

**“Major types of Foodcrops of Nongrangoi Village;
(A Case Study of Nongrangoi Village)”**

Group Project

**SUBMITTED FOR THE PARTIAL FULLFILLMENT
OF THE BACHELOR DEGREE OF ARTS IN GEOGRAPHY**

SUBMITTED BY

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CERTIFICATE

CERTIFICATE

This is to certify that the students of Sixth Semester, Department of Geography, Nongstoin College, Nongstoin for the session 2021-22 has undergone a Group Project title on “Major types of Food crops of Nongrangoi Village;(A Case Study of Nongrangoi Village)”. Of Nongstoin Block of West Khasi Hills District, Meghalaya under the supervision of the teachers of the Department of Geography.

This group project is an original work of the students and it has not been published in any form whatsoever. Hence, this report may be placed for evaluation and consideration.


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ACKNOWLEDGEMENT

We would like to express our gratitude to our SUPERVISOR Shri. Elambok Sanglyne, for his guidance and constant endeavour for which we could be able to complete our projects.

We would like to express our sincere gratitude and thanks to the Headman and all the people of Nongrangoi village of Nongstoin Block of West Khasi Hills District of Meghalaya State for their support and Cooperation to conduct our project work including data collection and also seeking information relating to our project.

We also sincerely gratitude to our principal for permitting to us to visit Nongrangoi village and at the same time providing financial assistance for undertaking this group project as per the partial fulfillment of the university curriculum.

Last but not the least; we would also like to thank God, the Almighty for his love and constant blessing that He showered upon us.

Dated: 05-05-2022

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CHAPTER I: - INTRODUCTION

1. INTRODUCTION

Crops are plants grown by the farmers. Agriculture plays a very important role in the Indian economy. It is the backbone of our country. 70% of the Indian population depends on agriculture for food and money. It is the major occupation in the rural areas. The cultivation of crops depends primarily on the weather and soil conditions.

1.1 Types of Crops

The crops are of the following types depending upon the season in which they are grown:

1.1.1 Kharif Crops

- The crops which are grown in the monsoon season are known as Kharif crops. For eg., maize, millet, and cotton.
- The seeds are sown at the beginning of monsoon season and harvested at the end of the monsoon season.
- Such crops require a lot of water and hot weather for proper growth.

1.1.2 Rabi Crops

- The name “Rabi” means “spring” – a word derived from Arabic.
- The crops that are grown in the winter season and harvested in the spring are called Rabi crops.
- Wheat, gram, and mustard are some of the Rabi crops.
- Various agricultural practices are carried out to produce new crop varieties.
- Such crops require a warm climate for the germination and maturation of seeds. They, however, require a cold climate for their growth.

1.1.3 Zaid Crops

- Such crops are grown between the Kharif and Rabi seasons, i.e., between March and June.
- These crops mature early.
- Cucumber, pumpkin, bitter gourd, and watermelon are zaid crops.

1.2 Factors Affecting Crop Production

The factors affecting the production of crops include:

Internal or Genetic Factors

The genetic makeup decides crop growth and production. Breeders incorporate maximum desirable characters in the crops to obtain a new hybrid variety. The desirable characters include:

- Early maturity
- High yielding ability
- Resistance to drought, flood, and salinity
- Tolerance to insect and diseases
- Resistance to lodging
- The chemical composition of grains
- Quality of grains and straw

These characters are transmitted from one generation to another.

1.2.1 External or Environmental Factors

The external factors include:

- Climatic
- Edaphic
- Biotic
- Socio-economic

1.2.2 Climatic Factors

The climatic factors that affect crop production include:

- Precipitation
- Temperature
- Atmospheric Humidity
- Solar radiation
- Wind Velocity
- Atmospheric Gases

1.2.3 Edaphic Factors

The growth of the plants depends upon the type of soil on which they are grown. These are known as edaphic factors and include the following:

- Soil Moisture
- Soil Air
- Soil Temperature
- Soil Mineral Matter
- Soil Organic Matter
- Soil Organisms
- Soil Reactions

1.2.4 Biotic Factors

Plants and animals are biotic factors that affect crop production. Even pests impact crop production, often with negative implications.

1.2.5 Socio-economic Factors

- The number of human resources available for cultivation.
- The inclination of society towards cultivation.
- Appropriate choice of crops.
- Breeding varieties for increased yield or pest resistance by human inventions.

1.3. Cash Crops

A cash crop is the one that is cultivated to be sold in the market to earn profits from the sale.

Most of the crops grown today worldwide are cash crops cultivated for selling in the national and international markets.

Most of the cash crops grown in the developing nations are sold to the developed nations for a better price.

Well-known cash crops include coffee, tea, cocoa, cotton, and sugarcane.

1.4 Food Crops

The crops that are grown to feed the human population are known as food crops. There are a number of food crops grown in the country.

Rice: It is the staple food crop in a majority of regions in the country. Rice is a Kharif crop that requires high temperature, heavy rainfall and high humidity for proper growth. The areas with less rainfall use irrigation for rice cultivation.

Wheat: It is the most important cereal crop in the north and north-western parts of the country. It is a rabi crop that requires 50-75 cm of annual rainfall.

Millets: The important millets grown in the country include jowar, bajra and ragi. They are highly nutritious and are known as coarse grains. It grows in the regions which experience rainfall throughout the year.

Maize: This Kharif crop is used as both food and fodder. It grows well in alluvial soil.

Pulses: India is the largest consumer and producer of pulses in the world. Pulses can survive even in dry conditions. These are leguminous crops and help in improving soil fertility by fixing atmospheric nitrogen.

The human population depends upon crops for their food production. Therefore, the crops should be cultivated using proper production techniques and agriculture implements.

1.5 Major Food Crops of India

Two-thirds of India's population is engaged in agricultural activities. It is a primary activity, which produces food grains and raw materials for industries. India is geographically a vast country so it has various food and non-food crops which are cultivated in three main cropping seasons which are rabi, kharif and zaid.

Major crops can be classified into-

- Food crops- Rice, Wheat, Millets, Maize and Pulses.
- Cash crops- Sugarcane, Oilseeds, Horticulture crops, Tea, Coffee, Rubber, Cotton and Jute.

Table : 1 Cropping Seasons

S. No	Cropping Season	Time Period	Crops	States
1.	Rabi	Sown: October-December Harvested: April-June	Wheat, barley, peas, gram, mustard etc.	Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh
2.	Kharif	Sown: June-July Harvested: September-October	Rice, maize, jowar, bajra, tur, moong, urad, cotton, jute, groundnut, soybean etc.	Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra
3.	Zaid	Sown and harvested: March-July (between Rabi and Kharif)	Seasonal fruits, vegetables, fodder crops etc.	Most of the northern and northwestern states

1.6 Need for the Study of Food crops

The agriculture sector employs nearly half of the workforce in the country. However, it contributes to 17.5% of the GDP (at current prices in 2015-16).

Over the past few decades, the manufacturing and services sectors have increasingly contributed to the growth of the economy, while the agriculture sector's contribution has decreased from more than 50% of GDP in the 1950s to 15.4% in 2015-16 (at constant prices).

However, the agricultural yield (quantity of a crop produced per unit of land) is found to be lower in the case of most crops, as compared to other top producing countries such as China, Brazil and the United States.

Although India ranks third in the production of rice, its yield is lower than Brazil, China and the United States. The same trend is observed for pulses, where it is the second highest producer.

Since agriculture hold nearly 18% of India's GDP, there is a need to study food crops in India so as to increase its share in the GDP. There is also a need for increase of production of food crops as the population keeps rising in India which is why the problems related to agriculture must be studied and research should be conducted.

1.7 Objectives:

1. To identify the major food crops of the concerned area.
2. To identify the nature of consumption whether it is either commercial or subsistence.
3. To identify the growing seasons of vegetables.

1.8 Limitations of Study:

1. Since the research has been conducted in a limited area and sample size, its findings are likely to hold good for similar agro- climatic conditions in other areas.
2. It is a qualitative study which largely relied on the responses received from the farmers about what they knew and felt about. Therefore, the validity of responses and generalizations made out of them may be applicable in similar situations.
3. The study also suffered from paucity of literature since only limited studies are available on the said dimensions.

CHAPTER-II: - BACKGROUND OF THE STUDY AREA

2. Profile of the study area:

2.1 Geographical Setting:

West Khasi Hills District lies between 25 degrees 10' and 25 degrees 51' N latitude and between 90 degrees 44' and 91 degrees 49' E longitude with a total geographical area of 3911 sq.km which is about 17% of the total area of the state. It is bounded on the north-west by Kamrup district of Assam, on the East by Eastern West Khasi Hills on the south by South West Khasi Hills and on the West by East Garo Hills and South Garo Hills District. Nongstoin is the district headquarters which covers an area of 76sqkm. The main occupation of the population in the district is agriculture.

2.2 Location of the study area:

The Nongrangoi Village is located in Nongstoin C&RD Block, West Khasi Hills district, Meghalaya. The project area is located at a distance of about 10 kilometres from Nongstoin, the District Headquarter of West Khasi Hills district. The geographical location is between 25.509632° latitude and 91.341651° longitude. The area is located in the central part of West Khasi hills with general altitude of 890 to 1390 m Above Mean Sea level and forms part of the central upland zone of the Meghalaya plateau. This portion of the plateau consists of rolling uplands.

2.3 Climate:

The climate in the project area is humid subtropical which is directly influenced by the South west Monsoon originally from Bay of Bengal and Arabian Sea. The whole year can be divided into four seasons- summer, Monsoon (rainy), autumn and winter. The summer season extended from the last part of March to Mid May, is characterized by relatively high temperature, occasionally thunder storm and high wind velocity. The rainy season commence with the onset of south west monsoon in April/May and last up to October. The rainy season is followed by short autumn from Mid October to November with sharp declined of temperature then the winter season start which extends to the beginning of March. This is the coldest season of the year where winter is severe. The average rainfall in this area is about 3608 mm annually.

The climate of the district is mildly tropical in the northern and southern foothills, while in the central upland zone, the climate is temperate and places at medium altitude in the northern,

western and southern parts of the district, experience sub-tropical climate. The district is influenced by the South- West monsoon and rainfall is assured during summer, but differs greatly in intensity from area to area within the district. The South-West monsoon normally sets in the second week of June and extends up to second week of October. The district receives some share of rain from North-East monsoon from the third week of October till first week of December.

Table .2 Average Rainfall (mm) of Nongstoin

	Jan	Feb	March	April	May	June	Total
Nongstoin	15.4	19.5	110.7	245.2	355.5	707.9	3608.06
	July	Aug	Sep	Oct	Nov	Dec	
	985.8	542.6	361.3	224.6	32.41	7.21	

Source: Directorate of Agriculture, Shillong,

2.4 Natural Vegetation: Natural vegetation of the project area is fairly poor due to tremendous biotics such as recurring fire hazard, timber, fuel wood and charcoal burning etc. The area consists mostly of degraded and open forest with scattered pocket of trees.

2.5 Socio-Economic Profile: The Socio-Economic set up of the people in the area is poor. The average Annual Income is about Rs 60000/- per family. The total population of the study area is 860 attributed to 130 families of which 406 are males and 454 are females. The average size of the family is 6. The entire population is tribal, predominantly belonging to the Khasi tribe. The village has lower literacy rate compared to Meghalaya. In 2011, literacy rate of the village was 70.20 % compared to 74.43 % of Meghalaya.

CHAPTER III: - RESEARCH METHODOLOGY

According to Kothari (2008), research methodology is a way to systematically solve the research problems. It may be understood as a science of studying how research is done systematically. It explains various steps done that are adopted by a researcher in studying his research problem, along with logical background. It is essential for the researcher to know, not only the research methods and techniques but also the methodology.

3.1. Selection of Study area:

The study was undertaken with the main objective to find out the major types of foodcrops. The study area was selected based on the interaction with the officials from agriculture department. The Nongrangoi village was selected for the study purposively, due to maximum number of certified farmers had come under this village in West Khasi Hills District

3.2. Selection of the Respondents:

A total sample size of 60 certified organic farmers were purposively selected for the study.

3.3. Selection of the Foodcrops:

The main objectives of the study are to find out the major types of Food Crops in, to find out the nature of consumption and growing season. So, there is a prerequisite that the respondents should be closely related to crops cultivated. Peas, carrot, potatoes, sweet-potato, maize, yam, cabbage, cauliflower, mustard, beet etc. are taken, since majority of the farmers are practicing farming in these crops in the selected study area.

3.4. Research Design:

The design of research is the most important and critical aspect of research methodology. In a broad sense research design is the process of planning and carrying out research. A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Kothari, 2008). In the broader sense, the research design is the conceptual structure within which research is conducted. It constitutes the blue print for the collection, measurement and analysis of data. Descriptive research design was used in this study to suit the objectives and type of information needed.

3.5. Interview Schedule Construction:

A well structured interview schedule was used for data collection. The items included in the interview schedule were structured questions and objective type questions which were directed towards major and minor food crops. The interview schedule was designed into 4 parts.

Part I: Contained profile of farmers,

Part II: The major crops grown by them

Part III The nature of consumption

Part IV Growing Season of Food crops

3.6. Data Collection:

Each of the selected certified organic farmers were personally contacted and interviewed with the help of interview schedule. The data collected were subjected to statistical analysis to get inferences.

3.7. Statistical Tools Used:

The data gathered were quantified and tabulated for statistical analysis. Percentage analysis was applied for the study.

3.8. Preparation of Report:

On completion, the data were coded, tabulated, analyzed and presented in the form of tables in order to make the findings meaningful and easily understandable. The findings emerged from the analysis were duly interrupted and conclusions were drawn.

CHAPTER IV

FINDINGS AND DISCUSSION

This chapter highlights the results that based on the study. The data collected were subjected to analysis, classified and tabulated to get the results. The results of the study are represented under the following sections.

Part I: Contained profile of farmers,

Part II: The major crops grown by them

Part III The nature of consumption

Part IV Growing Season of Food crops

4.1. Profile of Farmers:

Keeping this in view, the information on farmers characteristics were collected, analyzed and presented. The findings are presented and discussed here under with following sub heads.

4.1.1. Age:

Age would reflect the mental maturity of an individual to take decisions for achieving the needs at various stages of one's life. Hence, age is being considered as one of the factors and included in the present endeavour. The distribution of respondents based on their age is presented in the following Table 3 and pictorial representation is given in Fig.1.

Table 3. Distribution of respondents according to their Age

(n=60)

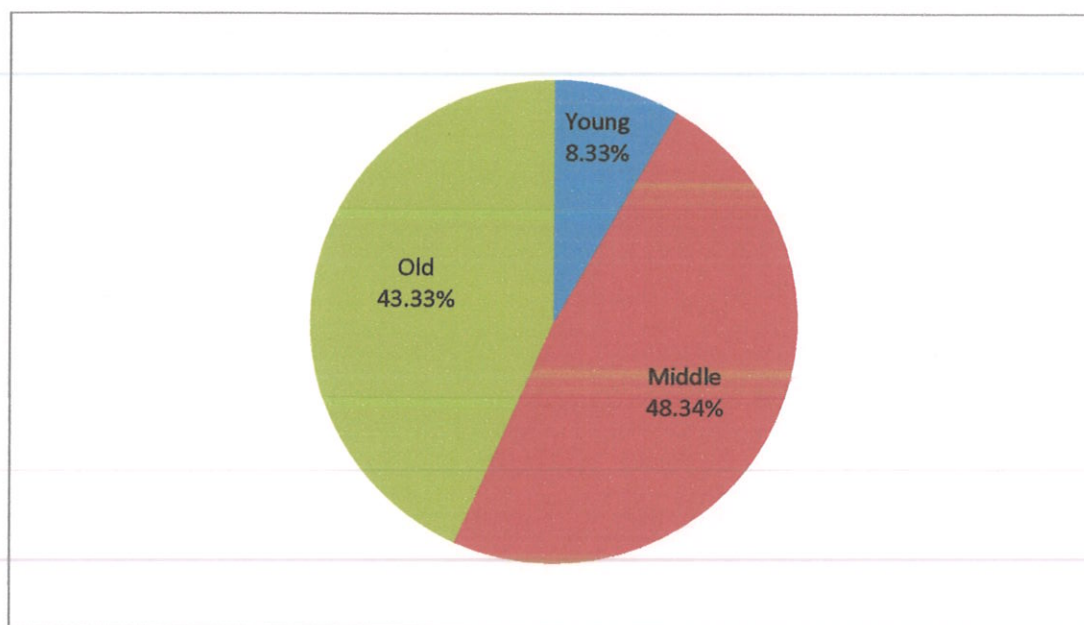
Sl.NO	Category	Number	percent
1	Young (up to 35 years)	05	8.33
2	Middle (36 to 45 years)	29	48.33
3	Old (more than 45 years)	26	43.34
	Total	60	100.00

The data in Table 3 shows that 48.33% of the certified organic farmers belonged to middle age category followed by old and young with 43.34 per cent and 8.33 per cent, respectively.

The middle and old aged farmers usually practice chemical free organic farming due to expertise and experience and always concern with the environment, pollution free agro eco system to safe guard the resources for the future generation.

The above findings are in line with the Priyadharshini (2012) who observed that nearly half (48.89%) of the organic vegetable growers were found to be in the middle age, followed by old age (42.22%) and the remaining 8.89 percent were young age.

Fig.1. Distribution of respondents according to their Age



4.1.2. Educational Status:

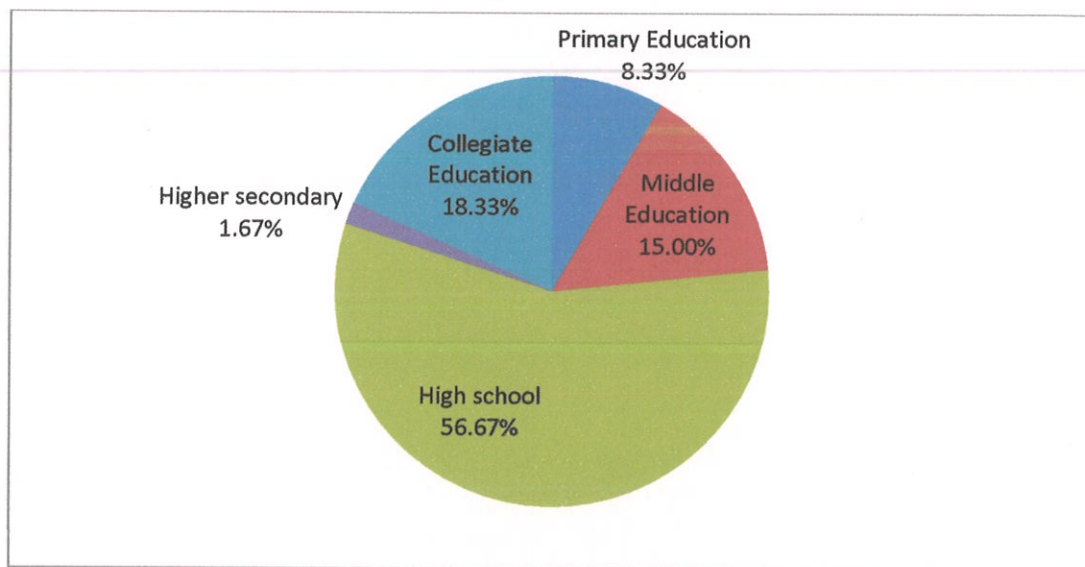
Educational status of an individual plays a pivotal role to enhance his knowledge level about organic farming. It is generally presumed that higher the educational status, higher would be the adoption level. The data collected on educational status are presented in Table 4. And pictorial representation is given in Fig.2.

Table 4 .Distribution of respondents according to their Educational Status

(n=60)

Sl.No	Category	Number	Percent
1	Illiterate	0	0.00
2	Primary education	5	8.33
3	Middle education	9	15.00
4	High school education	34	56.67
5	Higher Secondary education	1	1.67
6	Collegiate education	11	18.33
	Total	60	100.00

Fig 2. Distribution of respondents according to their Educational Status



form Table 4, It could be observed that 56.67 % of the farmers had possessed High school education, followed by Collegiate education (18.33 %), Middle school education (15.00 %), Primary education (8.33 %) and only 1.67 per cent of the farmers were classified as Higher secondary education. The finding shows that the certified organic farmers in the study area

possessed higher education. This may be due to the fact that the education played crucial role to influence the farmers' decision to practice farming.

The above findings are in line with the Prakash (2008) who observed that 58.00 percent of the respondents belonged to the high school level of education followed by collegiate 18.00 percent, middle 15.00 percent, primary 9% and none of them were Illeterate.

4.2 Major Food Crops Of Nongrangoi Village (Objective I):-

According to the findings it is found that the major food crops grown in Nongrangoi village are: **Maize, Potato, Rice, Cabbage, and Carrot.**

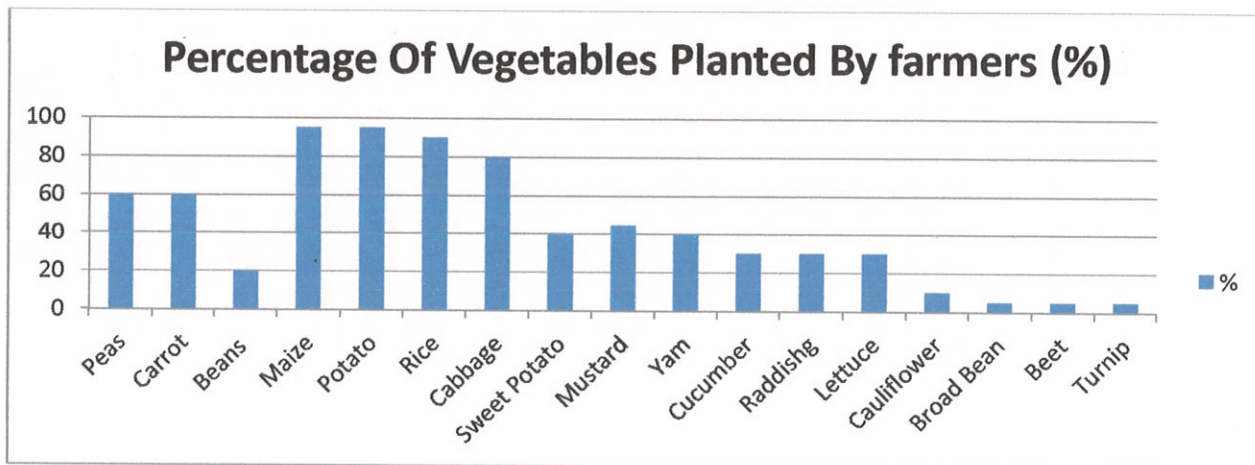
Almost 95% of the farmers plant Maize and Potatoes, while 85% plant Rice, Cabbage and Carrot.

Cabbage and carrots are mainly commercial. Maize and potatoes are partially commercial.

And the minor crops are, **Peas, Carrot, Beans, Pumpkin, Maize, Rice, and Sweet potato.**

Beside the above major and minor crops grown, the people of this village also grown some another types of crops like **Mustard, Yam, Cocumber, Radish, Lettuce, Cauliflower, Broadbean, Beet, Turnip, etc.**

Fig: 3 Percentage of vegetables planted by farmers



These vegetables are most likely to be sold in the nearby market in Nongstoin or even in Shiullong according to the farmers.

4.3 Findings for the Nature of Consumption (whether commercial or Subsistence)

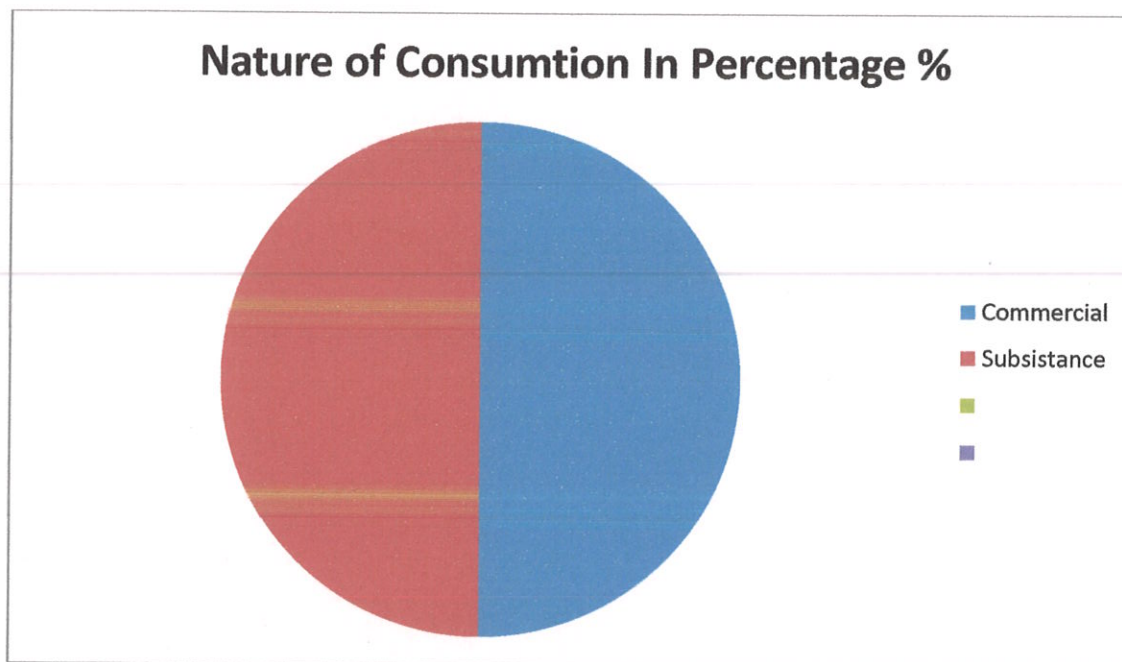
Objective II:-

According to the findings it is found that almost all the household of **Nongrangoi village** are engaged in agriculture and the cropping pattern of the above different types of crops. Some of them are for their own consumption but some of them are for marketing or commercial. Both commercial and subsistence are take place in this village.

Out of the total 60 households the total percentage of commercial and subsistence crops are around 50% each (50% of commercial and 50% of subsistence). It was found that there were at commercial and subsistence were almost same.

It was also found that commercial farmers earn more than the subsistence whereby the total annual income under commercial are above Rs.50, 000 and the subsistence are below Rs.10, 000 per year.

Fig: 4 Nature of consumption in percentage



4.4 Growing Season of Vegetables (Objective III) :-

As we know that physical factors like climate; terrain, topography etc. has a great influence in the agriculture along with the socio, economic and technological factors, also the same in this village the above major and minor crops and other existing crops are grown in different seasons and months. So the growing season of all the major types of crop of this village, Nongrangoi are discussed as below:

Months

January, February, March

April

May, June

July, August, September

October

November, December

Vegetables

Potato

Maize, Cabbage, Carrot

Rice

Potato, Sweet Potato

Mustard, Lettuce

Peas

In the months of **January, February, and March: *Potato*** is grown and in the months of **April *Maize, Cabbage, and Carrot*** are grown. In the month of **May and June: *Rice*** is grown. **July, August and September *Potato and Sweet potato is grown*** but in the month of **October *Mustard and Lettuce*** is grown and in the month of **December is *Peas***.

CHAPTER V: - SUMMARY AND CONCLUSION

After the research done and through discussions it is found that all the households of Nongrangoi village are engaged in agriculture and the cropping pattern of the above different types of crops. Some of them are for their own consumption but some of them are for marketing or commercial. Both commercial and subsistence are take place in this village. Out of the total 60 households the total percentage of commercial and subsistence crops are around 50% each (50% of commercial and 50% of subsistence).

In the months of January, February, and March: Potato is grown and in the months of April Maize, Cabbage, and Carrot are grown. In the month of May and June: Rice is grown July, August, and September: Potato and Sweet potato. In the month of October Mustard and Lettuce is grown and in the month of December is Peas.

It was found that there were at commercial and subsistence were almost same. It was also found that commercial farmers earn more than the subsistence whereby the total annual income under commercial are above Rs.50, 000 and the subsistence are below Rs.10, 000 per year.

Nongrangoi as of now has a very promising future in the field of agriculture as most of the people embrace it as a means to earn a livelihood. Some of them have even got national awards for their excellence in the field of agriculture. As a part of this project we have seen that food crops from Nongrangoi have flooded the local Nongstoin market and will even continue to grow as the people put more efforts into this field of agriculture.

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