

Problems and Prospects of Orange Cultivation: A Study in Ngunraw Village of Meghalaya

Dr.Polakshi Bhattacharyya Baruah

Assistant Professor, USTM

polakshibb@gmail.com

MancyfullLyngdohSangriang

M.A Economics, USTM

mnc844@gmail.com

Abstract

Orange cultivation played an important role for improving socio-economic development in rural areas by mobilizing resources in generating employment and income. Meghalaya is one of the leading states in India in the production of orange especially the Khasi Mandarin orange. Ngunraw village located in South West Khasi Hills District is favourable for variety of sub-tropical and temperate fruit which includes citrus species, pineapple, banana, papaya, guava and jack fruits. But with the changing climate and taste of the people (preferring more processed food) the cultivators are facing various problems to sustain, their income being into orange cultivation. The study intends to highlight the socio-economic profile and the various problems faced by the orange growers in this area.

Key words: Orange, Food processing, Marketing

Introduction

Orange is one of the top citrus fruits being grown in most of the countries after banana and apple. The most important commercial citrus species are mandarin, sweet orange and acid lime. Orange has great economic importance due to its wide range of uses and benefits. This fruit is rich in vitamins like C, A, B and phosphorus. Orange can be grown both in tropical and sub-tropical climate conditions up to 1,500 meters. However dry climate with a soil temperature around 25 degrees Celsius could be optimum for plant root growth. Orange crop is very sensitive to frost conditions and high humid conditions caused to spread many diseases. With regard to harvesting the crop yield starts from 4th to 5th year depending on the cultivator. The economic life of an orange tree is 20 to 25 years. (Asia Farming).

India with diverse soil and climate comprising several agro ecological regions, gives encouragement to horticulture crops. India with more than 28.2 million tonnes of fruits and 66.0 million tonnes of vegetables production is ranked next after Brazil and China, in the world. Occupying 10% cropped area out of whole cropped area by horticulture is ranked 2nd in the world for fruits and vegetables

production. The share of India in the world production is 10% and vegetables for 13.28%. Contribution of horticulture to GDP of agriculture is estimated to be more than 24.5%. Horticulture sector established in improving productivity of land generating employment, improving economic conditions of the farmers and entrepreneurs, enhancing export and provide nutrition security to the people.

Various studies have been carried out by different scholars in the field of horticulture, for example, G.L.Kaul (1997) analysed the role of horticultural crops in crop diversification, human nutrition and industrial growth and in generating income and employment under Indian situation. His analysis is more valid today when Indian agriculture is getting more commercialized and competitive. These crops have been identified as most remunerative crops for replacing subsistence farming in the rain fed dry land, hills, arid and coastal agro-ecosystems. These crops are characterized by high productivity per unit area, much higher than the field crops. Goswami, Sarma and Choudhury (1993) in their research paper opined that the potentialities for development of horticulture is very great in most of the hilly areas and this is more so in the North-Eastern hills where all kinds of horticultural crops can be grown as the region has been recognised as valuable gene pool for horticultural crop improvement. They however emphasised for the qualitative improvement of variety of horticultural crops followed by adoption of post-harvest technology, storage, transportation and marketing. Subrahmanyam (1998) pointed out that the two main risks faced by horticulture farmers are namely (I) the price risk that is the wide price fluctuations due to supply in peak season (ii) the risk created by the middlemen in the market that is illegal deductions, overcharging, offering low prices through collusion and under weighing. Goel, Kumar and Mann (2007) pointed out that the post-harvest losses vary from 21-25% in case of Khasi mandarin in North – Eastern region. The post-harvest losses in perishable commodities are higher in comparison to other parts of the country due to lack of mechanisation, collection centres in major producing areas, suitable container, commercial storage house, poor transportation, unorganised marketing system and processing units. He stressed that attention has to be paid for such perishable commodities right from harvesting to processing and marketing.

Horticulture and the State of Meghalaya:

Meghalaya is categorized as one of the rich states in the fields of horticulture in relation to soil and climate. The main fruit crops are citrus like Mandarin orange, Pineapple, Banana, and Lemon etc. Among citrus, Mandarin oranges alone occupy the major percentage. The share of horticulture crops in Meghalaya increased from 42.2% in 1999-2000 to 53.3% in 2010-11. East Khasi Hills are almost completely under horticulture crops with a share of 81.1%. West Khasi Hills and South Garo Hills also have the dominance of horticulture with 67.0% of the cropped area. Jaintia Hills and Ri-Bhoi have 55.0% of the area under horticulture crops. Only West Garo Hills and East Garo Hills have

relatively lower concentration of horticultural crops with major part of area under agricultural crops. However, West Garo Hills have been showing rapid changes towards horticulture. The share of horticulture increased from 17.7% to 38.7%. The area under orange cultivation in India increased by 67% from 1.19lakh ha in 1991-92 to 1.99lakh ha in 2001-02 and the production increased by 57% and a nursery for Khasi Mandarin produce 80000 budded plants of high quality will be developed at a cost of Rs 236.25 lakh. (Meghalaya Horticulture Department)

Ngunraw village is located in Indo-Bangladesh border regions of the State of Meghalaya under headquarters of Mawkyrwat South West Khasi Hills District. Ngunraw village is favourable for variety of sub-tropical and temperate fruit which includes citrus species, pineapple, banana, papaya, guava and jack fruits. A wide range of indigenous fruits are also cultivated. The prominent indigenous fruits are: Myricanagi (sohphie), Prunusnepalensis (sohiong), Eleagnuskhasianum (sohshang), Flemingiavestita (sohphlang), Docyniaindicakhasiana (sohphohkhasi) etc. Among the Citrus species of this area, the most dominant is Khasi Mandarin orange. Orange cultivation provides a means of livelihood and employment to a large number of workers in Ngunraw Village. And a large number of people from this area are dependent on this crop cultivation as their main source of income. The Khasi Mandarin is adjudged as an important variety, widely known throughout the North Eastern region as well as outside the state and having good acceptance among the consumers.

Significance of the study

Diversification of agriculture is considered as an important strategy for agricultural development in India. Importance of orange cultivation as a means of diversification and creation of additional employment opportunities in rural areas is well accepted. Orange has the potential to generate income, promote trade, employment and helps in maintaining ecological balance. Orange is usually a high value crops that can be grown in marginal and degraded soils. The plan investment in horticultural research and development increased significantly since the seventh five year plan. It is important to bring to the notice that orange is highly perishable and requires appropriate transport, storage facilities and processing which is lacking in North Eastern Region. The farmers usually harvest orange in regular intervals and sale the produce immediately after harvest. In the absence of adequate facilities for processing for value addition, the farmers compelled to sale their produce at lower price. Moreover, marketing has remained as a major problem of horticultural development in the state. The study intends highlight the various problems existing in the North Eastern region with regard to horticulture cultivation in general and orange cultivation in particular.

Objectives of the study

1. To highlight the socio economic profile of the people engaged in orange cultivation in the study area.
2. To examine the problems related to orange cultivation.
3. To examine the prospects of orange cultivation.

Methodology

The study was conducted in Ngunraw village of Mawkyrwat Block South West Khasi Hill District, Meghalaya. Primary data was collected from 50 household were selected randomly and interviewed through a questionnaire. And Secondary data is collected from Horticulture Office, Magazines, Textbooks, Internet, and Journals. The analysis of data has been done by using tabular methods and percentage method. And the same have been presented in pie and bar diagrams.

Findings of the Study

Socio-economic profile of the respondents: the following paragraphs highlight the socio-economic profile of the respondents in terms of age distribution, education qualification and income generation.

Age distribution of the respondents

Table 1: shows the distribution of respondents by age groups. Out of 50 respondents 10 were in the age group of 20-30 years, 13 were 31-40 years age group, 11 were 41-50 years age group, 12 were 51-60 years age group and remaining 4 numbers were above 60 years age group. This indicates the majority of person engaged in orange cultivation are the middle aged groups of 31-40 years, the people at this age group are termed to be energetic.

Table 1: Age distribution of the respondents						
Below -20	20-30	31-40	41-50	51-60	61-above	Total
0	10	13	11	12	4	50

Source: Primary Survey South west Khasi hill (2016 April)

Educational Status of the Respondents

Education is considered as one of the basic elements which determine the quality of manpower. The standard of education plays an important role on quality of human resources engaged in productive activities including agriculture.

Illiterate	Primary	Secondary	Higher Secondary	Graduate and Above	Total
2 (4%)	21 (42%)	17 (34%)	4(8%)	6 (12%)	50(100%)

Source: Primary Survey South west khasi hill (2016 April)

The Table2 shows that 4% were illiterate, 42%were educated up to Primary standard, 34%were Secondary standard, 8% were Higher Secondary and 12%have educated up to Degree level and above. This shows that majority of respondents Educational status was in Primary standard (42%). It shows that with increase in education level the number of respondents engaged in cultivation declines. It was also found that they are not introduced with the scientific method of cultivation their low level of education might be one of the reason for this.

Occupational Pattern

Orange cultivation is a primary occupation for most of the respondents about 35 of the respondents stated that they solely depends on orange cultivation for their livelihood. These 35 respondents are cultivating orange on their own land they also cultivate beetlenut and black pepper. And the remaining 15 respondents (who are labourers in orangeorchard) stated that as orange cultivation is seasonal they have to depends on other source of livelihoods like 5 persons are in bamboo crafting, 7 are engaged as daily labourers and 3 are engaged in others.

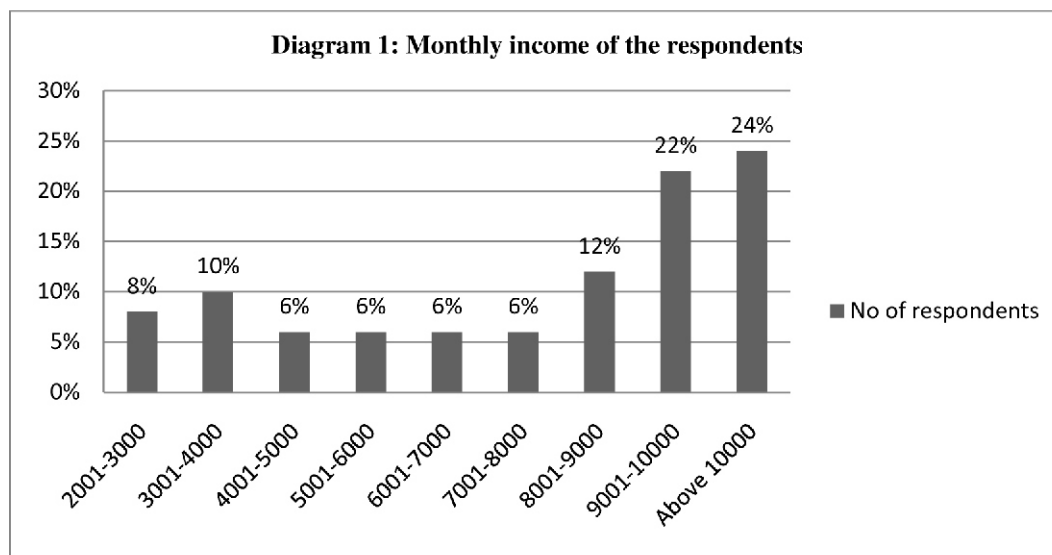
Income per month

Earning/income per month	Number of respondents	Percentage
2001-3000	4	8%
3001-4000	5	10%
4001-5000	3	6%
5001-6000	3	6%

6001-7000	3	6%
7001-8000	3	6%
8001-9000	6	12%
9001-10000	11	22%
10001-above	12	24%
Total	50	100%

Source: Primary Survey South west khasi hill (2016 April)

Table 3 and Diagram 1 reveal the monthly income of the respondents. It has been found that the respondents who are engaged as a labourer in the orange cultivation earn around 2000 to 6000 per month depending on the hours per day they are engaged in the cultivation process to harvesting process. The respondents who earn more than 8000 per month are mostly the main cultivator, their incomes vary based on the area under cultivation and number of labour they employ in their field. But it has been found that as they are engaged in cultivation of other crops like beetle nuts, black pepper and broom etc. They failed to give a clear cut amount of their income only from orange cultivation.



Problems of Orange Cultivation

Major problems faced by the orange growers are as follows

Market Related

Due to lack of organized marketing structure the farmers are getting low return as compared to their counterparts in other areas, whereas the middlemen amass a large chunk of profit at their expenses. For almost all the commodities including the producers face considerable marketing problems. Due to

perishable nature of the products and absence of adequate market support, the farmers sell their produce at a throw away prices to the middlemen without even getting the opportunity to display them. Transportation and storage is perhaps the most serious constraints in the horticultural development of this region.

Pests and Cheaper varieties

The cultivator of this area are mostly growing the Khasi Mandarin type of orange, which is currently facing two major problems-one of pests and the other of invasion by cheaper varieties of orange saplings from outside the state. The Khasi Mandarin variety of orange is definitely under threat due to the arrival of a large number of saplings from outside the state which are generally cheaper than original Khasi Mandarin saplings. The orange trees are very much prone to disease, and the cultivators are ignorance about the modern technology to get protect the trees from the various diseases. Again climate change is another problem for them, as the growing temperature is a big threat to the cultivators to sustain the quality of the orange.

Poor cultivation practices

Most of the Orange growers use traditional process for cultivation as a result the production cannot increase. As the Educational level is low in rural areas, till today the cultivators in the study area are not concerned about the scientific method or practices. They also stated that they do not get any proper training from the government with regards to adoption of mother technology of cultivation. They only get some pesticides supplied by the government but they are ignorance with regards to proper usage of those pesticides.

Problems of processing

Another serious problem is post-harvest processing of Orange. The success of fruits and vegetables growing is closely linked with the availability of processing facilities. The processing industry can help to a certain extent in sorting out the problem of proper disposal of perishable commodities. But the growers are not links with any processing units. The Orange growers do not have any cold storage facilities for which the Oranges cannot be kept for a long time after harvesting. Use of appropriate pre and post-harvest practices for horticultural crops is vital for the success of the crops. The above discussed problems are common to the entire orange grower in the Ngunraw village. The table 4 below shows the responses of the respondents with regards to the various problems in orange cultivation.

Table 4: Distribution of the Respondents according to their responses regarding the various problems in orange cultivation.				
Types of Problems	Strongly agree	Agree	Disagree	Total
Market related problems	35	16	1	50
Available of cheap variety of orange	10	17	13	50
Traditional method of cultivation	20	18	12	50
No proper processing facilities	30	15	5	50
Source: Primary Survey South west khasi hill (2016 April)				

Prospects of orange cultivation in Meghalaya

Meghalaya is one of the leading states in case of orange production. *Khasi Mandarin orange* crops bear the bright future in the state and it is the most important commercial fruit crop of Meghalaya. It is well grown in Khasi, Garo and Jaintia hills of the state. And a large number of people of this area are dependent on this crop cultivation as their main source of income.

Since many years various products are made from juice of orange so that they can be consumed during off season as well. Products like jam, jelly, squash etc. are made from orange since long. With the advent of technology and preservatives, shelf life of such products has gone up and they can preserve for many months with proper packing. The fruit processing unit should be set up in north eastern zone of India where a number of tropical and sub-tropical fruits are grown. The north east regions have various scopes for setting up such unit with various horticulture crops grown in this region. In Meghalaya, Assam, Manipur and other states of North East several fruits like pineapples, oranges, lemons, peaches etc are cultivated in large quantities. Hence, due importance need to be given in setting up fruit processing activity which will not only make the flavor of the fruit available in off-season but also generate employment to large number of people.

Orange is liked by people of all age groups but they are available only during specific season. Due to high water or juice contents, they are perishable. Hence, many down-the-line products like squash, juice, jams etc. are made from orange with preservative which increases their shelf-life substantially. Market for such products has witnessed a quantum jump during last few years and with growing urbanization, increase in disposable income and changing life styles, demand for them is steadily going up. Orange juice is used in producing a wide variety of domestic, industrial and medicinal uses. Domestically, it is used to add orange flavor to beverages, desserts and sweetmeats. Industrially, it is used to make orange juice or squash, bakery item, chocolates, soaps, body lotions, creams etc. And there are many health benefits of orange like scurvy diseases, diarrhea, convulsions, fever, Alzheimer's diseases etc. So, orange have a high nutritional content and have medicinal value as well. The new initiatives of the government in the form of Make in India and Act East policy if implemented do definitely open many opportunities for the horticulture market of the north east region of India. The improved connectivity between north east region and ASEAN will open many opportunities to do business between the regions and might help in addressing many problems faced by the horticulture farmer. The India- Myanmar-Thailand trilateral highway is going to be a game changer to connect India's north-east with east Asian. This 360 long high way would establish seamless territorial connectivity when it is completed by 2018.

Conclusion

As a concluding remark it can be stated that there is enough potentials for increasing orange production in Meghalaya. The government should provide facilities regarding production such as supply of inputs i.e. to provide seedlings, fertilizers, and pest and disease control chemicals. The Horticulture Board of Meghalaya should try to set up orange processing industry. It will encourage the orange growers and moreover there is sufficient scope for steady export of processed value-added fruit products of orange to the neighboring countries. Owing to inadequate processing units, export of processed items is also not taking place. Since various products are made from orange are products like jam, jelly, squash, cream, medicinal uses, soap etc, the Meghalaya government should adopts the necessary measures to attract food processing units to set up their branches in the region.

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