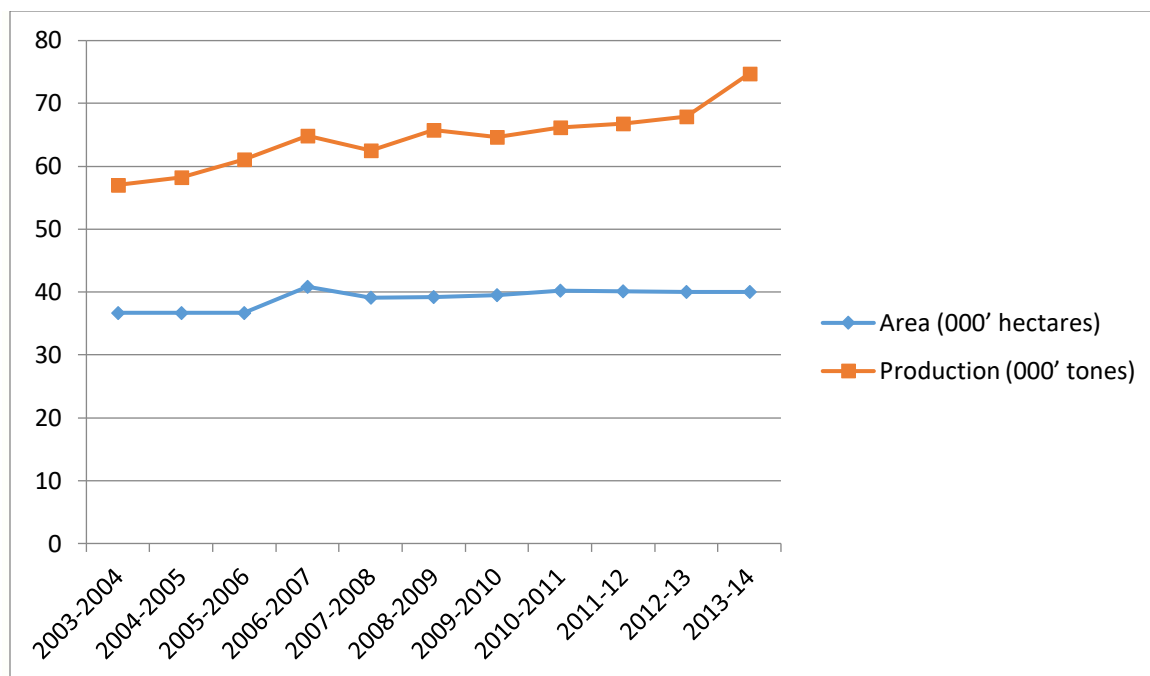
**Table: 3.6 Area, Production and Productivity of Maize in Sikkim.**

	<b>Year</b>	<b>Area (000' hectares)</b>	<b>Production (000' tones)</b>	<b>Productivity (kg./ha)</b>
1.	2003-2004	36.70	57.05	1554.50
2.	2004-2005	36.70	58.19	1585.00
3.	2005-2006	36.70	61.10	1664.85
4.	2006-2007	40.85	64.89	1588.49
5.	2007-2008	39.10	62.56	1600.00
6.	2008-2009	39.20	65.74	1677.04
7.	2009-2010	39.50	64.69	1637.72
8.	2010-2011	40.17	66.19	1647.82
9	2011-12	40.12	66.84	1680.44
10	2012-13	39.97	67.95	1700.03
11	2013-14	39.97	74.75	1870.15

**Source:** Annual Reports, Food Security & Agriculture Development Department, Government of Sikkim, 2013-2014.

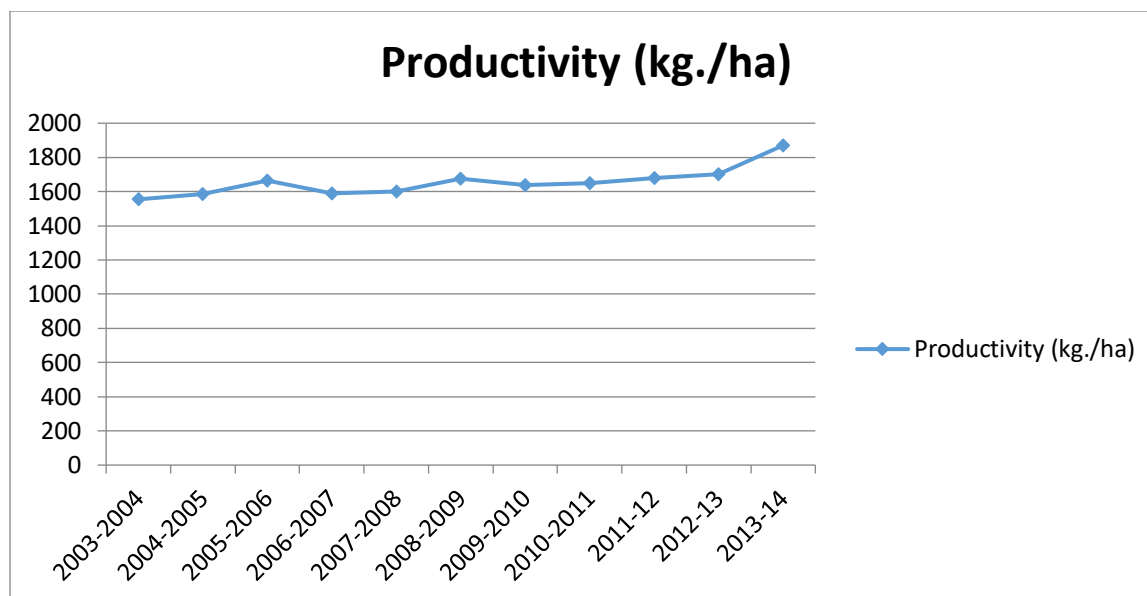
Table: 3.6 presents the detail information on area, production and productivity of maize crop in Sikkim. Area, production and productivity of maize have been shown an increment between 2003-04 and 2013-14. However, the production and productivity has increased at a higher rate. The Table: 3.5 and 3.6 show that the area under paddy in 2003-04 was 11.79 Tha and it was 36.70 Tha for maize, around four times the area of paddy. In 2013, the area was respectively 11.92 Tha and 39.97 Tha which is more than three times of paddy area. Similarly the productivity of maize is much higher than paddy productivity during the same period.

**Fig: 3.2 Trend Line of Area under Maize Cultivation and Production of Maize**



There has not been notable increase in the land under the crop since the crop is the most dominant cereal in the total agricultural products in Sikkim and the cultivation of which is the age old practices of the farmers of Sikkim. The crop can be grown in the entire range of agricultural zone of the state. The residual of the crop is used for animal fodder which is considered better for feeding the milching cows and buffalos.

**Fig: 3.3 Trend Line of Productivity of Maize**



As far as the production of the crop is concerned, the data source shows that it has increased in the last 10 years period. The productivity of the crop has also shown improvement during the period. Since the crop is rain fed and the cultivation does not necessarily require the terraced level land, it is cultivated by almost all the farmers in the state. An effective policy and the efficient measures of cultivation of the crop supported by HYV of seeds can help the state as well the farmers to gain larger economic gain from the crop.

### 3.7 Area, Production and Productivity of Major Cash crops of Sikkim

The major cash crops grown in the state are potato, large cardamom, ginger, turmeric, fruits, flowers which are mostly meant for commercial purposes. The area under the crop, production and productivity of some of the principal cash crops has been shown in the table below:

**Table: 3.7 Area, Production and Productivity of Two Major Cash Crops**

**(Area in '000 Hectare; Production: in '000 Tonnes & Productivity: Kg/Hectare)**

Crops		1975- 76	1980- 81	1985- 86	1990- 91	2000-01	2002- 03	2005- 06	2011- 12
Potato	Area	NA	NA	NA	NA	6.20	NA	NA	9.76
	Production	5	6.64	16.40	18.00	25.50	23.71	33.14	47.09
	Productivity	NA	NA	NA	NA	4112.00	NA	NA	4821.00
Ginger	Area	NA	NA	NA	NA	5.10	NA	NA	8.9
	Production	2.00	3.20	10.90	16.00	24.00	23.00	36.00	49.50
	Productivity	NA	NA	NA	NA	4705.00	NA	NA	5561.00

Source: 1) Sikkim: A Statistical Profile 2002 & Sikkim Perspective for planning and development.

2) Economic Survey of Sikkim 2006-07

3) Annual Reports, Food Security & Agriculture Development Department, Government of Sikkim, 2013-2014.

**Note:** NA- Not Available

### ***3.7.1 Potato***

Potato is one of the major cash crops of Sikkim. The crop has witnessed growth in terms of area, production as well as productivity. The area under the crop has increased from 6.20 thousand ha during 2000-01 to 9.76 thousand ha during 2011-12 (Table 3.6). Production of the crop has also shown an improvement. During the year 1975-76 it was 5 thousand tonnes which increased to 23.71 thousand tonnes during 2002-03 and in 2011-12 it is 47.09 thousand tonnes. During the period of 1975-76 to 2002-03, the increase in production was due to the application of chemical fertilizers in the crop. The production has shown a significant improvement during this period. Though the use of chemical fertilizers was banned from 2003, the production of the crop still showed a significant growth. The total production increased from 23.71 thousand tonnes in 2002-03 to 49.50 thousand tonnes during the year 2011-12. This improvement in the production was owing to the increase in the area under the crop. On the other hand

the productivity of the crop too has shown an improvement. The productivity of the crop during the year 2000-01 was 4112.00 kg/ha which increased to 4821.00 kg/ha during 2011-12.

### **3.7.2 *Ginger***

Ginger is another cash crop grown in the state. It is locally called *Adhua*. Similar to that of the potato, the area under the crop has also increased from 5.10 thousand ha during 2000-01 to 8.9 thousand ha during 2011-12. Production of the crop improved during the period between 1975-76 to 2002-03. It was 2.00 thousand tonnes during the year 1975-76 which increased to 24.00 thousand tonnes during 2002-03 and in 2011-12, it further increased to 49.50 thousand tonnes. The production has shown a significant improvement during this period. The production further increased to 49.50 thousand tonnes during the year 2011-12. This improvement in the production was owing to the increase in the area under the crop and application of the chemical fertilizers during the period of 1975-76 to 2002-03 and proper management of the crop with organic technique during the later period (SIKKIM towards Fully Organic State by 2015, ed. 2012, published by FS&ADD and H&CCDD, Government of Sikkim). On the other hand the productivity of the crop too has shown an improvement. The productivity of the crop during the year 2000-01 was 4705.00 kg/ha which increased to 5561.00 kg/ha during 2011-12.

Table: 3.7 shows that the production of potato has increased from 5 Tt (thousand tonnes) to 47.09 Tt but for ginger it has increased from 2 Tt to 49.50 Tt.

**Fig: 3.4 Trend Line of potato and ginger production**

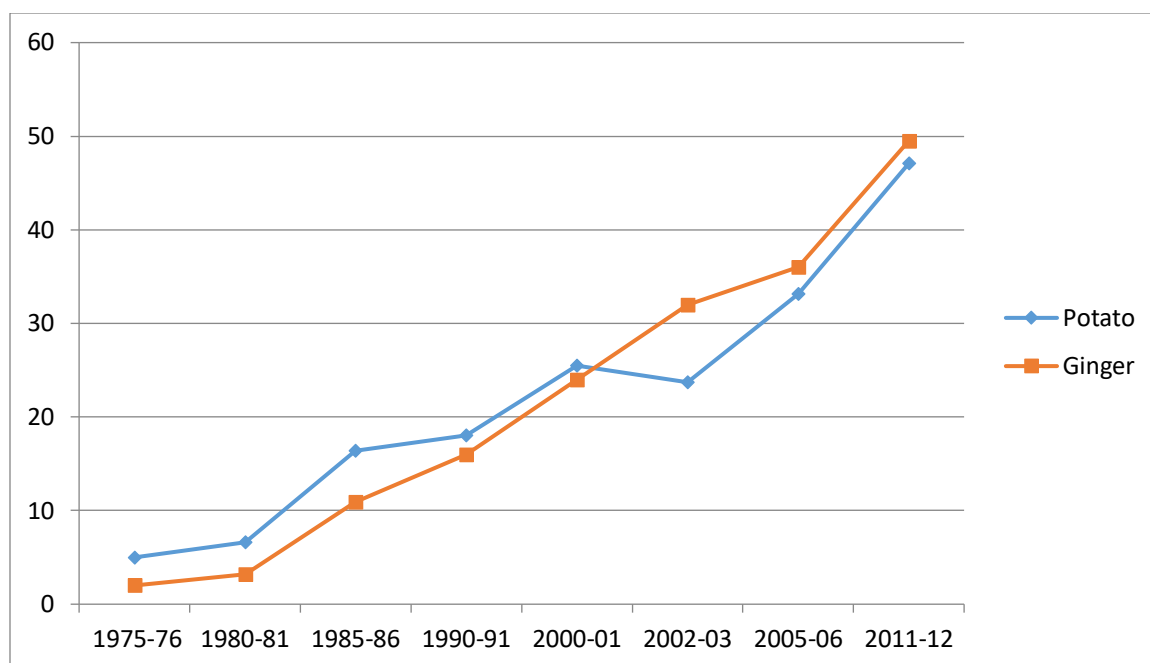


Figure 3.5 clearly depicts that the growth trend for the two major crops viz; potato and ginger shows a positive trend. The growth trend line of potato is somewhat fluctuating whereas the growth trend line of the ginger is literally smoother. In relation to the ginger, the price of the ginger remains quite fluctuating. Sometimes the rise in the price is very high and sometimes it becomes very low also. However with an anticipation of the increase in the price, the farmers keep on cultivating the crop continuously. The durability of the crop is also longer which is further advantageous for hoarding the crop for longer time in the wait of price to rise. Farmers need not to depend on others for seed provided they themselves keep the seeds. Due to the longer life of the crop, the farmers can keep seed for longer time and can plant during the sowing season. On the other hand the price of potato remains somewhat stable, however, the crop cannot be hoarded for longer time especially for kharif season since the water content in the crop is relatively high than that of the rabi season. The farmers have to dispose off their crop at the existing market price. However, the increasing demands of the Sikkim's potato outside the state and the increasing domestic market of the crop, the production of the crop is increasing every year. The productivity of the



crop has also increased which shows the proper management of the farmland for the production for the crop.

### **3.8 The Government Policy and Initiatives**

In fact, the investment in agriculture sector has not been commensurate to the importance it commands in the Sikkimese society and economy. It is partly because of this, the growth rate in the agriculture sector has tended to decline sharply over the years. The real agricultural growth rate has declined from 8.37 per cent between 1980-81 and 1992-93 to negative 0.2 per cent between 1993-94 and 1999-2000 (Economic Survey of Sikkim 2006-07). This is certainly not a good trend for an essentially agrarian state. Sikkim continues to remain a highly food deficit State. The deficits are seen more remarkably in paddy, oilseeds and pulses production. At the same time, there are many geographical locations where the extension services do not reach. The reasons attributed to these factors are inadequate institutional support and lack of wherewithal of services. There is a wide spread apprehension that the food production in Sikkim as reflected in both State and national level data is grossly overestimated. In fact, the state has to depend on importing a massive quantity of food grains under the Public Distribution System (PDS).

The major cash crop of Sikkim-Cardamom, its yield has steadily gone down over the years. Marketing hassles is another big problem that the agriculture of the state is facing. Processing of the state products in other parts of the state leads to loses out of employment-generating opportunities, income and revenue, both directly from agro-processing as well as from allied activities such as packaging, labelling, and so on. The marketable surplus of other products is mostly sold through rural markets, and typically involves the trading of small quantities of produce. There are 17 rural markets in Sikkim (6 each in the South and West districts, 4 in the East and only one in the North district). They are largely unorganised

and not well frequented, given the low purchasing power of the rural populace. Most vital horticulture items like cardamom, orange and ginger are almost cent percent dependent on private traders, merchants and middle men for marketing. Therefore, the farmers are deprived both ways, as producers and as consumers. Though organisations like SIMFED, DAC some other marketing agencies are there for marketing of agriculture-horticulture products, but these organisations are incurring losses and are not much active in the state hence most of the agriculture-horticulture products continue to be marketed by the middlemen.

# **Chapter 4**

## **ANALYSIS AND INTERPRETATION OF RESULTS**

### **CHAPTER 4**

#### **ANALYSIS AND INTERPRETATION OF RESULTS**

##### **4.1 Introduction**

The crops considered for the study are food crops: paddy and maize. Farmers are cultivating both the crops in a traditional manner and the farming technique is traditionally organic. Initially the farmers

used chemical fertilizers and pesticides but for about last fifteen years they are doing the farming using local manure. The inputs used in all the crops are same. The farmers use both the hired labour and family labour for the cultivation of the crops. The hilly terrain land and the traditional technique of cultivation have resulted in higher cost for the production. The hired labour and bullock labour constitute highest share of cost of about 80 to 90 percent. The revenue from the crops like paddy and maize is remarkably low since both the crops are labour intensive in case of Sikkim. The profit out of the crops is quite low and the number of farmers making profit is less than the farmers making profit in case of maize. Though the percentage of profit making farmers in case of paddy is comparatively more than that of maize but the amount of profit is low. The crop residuals of both the crops are the major source of animal fodder. The almost all the famers have livestock in their houses and the crops are also the major source of the fodder for animals, and this is the reason why the farmers are doing food crop cultivation despite having low return of the crops. Paddy and maize have been analysed individually.

## **Paddy**

Paddy is the most important staple cereal crop of Sikkim grown in all places having warm and humid climate with shallow water. This crop is used for human consumption and there is large variety of its kind. The residual of the crop (Paraal in local language) is the main source of animal fodder.

The share of paddy as the main food item, in the total food production has been hardly 20 percent. The per capita availability of paddy in the state is 158 gms/ day which is far below the National average of 417 gm during 2001-02 (Economic Survey of Sikkim, 2006-07). This shows that the State is deficit in paddy production which is the staple food of the State therefore the State is dependant on import of rice from outside the State. The low availability of paddy as a major crop in the state is also attributed to

shrinking of the land under paddy cultivation due to several developmental activities (Economic Survey of Sikkim, 2006-07).

The trend of area under the paddy production is declining slowly. But the trend of production and productivity has an increasing trend. The declining area under paddy is due to the relative increase in the substitution of cash crops for food crops.

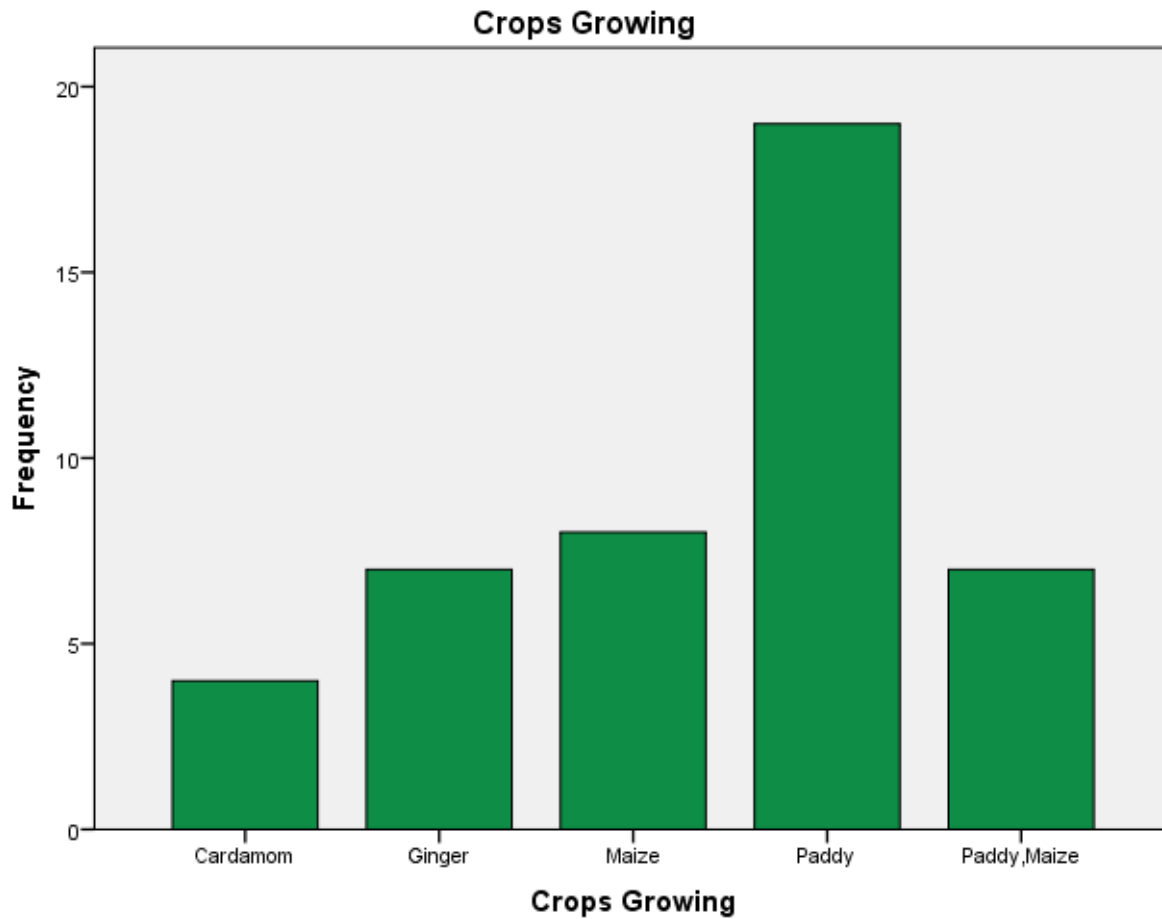
### Maize

Maize is another most important cereal crop of Sikkim. It is grown over an area of about 36,000-40,000 hectare which is about 35-40% of total cultivable area (Economic Survey of Sikkim 2006-07). Maize is part of the staple food item in Sikkim; its production contributes over 50 percent of the total food grains production in the State. The crop is largely used as animal fodder.

## 4.2. Agricultural Dimensions in the Rumtek Village

### Frequency Table: Farmers Growing Different Crops

Crops Growing					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cardamom	4	8.9	8.9	8.9
	Ginger	7	15.6	15.6	24.4
	Maize	8	17.8	17.8	42.2
	Paddy	19	42.2	42.2	84.4
	Paddy,Maize	7	15.6	15.6	100.0
	Total	45	100.0	100.0	

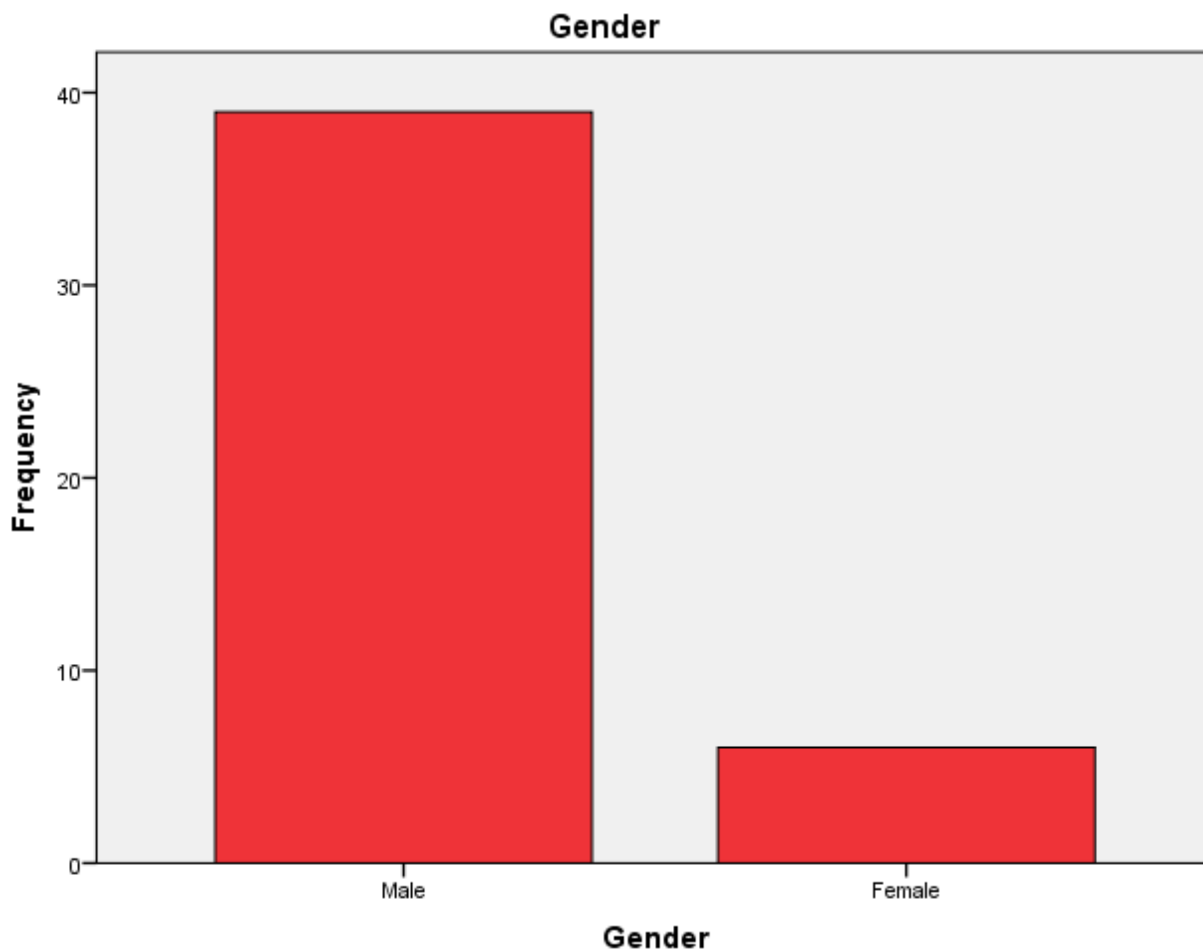


Out of the 45 sample collected majority of the farmers cultivate paddy and other major crops grown in the village are maize, ginger and cardamom.

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .00	1	2.2	2.2	2.2
Male	38	84.4	84.4	86.7

Female	6	13.3	13.3	100.0
Total	45	100.0	100.0	

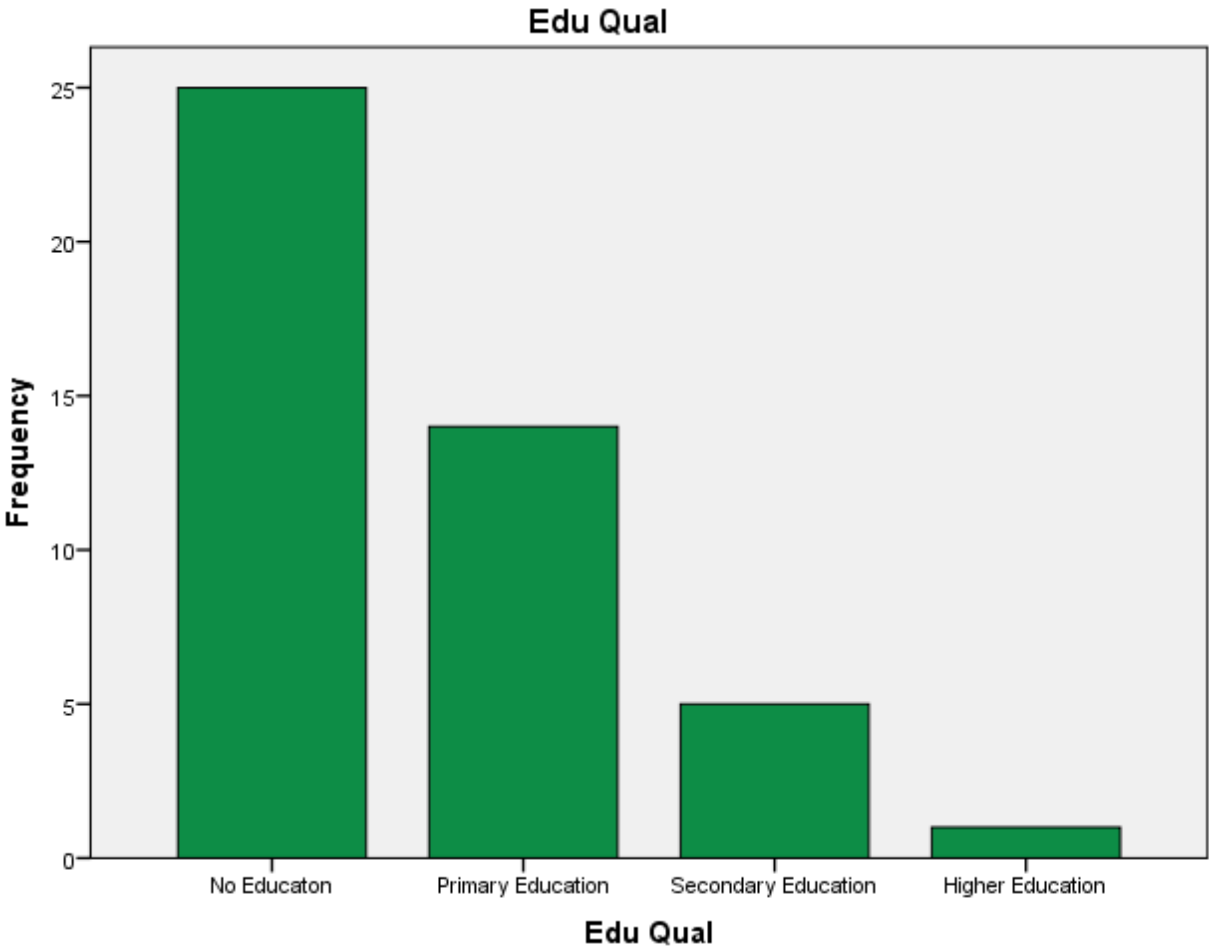
### 4.3. Cropping Pattern and Farmers profile of the Rumtek Village



Most of the farmers are male in the village majority of the farmers are not educated. Farmers with secondary education are very less.

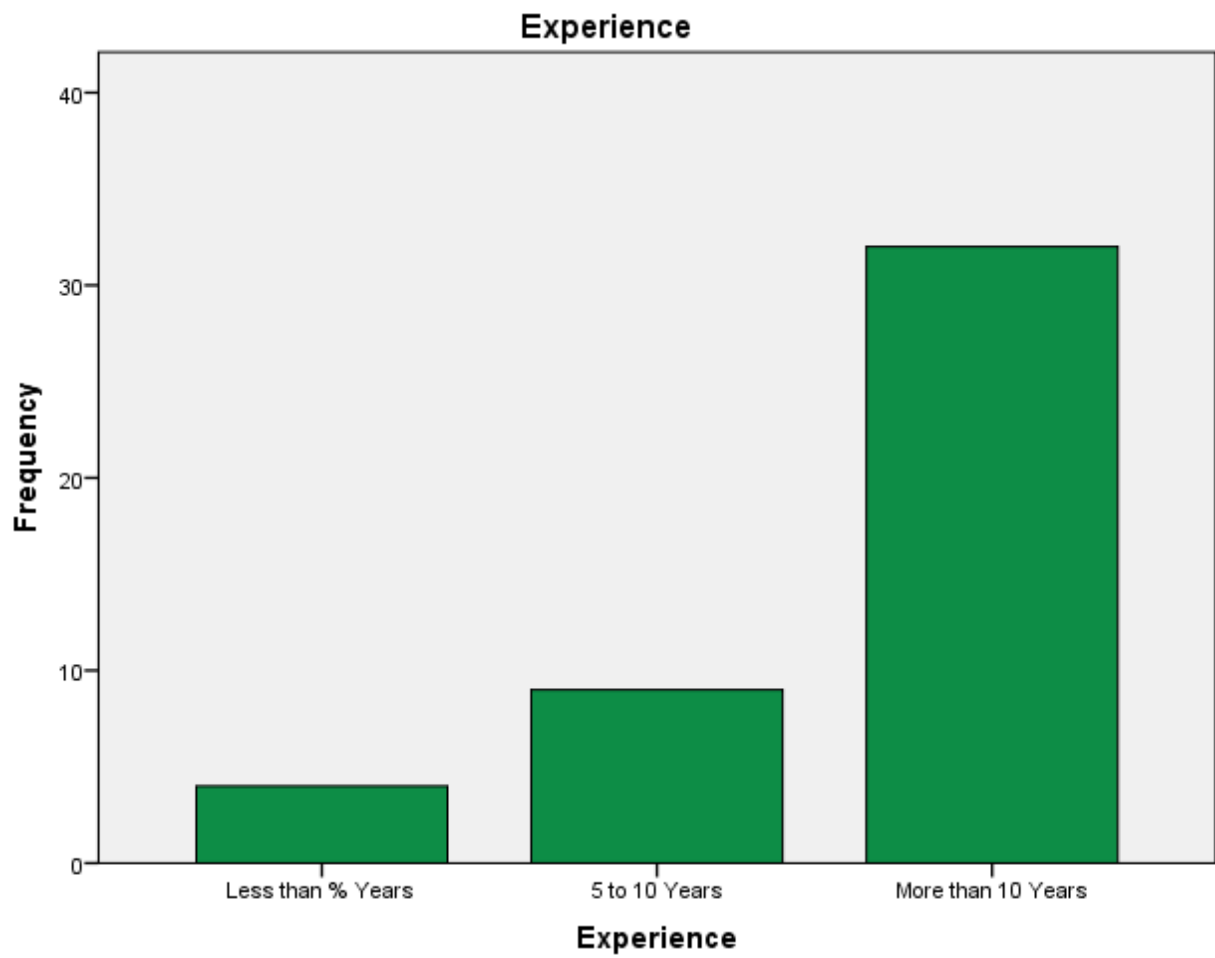
Edu Qual				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No Educaton	25	55.6	55.6	55.6
Primary Education	14	31.1	31.1	86.7

Secondary Education	5	11.1	11.1	97.8
Higher Education	1	2.2	2.2	100.0
Total	45	100.0	100.0	

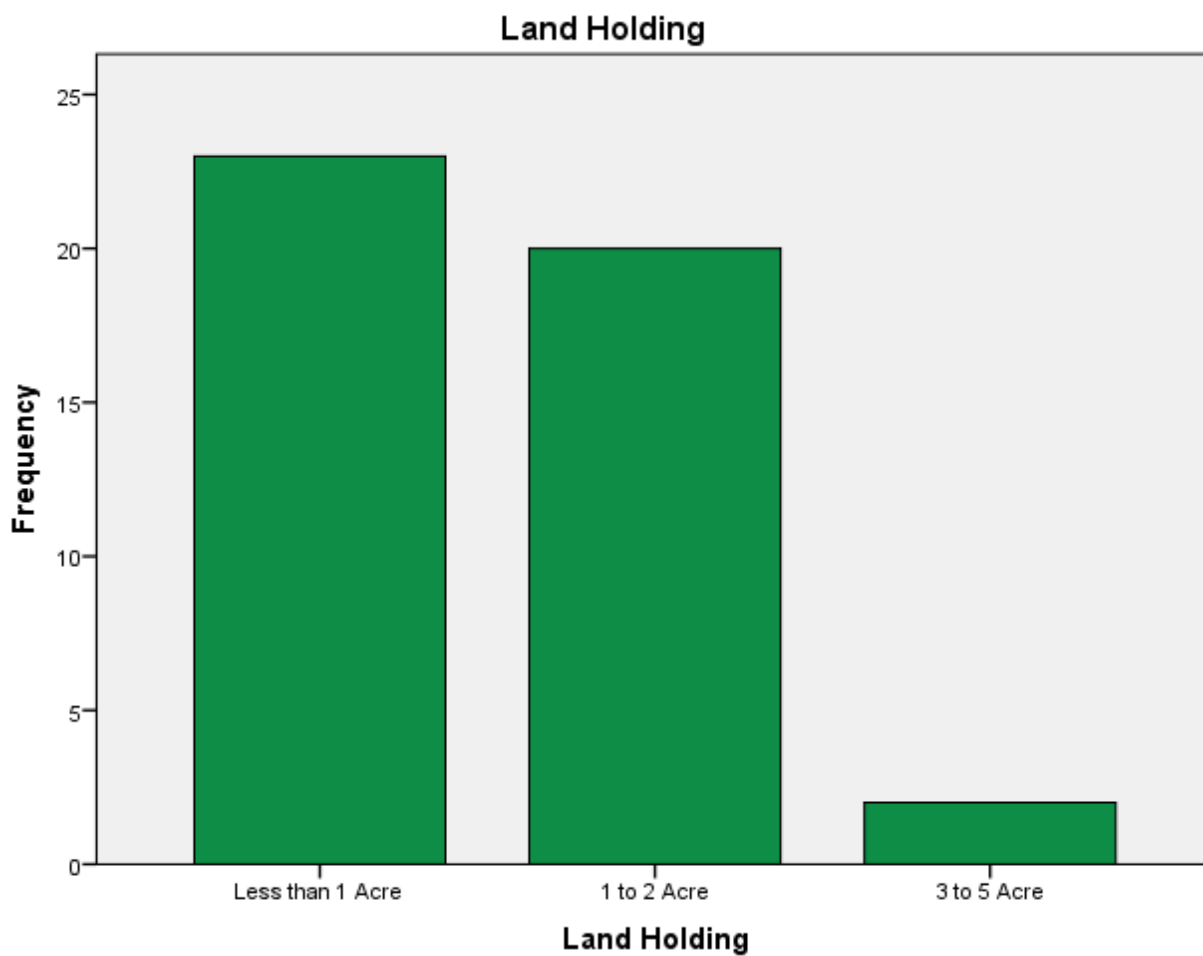




Experience				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than % Years	4	8.9	8.9
	5 to 10 Years	9	20.0	28.9
	More than 10 Years	32	71.1	100.0
	Total	45	100.0	100.0



Land Holding				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 1 Acre	23	51.1	51.1	51.1
1 to 2 Acre	20	44.4	44.4	95.6
3 to 5 Acre	2	4.4	4.4	100.0
Total	45	100.0	100.0	



Almost all the farmers of the village have land holding less than or equal to 2 acre and no farmers have land holding of more than 5 acre.

## **Chapter 5**

### **Conclusions and Policy Suggestions**

The results have shown that the existing land holdings pattern is not suitable for increasing output for all crops considered. Many of the farmers of the village have small land holdings and as a result there is no significant growth in the level of output of the crops considered. The education and the experience of the farmers have not shown much impact on the level of output of the crops considered. The farmers do not possess any specific skill and their farm output is also less. The productivity of the farmers are low.

Larger chunk of crop output is consumed by the farm households themselves and very less amount of the crop is marketed which is also done within the households' level. It was pointed out during the survey that even though the farmers are producing the crops with commercial objective, their products are not procured by the marketing agencies and ultimately they sell to the local traders at lower prices. This has discouraged the farmers to grow the crops in large scale.

Farmers are cultivating crops in a traditional manner and the farming technique is traditionally organic. Initially the farmers used chemical fertilizers and pesticides but for about last ten years they are doing the farming using local manure and some other organic manure provided by the agriculture and horticulture department. The inputs used in all the crops are similar while the technique of use is different. The farmers use both the hired labour and family labour for the cultivation of the crops. The hilly terrain land and the traditional technique of cultivation have resulted in higher cost for the production. The hired

labour and bullock labour constitute highest share of cost of about 80 percent. The revenue generated from the crops like paddy and maize is reasonably low since both the crops are labour intensive in the case of Sikkim. The profit out of the food crops is quite low and the number of farmers making profit is less than the farmers making loss in case of maize. Though the percentage of profit making farmers in case of paddy is comparatively more than that of maize but the amount of profit is low. The crop residuals of both the crops are the major source of animal fodder. The large number of famers has livestock in their houses and the crops are also the major source of the fodder for animals, and this is the reason why the farmers are doing food crop cultivation despite having low return of the crops.

As far as the land size and productivity relation is concerned, though the output of all the crops under consideration increase with the higher land size, the available land is more suitable in case of cash crops. The farmers are making more profit in cash crops. In case of cash crops the potentiality of further increase in production by increasing inputs is immense as shown by the results of the regression analysis of the study. The sum total value of coefficients of variables of both the cash crops is less than one which implies that there is a scope for further increase in the production of the crops. While, in the case of the food crops, the value is more than one in case of maize and it is less than one only in case of paddy. The inference is that the excess land under the maize crop can be better substituted for the cultivation of crop like ginger and potato. However, the state has better scope for increasing both food crops and cash crops. The farmers do the agriculture (both food crops and cash crops) in a traditionally organic way. The provisions and execution of extension service activities need further intensification for making the agriculture economically viable vocation.

## **5.2 Policy Suggestions**

The absence of the practices like cluster farming are the major setback in the Sikkim's agriculture. Therefore, the Government needs to implement a policy to bring the land of the farmers together and the technique like cluster farming may be followed declaring some particular village as belt (eg. Ginger belt) may be initiated. This may facilitate fuller utilization of the limited available land and higher level of agricultural output may be realised. Cooperative farming may also be initiated. Since the landholdings in Sikkim are of small type, the system of cluster farming or cooperative farming may be more economically practicable particularly for cash crops. This will also be more effective system of farming from the view point of procurement for marketing of the agricultural products.

Technical training is to be provided to the farmers mainly for the cultivation of cash crops. Opening of krishi vidhalaya at the local level can serve the purpose. More Extension services are to be provided to the farmers at the farm level continuously. HYV seeds need to be provided to the farmers to increase production of the crops. This will increase the revenue and profit from the crops. Though there is deficit in the food crop production in the state, however, the farmers can make higher profit if the State Government take initiative to be a "Brand of Organic seed producing state", since the state is doing organic farming. This will encourage the farmers to cultivate the crops technically and due to the higher price of the seed, the economic benefits will also be higher.

The crops like ginger, potato are disease prone, hence regular provision of extension services is important. Marketing is the major problem in the state for the agricultural products; emphasis is to be laid on providing better market for the organic crops of the state. Agriculture Processing are to be opened within the state level. The agriculture and Horticulture Department should make investment in the agriculture sector and credit facilities at low interest rate should also be provided to the farmers. This will definitely encourage the educated youth to the agriculture sector making the sector economically viable.

Cool storage facilities should also be provided in all districts of the state. Investment should be increased in the agriculture sector. The Public Private Partnership (PPP) model of investment can be encouraged.

Lack of irrigation is the major problem that the farmers of Sikkim are facing. The agriculture in the state is mostly rain fed. The farmers do the farming in the small scale. Vegetables have huge market demand but the farmers are not being able to produce much for the market. The farmers in the study area were asked to share their views about their laxity in the production of surplus vegetables. A massive 90 percent of the farmers reported that the cultivation of vegetables largely depends on irrigation and even if the surplus is produced, marketing becomes a major problem. The rising industrial and tertiary sector of the state has led to increase in urbanisation in the state and has also triggered the demand for vegetables. But as far as the marketing of the local vegetables is concerned, it is surpassed by the vegetables products coming from outside the state in all seasons. The farmers do not have control over the price rather they are the price taker in the vegetables market. In order to create higher demand for the local vegetables, there must be reduction in the volume of import of the vegetables from outside the state and a massive revolution need to be initiated in the agriculture sector by way of organic technique itself. The Government should intensively focus on the marketing and distribution of organic produce.

## **5.3 Limitations of the Study**

1. During the research work it is realised that the study could not use empirical tools to analyse efficiency of the farmers and their impact on farm output.
2. 3. Not using cost function to see whether the farms are minimising the cost is a limitation of the study and it will be used in the higher research level.

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# APPENDIX

## QUESTIONNAIRE FOR THE SURVEY OF THE FARMERS OF RUMTEK VILLAGE OF EAST SIKKIM, 2022

### 1. Farmers Profile

Sl No	Particulars				
1	Name of the Respondent				
2	Address:	Village	Block	District	
3	Age				
4	Gender	Male	Female		
5	Marital Status:	Married	Unmarried		
6	Educational Qualification				
7	Family Size		Number of Male		Number of Female
8	Occupation				

### 2. Farm Profile

Sl.No	Land Type and Land Holding (In Acre)	Less Than 1 Acre	1-2 Acre	3 - 5 Acre	5 – 10 Acre	6 Acre and Above
1	Dry land (Sukha Bari)					
2	Water Land (Pani Khet)					
3	<b>Crops you are growing:-</b>	<b>Food Crops</b>	<b>Vegetables</b>	<b>Cash Crops</b>	<b>Fruit Crops</b>	
		Paddy Maize Wheat <b>Pulses:</b> Buckwheat Mustard	Potato Turmeric <b>Vegetables:</b> (Specify)	Cardamom Ginger	Banana Guava Orange	
4	Cultivation taking place Since:	Last 5 years	Last 10 years	More than 10 Years		
5	How many years of experience do you have in agriculture?	Less Than 5 Years	5 - 10 Years	More Than 10 Years		
6	Sources and mode of irrigation:-	Pipe water	Canal water	Rain water	Tank water	

7	Is there any provision of Eextension services from Agriculture Department, Agriculture Universities and any other Organisation regarding Farm Management?	Yes No	If Yes, Specify	Departmental Level
			From Agriculture Universities Level	
	NGOs Level		Any Other (Specify)	

### 3. Details of other family members who are actively participating in Farming.

Sl. No.	Name	Age	Gender	Education Level	Experience	Special Skill with respect to Farming
1						
2						
3						
4						

### 4. Skills of the Farmers with respect to Farming

Sl No	Particulars (Skills Related)				Response
1	Education level of farmer				
2	Experience of the farmer (In Years)				
3	Do you possesses any specific farming skill?	Yes	No	If Yes, Please Specify	
4	Have you taken any training relating to farming technique?	Yes	No	If Yes, Please Specify	
6	Do you practice crop rotation?	Yes	No		
7	Do you use irrigation for your crop?	Yes	No	Source:	
8	Do you use of HYV seed?	Yes	No		
	If Yes, Please mention for which crop you are using HYV seeds.				
9	Do you use of fertilizers?	Yes	No		

	<b>If Yes,</b> Please mention the types of fertilizers you are using?	Organic Fertilizers		Inorganic Fertilizers
11	Do you use pesticides for your crop?	Yes	No	
	<b>If Yes,</b> Please mention the types of pesticides you are using?	Inorganic Pesticides		Organic Pesticides
12	Do you use fertilizers and pesticides for all crops you grow?	Yes	No	
13	Mention the technique of production and equipment you use for Farming?			
	<b>Conventional Technique</b>		<b>Modern Technique</b>	
	<b>Equipment Used</b>		<b>Equipment Used</b>	

### 5. Cost of Factor inputs:

Factor Inputs		Quantity	Cost per unit
Tractor		Per Day	
Pair of bullock		Per Day	
Seeds:	paddy		
	maize		
	ginger		
	potato		
Local Manures			
Fertilizers	Organic		
	Inorganic		
Pesticides	Organic		
	Inorganic		
Irrigation			
Hired Labour:	Male	Per Day	
	Female	Per Day	

### 6. Crop wise area (In acre), production (In Mon/ Muri/ Quintals)/ Acre.

Name of crops	Area (in acre)	No of Labour Used	Type of fertilizers used	Mode of irrigation	Production (in Kg Quintal)	Value Per Mon/Muri/ Quintals
Maize						
Paddy						

Wheat						
Potato						
Ginger						
Vegetables						
Cardamom						

7. Is your land tested regularly? If yes do you take personal initiative or any state agency or the state government does the same?

8. Do you have any storage facility in your village or block or district level?

Yes		No	
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9. Consumption and marketing of crops during the survey year.

Items	Quantity consumed	Marketed surplus (Mon/ Muri/ Quintals)	Value Per Mon/Muri/ Quintals
Paddy			
Maize			
Wheat			
Potato			
Ginger			
Vegetables			

10. How do you sell your product?

Personally in the market	Any Other (Please Specify)
Given to middleman	
Directly given to agencies like SIMPHED.	

Which among these is the best way to dispose-off (sale) your product?

Reason: \_\_\_\_\_.

11. How do you scale your satisfaction level for the Output produced?

Not Satisfied	Satisfied	Highly Satisfied

12. Do you think that there is room for increasing your farm output and farm productivity?

Yes		No	
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If Yes, Please Mention

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13. Is your product being sold as per desired price?

Yes		No	
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14. How do you scale your satisfaction level for the price you get for your farm Output?

Not Satisfied	Satisfied	Highly Satisfied

15. Do you consider farming a sustainable source of livelihood?

Yes		No	
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**Please mention the Reason**\_\_\_\_\_

**Remarks (if any)**

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Signature of the investigator with Date:

Signature of the effective farmer.