CHAPTER-1

INTRODUCTION

India is an agricultural country. The majority of its population depends upon agriculture. It is the largest and the most important industry in India. It contributes 34.2 percent of the National Income.\(^1\) The Government encourages cultivation of horticultural crops like banana, mango, flowers, vegetables etc., so as to increase the contribution of agriculture to the National Income and to augment the farmers own income.

Adequate importance was not given to horticultural development during the sixties.\(^2\) Realising the importance of horticultural crops the Union Government has since been increasing the budgetary allocations plan after plan.\(^3\) From a meagre Rs.5 Lakhs in the Fourth Five Year plan, the allocation rose to Rs.2 crores in the Fifth plan, Rs.8.68 crores in the Sixth Plan and Rs.33 crores in the Seventh Plan.\(^4\) The proposed outlay in the Eighth Plan is Rs.250 crores.\(^5\)

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The productivity of fruits per hectare in India is lower than in several other countries. The productivity of banana in India was only 136 quintals per hectare, when compared with 285 quintals per hectare in Brazil during the year 1964-65.

The National Commission on Agriculture has also recommended that the production of horticultural commodities can be increased by 100 per cent. From this the prospects of the immense potential for increasing production are evident.

Productivity improvement by supply of improved seeds and planting materials, promotion of better management practices, extending the area under fruit cultivation, organisation of appropriate services both at the production and post harvest phases, promotion of a systems approach to production, storage, processing, transport and marketing are some


3.'Economics of banana cultivation in Kerala' (Research study) Agricultural Economics Research Centre University of Madras, 1988 p.2.
of the steps taken by the government for increasing the production of horticultural crops.

(Marketing of horticultural crops is an important issue in view of their high commercial nature. As per the surveys conducted by the Directorate of Marketing and Inspection of the government of India years back, the marketable surpluses of banana, mangoes, apples, potatoes, onions and pine apples were 90%, 81%, 96%, 76%, 97% and 94% respectively. But the absence of organised market results in difficulties in disposing them ultimately affecting the returns to the growers.)

Origin

Banana is one of the oldest fruits of the world. "Adams fig", "Apple of paradise" and the botanical name, Musa Paradisiaca are suggestive of its antiquity. The Sanskrit name for banana is kadali. Legend goes that the sages of India used to repose beneath the shade of banana tree and eat its fruits.

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1. Ibid p.4
It originated somewhere in the mountainous regions of Assam, Burma, Thailand and Indo-China, from where it spread to tropical parts of America, Africa, Australia, the Philippines and Hawai. The Banana appears to have been taken to Palestine and Egypt from India in the 7th Century AD by Arabs. It is not only the staple food of millions of people, but is also the most important commercial fruit of the tropical areas of the world now.

The English name banana seems to have come from the terms used in the languages of Guinea coast of West Africa and was probably made current by the Portuguese navigators and explorers. In American usage the term plantain is reserved for the kinds used only when cooked, but in India rather useful distinction is not commonly made and the two names are regarded as synonyms.

Varieties

A large number of varieties of banana are grown in India under different names. Jacob (1952) states that in the old Madras State not less than 500

names were used for bananas which were grown in the Coimbatore region and which could be classified into 53 varieties. All these 53 varieties are classified into nine groups, viz., Vemanakali (cavendish group) Nenthiran (Plantain group) Kadali, Kalli, Kunnan, Peyan, Vannan, Monthan and Wild bananas.

(Poovan, Chakrakeli, Lalvelchi, Champa, Chinichampa are some of the important varieties grown in India. According to the report on the marketing of Bananas (Anon 1945) they account for more than half of the acreage in the old Madras Presidency, about half in that of Assam, and important acreages in Trivancore, Cochin, Bombay and elsewhere)

(Other commercial varietes of the South India are the Rastali and Mala Vazhai for eating raw; the Nenthiran or Rajeli a dual purpose variety and the Monthan¹, for cooking.)

Uses of Banana

The Hindus give much importance to the banana and certain varieties are even named after Gods; Poovan is name of Lord Brahma, Mukundan is the name of Lord Thirumal and Peyyan is the other name of Lord Siva².

1.Ibid p.271
2.Lakshmanan K.S. Vazhaiselvam College Book Centre, Madras p.18.
Banana fruits are useful for all ages of people. The fruit is delicious and seedless. In many places soft ripe banana is the first solid food given to babies. While it is a primary food for some, many people use it as a supplementary especially during supper. It is also used for preparing Panchamirtham, a delicious offering to Gods.

Unripe banana as well as inner core of pseudostem are regularly cooked as curry in the banana growing area. The end of inflorescence, is cooked as vegetable. Chopped banana stems are used as cattle food. In the starchy green state banana can be cooked like potato or dehydrated and made into powder which can replace wheat, corn and cereals in times of necessity. Banana can be preserved in a concentrated form known as banana fig, which is simple dried ripe fruit. Banana can also be used for preparing chips.

Banana leaves are used as dining plates by Hindus. The dry leaves are used as packing material and for preparing Thonnai. "Thonnai"es" are disposable cups made of dry banana leaves used for serving liquid food items. The fibres are used for stringing flowers.

Fibre and starch can be made from the tender bark and can be used in spinning of ropes and paper
making. Moreover sheaths can be used for manufacturing soft pliable flat sheet with cushioning properties which can be used as packing material for bottles. It can also be used in foot-wear industry as a substitute for card board and plywood.¹

The jelly from the skin of the green fruits forms a good adhesive for broken china and other earthenware. The trunk, cut into small pieces, is used for clarifying sugar in Siam². Even the peel can be used to remove the bad smell in palmolein oil³.

Banana also contains medicinal qualities. The Austin University cited that in India the green bananas are used to cure stomach ulcer⁴. The juice of very young leaves heals burns. The juice from the stem which is astringent is employed to check diarrhoea. It is necessary to increase the cultivation of such a useful crop.

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¹.Ranupal - uses of banana tree - khadi gramedyog, Jan-89
³.Dinamani (Daily) 13th May 1984 p.5.
**Nutritional Value**

Banana is an important energy-producing food as well as a good source of mineral salts and vitamins. It contains as much as 20 percent starch which is converted into sugar during ripening. Every 100 grams of edible portion of banana (Nenthiran) contains 36.4 grams of fat and 0.7 grams of minerals. The calorific value for every 100 grams of edible portion is $153^1$

An increase in the consumption of fruits like banana will also help to get more calories. A hectare of banana can yield up to 30 million calories of energy compared to 2.5 million calories from one hectare of wheat$^2$.

(The per capita consumption of banana in India which is the second largest producer of banana is only 5.3 kg. But the per capita consumption of the United States of America, an importing country is 9 kg.$^3$.) Hence there is a need to increase per capita

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1. Goplan C. and Balasubramanian SC. The Nutritive value of Indian Food and planning of satisfactory diet, Indian Council of Medical Research, New Delhi, 1966, p.67.


consumption in India for which increase in production is essential.

World production of banana

(Bananas are grown throughout the tropical countries. The maximum production is in the countries of the tropical America. The United Fruit Company claims to be the biggest farmer in the world.) The plantations are laid out on a large scale and are often established after cutting virgin forests.

No estimates are available of the acreage of banana in many of the countries where it is largely grown. Jamaica and Mexico were the largest producers around 1940. But by 1954 Ecuador increased her production ten fold. Brazil and west Africa have also increased the production manifold.

(Apart from India, Brazil, Equador, Honduras, Colombia, Philippines, Thailand are some of the countries producing banana. India was the fourth largest producer of banana in the world during 1964-65 with 23,92,000 tonnes of production constituting 7 percent of world production. But by 1978 India became the second largest producer of banana (next to Brazil)
Production of banana in India

(In the production of fruits banana occupies the second position next to mango, covering 13 percent of area under fruits cultivation and 24 percent of total production of fruits\(^2\). The wide range of climatic and geographical conditions in the country ensure supply of banana throughout the year. The area under banana cultivation and production of banana in India fluctuate because it is not a perennial crop like mango. But between 1949-50 and 1989-90 the area under banana cultivation in the country increased from 1,41,000 hectares to 3,26,000 hectares and the production from 21,22,000 tonnes to 60,48,000 tonnes. The all India average yield per hectare has increased from 150.5 quintals in 1949-50 to 185.8 quintals in 1989-90. Thus there is a gradual increase in the area and production of banana over the years. This is shown in Appendix I(a).


2. Economics of Banana Cultivation in Kerala, (Reserach study 93) - Agriculture Economies Research Centre, University of Madras - 1988, p.5.
Production of banana in Tamilnadu

Tamilnadu, Kerala, Karnataka, Andhra Pradesh, West Bengal, Bihar, Assam, Maharashtra and Gujarat are some of the states cultivating banana. Both in terms of area and production of banana, Tamilnadu occupies the first place in India followed by Maharashtra.

The percentage share of Tamilnadu is around 20 per cent of the total area under banana cultivation in India in most of the years. Between 1975-76 and 1988-89 the area under banana cultivation in Tamilnadu shot up from 42,222 hectares to 59,326 hectares and it decreased to 56,805 hectares during 1989-90. This is shown in Appendix I(b).

Data pertaining to the production of banana in Tamilnadu will highlight the significant share of Tamilnadu in the total production. This is shown in Appendix I(c). There is a wide variation in the percentage share of Tamilnadu out of the total. In most of the years the share of Tamilnadu in the total production is more than 25 per cent. Between 1975-76 and 1985-86 the production of banana had increased from 9,30,000 tons to 18,40,000 tons. Later in 1989-90 the production decreased to 16,70,000 tons. This variation in production may be due to variation in climatic factors.
Production of banana in Tiruchirappalli District

In Tamilnadu Tiruchirappalli, Dindukkal, Thanjavur, North Arcot, Thirunelveli, Chidambaranar, Kanyakumari, Coimbatore, Periyar are some of the districts where banana is cultivated on a large scale. Tiruchirappalli ranks first both in terms of area and volume of production. This is shown in table 1.1. From the table it is clear that Tiruchirappalli district alone covers more than 20 per cent of the total area under banana cultivation in Tamilnadu and in terms of production it constitutes more than 25 percent of production in Tamilnadu. Next to Tiruchirappalli Chidambaranar District ranks second and the North Arcot district (undivided) ranks third in the production of banana.

Tiruchirappalli district accounts for more than 20 per cent of the total area under banana cultivation in Tamilnadu for most of the years. The area under banana cultivation between 1975-76 and 1989-90 went up from 9147 hectares to 12,755 hectares. This clearly indicates that Tiruchirappalli district has a unique place in Tamilnadu banana cultivation.
Table 1.1 Area and Production of banana in Tamilnadu

Districtwise during 1986-87

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Name of the District</th>
<th>Area in Hectares</th>
<th>Production in tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chengalpet</td>
<td>1582</td>
<td>48810</td>
</tr>
<tr>
<td>2</td>
<td>South Arcot</td>
<td>1806</td>
<td>55710</td>
</tr>
<tr>
<td>3</td>
<td>North Arcot (undivided)</td>
<td>6112</td>
<td>144190</td>
</tr>
<tr>
<td>4</td>
<td>Salem</td>
<td>2594</td>
<td>61230</td>
</tr>
<tr>
<td>5</td>
<td>Dharmapuri</td>
<td>1166</td>
<td>35970</td>
</tr>
<tr>
<td>6</td>
<td>Coimbatore</td>
<td>2393</td>
<td>56480</td>
</tr>
<tr>
<td>7</td>
<td>Periyar</td>
<td>2122</td>
<td>65470</td>
</tr>
<tr>
<td>8</td>
<td>Tiruchirappalli</td>
<td>12589</td>
<td>451130</td>
</tr>
<tr>
<td>9</td>
<td>Pudukkottai</td>
<td>444</td>
<td>13690</td>
</tr>
<tr>
<td>10</td>
<td>Thanjavur (Undivided)</td>
<td>4217</td>
<td>129690</td>
</tr>
<tr>
<td>11</td>
<td>Madurai</td>
<td>3796</td>
<td>116740</td>
</tr>
<tr>
<td>12</td>
<td>Dindukkal</td>
<td>2671</td>
<td>82140</td>
</tr>
<tr>
<td>13</td>
<td>Ramnad</td>
<td>282</td>
<td>8720</td>
</tr>
<tr>
<td>14</td>
<td>Kamarajar</td>
<td>692</td>
<td>21360</td>
</tr>
<tr>
<td>15</td>
<td>Muthuramalingam</td>
<td>351</td>
<td>10840</td>
</tr>
<tr>
<td>16</td>
<td>Thirunelveli</td>
<td>4594</td>
<td>127700</td>
</tr>
<tr>
<td>17</td>
<td>Chidambaranar</td>
<td>5793</td>
<td>178670</td>
</tr>
<tr>
<td>18</td>
<td>Nilgiri#s</td>
<td>291</td>
<td>8980</td>
</tr>
<tr>
<td>19</td>
<td>Kanyakumari</td>
<td>2626</td>
<td>73010</td>
</tr>
</tbody>
</table>

| Total      | 56121                           | 1690630          |

Source: Season and Crop report of Tamilnadu. 1986-87.
Importance of the study

The production of banana in Tamilnadu and Tiruchirappalli district over the years revealed that the percentage share of Tiruchirappalli district is between 25 to 30 in most of the years. Moreover whenever there is a decrease in the production of Tiruchirappalli district, it affects the banana market in Tamilnadu. Thus the district selected for the study is able to maintain more than 25 percent of the production in Tamilnadu. Moreover the production has gone up from 2,53,203 tonnes to 4,15,000 tonnes over the years. But the growers of banana in Tiruchirappalli district have been facing certain problems both in cultivation and in marketing of Banana. An attempt is made in this study to identify those problems and to find out the ways to minimise them.

Statement of the problem

Non availability of pest resistant quality suckers, unawareness of the different diseases that affect banana plant and of the pesticides to be used to control the diseases, lack of knowledge about crop insurance scheme and its usefulness, inadequate finance to meet the cost of production are some of the problems faced by the growers during cultivation. Unless
adequate steps are taken to minimise these problems, the production of banana may be severely affected.

Absence of a large number of organised markets, dependence on pre-harvest contractors for marketing their bunches, inadequate transport facilities at reasonable cost, increased dependence on internal demand etc., are some of the marketing problems faced by the growers that necessitated this study.

Scope of the study

The present study covering the problems of both production and marketing provides an interesting area for useful analysis. The natural calamities like flood, cyclone, etc., may affect the production of banana. With all these limitations the growers have to cultivate and earn profit. Moreover financial constraints and lack of adequate infra-structure for marketing of banana are the problem areas which are to be studied at length.
Objectives of the study

The following are the objectives of the study.

1. To study the cultivation practices and problems of banana growers.
2. To analyse the cost of cultivation and return to the growers.
3. To identify the various channels of distribution of banana and to study the various marketing functions.
4. To study the role and performance of various intermediaries in banana marketing.
5. To analyse the price trend and price spread of banana.

Methodology and sampling

In any social science research, it is necessary that general research design and methods of enquiry are made clear by explaining population under study, sampling design, research tools used, coverage of the schedule and statistical treatment of data. This is attempted here.

Survey method has been followed for this study. Data for the study have been collected from primary and secondary sources. Secondary data were
collected from the office of the Directorate of Marketing and Inspection, District Agricultural office Tiruchirappalli, District Market Committee, the Marketing Society, Kulithalai and Musiri and Kattuputhur regulated market.

Data from primary sources have been collected by preparing 5 schedules to the respondents as follows:

Schedule I Growers
Schedule II Traders
Schedule III Auctioneers
Schedule IV Co-operative Societies/Regulated Market
Schedule V Pre-harvest Contractors

Population under study

The population of the study consists of all the banana growers, traders, auctioneers, Institutional agencies that conduct banana auction, and pre-harvest contractors.

Sampling design

Multi stage sampling technique is followed for the study. The first stage is the selection of the district. Tiruchirappalli district has been purposively selected because it is the district in Tamil Nadu where banana is grown in plenty. The area of the study is shown in Diagram I.
The second stage is the selection of taluks. Based on the concentration of areas under banana cultivation four taluks, viz., Tiruchirappalli, Kulithalai, Musiri and Lalkudi are selected (Table 1.2).

**Table 1.2 Area under banana cultivation in Tiruchirappalli district talukwise for the year 1986-87**

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Name of the Taluk</th>
<th>Area under banana in Hectares</th>
<th>Percentage on the total area of the district</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tiruchirappalli</td>
<td>3317</td>
<td>26.35</td>
</tr>
<tr>
<td>2</td>
<td>Manapparai</td>
<td>32</td>
<td>0.25</td>
</tr>
<tr>
<td>3</td>
<td>Kulithalai</td>
<td>3685</td>
<td>29.27</td>
</tr>
<tr>
<td>4</td>
<td>Karur</td>
<td>690</td>
<td>5.48</td>
</tr>
<tr>
<td>5</td>
<td>Musiri</td>
<td>2472</td>
<td>19.64</td>
</tr>
<tr>
<td>6</td>
<td>Thuraiyur</td>
<td>358</td>
<td>2.84</td>
</tr>
<tr>
<td>7</td>
<td>Lalkudi</td>
<td>1846</td>
<td>14.66</td>
</tr>
<tr>
<td>8</td>
<td>Ariyalur</td>
<td>27</td>
<td>0.22</td>
</tr>
<tr>
<td>9</td>
<td>Jayankondam</td>
<td>30</td>
<td>0.24</td>
</tr>
<tr>
<td>10</td>
<td>Perambalur</td>
<td>132</td>
<td>1.05</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12589</strong></td>
<td></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**Source**: Office of the Assistant Director of Statistics, Tiruchirappalli

Though all the four taluks come under the same geographical belt, there are considerable differences in various aspects such as cost, returns, etc., on banana cultivation. Rastali variety of banana is cultivated more in Musiri and Kulithalai taluks. Even between the two taluks, because of the differences in the fertility of the soil, the size of the bunches
varies. In Musiri taluk the average size of the bunches is bigger than in Kulithalai. In Tiruchirappalli taluk more of Nenthiran and Poovan varieties are cultivated. In Lalkudi taluk cultivation of poovan variety is predominant. Because of the differences in the variety of banana cultivation, there is also a difference in the cost cultivation. The marketing practices may also vary in these taluks. Because of such variations among the four taluks the enquiry is extended to cover all the four taluks by selecting villages from each of these four taluks and purposeful comparison was made among the different taluks to draw useful conclusions.

The third stage is the selection of villages. 25 villages have been selected at random from these four taluks, eight from Kulithalai, seven from Tiruchirappalli six from Musiri and four from Lalkudi in accordance with stratum proportion of the total area under banana cultivation (Table 1.3). The list of selected villages is given in Appendix.II.
The next stage is the selection of banana growers. A sample of 250 growers have been selected at random from the above 25 villages at the rate of 10 growers from each village. Purposive sampling technique was adopted in selecting the banana auction centres. Among private markets Trichi Gandhi market is chosen as it is the major market. Regarding the auction conducted by the Co-operative marketing societies, all the three centres viz., Kulithalai, Lalapet and Thottiam have been chosen for the purpose of the study. In addition the only Regulated Market at Kattuputhur has also been chosen for the study.

Table 1.3 Distribution of sample villages in accordance with stratum proportion

<table>
<thead>
<tr>
<th>Name of the Taluk</th>
<th>Total area under banana in Hectares</th>
<th>Stratum proportion</th>
<th>Sample size (no of Villages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kulithalai</td>
<td>3685</td>
<td>0.326</td>
<td>8</td>
</tr>
<tr>
<td>Tiruchirappalli</td>
<td>3317</td>
<td>0.293</td>
<td>7</td>
</tr>
<tr>
<td>Musiri</td>
<td>2472</td>
<td>0.218</td>
<td>6</td>
</tr>
<tr>
<td>Lalkudi</td>
<td>1846</td>
<td>0.163</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11320</strong></td>
<td><strong>1.000</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

*Source: Office of the Assistant Director of Statistics, Tiruchirappalli*
All the 17 auctioneers of Trichi Gandhi Market were contacted. In selecting the pre-harvest contractors quota sampling technique was adopted by choosing one contractor from each of the sample village. 100 traders (50 whole salers and 50 retailers) were selected at random covering 25 wholesalers and 25 retailers from Tiruchirappalli town and 10 wholesalers and 10 retailers from Kattuputhur regulated market and 5 wholesalers and 5 retailers each from Kulithalai, Lalapet and Thottiam Co-operative Societies.

Schedule for banana growers

Since the study is mainly related to the production and marketing it was necessary to have a detailed schedule to cover all aspects of production, cost of cultivation, and marketing of banana. Care was taken to translate the schedule into vernacular (Tamil) language to elicit correct information.

In the schedule both open ended and close ended questions were included, the former mainly to get more realistic data. The questions included in the schedule were pretested in Anthanallur village in Tiruchirappalli taluk and were finalised in the light of the experience gained therefrom.
Schedule for banana auctioneers

As banana auctioneers constitute the most important position in the channel of distribution of banana, a separate schedule was prepared and administered among the auctioneers of Trichy Gandhi Market. Another separate schedule was also prepared and administered for institutional agencies like Cooperative Marketing Society, Kulithalai, Musiri and Kattuputhur Regulated Market that conduct banana auction. These schedules were finalised after pretesting.

Schedule for banana traders

Banana traders are the main source of supply both to local and distant Markets. Procurement methods, mode of transport, packing, price data relating to distant market, sources of finance, problems involved in the business are some of the questions included in the schedule.

Schedule for pre-harvest contractors

The pre-harvest contractors, though limited in number, have a leading role in the distribution of banana from the field to the market centres. Moreover they have close contact with growers and take the
risk of marketing. Hence a separate schedule has been prepared and administered among the sample preharvest contractors.

Statistical treatment of data

The primary data collected from the respondents and the secondary data compiled from the publications and records of agricultural department regulated market were analysed using appropriate techniques.

Limitations

Majority of the growers are not in the practice of maintaining accounts. Hence the information furnished by the respondents is only out of their memory. Similarly most of the market functionaries are hesitant to divulge the actual quantity and value of sales. Moreover the study is more related to fruits and hence the marketing of leaves is excluded.

Chapter Scheme

The report consists of seven chapters. Introduction, statement of the problems, objectives of the study, methodology and limitations are presented in Chapter I.
The cultivation practices of the growers and their problem in cultivation are discussed in Chapter II.

The cost of cultivation and returns on banana cultivation are analysed in Chapter III.

A detailed analysis of the existing marketing channels for banana trade and marketing functions associated with banana are discussed in chapter IV.

The role and performance of market intermediaries are discussed in Chapter V.

The Chapter VI deals with the price of banana, price movement and price spread of banana.

A summary of the various findings and appropriate suggestions are given in the last chapter.