PLANTATION CROPS

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Chapter II

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Plantations are essentially large agricultural undertakings, but they also have certain industrial characteristics. Plantations provide the silver lining to our agriculture, with high level of productivity and employment, apart from their catalysing contributions towards rural development. Being a labour intensive enterprise, supplying modern technology and management tactics, plantation make the optimum use of the marginal land resources. They generate considerable foreign exchange earnings by way of export.

Kerala produces several plantation crops of which the most important are Rubber, Tea, Coffee, Coconuts, Arecanuts and Cocoa. This chapter is devoted to provide a brief description of plantation crops in Kerala.
'Hevea brasiliensis' is a native of Brazil and was introduced into tropical Asia in 1876 through the Kew Gardens (England) with the seeds brought from Brazil by Sir Henry Wickhem. The tree is now grown in the tropical regions of Asia, Africa and America. It is a hardy, tall, quick-growing tree, reaching 18 to 30 meters in height, with a straight trunk producing branches 3 to 5 metres from above the ground and forming a spreading or conical canopy. The optimum ecological requirements consist of a fairly distributed annual rainfall of not less than 200 cm, a warm, humid and equable climate (21° to 35°C) and a well-drained deep loamy soil. Though the tree can withstand a short dry spell of one or two months, longer droughts are unfavourable. It flourishes from the sea-level up to altitudes ranging from 450 to 600 metres.  

Since its commercial beginning in 1902, the rubber plantation industry in India has made significant strides in

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terms of area, productivity and production. Considerable expansion of area took place during the fifties and sixties in Kerala, which now produces 93 per cent of the NR in India.

Kerala, together with the Kanyakumari district of Tamil Nadu, is the traditional rubber growing region in the country. As much as 98 per cent of the area during 1950-51 was accounted for by this region. To meet the increasing demand for NR, the commercial cultivation of this crop was extended beyond the traditional region, especially in the north-east, from the Sixties onwards. The traditional area now accounts for 89 per cent of the area under rubber.

An important characteristic of India’s plantation industry since 1957-58 is the dominance of the small holding sector. Currently, the small holding sector accounts for 86 per cent of the total area under rubber. The average size of small holding is less than half a hectare. Though the small size possess many constraints, the level of adoption of technology in this sector is
comparable to that attained by estates. More than 95 per cent of the area in the small holding sector is cultivated with high yielding varieties (HYV) of planting materials. In the estate sector 99.6 per cent of the cultivated area is under HYV. ²

Further, with reference to the adoption of short-term productivity enhancement measures, the status of small holdings is nearly equal to that of estates. Such an impressive position occupied by this dominant sector has no parallel in other major producing countries. This is a factor having crucial implications for productivity of rubber in India. The productivity, measured in terms of average yield per unit hectare of yielding area, which was 1,549 kg., is the highest among the major NR producing countries.³

Though manufacture of rubber-based products started in India as early as 1922, till the middle of the thirties the industry was not strong enough to absorb the

entire volume of NR produced in the country. Thereafter, owing to a host of promotional factors, the situation changed and export-oriented Indian plantation gradually found the domestic market sufficient. When the absorptive capacity of the domestic manufacturing sector was further expanded, supply was found inadequate and by 1947 India became an importer of NR.

A reasonably stable and remunerative price realized by the farming community has always been a key factor behind the rapid expansion of the rubber plantation industry in India. In this context, an important aspect that distinguishes Indian growers from their counterparts in other major producing countries is the extent of market price realized at the farm gate. Even small rubber growers in India are able to realize about 94 per cent of the terminal market price at their farm gate whereas this is only 70 to 80 per cent in other countries.

Though the market price of rubber in India is mostly governed by the demand generated by the domestic industry, it has also been influenced by the regulatory and
price protection measures of the government since 1942. However, a critical determinant of the market price during the nineties has been the new economic policies introduced by the Government.

The price movement of rubber after 1991 has more or less been in tandem with that of the international market. However, Indian farmers can take satisfaction from the fact that during the last 50 years, Indian prices have remained considerably higher than the international price with few exceptions and their farm gate prices have been considerably higher than what their counterparts in other countries could get.

The most important merit of rubber plantation is that it helps to purify the atmosphere by absorbing carbon dioxide through the process of photosynthesis. Though its primary processing results in fairly large quantity of liquid effluents, this can be handled effectively at the processing site itself. Further, as NR production of effluents are small and are scattered over large areas, the chances of localized concentration of effluents are much less. Furthermore, it
is possible to generate bio-gas by utilizing this effluent. Among the different eco-friendly qualities of NR the most important is the lower requirement of energy inputs as compared to SR production.

The structure and quality of the soil is a matter of prime consideration in planning for sustainable agriculture. From this angle also, NR has many advantages over SR. Litter recycling effectively taking place in rubber plantations, improves the organic content and nutrient status of the soil. This also helps the soil microbes which are crucial to a balanced eco-system. Studies have proved that the bacterial count in rubber plantation is comparable to that in natural forest soil. The thick foliage of rubber plantation helps to retain soil moisture by preventing direct radiation from falling on soil surface.

Further, as the foliage intercepts rainfall, it is helpful in preventing soil erosion. Planting of rubber in elevated lands after terracing (contour planting), establishment of leguminous cover crops, formation of silt pits and bunding
are some other practices which help to prevent soil erosion in rubber plantations. The excessive application of fertilizers and pesticides is another aspect of concern in sustaining the eco-system. Compared to annual crops and seasonal crops as the nutrient requirement of rubber plantations is much less, fertilizer application is at a lower level. The application of insecticides and pesticides is also substantially less in rubber plantations.

Tea

It is an important beverage and the world drinks more of it than any other beverage. It is made from the tender or young leaves and unopened buds of the evergreen tea-plant, which is popularly acclaimed as a 'healthful herb'.

The tea-plant, in its natural state, grows into a small or medium-sized tree, but in commercial plantation it is pruned and trained to form a many-branched low bush and is encouraged to produce vigorous vegetative growth by adopting an appropriate schedule of the fertilizer applications.
The important tea-growing countries are India, Sri Lanka and East Africa. Japan and Indonesia also produce sizeable quantities of tea. It is also grown in Bangladesh, China, Georgia, Argentina and some other countries. In India, the crop is grown in Assam, West Bengal, Kerala, Karnataka and Tamil Nadu and to some extent in Tripura and Himachal Pradesh. The total area under tea in our country is about 507200 hectares (2002). Ind is not only the largest producer of tea but also one of the important exporters. Indian tea accounted for 30.4 per cent of the world production and 18 per cent of the world export.

The tea industry in India is about 160 years old. It occupies an important place and plays a useful part in the national economy. Tea cultivation on commercial scale was first started in Assam in 1839. Thereafter, it was extended to other parts of the country between the fifties and the sixties of the last century. However, owing to

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certain specific soil and climatic requirements, its cultivation was confined to certain parts.

Both the historical circumstances and the general characteristics of the product itself have helped to shape the present structure of the industry. After the loss by the East India Co. in 1833 of their monopoly of the China tea trade, the British turned their attention in earnest to the cultivation of tea in India on a commercial scale.

Tea plantations are essentially large agricultural undertakings; but they also have certain industrial characteristics. They employ a large labour force which is mainly resident on the estates and under the control of a more or less elaborate management.

The requirements of capital, technical equipment and an organized marketing service explain why, by and large, the units of production in the tea industry have taken the shape of comparatively large estates or plantations, instead of small holdings. The areas of the estates themselves, however, vary within wide margins, and there are also, in
certain regions, large number of small holdings with problems peculiar to themselves.⁵

While the part it plays as an earner of foreign exchange by itself makes tea an industry of great importance to the economy, the fact that it provides gainful employment to a large number of people, makes it particularly more important. The tea plantation industry provides direct employment to more than a million workers. It is thus the largest employer of organized labour force drawn from tribal and socially weaker sections of the society.

The difference between the growth rates adequately reflects the task before the Indian tea industry, namely sustained and accelerated augmentation of production and productivity. The challenge before the industry is to increase production, improve quality and ensure that tea is available at a price remunerative to the producer and affordable to domestic consumers and yet has sufficient surplus to meet the export requirements.

About half the labour force consists of women workers. As the tea plantation areas in India were in the initial stages sparsely populated, the workers had to be recruited from considerable distances. In North India a majority came from Bihar and Orissa and in South India from the plain districts.

Besides foreign exchange, the tea industry contributes substantially to the Central and State exchequers by way of corporate tax, agricultural income tax, sales tax and plantation tax.

The tea industry has also played a valuable part in opening up and developing what were previously inaccessible jungles and forests. The areas, which were retrieved and developed into flourishing tea gardens, were not areas where food grains could ordinarily have been grown. In the development of tea as an important commercial crop, therefore, there was no question of a cash crop competing for land required for more essential food crops.
Fortunately tea being a perennial crop grown under shade trees, the replacement of forests and jungles by tea does not, to any extent, lead to soil erosion and other evils, which are often the result of extensive denudation of forests for purposes of cultivation. On the other hand, being located in backward and rural areas, the plantations supplement the economic life of these regions and greatly contribute towards maintenance of ecological balance of the areas.

Tea has had many incarnations over the last one hundred years- from loose teas to blended, to packet teas, to tea bags and instant teas, ready-to-drink teas and flavoured teas and recently bio-tea. Tea is beginning to reveal incredible properties as a health beverage even as the world becomes more conscious of natural food items. As the penetrating vision of science and technology probes deeper into the chemical and metabolic processes triggered by the consumption of tea, it promises to be the beverage of the 21st century.
The Tea Board is also gearing itself to move ahead to the 21st Century and to act as a facilitator rather than a regulator of the industry which it has been serving since the fifties.

The plantation development scheme will aim at motivating the tea garden owners to undertake production oriented field developmental activities covering extension planting, replacement planting, replanting, rejuvenation, pruning, infilling and irrigation and drainage.

The tea processing and packaging development scheme will provide necessary financial assistance to the needy tea gardens/factories for renovation as well as augmenting the processing capabilities including setting up of new tea factories in the co-operative sector, replacement of worn out tea processing machinery in existing factories, creation of facilities for packaging and bagging, generation of power required for processing and transport vehicles such as tractors, trailers and light commercial vehicles.
The new area development schemes will aim at encouraging new plantations in areas found suitable but remain hitherto unexploited for tea cultivation in the traditional growing areas.

The small grower development scheme: will provide a comprehensive developmental package to the overall development of the small grower sector which will include imparting training in modern aspects of tea cultivation and manufacture, supply of inputs such as planting materials at subsidized cost, organizing study tours and field advisory visits.

The marketing development and export promotion scheme: will cover market research survey, uninational campaign for Indian tea in select markets, brand promotion support to Indian companies for launching the brands in international markets, generic campaign in new markets and setting up of an umbrella unit in India to meet the requirements of product and packaging standards in international markets.
Research and Development will cover agricultural/agronomical aspects including bio-technology and plant protection measures, manufacture and quality improvement, product diversification development of multiple tea products made from regular tea, processed tea and tea extracts, health aspects of tea drinking, strengthening extension service and use of non-conventional energy resources.

It is hoped that the tea industry will be able to deliver the goods and rise above the inevitable cyclical ups and downs that affect it in the short run. Being an agro-industry with a long gestation period and urgent need for re-plantation, the industry has many challenges ahead.

COFFEE

It was in 1799 that the possibilities of coffee as a commercial crop attracted the attention of the East India Company. An experimental plantation appeared in Tellicherry in the same year, and in its wake, regular plantations sprang up all over the slopes of the hills of South India known as the Western Ghats.
The cultivation of coffee was systematically started by the British from 1820 onwards. In about 50 years, thousands of acres of wild jungle land at inaccessible heights of the mountain ranges were cleared and converted into coffee lands. By 1872, India had reached the level of production wherein it could export about half a million bags of coffee.

Thereafter, a series of reverses followed. The impact of leaf-rust and coffee stem borer was devastating and coffee cultivation became more difficult. Keen competition in the world markets coupled with the general depression of the world economy in the thirties resulted in the coffee growing area shrinking from 1.2 lakh hectares to 60,000 hectares. Thereafter, the Coffee Board of India was set up by an Act in 1941 and the coffee industry entered a period of recovery and stability.6

The hills of Southern India are ideally suited for the growth of coffee. High altitude, sunny slopes, a tropical

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sun, plentiful rains, a good forest-soil rich in humus content and a well drained subsoil form an excellent environment for growing high quality coffee. As of now, India grows both Arabica and Robusta coffee. The Arabica coffee is grown at higher altitudes, that is, at about 1,250 m above sea level where the annual rainfall is about 200 cm. Robusta is grown at a lower altitude, 750 m above sea level where the rainfall is about 150 cm.\footnote{K.M. Pillai, 'A text book of plantation crops', Viskas Publishing House, New Delhi, 1984, p.45.}

In the fifties, 73 per cent of the planted area was covered by Arabica and 27 per cent of the planted area by Robusta. Since then, the total area which was then about 92523 hectares has steadily increased to 3.05 lakh hectares in 1997; though the proportion of Arabica and Robusta in the planted area has considerably changed. Arabica now constitutes 48 per cent of the planted area and Robusta constitutes 52 per cent of the planted area.

Indian coffee is grown only in the shade, making it not only eco-friendly but also superior in quality. Pests
and diseases are controlled by adopting an integrated disease and pest management approach. Indiscriminate and blanket spraying is not encouraged. Solar energy is used for drying coffee and the moisture level is around 10-11 per cent. The excellent cup quality of Indian coffee is well appreciated throughout the coffee world. India is a departmental store for coffee. All the varieties are available under one roof.

The quality control department of the Board has set up rigid standards for quality parameters and these parameters have been kept as guidelines and are being implemented in the present liberalized economy. The freight rates from India to any part of the world are competitive and shipping to European markets consumes reasonable transit time.

Coffee is grown in South India predominantly, fifty five per cent of the planted area is in the state of Karnataka, 27 per cent in Kerala and 11 per cent in Tamil Nadu. However, Karnataka accounts for 69 per cent of the
country's production, Kerala for 23 per cent and Tamil Nadu for 8 per cent.

The Coffee Board of India was vested with the responsibility of the growth and welfare of the industry, its main function pertained to marketing, production, research, extension, development and labour welfare.

The Board was vested with the responsibility of marketing the entire coffee grown in India. Coffee growers had to statutorily register their estates and surrender their crop to the Board after retaining a small permissible limit for domestic consumption and seed purposes. The coffee thus procured was processed and "cured" by the Board and sold through domestic and export auctions.

The money realized on the sale of coffee was distributed back to the growers deducting the marketing expenses and the initial payment made at the time of procurement. In fact only four per cent of the money realized was deducted as marketing charges of Board and the balance 96 per cent was re-distributed among the growers.
However, the winds of liberalization swept the country in the mid Eighties. In accordance with the liberalization policy of the Government, the Coffee Board allowed partial liberalization in the year 1992, whereby the coffee growers could sell 30 per cent of their output directly. Thereafter, the scope of liberalization was gradually enhanced.

In 1996, all restrictions were abolished and the pool marketing system ceased to function. Coffee growers are now allowed to sell their coffee both in the domestic and international markets.

In the post-liberalization scenario, most small growers prefer to sell their coffee in the form of dry cherry or parchment to exporters, who in turn get it processed, "cured" and sell it to foreign buyers. The large growers, after getting their coffee processed, sell it directly to the exporters or by way of private auction.

The Indian Coffee Traders' Association with the assistance of the Coffee Board holds weekly auctions in Bangalore, wherein a grower can get his coffee auctioned.
The coffee at these auctions is processed to the Board's quality specifications before it is put up for auction. In order to improve quality, the Board has taken steps to encourage processing houses ("curing works") to go in for the ISO certification.

The Board also issues "Certificate of Excellence" to processing factories which maintain international standards. These steps are intended to help foreign buyers to negotiate for coffee processed by certified processing factories.

The producers have been given training in the preparation of speciality coffees and the concept of "cupping" at the estate level has been introduced in a big way. Systematic training sessions organized by the Board has certainly contributed to improving quality awareness among the growers. These initiatives have resulted in a significant increase in the production of high-grade superior quality coffee which has got excellent cup characteristics.
The Board issues licenses to the exporters and the presence of efficient and experienced private exporting houses is one of the strengths of the Indian coffee industry.

The Board reserves the right to blacklist an exporter after verifying complaints of malpractices received by foreign buyers. The production of environment-friendly and organic coffee is another noteworthy effort taken up by the Board after liberalization.

The Board has been assisting the export of coffee in several ways. It is entirely responsible for promoting exports. Reliable crop forecasting is important for enabling export houses to take up positions and fulfil commitments on supply and shipping of coffee to foreign markets.

The Board prepares a Market Intelligence Report and this is made available to the growers on the payment of a small fee. The Board also organizes visits of foreign buyers to India so that they can see for themselves how the coffee industry functions. It is felt that these measures will boost the confidence of foreign buyers.
With the advent of free marketing, the Board studied the alternative marketing systems available to the industry. Such an alternative should not only be efficient and transparent but also help in price discovery and price risk managements.

**Coconut**

Coconut (*Cocos nucifera L.*) is a majestic perennial palm. It is grown extensively in numerous islands and also in the humid coastal tracts of tropical countries. India, with a total annual production of 12252 million nuts from 1.78 million hectares, ranks second in the world in coconut production.\(^8\)

The coconut-palm, rightly known as the 'Kalpa Vriksha' or the 'Tree of Heaven' provides many necessities of life, including food and shelter. Of all the tropical palms providing numerous useful products, it is perhaps the outstanding one. It is mainly cultivated for the nuts from which two important commercial products, copra and fibre,

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are obtained. Copra yields oil and oil-cake. The trunk of the mature palm is used as timber for constructing houses and the plaited leaves are used for thatching houses, fencing etc. The unopened spathe is tapped for toddy. Fresh toddy called "Neera" is a tonic. Whereas sweet toddy can be converted into jaggery and sugar, fermented toddy is a mild alcoholic drink and vinegar can also be prepared from it. Water from tender coconut is a refreshing and delicious drink. In Kerala, the extraction of coir from the husk of nuts, and the manufacture of coir-products provides employment for thousands of people, particularly in the backwater tracts where facilities for retting husks are available. The coconut shell is largely used as a fuel and for the production of charcoal and making a variety of curios. The shell flour is used as a filler in plastics. Thus every part of the palm is useful in one way or another.

Coconut palm is the most useful cultivated palm in the world and it is grown in 86 countries. As an edible food, oil seed, beverage and as a source of natural fibre and
timber, coconut enjoys a unique status among horticultural crops.\textsuperscript{9}

Coconut contributes about six per cent to the total vegetable oil pool in the country. Coconut oil has made a niche in foreign markets as a premium quality oil, especially for toiletry purpose. The crop sustains nearly 10 million families and earns foreign exchange through various coconut products, the major share being from coir and coir-products.

Coconut contributes more than Rs.7,000 crores to the GDP. Coconut palm parts like leaves, fronds, shell, husks, and the like satisfy the fuel requirements of small and marginal farmers. It is the only plantation crop which allows maximum bio-diversity within its inter space, maintaining ecological balance.

The coconut scenario in the country has undergone a great transformation in the recent past, especially in the spread of the crop to interior zones and non-traditional

\textsuperscript{9} Jayasree Krishnankutty, 'Kalpadhenu', Kerala Agricultural University, 2002, p.16.
belts in the country. Its cultivation in the past was mainly confined to the west coast and pockets in the east coast. The spread of coconut from traditional states like Kerala, Tamil Nadu, Andhra Pradesh, Karnataka and West Bengal to non-traditional states in North and the North-east like Madhya Pradesh, Bihar, Assam, Tripura and Arunachal Pradesh has been fast. Even in the traditional states, the cultivation has crossed over from the traditional coastal belts to interior zones.

Among the coconut growing states in India, Kerala has the longest history of coconut cultivation followed by Andaman and Nicobar, Lakshadweep and Goa. In the State of Kerala coconut provides livelihood to nearly five million families.

The State's economy is dependent on coconut to a great extent. Nearly 15 per cent of the State's annual income and 35 per cent of the agricultural income is derived from coconut alone. Coconut and coconut-products are in demand throughout the country. The demand for household and religious purposes will further
increase in the coming years with the increase in population.

The coconut processed for commercial copra production is only 35-40 per cent while 55-60 per cent is consumed for food and beverage purposes in the raw form. Milling copra continues to be the major coconut product from which oil is extracted. Coconut oil extraction is mainly confined to Kerala and certain upcountry centres.\(^\text{10}\)

The coconut industry in the country is in the process of revival. Traditional copra and coconut oil sectors have become better organized. Apart from the traditional oil milling confined to certain pockets, Government agencies, cooperative societies and oil millers are entering the area of large-scale processing and marketing of copra and coconut oil.

New trading centres are also opening up in and outside Kerala. Modern methods are being put to use in copra drying techniques, new coconut products are being

\(^{10}\) K.C. Ahammed Bavappa, 'Hand Book of Agriculture', by Indian Council of Agricultural Research, New Delhi, 2000, p.102.
developed and marketed. The packing and branding of edible coconut oil are recent developments in marketing. In short, the industry is on a revival path.

The revival process is on in the coir industry too. Among the by-products of coconut, only husk has so far been utilized for fibre extraction on a commercial scale. There have been significant developments in all the sectors of the coir industry in the recent past.\textsuperscript{11}

The mechanization of the coir industry and the removal of controls in the movement of the husk has helped to boost the production and export of coir and coir products.

Kerala accounts for more than 90 per cent of the total quantity of coir products exported from the country and the industry in the State is set for a leap forward with the modernization of various processes and the introduction of new products such as coir mattresses, coirply and coir-pith

\textsuperscript{11} Farm Information Bureau, Government of Kerala, Trivandrum, Pamphlet, 2001, p.6.
manure. It has gained international acceptance as an excellent raw material for various industrial uses.

The emphasis on R & D efforts of the Coconut Development Board, formed in 1981, for the integrated development of the industry led to the development of technology for the manufacture of coconut cream, spray dried coconut milk powder, preserved and packed tender nut water, coconut vinegar, and the like.\textsuperscript{12}

Commercial production of these products started in various States, imported technology is also being used in coconut processing industries.

Products like, coconut milk, "coco sip" coconut pudding and coconut water concentrate have been developed. The Board's thrust is on developing technology for product diversification to stabilize the coconut based economy and to make Indian products globally competitive.

In spite of the great strides made in improving the area, production and productivity of coconut, the industry

\textsuperscript{12} Different coconut products, 'Coconut' by Central Plantation Crops Research Institute, Kasaragod, 2002, pp.40-43.
is beset by bottlenecks. The prevalence of the 'Mandari' disease is in more than 50 per cent of the area in the major contributing State of Kerala and the delay in evolving a perfect control measure, the spread of similar dreaded diseases like the Thanjavur wilt and Tatipaka in other States, the sudden appearance of various pest infestation in major growing belts causing severe damages to the crop, the high price of Indian coconut products in international markets owing to the higher cost of cultivation and the bleak export performance are a few impediments faced by the industry here.

Besides, the present liberalization policy which allows unrestricted import of coconut products, import of other cheaper edible oil substitutes for coconut oil, the reduction in import duty and the like also pose problems for the industry. Indian products need to be more competitive both cost-wise and quality-wise.
ARECANUT:

The arecanut (Areca catechu L.) is an important crop of India. The economic produce is the fruit called 'betel nut' and used mainly for masticatory purposes. It is used in India in several socio-religious ceremonies. Its cultivation is concentrated in South Western and North Eastern regions of the county. Arecanut industry forms the economic backbone of nearly six million people in the country, and for many of them it is the sole means of livelihood.

The Areca palm is a monocot belonging to the family "Palmae". India ranks first in the world in the area of cultivation and production. In India it is cultivated in an area of 2.68 lakh hectares with a production of 3.33 lakh tonnes (2001-02). It is mainly grown in Karnataka, Kerala, Assam and West Bengal. The area is extended to Tamil Nadu, Maharashtra and Andhra Pradshesh as well.13

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While Karnataka accounts for nearly 40 per cent of the total arecanut production, Kerala accounts for 25 per cent, Assam 20 per cent, and rest is accounted for by West Bengal, Meghalaya, Tamil Nadu and other States. It is estimated that small and marginal farmers hold about 85 per cent of the area under arecanut. About six million persons are engaged in the production, processing and marketing of arecanuts.

In Kerala Arecanut is grown in about 90000 hectares with a production of 85000 tonnes (2001-02).

India is also the largest consumer of arecanuts. In the fifties, since domestic production was not sufficient to meet the demand, India had to import large quantities from Singapore, Sri Lanka and Malaysia. In an effort to minimize the drain on foreign exchange the Centre strengthened the measures undertaken by State Governments particularly Karnataka and Kerala, to increase production. As a result of such R & D measures, the area under arecanut and its production steadily increased.
India thus became self-sufficient and imports were stopped from 1969. But the gradual increase in production over and above the requirement caused a glut in the market. Towards the end of 1973, the prices of arecanuts fell to rock bottom, almost half the 1969-70 prices. In contrast, the cost of various inputs required for arecanut cultivation increased making it an unviable venture.

The situation warranted an in-depth study of the problems of arecanut growers in Karnataka and Kerala. The two State Governments constituted committees to look into the problems of arecanut growers and make suitable recommendation. The committee constituted by the Karnataka Government visited various arecanut growing and marketing centres and had detailed discussions with growers, traders and others. The committee attributed the fall in prices to increased production, poor export potential, lack of alternative uses, market speculation, manipulation by intermediaries, poor holding capacity of growers and inadequate marketing arrangements. It recommended that
the Government of Karnataka should set up an apex institution to ensure better marketing facilities, economical prices and take up processing of arecanut, were possible. The committee constituted by the Government of Kerala also endorsed the views of the Karnataka expert committee.

The State Governments of Kerala and Karnataka decided to jointly establish a central co-operative institution to improve the marketing system and ensure a reasonable price to growers in the two States-The Central Arecanut Marketing and Processing Co-operative Ltd.

CAMPCO had an initial share capital of only Rs.100 lakhs with the Karnataka and Kerala State Governments contributing Rs. 37.50 lakhs each and the remaining coming from co-operative marketing societies dealing in arecanuts, co-operative banks, traders, growers etc. The main objectives of CAMPCO are:

1. To procure arecanuts from members and from other growers on agency basis or outright purchase basis.
2. To arrange for the sale of arecanuts to the best advantages of the members and also advance loans to members.

3. To promote the production, marketing and processing of arecanuts.

The other objectives include undertaking research on the potential uses of arecanuts, distribution of seed materials, implements, fertilizers, pesticides and other agricultural and industrial requirements to arecanut growers. Initially, the area of operation of this co-operative covered the States of Karnataka and Kerala, and was later extended to the other major arecanut growing State of Assam. However, the marketing of arecanuts covers the entire country.\(^{14}\)

To overcome some of the problems like pre-bearing period, low return during the initial bearing stage, fluctuations in market prices and unexpected loss due to pests, diseases and natural calamities, it was advised to

\(^{14}\) Records, Directorate of Areca nut and Spices Development, Government of India, Calicut.
grow inter crops in arecanut gardens. An adult areca palm intercept approximately 60 per cent of the light. By growing inter crops this can be increased to about 95 per cent. Studies have revealed that areca uses only 35 per cent of the space and the remaining can be used for raising inter crops. Cocoa, banana, pepper and vanilla could be grown together in the areca gardens. This system would give more income per unit area.

Cocoa appears to be introduced in India as early as in 1793. However, as a commercial crop it was introduced during 1960. Cultivation was initiated in the Southern states of Kerala, Tamil Nadu and Karnataka. The area expansion gathered momentum from the seventies.

At present, cocoa is grown in the inter spaces of coconut and arecanut gardens as a mixed garden.
TABLE 2.1

Cocoa cultivation as pure crop and as a Mixed Garden

<table>
<thead>
<tr>
<th>Status</th>
<th>Number</th>
<th>Per cent</th>
<th>Area in acres</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocoa as pure crop</td>
<td>42</td>
<td>2.73</td>
<td>358</td>
<td>8.21</td>
</tr>
<tr>
<td>Cocoa as mixed garden</td>
<td>1498</td>
<td>97.27</td>
<td>3998</td>
<td>91.79</td>
</tr>
<tr>
<td>Total</td>
<td>1540</td>
<td>100.00</td>
<td>4356</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Survey Data.

The above table illustrates the cultivation of cocoa as pure crop and as a mixed garden. As per the sample studied, it is clear that 97.27 per cent of cocoa growers are cultivating cocoa as a mixed garden.

Even though cocoa comes under the definition of plantation crops, pure plantation of cocoa as such is practically very few in Kerala. Cocoa is generally taken up as an inter crop in the irrigated coconut and arecanut gardens. A detailed discussion about the production and processing aspects of cocoa is done in the next chapter.