

Litchi – The Queen of Fruits

*Dr. Indu Mehta

Department of History Kumaun University, Nainital, Uttarakhand (India)

ABSTRACT: Litchi is a delicious juicy fruit of excellent quality. The translucent, flavored aril or edible flesh of the Litchi is popular as a table fruit in India, while in China and Japan it is preferred in dried or canned state. The origin of Litchi is from Southern China, particularly the provinces of Kwangtung and Fukien. Litchi farming spread from its native China to neighboring areas of South – eastern Asia and offshore areas of the West Indies, South Africa, Madagascar, then to France and England. The spread of Litchi to other parts of the world was rather slow probably due to its soil, climatic requirements and short life span of its seed. Litchi reached India through Myanmar and North East region during the 18th Century. India is the second largest producer of Litchi which accounts for about one fifth of the global production and has a good export potential. Bihar is the leading state in Litchi production in the country whereas Assam, Orissa, Jharkhand, Punjab, Himanchal Pradesh, Tripura, Uttar Pradesh, Uttarakhand and West Bengal are the other main Litchi growing states. Bihar accounts for about three – fourth of the Litchi production of the country. Litchi has a vast untapped potential in the domestic as well as the global market. The fruit crop pays substantially to the employment and economy of millions of people South East Asia.

Keywords: *Litchi, production, cultivation, fruits, species, Varieties.*

Date of Submission: 04-08-2017

Date of acceptance: 18-08-2017

I. INTRODUCTION

The Litchi or Lychee (*Litchi chinensis* Sonn.) is the most important sub-tropical evergreen tree and belongs to the Soapberry family Sapindaceae and sub-family Nephelaceae which has 125 genera and nearly 1000 species. The genus, Litchi, has two species, Litchi philippinensis and Litchi Chinensis, usually known as Pearl of India. Litchi fruit is famous for its excellent quality, characteristic pleasant flavour and for attractive red colour. The Litchi in its long history has been awarded many distinctive honours. Chinese have long considered it their most unique gift fruit. The earliest monograph on any horticultural subject deals with the litchi. Martini (1655) called the litchi “The King of Fruits”. Olfert Dapper (1670) wrote that the tree in fruit seems to be decorated with ‘purple hearts’ which melt like sugar in the mouth and that rightly the litchi should be called “the Queen of fruits”. Grosier (1795) claimed that litchi is the most tasty and beautiful fruit that God has created in the Universe. And a writer on nature in modern times, Robert Sparks Walker, said that anyone who examines the litchi and notes the beauty and sanitary method by which the fruit is preserved, must admire it as ‘one of the daintiest packages that have ever been wrapped by nature’s hands.’

ORIGIN AND HISTORY

The Litchi is a native of the South China but according to Blume Cochin – China and the Philippine Islands are the lands of origin of Litchi. According to Toa (1955), the Litchi is thought to have originated in China’s Kwangtung and Fukien provinces and have been grown in China for as long as 40 centuries. Alphonse De Candolle (1904) reported that Chinese authors living in Peking only knew the Litchi late in the third century of our era. The interesting fact being that unofficial records suggest Litchi was an integral part of this country since 2000 B.C. wild trees still grow in parts of Southern China and on Hainan Island.

Since then Litchi became significant in many Chinese traditions so much, so that it is regarded as an effective medicine there. There are many stories of the fruit’s use as delicacy in the Chinese Imperial Court.

The first reference to this fruit is available in the literature of the Han Dynasty (140 to 86 B.C.) A monograph on Litchi written by Ts’ai Hsiang in 1059 A.D. is considered to be the first publication in the world devoted to this fruit. However, according to Walter T. Swingle, the first published work devoted exclusively to fruit culture, was written by a Chinese scholar in 1056 A.D. on the varieties of Litchi. Groff (1921), whose book is the most complete work on litchi in English, lists 8 other monographs published as early as 1826.

Mc Gowan (1884) recounts that litchis were first sent as a tribute to the emperor Kao Tsu about 200 B.C. The emperor Wu Ti (140-87 B.C.) made several attempts to bring trees from Annam and planted them in his garden at Changan but he was not successful in raising them.

The history says that in the first century Litchis were that most desirable fruits ever, so much so that there were a special group of horses assigned that acted as the 'Fastest Courier Service' to bring the sweetest Litchi. Also in the fifth century, a Chinese emperor would send runners over 800 miles to obtain the fruit from the southern region of China for the woman he loved – the one who liked litchi a lot.

A major early Chinese historical reference to litchi was in the Tang Dynasty, when it was the favourite fruit of Emperor Li Longji (Xuanzong) favoured concubine Yang Yuhuan (Yang Guifei).

Litchi was indeed treated as an exquisite fruit in the Chinese Dynasty. There was great demand for litchi in the Song Dynasty (960-1279) according to Cai Xiang, in his *Li Chi Pu* (Treatise on Litchi). It was also the favourite fruit of Emperor Li Longji (Xuanzong) favoured concubine Yang Yuhuan (Yang Guifei). In Chinese mythology litchi is a symbol of good fortune and beauty.

There is a Cantonese saying : "One Litchi = three torches of fire". It refers to the extreme Yang property of the fruit. Commercial planting and growing of Litchi in China is primarily in the provinces of Guangdong, Guangxi, Hainan, Fujian, Yunnan, Taiwan and a small special area of Sichuan / Szechuan with a unique micro – climate, Guangdong is called 'The Kingdom of Litchi', because the province has the highest and best litchi production in China and Litchi are grown almost everywhere in the province.

The Litchi attracted attention of European travelers, such as Juan Gonzalez de Mendoza in his *History of the great and mighty kingdom of China* (1585; English translation 1588), based on the reports of Spanish friars who had visited China in the 1570s gave the fruit high praise. It was first described and introduced to the west in 1656 by Michal Boym, a Polish Jesuit missionary. The Litchi was described and named by French naturalist Pierre Sonnerat in his account – "Voyage to the East Indies and China, made from 1774 and 1781". Which was published in 1782 [Pierre Sonnerat was the first person to give a scientific description of the South Chinese fruit tree Litchi].

From China Litchi reached Eastern India first via Burma by the end of 17th century and thereafter by the end of 18th Century it was introduced to Bengal (Goto, 1960; Knight, 1980; Liang, 1981). From Bengal it spread to other parts of India. It is grown commercially in north Bihar (Muzaffarpur and Darbhanga), sub-mountainous districts of Uttarakhand (Saharanpur, Dehradun and to some extent in Muzaffarnagar) and in West Bengal (near Hooghly). It can also be successfully cultivated in Gorakhpur, Deoria, Gonda, Basti, Faizabad, Rampur, Bareilly, Bahraich, Kheri and Pilibhit districts of Uttar Pradesh (Singh and Singh, 1954), Nilgiri Hills of South India (Naik, 1949), Gurdaspur district in Punjab, Araku Valley of Andhra Pradesh (Hayes 1945) and Kangra Valley of Himanchal Pradesh. In India, the Litchi is very popular, and the fruits are in great demand during the season which, however, is rather too short, lasting about 60 to 80 days during April to June.

Besides China and India, the other Litchi growing countries are Burma, South Africa, Hawaii, Mauritius, the U.S.A. (Florida, California) and West Indies. West Indies introduced it by 1775, while in South Africa it was introduced into Natal in 1869 (Marloth, 1947) but very late in 1903 into the Lowveld of eastern Transvaal, where it is becoming very popular and fruits are generally disposed off in local market and also to European markets (Pandey and Sharma, 1989). In Hawaii, where it is believed to have been introduced in 1873, it has succeeded remarkably well and much attention has lately been given to its commercial cultivation. According to Stephens (1955), it was introduced into Queensland in 1854 but has not become a commercial crop, probably because of difficulty in its vegetative propagation (Pandey and Sharma, 1989).

In the United States, it was introduced into Florida from Saharanpur (India) in 1883 with subsequent introduction into California in 1897. One of the earliest and most successful introduction in Florida, 'Pl. 21204', was secured in 1906 from Fukien Province by William N. Brewster (Singh and Singh, 1954). The first fruit from this introduction was produced in 1916. This variety was named as 'Brewster' Litchi. It reached Europe (England and France) early in the nineteenth century but has never succeeded there (Pandey and Sharma, 1989).

In the 1920s China's annual crop was 30 million lbs (13.6 million kg). In 1937 the crop of Fukien Province alone was over 35 million lbs (16 million kg). While litchi is liked very much as a table fruit all over the world, in China it is very popular in dried or canned state. Dried Litchi is known as "Litchi Nut" which tastes somewhat like the raisin. The Chinese use the leaves for making poultices, the seed as anodyne for the skin and flowers, bark and roots for making decoctions for throat gargle (Pandey and Sharma, 1989). Litchi has a special place among the fruits by virtue of its attractive colour and distinct taste. India ranks second in the world in production of Litchi production after China. In India Litchi is grown in almost 83 thousand hectares of area with a production of 5.75 lakh metric tonnes. Bihar, West Bengal, Uttar Pradesh, Jharkhand, Uttarakhand are the major litchi growing states of India.

India produces superior litchi varieties having high pulp to stone ratio and with high yields. India grows at least 12 important varieties of litchi, mostly in the North East. Production spreads as far north as Jammu and Kashmir and as far east as Manipur. 75 percent of the country's production occurs in Bihar's city of

Muzaffarpur. This is the region most suitable for growing litchi, as its generally free from frost are also sensitivity to humidity and hot winds easily damage the fruit Uttar Pradesh and Chhota Nagpur are other part of India growing litchi.

India has been gifted with unique ripening pattern of litchi, as litchi starts ripening from 15th April in Tripura, 1st week of May in Assam and West Bengal; 3rd week of May in Bihar and Jharkhand and season ends after ripening terminates in Punjab in last week of June. Thus India has 2.5 months time to export litchi.

India is in advantageous position with regard to geographical location compared to Thailand and China as India is nearer to Europe and Gulf countries for exporting litchis to these countries. India has not to compete with Madagascar, South Africa and Australia as these countries produce litchi during November to February months, nor India is to compete with Israel as its litchi arrives during July to October months.

Indian litchi is earliest to arrive, as litchi ripens 15 days earlier than Thailand and Chinese litchies ripen one month later i.e. in June. Thus during this period there is comparatively less competition from China for exporting litchi to European markets. Agri Exports Zones have already been set up in Litchi growing areas of Bihar, West Bengal and Uttarakhand states. Pack houses for exporting litchi are already available in Bihar, West Bengal and Uttarakhand states. A specialized fumigation chamber has been set up in Malda area of West Bengal.

India is the second largest producer of Litchi and Bihar accounts for about 70 percent production of this high value exotic fruit. According to statistic of the Bihar government, litchi is grown on 29,000 hectares and the annual yield of this highly perishable fruit is about three lakh metric tonnes. The most popular varieties of Indian Litchi grown in Bihar are Shahi and 'China'. Litchi is grown predominantly in North Bihar districts like Muzaffarpur, Vaishali, Sitamarhi, East and West Champaran, Samastipur, Begusarai and Bhagalpur (Naugachhia). A delicate aroma and flavour make Shahi Litchi the best variety of Indian litchi. As it is grown in a radius of 50 Km around Muzaffarpur, it has become famous as "Muzaffarpur Litchi". Because of its high demand in metropolitan cities and overseas markets, the Bihar government has taken the initiative of obtaining regional patent right called GI (Geographical Indications). Although there is great demand for Shahi Litchi in as well as processed form, Litchi farmers in the state are more interested in making new plantation of China variety. This is because this variety gives high yield and thus is commercially more profitable. Shahi Litchi is the early variety that is harvested between May 15 and 31 and China Litchi is considered to be the late variety. Apart from the demand of fresh litchi in the metros, this fruit is also in great demand in Europe and the Middle East. But there are only three export houses of litchi in Bihar. The total export of litchi from Bihar does not exceed 30 metric tonnes, which is not even one percent of its total produce.

OFF SEASON PRODUCTION OF LITCHI IN SOUTH INDIA FOR CROP DIVERSIFICATION AND INCOME ENHANCEMENT OF FARMERS.

The Litchi requires specific climate for flowering and fruiting. Thus its commercial cultivation is limited to few states, located in certain latitudes. In the northern states of India, Litchi fruits mature in the months of May and June. country to this, the Litchi matures in the months of December and January in some of the non-traditional Litchi growing regions of South India. Litchi is grown as home stead trees or as isolated trees in coffee plantations in parts of coorg in Karnataka, waynad in Kerala and Lower Puleny hills, Kallar and Burliar of Nilgiri hills and some parts of Kanyakumari district of Tamil Nadu. The exact area of litchi in this region is not well known. As per estimated there are around 10,000 Litchi trees in coorg region of Karnataka. There are about 2000 plants of Litchi trees in Tamil Nadu. Some of the trees are more than 50 years old. These Litchi trees produces flowers in the month of August – September and fruits mature in the month of December and January. These trees belong to Shahi, Rose Scented, Early seedless, Dehradun, Maclean, Green and Calcuttia varieties. The fruit quality is at par with the fruits come from Northern India but lack of suitable packages of practices and poor marketing are hurdles of popularization of off season Litchi produced in these areas.

The survey of Litchi cultivation in coorg and Waynad areas revealed that more than 200 growers are growing litchi on a smaller scale with 1-10 trees in their gardens / plantation / backyard. But there are few farmers who have planted 1 acre to 10 acres of litchi as intercrop with coffee. The performance of Litchi trees shows that coorg and waynad areas has optimum climatic conditions for off season cultivation of Litchi and it has a potential to become major crop in future not only for the domestic supply even for the export. The experiment conducted at CHES (ICAR-IIHR) chettalli, revealed that Early Seedless, Dehradun, Shahi varieties of Litchi are performing well. These varieties have higher TSS, smaller seed and lower acid content. Some grown up trees (15 year or more) at CHES chettalli are yielding 1-2 quintal fruits per tree every year. This station has few 55-60 years old trees which are yielding more than 3 quintal fruits per tree per year. Several growers in the region have started growing Litchi successfully and some of the growers in coorg have more than 50 years old plants.

In Waynad district of Kerala, Mr. Kuruville Joseph is successful litchi grower. He started planting of Litchi and explore the off season benefits. His success in off season litchi production inspired lot of people in Wyanad to take cultivation of Litch through best practices and reap the benefits. Litchi matures in the months of November and December in Wyanad. It has huge demand in the fruit markets. He sold litchi fruits in Bangalore, cochin and Coimbatore markets. He faced the problem in marketing and then started own marketing channel and proper packing system. When fruit reaches directly to customer, they gave feedback about the quality and had lot satisfaction and further got more lucrative prices.

To promote Litchi in this area, CHES (ICAR-IIHR) Chettalli has supplied more than 10,000 Litchi plants to the growers of coorg during recent years. The station has more than 4 acres of Litchi orchard comprising of more than 10 varieties. The station is regularly conducting field visits, training programmes and field day for exhibiting promising varieties and new technologies and discussing the prospectus of off season Litchi cultivation in this area.

Though there are several concerns of litchi cultivation in this region such as irregular flowering, nutrient management, insect problems etc but the technological options available for solving these problems, are regularly discussed and various steps are taken to solve them. Due to combined efforts and farmers interest, Litchi cultivation is gaining popularity in this area and has potential for providing Litchi during off season which certainly help in crop diversification and income enhancement of farmers of these areas (ICAR – Indian Institute of Horticultural Research).

II. ACKNOWLEDGEMENT

The completion of this research paper could not have been possible without the participation and assistance of so many people whose names may not all be enumerated. Their contributions are sincerely appreciated and gratefully acknowledge. Above all the researcher want to thank her family for their love and guidance that make the researcher strong and go for the better.

Thanks to Almighty god for giving me strength and ability to understand and complete this research paper.

III. CONCLUSION

Litchi, a climate specific, evergreen fruit plant, introduced in the country in the 18th century has adapted well to the climate in Eastern India i.e. Bihar, Jharkhand, West Bengal, Tripura, Uttar Pradesh, Uttarakhand, Chattisgarh, Punjab and Himachal Pradesh. Due to its increasing demand the area under cultivation and Government policies and Plans for Research and Development of Litchi has also increased. The research support for varietal and production technology improvement is provided through the All India coordinated Research Project on sub-tropical Fruits, which has four centres located in litchi growing regions. The centre Horticultural Experimental Station (CHES) Ranchi, Jharkhand, RAU, Pusa, Samastipur, Bihar, G.B. Pant University of Agriculture and Technology, Pantnagar, Udham Singh Nagar, Uttarakhand and BCKVV, Mohitnagar, Nadia, West Bengal are engaged in research. The main thrust of research in on augmentation of germplasm, varietal evaluation orchard management, propagation studies and development of fruit production technologies for higher yield and improved shelf life. A network project for improving productively of litchi has also been initiated. A National Research Centre on Litchi has been started for strategic and basic research on Litchi.

The state governments of Bihar, Jharkhand, Bengal, Tripura, Uttar Pradesh, Chattisgarh and Uttarakhand are also having programmes for the propagation of planting material to meet the requirements. Bihar has special focus on Litchi development. The government of India is implementing a programme on 'Integrated Development of Fruits' that includes Litchi. Under this programme, support is provided for production of planting material, expansion of area under improved cultivars, rejuvenation of old orchards, transfer of technology, micro-irrigation etc.

Litchi has a vast untapped potential in domestic as well as the global market. Despite the fact that the litchi is one of the finest fruits and has a growing demand in national and international markets, productivity continues to be low and a gap exists between potential and existing yield. The probable reasons for low yield are inappropriate production practices, lack of regular maintenance, absence of infra – structure facilities (for cold storage, processing and canning) narrow genetic base of the crop, non-availability of suitable superior cultivars, traditional production system and incidence of insect pests, coupled with poor post – harvest management. Litchi has a short shelf life and all kinds of research on it has not been able to extend this fruits shelf life beyond three weeks after harvesting. Practices that can enhance post – harvest life of fruits would be useful to achieve higher productivity. Concerted research efforts and effective linkages are essential. Suitable cultivars are needed for various climatic conditions. Suitable agro – techniques particularly for source and sink management, micronutrients, post-harvest technology and effective marketing need due attention. In this context exchange of information among countries would be beneficial.

A three – tier system involving growers, processors and exporters may be formed along with export processing zones and marketing boards. Storage, pre-cooling and transport facilities to help the growers realize better prices. Processing units should be open close to production centres, with financial and technical support from various Government and Non-Government agencies.

REFERENCE

- [1]. Chadha, K.L. (1968). Litchi cultivation in India, *Indian Hort.*, 12 : 13-16.
- [2]. Cobin, M. (1954). Lychee in Florida, *Bulletin, Florida Agriculture Experiment Station* 545 : 1-35.
- [3]. Goto, Y.B. (1960). Lychee and its processing, *pacific Region Food conference* 1 : 15-23.
- [4]. Hayes, W.B. (1945). *Fruit Growing in India*, Kitabistan, Allahabad, pp. 180-6.
- [5]. Kunwar R. & Singh, R. (1993). Note on nutritional survey of litchi orchards in Doon Valley of Garhwal Hills of Uttar Pradesh, *Prog. Hort.* 25 : 164-5.
- [6]. Kuhn, G.D. (1962). Some factors influencing the properties of Lychee jelly, *Proceedings of Florida State Horticulture Society* 75 : 408-10.
- [7]. Knight, R.J. (1980). Origin and world importance of Tropical and Sub-tropical fruit crops. (In) *Tropical and Sub-tropical Fruits : Composition, Properties and Uses*. S. Nagy and P.E. Show (Editors), AVI Publishing, Westport, connecticut, 1-120 pp.
- [8]. Liang, J. (1981). The Litchi, origin, Utilization and development of its culture, *Journal of Agriculture Trinidad Botany Applied* 28 : 259-70.
- [9]. Marloth, R.H. (1947). The Litchi in South Africa, I. Varieties and propagation. II. Cultural practices and marketing, *Farming South Africa* 22:824-30, 863-70.
- [10]. Naik, K.C. (1949). *South Indian Fruits and Their culture*. P. Varadachary and company, Madras.
- [11]. Naik, K.C. (1949). *South Indian Fruits and Their culture*. P. Varadachary and company, Madras.
- [12]. Pandey, R.M. & H.C. Sharma. (1989). *The Litchi*, ICAR Publication, New Delhi.
- [13]. Popenoe, W. (1920). *The Litchi Manual of Tropical and Subtropical Fruits*, Mc. Millan company, New York, pp. 312-25.
- [14]. Pandey, Raj Mani & Sharma, Harish Chandra. (1989). *The Litchi*, Publications and Information Division, Indian council of Agricultural Research Krishi Anusandhan Bhavan, PUSA, New Delhi.
- [15]. Singh, H.P. & K.K. Kumar. (1988). Litchi growing in India. *Chona Hort.*, 5(1) : 22 – 32.
- [16]. Singh, L.B. & O.P. Singh. (1954). *The Litchi*, Superintendent Printing Press, Allahabad, 110 p.
- [17]. Singh, H.P. (1992). Physico – chemical evaluation of Litchi cultivars in South Bihar, In *National Seminar of Recent Development in Litchi production*, 30-31 May, RAU, Pusa.
- [18]. Singh, L.B. & Singh, U.P. (1954). *The Litchi*, Superintendent Printing and Stationary, Uttar Pradesh, Allahabad.
- [19]. Singh, S., Krishnamurthi, S. & Katyal, S.L. (1963). *The Litchi Fruit culture in India*, Indian Council of Agricultural Research, New Delhi, pp. 153-60.
- [20]. Tao, R. (1955). The Superior Lychee, *Proceeding Florida Lychee Growers Association* 2: 73-4.
- [21]. Vyas, N.D. (1938). *The Litchi*, U.P. Department of Agriculture Bulletin 12:1-10.

IOSR Journal Of Humanities And Social Science (IOSR-JHSS) is UGC approved Journal with Sl. No. 5070, Journal no. 49323.

Dr. Indu Mehta. “Litchi – The Queen of Fruits.” *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)* , vol. 22, no. 8, 2017, pp. 21–25.