

A BRIEF STUDY ON ORANGE CULTIVATION IN RUSOMA VILLAGE

***PROJECT REPORT SUBMITTED TO NAGALAND UNIVERSITY IN PARTIAL FULLFILLMENT
FOR THE AWARD OF THE DEGREE OF BACHELOR OF COMMERCE***

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DECLARATION

I declare that the project report entitled “A Brief Study on Orange Cultivation in Rusoma Village” Submitted by me for the award of the degree of **Bachelor of Commerce** of Nagaland University is my project report has not been submitted for any other degree of this University or any other university.

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CERTIFICATE

I forward this project report to be placed before the examiners for valuation.

NGIPLON RACHEL CHOHWANGLIM
Supervisor

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CHAPTER -1: INTRODUCTION

1.1: BACKGROUND

Orange belongs to the citrus fruit category and is also addressed as sweet orange. It is believed that orange is a hybrid of pomelo and mandarin. Orange trees are greatly found in tropical and subtropical regions of the world and are the most cultivated fruits. This tree is not a wild species; rather it was domesticated by cross-breeding two other varieties of citrus fruits. The countries that first started orange cultivation are North Eastern India, China, and Indo-China. During the 13th century, the fruit traveled to Europe and parts of South America and Central America.

Orange plants or any other citrus plant is a modified berry and is known as a hesperidium, the fruit is covered by a peel which originated due to the thickening of the ovary wall. This tree is evergreen in nature and is considered as a flowering variety. The average height of the tree is 9m to 10m. The leaves of the tree are oval in shape and are arranged alternately. The fruit is either spherical or oblong in shape. There is a bitter tissue under the peel and is called the mesocarp. The fruit has several carpels divided by membranes. The fruit is green when unripe and upon ripening it turns to yellow or bright orange. In common oranges, pigmented oranges, navel oranges and acidless oranges are the four subcategories of sweet oranges.

Rusoma village, 12km away from the state capital, Kohima, is known for its sweet and juicy oranges. The village is not only famous for its orange but also for its handicraft. Farmers in the village have been growing orange for the last four decades and for the last many years. The orange has become more sweeter, bearing one of the best oranges in the state. After the orange festival has been organized by 'Bostimanu Entertainment' in the year 2020, the Rusoma orange has become more popular in the state. As the Rusoma orange is sweet and juicy, and is known for all the people in the state, the demand has been increasing yearly, with the increase in the demand, the cultivation of orange has also been increasing in the village yearly. The horticulture department has also helped the orange cultivator in some various ways, they also provide training about the plantation of orange.

Over the year, with the increase of orange farming, the economy of the village has taken a tremendous change. A single orange cultivator in the village who owns orange

orchards spreading across several acres of land, has been generating from 3 lakh to 8 lakh annually.

1.2: LITERATURE REVIEW

1. Gharagozloo M, et al. (2001) provided that *C. aurantifolia* juice has ability to modulate immunity by inhibiting proliferation of mononuclear cells.
3. Valuck, et al. (2004) demonstrated that chronic use of either proton pump inhibitors or H₂-receptor antagonist causes vitamin B12 deficiency.
4. Imade GE, et al. (2005) through their survey showed that *C. aurantifolia* juice has antifertility activity as it prevent pregnancy. They they also reported that *C. aurantifolia* juice augment sexual pleasure and prevent sexually transmitted diseases.
5. Yang and co-workers (2006) reported that proton pump inhibitors may interfere with calcium absorption and reduce bones resorption through induction of hypochlorhydria and inhibition of osteoclastic vacuolar proton pumps, respectively. These researchers also demonstrated that link between proton pump inhibitor therapy and hip fracture risk.
6. Chunlaratthanaphorn S, et al. (2007) reported that aqueous extract of *C. aurantifolia* at dose of 1200 mg/kg body weight was toxic to the rats as these dose was associated significant elevation in liver enzymes.
7. Aibinu I, et al. (2007) conducted a study to investigated the antimicrobial activity of citrus *aurantifolia* and the study result confirmed that root extract of *C. aurantifolia* inhibits growth various microorganism including Beta-haemolytic streptococci, *P. Aeruginosa*, *K. Pneumonia* and *S. aureus*.
8. Camacho-corona MR, et al. (2008) demonstrated antibacterial activity of *C. aurantifolia* against *Mycobacterium tuberculosis* strains that were resistant to isoniazid and they also concluded that this activity may be due to presence of certain major phytochemicals like palmitic acid and linoleic acid.

9. In a study of Piccineli AL, et al. (2008) *C. aurantifolia* hydroalcoholic extract showed a platelet aggregation activity by significantly inhibiting epinephrine-induced platelet aggregation and adenosine diphosphate.
10. Dongmo PM D and his team (2009) isolated three varieties of essential oil from *C. aurantifolia* and tested for fungicidal properties. These three essential oils antifungal activity by inhibiting the growth of fungi called *Phaeoramularia angolensis*.
11. A study by Patil JR, et al. (2009) showed that volatile oil *C. aurantifolia* peel has ability to inhibit human colon cancer cells and they exert this action by inducing apoptosis-mediated cells death.
12. Khan IA, et al. (2010) reported that certain chemical constituents like coumarins present in essential oils of *C. aurantifolia* known to promote tumor formation on skin and epithelium of stomach. They also demonstrated that these chemical constituent cause phototoxicity.
13. Sarker SD, et al. (2010) conducted a study to test whether essential oil obtained from plant *C. aurantifolia* able to prevent weight-gain induced by ketotifen in mice. This study result suggested that essential oil from lime can be an effective alternative treatment for obesity due to drugs.
14. Boshtam M. et al. (2011) demonstrated antioxidant properties of *C. aurantifolia* in an in vitro model. In this study, both peel extract and fresh juice of *C. aurantifolia* showed antioxidant properties by properties by preventing LDL oxidation.
15. Jahromi VH, et al. (2013) evaluated the effect of *C. aurantifolia* peel extract on serum levels of FSH, testosterone and LH. In this study, hydroalcoholic peel extract of *C. aurantifolia* caused a significant decrease in leydig cells and serum levels of LH hormones.
16. Bapna, et al. (2014) reported *C. aurantifolia* possess antiplasmodial activity against malaria causative pathogens like *Plasmodium falciparum*.
17. Enejoh OS, et al. (2015) studied the anthelmintic activity of methanolic extract of *C. aurantifolia* peel against *Heligmosomoides bakeri*. The various concentration of methanolic extract of *C. aurantifolia* peel were prepared and tested for larvicidal and ovicidal activities on eggs *Heligmosomoides bakeri* in an in vitro. The fruits peel extracts of *C. aurantifolia* produced significant inhibition of hatching of *Heligmosomoides bakeri* eggs and showed a larvicidal activity in a concentration dependent manner.

1.3: RESEARCH OBJECTIVE

The following objectives of the research are considered below:

1. To find out the total annual income of the orange cultivator in Rusoma village.
2. This study aims to find out how many people are engaged in doing the orange cultivation in Rusoma village.

1.4: RESEARCH QUESTION

1. Is orange cultivation a sustainable business in Rusoma village?
2. What are the challenges and problems of orange cultivation in Rusoma?

1.5: RESEARCH METHOD

The study is primarily based on the field data collection from the sample area through survey and interview method. This study will comprise of the following methodology framework.

A. Source of data collection.

The study follows various sources in collecting authentic research data. The main source will be based on primary and secondary data. Primary information was collected from the field through scheduled questionnaire and personal interview method. To supplement primary information; secondary data available are also for the study. These are collected from various sources such as books, related sources from the internet and other written material related to the study topic.

B. Sampling design

Sampling is a process or techniques of selecting a suitable sample of the population for the sample from among the people of Riisoma village.

1.6: AREA OF THE STUDY

The study was conducted in Rusoma village. Rusoma is a medium village located in Chiephobozou Circle of the Kohima district of Nagaland with a total 361 families residing. The Rusoma has a population of 1903 of which 979 are males while 924 are females as per the population census 2011.

CHAPTER 2- DATA ANALYSIS AND INTERPRETATION

2.1: PROFILE OF RUSOMA VILLAGE

Rusoma Village is located in Chiephobozou circle of Kohima District, Nagaland with total 361 families residing. The Rusoma Village has population of 19 03 of which 979 are males while 924 are females as per population censuses 2011. Nearest town of the villages is Kohima and the distant

from Rusoma Village to Kohima is 12 kms. The village has its own post office and the Pin Code of Rusoma Village is 797003 Chiephobozou is the Sub District from the village is 41 Km. District head quarter of the village is Kohima which is 12 km away . According to the census of 2011, Information the location code or village code of Rusoma Village in 268240.

In Rusoma Village population of children with age 0-6 is 287 which make up 15.08% of the total population of villages. Average sex ration of Rusoma village is 944 which are higher than Nagaland state average of 931. Child sex ratio for the RusomaVillage as per census is 888, lower than the Nagaland average of 943.

Rusoma villages has lower literacy rate compared to Nagaland. In 2011, literacy rate of Rusoma Villages was 73.58 % compared to 79.55% of Nagaland. In Rusoma male literacy stands at 80.53% whilefemale literacy rate was 66.29%.

As per constitution of India and PanchayatRaaj Act, Rusoma Village is administered by the Sarpanch (Head of Village) who is elected representative of village. Nearest town of the village is Kohima and distance from Rusoma village to Kohima is 12 km. The village has its own post office and the Pin Code of Rusoma Village is 797003 Chiephobozou is the Sub District from the village is 41 Km. District head quarter of the village is Kohima which is 12 km away.

2.2: SOCIO –ECONOMIC PROFILE OF RÜSOMA VILLAGE (2011)

Particular	Total	Male	Female
Total No. of House	361	-	-
Population	1.903	979	924
Child (0-6)	287	152	135
Schedule Caste	0	0	0
Schedule Tribe	1886	970	916
Literacy	73.58%	80.53%	66.29%
Total workers	959	491	468
Main Workers	812	-	-
Marginal Workers	147	25	122

2.3: DEMOGRAPHICS

The Village is a home to 1903 people among them 979(51%) are male and 924 (49%) are female. 10% of the whole population are from General caste and 90% are schedule caste. Child (age under 6 years) population of Rüsoma Village is 15% among them 53% are boys and 47% are girls. There are 361 household in the village and an average 5 person live in every family.

2.4: EDUCATION QUALIFICATION OF THE ORANGE CULTIVATOR

Educational Qualification	Person	Percentage
Under Matric	13	50%
Matric	8	30.78%
Higher Secondary	3	11.54%
Graduate and above	2	7.69%
Total	26	100%

The study wanted to find out the educational qualification of the respondent. Majority of the respondent where there of the under matriculate they constitute 50% which represent the highest in the education qualification , Matric are the second highest qualified in education scoring with 30.78% higher secondary with 11.54% followed the Graduate and above with 7.69%

2.5: DISTRIBUTION OF AGE OF THE ORANGE CULTIVATOR

Age	Person	Percentage
26-35	15	57.69%
36-45	7	26.93%
46-55	2	7.69%
56-65	2	7.69%
Total	26	100%

The study found out that the group age from the 26-35 were the majority respondent followed by the age group 36-45, 46-55 and 56-65. The profile of their age respondent percentage is 57.69%, 26.93%, 7.69%, 7.69% respectively.

2.6: GENDER WISE DISTRIBUTION OF THE ORANGE CULTIVATOR

Gender	Person	Percentage
Male	14	53.85%
Female	12	46.15%
Total	26	100%

The study found out that majority of the respondent was Male followed by the Female. The profile of gender distribution is shown in percentage i.e. male with 53.85 % and Female with 46.20 %

2.7: CAPITAL OWN OR BORROWED BY THE ORANGE CULTIVATOR

According to the study on the capital own or borrowed by the respondent. We learn that all of the Orange Farmers start up their farms with their own capital i.e. 100% which is the best option that the entrepreneur have, the capacity to do so because he/she own the business in its entirely without any loan to creditors. The ability to obtain financing is based on diligence and creativity, developing own feasibility analysis.

Particular	Respondent	Percentage
Own Capital	26	100%
Borrowed Capital	0	0
Total	26	100%

2.8: YEARS OF STARTING THE ORANGE CULTIVATION

Years	Respondent	Percentage
1980-1990	4	15.38%
1990-2000	5	19.23%
2000-2010	8	30.77%
2010-2020	9	34.62%
Total	26	100%

According to the study the Orange Farming started between the year 1980-1990 having 15.38% between the year 1990-2000 having 19.23% , between the year 2000-2010 having 30.775 and between the year 2010-2020 having 34.62% . As shown in the table the Orange Farming has increasing year after year due to the high demand by the consumer.

2.9: ADVERTISEMENT OF THE PRODUCT

Advertisement	Respondent	Percentage
Social Media	1	3.85%
Exhibition	5	19.23%
Display and Sale in Market	10	38.46%
Personal Contact	10	38.46%
Total	26	100%

The Orange Farmers advertise their product in different way. Out of 26 respondent 1 respondents i.e 3.85% advertise their product through social media. Followed by the exhibition with 5 respondent (19.23%) They promote their product during the time of Orange festival and other cultural exhibition. Display and sales in market (38.46 %) 10 respondents, through the availability of the required product in the market the demand also increase year by year 10 respondent (38.46%) advertise their product through personal contact. They usually cannot advertise their product through newspaper, magazine, display etc. All they can promote their product is through their hardwork and good skill in communication. It is the most popular platform to promote their product. They advertise in their own terms quick and easy to access their produce.

2.10: MARITAL STATUS OF THE ORANGE CULTIVATOR

Marital	Person	Percentage
Married	13	50 %
Unmarried	13	50%
Total	26	100%

The study found the marital status of the farmers. The respondent of married is 50% meanwhile respondent of unmarried is 50%. The study found out that both the female and male are equal in doing Orange Farming.

2.11: EXPORT THE ORANGE PRODUCT

The respondents were asked to find out how many products are exported in a year. According to the profile study on export of the product, 7% of the products are exported to Dimapur district while 93% of the products are not exported. 93% of the product are consumed or marketed within the area. No transportation of goods due to less export of product. 7% of the products are export to Dimapur district that is demanded.

2.12: INITIAL INVESTMENT BY THE ORANGE CULTIVATOR

Initial Investment	Respondents	Percentage
0- 30000	18	69.23%
30000- 60000	4	15.38%
60000-90000	2	7.69%
90000-12000	1	3.85%
120000-150000	1	3.85%
Total	26	100%

The Study on initial investment of the respondent start with the amount between 5000-30000 with 69.23% between 30000-60000 with 15.38% between 60000-9000 with 7.69% between 90000 -120000 with 3.85% and between 12000-15000 with 3.85% majority of the initial investment lies in the range between 0-30000 by the orange farmer. 90000-120000 and 120000-150000 has the same percentage of initial investment. Due to different size of the farm the farmers has started with the amount of 30000 and goes up to 150000.

2.13: ANNUAL INCOME OF THE ORANGE CULTIVATOR

Annual Income	Respondent	Percentage
30000-80000	5	19.23%
80000-150000	8	30.77%
150000-200000	4	15.38%
200000-300000	4	15.38%
300000-500000	3	11.54%
500000-700000	2	7.69%
Total	26	100%

The study analyzes the annual income of the respondent. Orange Farmer receiving the annual income between 80000-150000 has the highest percentage with 30.775 and the annual income received between 30000-80000 is 19.23 %, 300000-500000 is 11.54%, 500000-700000 are 7.69%, 150000-200000 and 200000-300000 are with the same percentage of annual Income both with 15.38 %.

2.14: MAIN AIM FOR STARTING THEIR FARMING

They have their own different aim to start the orange farming. Majority of the farmer have the aim to earn livelihood. For augmenting family income and for self-sustainable self-employed. Besides that some of the farmers have the aim to promote or develop the businesses which are given in the following points.

1. To promote the organic product through exporting to different parts of the world.
2. To increase the level of horticulture crops farm productivity, as there is increasing rate in consumer demand and satisfied the consumer demand.

CHAPTER 3

FINDING, SUGGESTION AND CONCLUSION

3.1: FINDINGS

From the research on the orange cultivation in Rusoma village , it has been found that the cultivation of orange in Rusoma village has started since 1980 ,at the beginning of the cultivation of the orange ,the cultivator doesn't have any knowledge about the export and sale in the market, they cultivate only for their self consumption .But after the year 2000 , slowly the farmers brings their orange to the market and start selling in the market , and after a year later the Rusoma orange has become popular and the demand has also increase year by year and from there the orange cultivation has being increasing yearly till today. From the research study we found out that the majority of the orange cultivator was male followed by the female i.e. male with 53.85% and female with 46.20%. Among that, only few cultivator are depend on their orange farm for their livelihood, most of the orange cultivator are engage in different field like in government sectors and some in other private sector, only few people has their full time in doing the orange farm. Through the study we also found that all the orange farmers start up their farm with their own capital beside they did not take any loan from any financial institution.

3.2: SUGGESTION

Some of the important suggestions which can help to promote the Rusoma orange are state below:

1. Exporting more orange to other district, state and country can promote the organic orange.
2. By advertising more in the social media can also promote the orange.
3. The festival should not be made much diversified. Instead, priority should be placed on selling of orange and orange product.
4. Many people (outsiders /well wishers) look forward to buy orange in bulk quantity at low price during orange festival. So growers should supply at cheaper price and be selling at price lower than markets price during the festival so as to promote the orange.
5. Attaching the site of festival to some large orange field can also attract more visitors.

3.3: CONCLUSION

The study determined the orange cultivation in Rusoma village . The research was conducted on the orange cultivator both male and female. The sample contain 14 (53.85%) male and 12 (46.2%) female, Out of 26 respondent under matriculate (50%), matric (30.78%), higher secondary (11.54%), graduate and above (7.69%). The study also found out that the majority of the respondents are between the age group of 26-35 with (57.69%), 36-45 (26.92%), 46-55 (7.69%), and 56-65 (7.69%).

The study reveal that the annual income of 5 farmers fall between 30000-80000 (19.23%) 8 farmers is between 80000-150000 (30.77%), 4 farmers 150000-200000 (15.38%), 4 farmers 200000-300000 (15.38%), 3 farmers 300000-500000 (11.54%), 2 farmers 500000-700000 (7.69%) , All of the orange cultivator start their farm with their own capital and not borrowed from any other financial institution.

Out of the total 26 respondent, surveyed in the village ,initial investment of 18 orange cultivator fall between 0-30000 (69.23%), and 4 cultivator with around 30000-60000 (15.38%), 2 cultivator with 60000-90000 (7.69%),1 cultivator with 90000-120000 (3.85%), and lastly the highest initial investment made was between 120000-150000 (3.85%) invested by 1 cultivator. It was recorded only 7% of the products are exported while 93% of the products are not exported. 935 of the product are consumed or marketed with in the area.





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APPENDIX

Topic: Orange cultivation in Rusoma village

1. Name.....

2. Age.....

3. Gender.....

4. Marital status

-Married

-Unmarried

5. Educational qualification

-Under matriculate

-Matriculate

-Higher secondary

-Graduate and above

6. Annual income of the orange cultivator.....

7. Monthly expenditure of the cultivator

8. Year of starting the orange farming

9. Main aim for starting orange farm...

10. Initial investment.....

11. Did you start your farm with your own?

-Own capital

-Debt capital

12. How did you advertise your product?

Answer.....

13. Do you export your product? Yes or No

14. What is your main aim to starting the orange farm?

