CHAPTER -2

AN OVERVIEW OF BANANA

Banana and plantains occupy important roles in day to day life of people since the prehistoric times. Variety wise production of banana and plantains by the farmers is a source of income, nutritive fruits, vegetables and processing for value addition. The following sections of this chapter highlight importance of banana, its origin and the prominent varieties cultivated in different regions.

2.1 Economic and Nutritive Value of Banana

Banana is grown in all tropical and sub-tropical regions of the world and plays a key role in providing food and income to farmers. Banana is a very popular fruit and is consumed in fresh or cooked from both as ripe and raw fruit. Banana is a very delicate commodity on economic, social and environmental grounds. It is a high value horticultural fruit that is mostly used as daily diet throughout the world. The most familiar banana is the yellow-skinned, sweet, pulpy fruit of international trade (Grolier Encyclopaedia of Knowledge, 1999). Banana is processed to chips, biscuits, baby food, beer, paper and paper boards etc. Many processed
products can be produced from banana and plantains including purees, flour, jam, jelly, dried banana chips and drinks (Sauco, 2003).

Banana family consists of large plants among the herbaceous. Its trunk is formed by the bases of overlapping leaves. A banana plant flowers and fruits only once in life span and die. The underground stem is highly relished animal food. Green leaves are used plates, dried leaves for covering roofs and dried leaves, along with pseudo stem–sheaths, forms a natural wrapping material for the long distant transport of fresh leaves and fruits. Bracts, after shade drying and other pre treatments, form decorative items. Banana fruit of cultivar ‘Bhimkol’ is a natural source of baby food in North Eastern Region owing to its high nutritive value (Singh and Chadha, 1996). Banana and plantains are important staple foods that are critical to the nutrition and economic wellbeing of millions of people throughout the developing world (INIBAP, 1992).

As a staple and export fruit item it occupies important place in the economies of Latin America, Africa and Asia. Farmers in 120 countries grow banana and plantains (Pedro et al, 2003). In fact, banana is an essential part of the daily diet in more than 100 tropical and sub-tropical countries for more than 400 million people (Verma and Singh, 2004). It also occupies an important place in terms of production and gross value in
food production of the world. In terms of gross value of production, bananas are the world’s fourth most important food crop after rice, wheat and maize (Pedro et al., 2003), and an export commodity. As a staple bananas including plantains and other cooking varieties contribute to the food security of millions of people in much of the developing countries and when traded in local markets they provide income and employment to rural populations (Pedro et al., 2003).

Banana is a rich source of vitamin C and several minerals such as calcium, potassium, phosphorus and magnesium. Apart from using banana as dessert and for culinary purposes, the stem pith is used for its medicinal value; especially for dissolving kidney stones and curing coughs and coated tongues (Singh and Chadha 1996, Ajayi 1998). The fruit is easy to digest, free from fat and cholesterol. The tender stem, which bears the inflorescence, is extracted by removing the leaf sheaths of the harvested pseudo stem and used as vegetables. Plantains or cooking bananas are rich in starch and have a chemical composition similar to that of potato. Rope and good quality paper can also be prepared from banana waste. Banana by virtue of multiple uses of all its parts is popularly called as ‘Kalpataru’ (Hassan, et al., 2006).
Banana cultivation presently gets priority as a source of cheap material for paper and boards from the huge stem residues after harvest. A simple technology has been evolved in India by “All India Khadi & Village Industries Association” in Wardha and further improved by Dharamitra for preparing paper, soft board and even hard board using the stem wastes of banana

2.2 Origin of Banana as a Horticultural Crop

Bananas have time immemorial history for their domestication. "Bananas originated primarily in Malaysia and the neighbouring archipelago probably about 4000 years ago. Diversity developed over a much wider area, from India to the Philippines and New Guinea. ‘About 2000 years ago, travelers carried bananas Eastward through the Pacific and Westward across the Indian Ocean to tropical Africa’. Consumption of banana was mentioned in early Greek, Latin and Arab writings. Alexander the great saw banana in an expedition to India (Grolier Encyclopedia of Knowledge, 1999). The crop has had a long period of domestication as is evidenced by its mention in Kautilya’s ‘Arthasastra’ (250 to 300 BC) and its presence in the paintings and sculptures of Ajanta and Ellora (300 to 400 BC) (Singh and Chadha, 1996). Apart from its mention in Valmiki’s Ramayana, it also finds mention in ancient Tamil Classic ‘Silappadikaram’
(Prakash and Dinesh, 2007). However, Nath, (1963) mentioned that the banana is one of the oldest fruits known to mankind. About origin of banana he remarked "it was known throughout the tropical regions of South East-Asia in pre-historic times and has probably originated in Assam-Burma-Indonesia region. The author observed that the Sanskrit name for the banana is "Kodali" and legend goes that sages of India used to repose beneath the shade of banana and eat its fruit.

Musa, a genus of the natural order ‘SCITAMINE’, which comprises of some twenty species and several of them are regarded by certain writers as more cultivated varieties. Watt (1891) mentioned that out of the varieties eighteen numbers are reported to be cultivated in India. Assam has been cited as most moist region of India where banana plant and plantation were found very common. Further, it was reported that cultivation of banana was carried on much in the same way as described in the “Account of Bengal”. It was also mentioned that out of them three were the best kinds-Malbhog, Pura, Bontulsikol (Chenichompa) that were planted in Assam. Besides, some varieties of banana were found in “Khasihills” in the state of erstwhile Assam, presently in Meghalaya. Agricultural transition emerged horticultural crops to a crossroad and banana finds an important place as easy to cultivate and a source of income and employment generation in rural areas.
2.3 Varieties of Banana

There is a large variety of banana cultivation in the ‘Musaceae’ family. “The banana family, “Musaceae” contains only two genera, ‘Ensete’ and ‘Musa’. The plants range in height from 1m (3ft) to more than 9m (30ft) and are actually gigantic herbs. There are many varieties of banana in cultivation; confusion exists because of diverse names applied to, one and the same variety in different parts of the world. The most important species in the common banana is M. Sapientum having several sub-varieties of which, mostly consumed variety is Gross Michel (Pedro et al., 2003).

Cooking varieties are plantains (M. Paradisiaca) which differ from other bananas in that the ripe fruit is starchy rather than sweet. Pisang Awak is the prominent sub group of this variety. They are extensively cultivated and used in tropical regions and are marketed in large urban areas worldwide. Though there are different varieties of banana, FAO has distinguished two broad categories like-

a) Cooking bananas including plantains and other sub-groups of varieties such as ‘Pisang Awak’ in Asia, and

b) Dessert or sweet bananas including Cavendish.
Production of Dessert or Sweet banana is the prominent in world arena and Cavendish type of banana of this sub group occupies the highest share at 47 per cent of the total world production (Pedro et al., 2003).

Wide varieties of banana such as Bhimkol, Manohar (ABB), Chenichampa (AB), Malbhog (AAB), Jahji, Borjahaji (AAA), Kachkol, (ABB) are mentioned to be cultivated in North Eastern States of India by Singh in 1996. The Department of Agriculture of Assam and Agricultural University, Jorhat, classified the banana variety cultivated in NE Region as follows-

i) Dwarf (short plant) – Jahaji (Dwarf Cavendish) under AAA Genomic group.

ii) Medium tall a. Chenichompa under AB Genomic group, 
b. Malbhog under AAB Genomic group and 
c. Borjahaji under AAA Genomic group.

iii) Tall  a. Purakol under ABB Genomic group, 
b. Manohar under ABB Genomic group, 
c. Jati under ABB Genomic group and 
d. Bhimkol under ABB Genomic group.
2.4 Trends in Banana Cultivation

Diversification of agriculture has been acknowledged to make more profit, generate additional employment for rural masses and to conserve natural resources. Diversification to horticultural crops has been found to be the best option as these crops not only meet the above requirements but are also adopted to wide range of climate, produce higher biomass than field crops per unit area, are more remunerative for replacing subsistence farming and thus alleviate poverty in rain fed, dry land, hilly and arid ecosystems (Chadha, 2004). Opportunities are coming up from such changes that are reflected in the growth trend of all horticultural crops including banana worldwide. The growth trend has been found in expansion of area, production, and yield of banana. It is evidenced in the unprecedented growth rate of 5.3 per cent of world banana export during last two decades. The volume of world production of banana for export averaged 92 million tonnes per annum in 1998-2000 and was estimated at 99 million tonnes in 2001 (Pedro et al, 2003). Except in 1996 and 1998, there was a steady growth in banana production over the period 1991-2002. This steady growth in production was associated with the rapid expansion in area from 3458 thousand hectares to 4475 thousand hectares over the period. Yield per hectare has increased in a slow pace from 14.04 tonnes...
per hectare to 15.16 tonnes per hectare. Appendix-2 shows the world production of dessert banana during 1991-2002.

Banana plays an important role for earning in many less developed countries in Latin America and the Caribbean and the share of banana to world exports from the Windward Island is, especially, high. Banana from central and South America (i.e., Columbia, Costa Rica, Guatemala, Honduras and Ecuador) are often referred to as "Dollar Bananas". Around 6 per cent of the total world exports come from ACP (African, Caribbean and Pacific) countries (Rhys and Goate, 2003). Some of the major banana producing countries such as India and Brazil scarcely has found to export, as their production is almost for domestic consumption.

The methods of cultivation adopted in British Malaya, Java, Siam, India and Ceylon are almost same but differ from those of major banana exporters. These countries mostly cultivate banana as compound and intermixed with other crops, usually in homestead or backyard gardens (Howes, 2008).

2.5 Banana Production by Region

Cultivation practices of world banana crops concentrate mainly in Africa, Latin America and Asia that possess tropical hot and humid climate. Plantains are mainly cultivated in Africa and Latin America while
other types of cooking bananas are grown in Africa and Asia. Banana production is found almost in all regions of the world. As diversity exists in climatic condition and in governments’ stringent measures in different countries, the variability in area, production and yield exists among the countries.

The world’s leading producer of Cavendish banana is India, followed by Ecuador, China, Columbia, and Costa Rica. These five countries together, account for over half of the global Cavendish banana output (Pedro et al., 2003). Among the regions, India has the largest area under banana cultivation of 449.1 thousand hectares with the largest volume of production of 16813.5 thousand tonnes. In respect to productivity, India is far below the countries namely Ecuador, Costa Rica, Colombia and Panama (Appendix 3).

Horticulture was identified by the Government of India in the mid-1980s as a promising emerging sector and an increase in Plan investments took place from the Eighth Five Year Plan onwards (Singh and Mathur, 2008). Yet, launching of mission mode ‘schemes for area specific’ and ‘commodity specific’ for horticulture crops is very recent and started from 2005-06. The results reflected in the prevalence of traditional cultivation practices in contracting farm sizes and in the poor marketing facilities for a
long time. Such policy lapse for high value horticultural crops for a long time is one of the responsible causes for low yield of specific horticultural crops such as banana.

Notes


References


7. **Nath, Prem (1963)**, Harvesting and Marketing in Fruit Culture in India, ICAR, and New Delhi.

8. **Pedro, A., Cora Dankers, Pascal Liu and Paul Pilkauskas (2002)**.


