



A REVIEW

Supply chain of major fruits in North East India

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Abstract : India is a land of diversity, whether to be said in terms of religions, topography, languages and food habits. Similar is the case with fruits growing in different parts of our country, from South to North and from East to West. Among these fruit growing regions, the North Eastern region occupies a very significant place. In this paper, an effort has been made to discuss the major fruits grown in North Eastern regions along with the availability of mode of sale in markets in the form of a supply chain of some selected fruit crops.

Key Words : North eastern region, Fruits, Markets, Supply chain

View Point Article : Jumi, Toko and Saikia, Bhaskar (2023). Supply chain of major fruits in North East India. *Internat. J. agric. Sci.*, 19 (1) : 325-328, DOI:10.15740/HAS/IJAS/19.1/325-328. Copyright@2023: Hind Agri-Horticultural Society.

Article History : Received : 29.09.2022; Revised : 26.11.2022; Accepted : 26.12.2022

INTRODUCTION

North- East India comprises of eight states. It occupies 7.70 per cent of India's total geographical area. The major fruit crops in the northeast region of India are banana, pineapple, citrus fruits like Indian wild orange, Assam lemon, mandarin orange etc. other than these, fruit crops like passion fruit, dragon fruit, chow-chow, and plum and kiwi fruit are grown in some areas of northeast India. The region renders scope for cultivation of a wide variety of agricultural crops because of its diversity in topography, altitude and climatic conditions. The scale of cultivable land in the North Eastern region varies from state to state. Fruit crops are one of the important horticultural crops, along with vegetables, spices, flowers, etc. India is the second largest producer of fruit crops after China. The major fruits of India include mango, banana and pineapple. The country has exported

4,96,577.72 MT of fresh fruits other than Grapes and Mango to the world for the worth of Rs. 2,065.82 crores/ 288.07 USD Millions during the year 2019-20. Major export destinations (2019-20): United Arab Emirates, Bangladesh, Iran, Nepal, Oman. The major production areas in the country are in the state of Maharashtra, Andhra Pradesh, Tamil Nadu, Gujarat, Karnataka, Uttar Pradesh, Bihar, Madhya Pradesh, West Bengal, Kerala, Jammu and Kashmir, Orissa and Assam (APEDA, 2019).

Major fruits in North East India :

Pineapple :

Pineapple is one of the important fruits grown in India. The crop originated in Brazil and today it is grown in a number of countries with the most tropical climate in the world. The fruit is rich in Vitamins A, B, and C and is also a good source of minerals like iron, calcium

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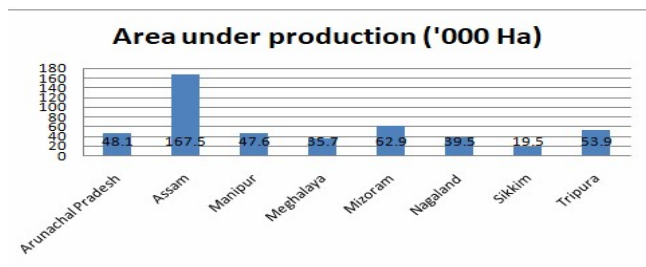


Fig. 1: Area ('000 ha) of fruit crops grown in NE region (2018-19)

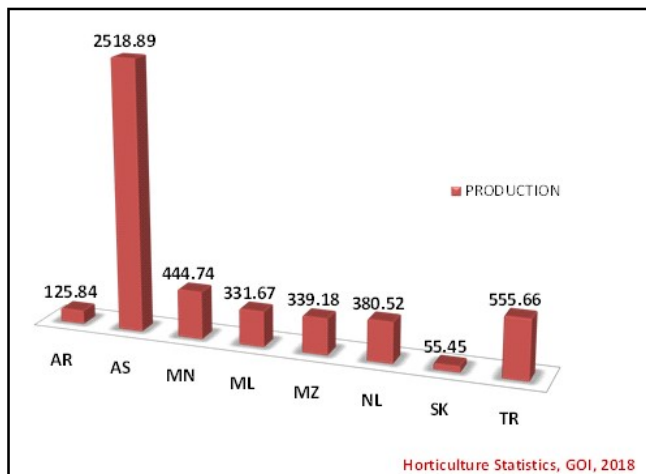


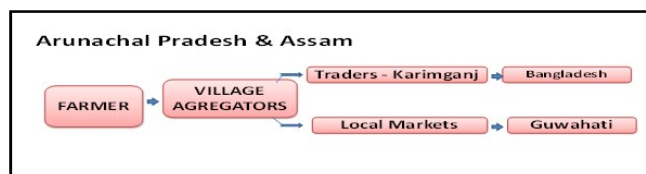
Fig. 2: Production (000' tones) of fruit crops in NE region (2018-19)

and phosphorous. While the fresh fruit is used for table purposes, juice. The canned slices are popular as preserves and are traded in the international markets. Pineapple is grown in all the Northeastern states except Sikkim. Apart from these states, the crop is also grown in the states of Kerala, Karnataka, Tamil Nadu, Maharashtra and West Bengal. The agro-climatic conditions of northeastern India support the cultivation of the best quality pineapples in the region. Some of the varieties of pineapple that are grown in the region include Queen and Kew. Tripura's 'Kew' variety pineapples are exported to Dubai. Other varieties of pineapple that are grown in the region include Jaldhup and Lakhat. Pineapple is one of the key crops that are grown across all the states of NER. Together the region accounts for 72.3% of the area under pineapple and 54.5% of India's total pineapple production. The area under pineapple production in NER is 79.51 thousand ha and the total production is around 947.19 thousand tons (APEDA).

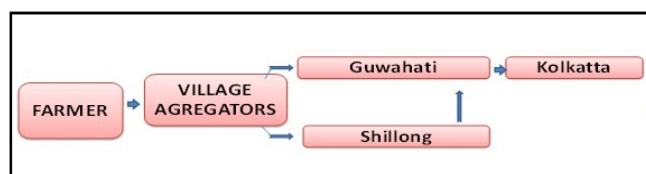
Supply chain of pineapple:

Pineapples are generally sold in the local markets;

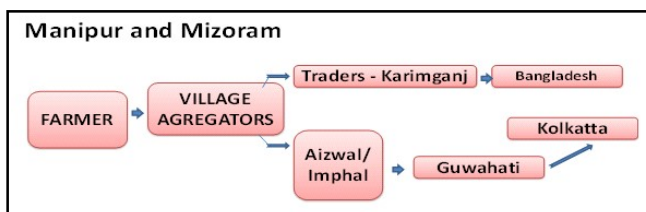
thereafter, the village aggregators sell the produce in the larger markets in the nearby towns/cities. The price of the fruit varies between Rs. 12-15/- per piece and, in off-season, up to Rs. 40/- per piece. The supply chains of the pineapple fruit crop of different NE states are shown in the following chain chart 1, 2, 3, 4 and 5.



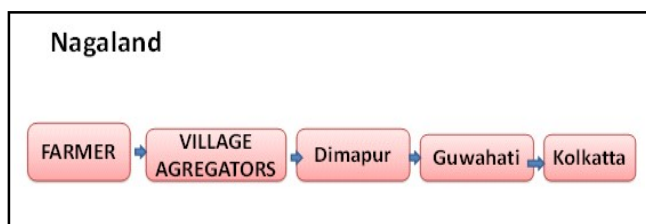
Chain chart 1: Supply chains of pineapple fruit crop of Arunachal Pradesh and Assam



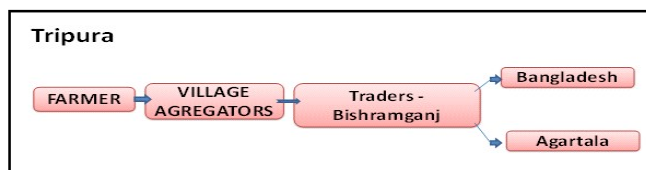
Chain chart 2: Supply chains of pineapple fruit crop of Guwahati, Shillong and Kolkata



Chain Chart 3: Supply chains of pineapple fruit crop of Manipur and Mizoram



Chain chart 4: Supply chains of pineapple fruit crop of Nagaland



Chain chart 5: Supply chains of pineapple fruit crop of Tripura

Jack fruit :

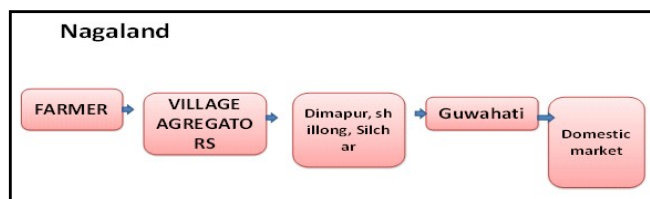
In the north-eastern region, jack fruit is grown primarily in the states of Tripura and Assam and a meager share is cultivated in Nagaland and Mizoram. In Assam

and Tripura, both soft flesh (Pakikhua) and firm flesh (Khoja) varieties are available. Of the total jack fruit production in the country, about 23.6 % is contributed from the two north eastern states of Tripura and Assam. Tripura, with 300,000 MT of production, is the second largest producer in the country. Usually the tree requires 8-10 years to fruit. The fruiting season begins in May-June and is at its peak during the monsoon season. July-Sep is the peak season for jack fruit in these areas.

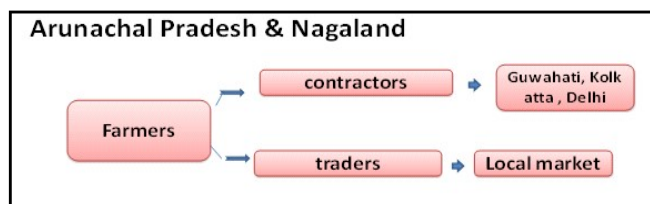
Supply chain of jackfruit :

Kiwi :

In India, the kiwi is produced in the north-eastern states of Arunachal Pradesh, Nagaland, Mizoram and in the Himalayan states of Sikkim, Himachal Pradesh, and Jammu & Kashmir. Arunachal Pradesh is the largest producer of Kiwi in India, having 44.71% share in the total kiwi production in India, followed by Manipur having an 18.12% share (NHB, 2021-22). Other states where Kiwi cultivation takes place are Sikkim, Mizoram, Nagaland, Himachal Pradesh, and Jammu and Kashmir. Planting is mostly carried out in the month of January. It takes 4-5 years for a kiwi vine to start bearing worthwhile fruits and 7-8 years for commercial production. Kiwi is available in the North East from September to November. Nearly 7,000 MT of India's production is from the north east region (APEDA 2018-19). Nearly 70% of the kiwi produced in the north east is wasted annually due to lack of storage and packaging facilities. The cultivation of kiwi fruit is seen only in some districts of Arunachal Pradesh, Manipur, Sikkim, Mizoram and Nagaland, producing huge quantities of delicious kiwis, but their export from India is not seen so far.



Chain chart 6: Supply chain of jackfruit of Nagaland



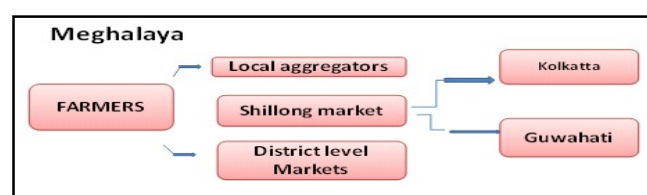
Chain chart 7: Supply chain of kiwi fruit for the state of Arunachal Pradesh and Nagaland

Orange (Khasi Mandarin) :

The citrus industry in India is the 3rd largest fruit industry in the country after mango and banana. The agro-climatic conditions of northeastern India support the cultivation of Khasi Mandarin in the region. Khasi mandarin is a variety of orange which was actually named after the Khasi Hills – a region in Meghalaya that is the main commercially grown variety of mandarin in Assam, Meghalaya and other states of the North East region. It is consumed fresh or in the form of juice, jam, squash and syrup etc. Dima Hasao, Kamrup in Assam, Tamenglong in Manipur and East Khasi hills in Meghalaya and Wakro in Lohit, the Dibang valley, and East Siang districts of Arunachal Pradesh have been at the top in its production in the North East region. The best time for planting is generally during monsoon rains, i.e. in the months of June to August. With good irrigation systems in place, it can be done in other months as well. It takes around 6 years from planting to bear fruit and around 50 fruits per tree is seen, which go up to 150 fruits in the seventh year and 200-400 fruits in the subsequent years.

Lemon :

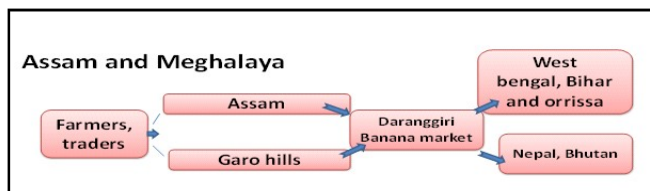
The North East region is home to different varieties of lemon with their unique characteristics. The two primary ones include Kachai and Assam. India is the largest producer of lemon, followed by Mexico and China. In India, Assam is the eight largest producer of Lemon. The planting is carried out between the months of May and August before the commencement of the monsoon. In the case of heavy rainfall in a particular region, the planting can optimally be done from September-October.



Chain chart 8 : Supply chain of lemon fruit for the state of Meghalaya

Banana :

The north east region has a huge capacity of banana cultivation. New varieties of bananas are being discovered in the present day. Banana fruit is grown in all the states of India and the major production from the north-east region is from the states of Assam and Tripura. The most commonly grown varieties of banana in the



Chain chart 9: Supply chain of banana fruit for the state of Assam and Meghalaya

Northeastern region are Jahaji (Dwarf Cavendish), Chini Champa, Malbhog and Borjahaji (Robusta). In the Northeastern region, Assam holds the largest share of banana production with 0.86 million tons. Tripura, Manipur, Mizoram, Nagaland and Meghalaya produce sizeable quantities of banana.

Conclusion :

North- east India has an impressive capacity for growing many important and commercial fruit crops, but the economic condition and the technological knowhow of the farmers are comparatively lower than the rest of India. Therefore, focus on such areas should be given to the farmers. Furthermore, cultivation of commercial crops such as kiwi, dragon fruit, strawberry etc should be encouraged and commercialized as the North East has a good potential for such commercial crops as well.

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