Chapter 9
Summary of Findings, Conclusion and Suggestions

The study titled “A Study on Production and Marketing Practices of Cardamom in Western Ghats of South India” was undertaken with the objectives: (1) To analyze the recent trends in production process such as area under cardamom cultivation, cropping pattern, plantation, re-plantation, irrigation, manuring, pest control management, harvesting and Post harvesting technologies and marketing practices such as grading and standardization, cardamom sales, auction sales, pricing, and labour-farmer relation of small cardamom in Kerala, Karnataka and Tamil Nadu. (2) To highlight the institutional and non-institutional promotional agencies in the production and marketing of cardamom in India. (3) To find out the socio economic background of the cardamom growers and their perception of cardamom production and marketing practices. (4) To identify the problems of cardamom growers and offer suitable suggestions based on the findings.

To answer these objectives, three southern states, namely Kerala, Karnataka and Tamil Nadu, where cardamom (small) is produced, were selected as the study area. A sample of three hundred cardamom growers from the study area were selected as respondents. The findings of the study are presented in this chapter.

I. RECENT TRENDS IN CARDAMOM PRODUCTION AND MARKETING

Area under Cultivation and yielding area

- The cultivation of cardamom in India is traditionally confined to the high ranges of the Western Ghats at altitudes ranging between 3000 and 5000 feet. From this cultivation area, cardamom reached the Middle-East countries through the traditional spices trading route.
An area of 73795 hectares was under cardamom cultivation, with around 40,000 growers solely depending on cardamom for their livelihood by the end of the 2005-06 cardamom season.

There has been a declining trend in the area under cultivation from 1990-91 to 2000-01. The major reasons attributed for the changes in the area under cultivation are shifting from cardamom to pepper cultivation, changes in climatic factors, decline in the price of cardamom and lack of interest shown by the growers due to fluctuation in prices. However, the recent trends show that there has been a slight increase in the area under cardamom cultivation.

The percentage of yielding area is slightly high in Kerala compared to the other two states. However, the yielding area shows a declining trend in Kerala and TamilNadu whereas it has been increasing in Karnataka.

**Production and Productivity**

The productivity in 1970-71 was 46 kg per hectare, which rose to 218 kg in 2002-03 and 210 kg per hectare in 2003-04. Thus, there was a heavy increase in total production and productivity in a period of ten years from 1990-91 to 2000-01. As a result, the total production of cardamom also increased from 3,170 tonnes in 1970-71 to 11,920 tonnes in 2002-03 and 11,580 tonnes in 2003-04. It is evident that cardamom growers have put in concerted efforts in adopting improved methods of cultivation in recent years, especially from 2000-01.

India is the second largest producer with an average production of 11,000 to 12,000 metric tonnes of cardamom. The production has increased manifold due to high yielding varieties of cardamom like Njellanil, green gold, *vander* cardamom and Elarani cultivated by some innovative cardamom growers, besides improved cultural practices followed in the cultivation of cardamom.
> Production follows a 6-7 year cycle. In other words, production declines every 6-7 years. The fluctuation in production of cardamom is due to the uneven rain and unfavourable weather conditions. There is a slight increase in the area under cultivation of cardamom in recent years (from 2002-03) with an exceptional decrease in production level in 2005-06.

Curing

*> Small and marginal farmers, who constitute nearly 70 per cent of cardamom growers, face difficulties in possessing their own curing house due to economic constraints. They depend solely on large growers to get their fresh capsules cured by paying high drying charges.

*!/ In recent years, technocrats are trying to find an economical drier for the use of growers.

Grading

♦♦♦ Cardamoms with good green colour above 7 mm fetch the highest price in the market. The quality parameters of cardamom include: (a) maturity of seeds, (b) percentage of seed counts, and, (c) liter weight (gm/it)

♦♦♦ Colour, size, and percentage of empties, malformed, shrivelled and immatured capsules are the criteria used in the market to assess the quality of the produce.

♦♦♦ Cardamom intended for export should be the dried capsule, free from visible' mould and insect infestations

*> The main problem in the popularization of grading under Agmark for internal trade seems to be that it is only voluntary and that much publicity on the advantages of grading is not given. In the case of grading at farmers' level, the absence of regulated markets and
inefficient functioning of co-operative societies add to slow progress in this field.

☐ The most popular specification for spices and herbs is the ASTA Cleanliness Specification for Spices, Seeds and Herbs. Spices exported to USA should conform to the cleanliness specifications stipulated by the American Spice Trade Association (ASTA) and also the Defect Action Levels (DAL) enforced by the Food and Drugs Administration (FDA).

*Allappey Green is by far the most important type of cardamom exported from India, accounting for about 85% of the total cardamom exports. Grading at farmers’ levels has not been taken up except in Karnataka.*

♦I* There are inter-state dealers who grade cardamom in places like Thevaram and Bodinayakanur in Tamilnadu. The grading takes place there due to comparatively low labour charges, in Tamil Nadu than in Kerala.

Packaging anti Storage

☐ The optimal conditions for stores are lower temperature, lower humidity and freedom from pests. The store should be located in a shaded, dry place. To keep the humidity as low as possible, only fully dried products should be stored in it.

☐ The capsules of cardamom intended for export are to be clearly packed in wooden cases suitably lined with water-proof or craft paper in new jute bags with water-proof lining. Cardamom seeds are to be packed in clean and dry tin plate containers or wooden cases lined with water-proof or craft paper.
Marketing Channel

- The channels of distribution in marketing of cardamom vary from place to place. However, these channels can be classified into two types, viz., organized system and unorganized system. The organized system includes auctioneers like planters association, cooperatives and the like. The unorganized system includes exporters, inter-state cardamom dealers, village traders, wholesalers and the like.

- Most of the consignments are transported from Bodinayakanur, the main trading centre for cardamom. 50% of the buying by domestic traders at auction centres in two states, namely, Tamil Nadu and Kerala, is normally for the dealers in Delhi.

Cardamom Auction System

- There are 17 firms currently conducting auctions in Kerala, Tamil Nadu, Karnataka and Mumbai. The prominent places where auctions are conducted are Vandanmettu, Thekkady and Puliyanmala in Kerala, Bodinayakanur in Tamil Nadu, Sakleshpur in Karnataka and Mumbai in Maharashtra. About 424 auctions were conducted for cardamom during the year 2003-04 and around 48 per cent of cardamom production (5526 tonnes) was sold through the auctions.

- No person shall carry on business as auctioneer or dealer in cardamom except those who are licensed in accordance with the terms and conditions laid down by the Spices Board.

- Only about 30 to 50 percent of the total production was sold through organized agencies. In other words, the role played by the organized agencies such as Cardamom Planters Association is to the extent of less than 50 percent of the total sales in India.
The online trading introduced recently for cardamom has benefited the traders and the growers. Through this electronic trading, price recovery is possible in the futures market.

In the unorganized marketing system, the produce is purchased by the local traders in an unscientific way, fixing a price through the undercover system.

A piece of paper with the calculation of total sale proceeds with his initials is the only evidence for the produce sold by the farmer. Thus, there is a scope for organised agencies like the Cardamom Planters Association/ cooperatives in marketing of cardamom to avoid the exploitation indulged in by unorganized agencies like local traders.

Domestic and Global Demand and Supply

At present, India is not only the second largest producer in the world, but also occupies the second position in consumption of cardamom in the world after Saudi Arabia.

Whenever the domestic price is very high and the domestic demand is very high, the importers get a temptation to import cardamom from other countries, especially Guatemala, where cardamom is sold at a rate which is lower than the Indian domestic price. The cases are recorded from evident sources that cardamom is smuggled from Guatemala to India via Nepal for mixing with Indian cardamom to sell at a higher price.

Though the production of cardamom is enough for domestic consumption and export, some traders are trying to obtain import license in the guise of bleaching, grading and re-exporting. Therefore, the Cardamom planters Association has demanded that the government ban the import of cardamom.
The major portion of the cardamom produced in India was consumed within the country. As a result, the surplus produce available for export was very low.

Export

The domestic production has increased in recent years from 7900 tonnes in 1997-98 to 11,385 tonnes in 2004-05 whereas the export position is very weak except in 2000-01 and 2001-02. It is due to the substantial increase in domestic consumption. But still, there has been a good exportable surplus as the internal market could not absorb the entire production.

The price competition from Guatemala and the increase in the domestic demand are the main reasons for the low volume of export in recent years. The compound growth rate of export of cardamom in respect of quantity at value was -8.12 and -1.7 respectively during the period from 1970-71 to 1999-2000. However, the unit value shows a positive growth rate (6.90). India exports the small cardamom to overseas only after meeting the requirements of the domestic market.

The Planning Commission has extended export subsidy for cardamom in a bid to increase exports on the one hand and arrest the decline in the domestic price of cardamom on the other.

The exports from India, which stood at 3,272 tonnes in 1985-86, gradually dropped to very low levels due to the price increase in the domestic market and lower levels of prices quoted in the international market.

As compared to the production increase (4 per cent per annum), the export quantity has declined by about 12 per cent per annum. This is due to significant growth in domestic consumption (10 per cent per annum). Above 96 per cent of the total production was consumed domestically in 2000-01 as compared to 28 per cent in 1981-82. The higher growth of
domestic price than the export price is also responsible for the decline in the export of cardamom.

Price Analysis

*:* Cardamom prices usually follow a 6 to 7 year cyclical pattern where prices will move up continuously every six to seven years.

- There has been direct relationship between the total production and the price. When the total production was 7,170 tonnes in 1998-99 the price was Rs.487/-, which decreased to Rs.301/- when the total production was 11,415 tonnes in 2004-05.

♦ Kerala fetched the highest prices as compared to Tamil Nadu and Karnataka during the period from 1985-86 to 2004-05.

❖ The case study by the Cardamom Planters Association (CPA) shows that of seven traders, only three traders (23 percent) bought more than 75 per cent of the total number of lots registered for sale in the auction centre. Nearly 40 per cent of the produce brought to the auction centre was withdrawn. The producers did not like to sell when there was no reasonable price for their produce and enjoyed their holding power. When the price is not attractive to the seller they have a right (as per the Act) to withdraw and postpone selling their produce.

❖ Traders can also bring the produce bought from the farmers in the village despite the fact that the auction centre is run by the Cardamom Planters Association.

♦♦♦ The price of cardamom in recent years has come down to a very low range because of lower export demand. The normal range of price difference between AGB and AGEB grade remains Rs.60 to Rs.100/-. Under normal circumstances, the wide range of disparities in the price spread between the producer and consumer is mainly due to

a. Expenditure incurred in marketing

b. Margin of profit enjoyed by the intermediaries
c. Quality variation

d. Increase of various taxes and other charges

e. Transport cost

*** With the introduction of online Futures Trading in cardamom by the NMCE the traders and growers in the physical market have benefited.

II. PERFORMANCE APPRAISAL OF INSTITUTIONAL AND NON-INSTITUTIONAL PROMOTIONAL AGENCIES

Institutional and non-institutional Agencies: The institutional agencies are the registered government/quasi-government agencies, government departments, public sector undertakings like the Spices Board, trade unions, cooperatives and NGOs. They are the promotional agencies involved in production, processing and marketing of cardamom. The non-institutional agencies are the individuals concentrating on the promotional activities of cardamom. They are the innovative farmers who are the award winners of the Spices Board, exporters who have been given awards for their outstanding performance in foreign trade, and technocrats such as manufacturers.

Kerala Cardamom Processing and Marketing Company (KCPMC):

The major activities of the KCPMC are propagating new varieties of cardamom to increase productivity to arrange for supplying the agricultural inputs and to undertake marketing activities, especially by conducting auctions and exporting quality cardamom. Technical services are also provided to the growers. The KCPMC has developed three new varieties of cardamom. Elarani - I - II and - III at its research center in Thekkady. The company turnover for agro inputs has increased to an all-time record of Rs29.43 crores in 2005-06 against the previous year’s figure of Rs.27.27 crores.

While Kerala is the origin of most of the cardamom produced in India, trade in cardamom happens mostly from Bodinayakanur in Tamilnadu. The
KCPMC has a strong presence in the Bodi market and does vibrant trade with northern India where most of the cardamom is consumed. The KCPMC has traded a substantial volume of 22,586.30 kg of cardamom in the domestic market, amounting to Rs. 57.11 lakhs and an export volume of 45,000 kg, amounting to Rs. 111.97 lakhs in 2005-06.

Cardamom Planters Association (CPA): The CPA has been functioning with 423 members (as on 31-03-06) and has helped the cardamom planters, especially small planters in the following ways;

1. Introduction of Compounding Tax system with regard to agricultural Income Tax assessment
2. Sales Tax from Sales Point to the Purchase Point
3. Removal of Plantation Tax
4. Abolition of Cess

During the year 2005-06, the CPA conducted 40 auctions against 44 auctions in the previous year. It sold 637,786 kgs and 1,11,960 kgs in 2005-06, 3,81,971 kg and 95,508 kg in 2006-07 through Santhapara and Bodinaikanur auction centers respectively. It takes 21 days to make the payment to those who have sold through its auction center. Besides cardamom trade it also undertakes distribution of agricultural inputs such as fertilizer, insecticides and the like. The CPA is the first organisation which has introduced electronic auction system in cardamom trade in Bodinaickanur. The new system is designed to replace the traditional manual auction system of shouting out bids followed in auction centers. The new system will set a new trend in cardamom marketing, bringing more benefits to farmers and curtail formation of cartels.

Indian Institute of Spices Research: The Indian Institute of Spices Research (IISR), Calicut, a constituent body of the Indian Council of Agricultural Research (ICAR), is a major institute devoted to research on spices, including cardamom. The research programmes of the institute (externally funded) are
carried out under various projects which are time bound and have specific objectives.

Spices Board

*‡* The Government of India established the Spices Board in 1987 under the Ministry of Commerce by merging the Cardamom Board with the Spices Export Promotion Council by the Spices Board Act 1986.

□ The Spices Board has taken efforts to improve the cardamom consumption through the domestic as well as the international market. The incessant campaigns of the Spices Board for the last two decades to promote cardamom did expand the domestic demand for cardamom from 4000 metric tonnes to 12,000 metric tonnes. The forceful campaigns engineered by the Board has helped in sustaining cardamom price through an expansion of the domestic market when the export market suffered a steep fall from 2000 metric tonnes to 500-600 metric tonnes.

The Indian Cardamom Research Institute; The Indian Cardamom Research Institute (I.C.R.I.) was established under the Spices Board (erstwhile Cardamom Board), Govt of India, Ministry of Commerce & Industry in 1978. The main Institute is at Myladumpara: in Idukki District of Kerala. It has three Regional Research Stations, one each at Saklespur, Hasan District, Karnataka, started in 1980, at Thadiankudisai, Dindigul District in Tamil Nadu started in 1980, and, the third one at Gangtok in Sikkim. The primary mandate of the Indian Cardamom Research Institute is to develop sustainable production, protection and post-harvest technologies for cardamom. The major research divisions of the institute include Crop Improvement & Biotechnology, Crop Management (Agronomy), Disease Management (Pathology), Entomology, Post-Harvest Technology, Transfer of Technology.

Training programmes on production, protection and post harvest technologies in management of cardamom have been organized. Scientists of the institute serve as the resource persons in seminars and planters meetings.
Exhibitions have been organized at various places to enlighten the farmers with the latest technologies developed by the research institute.

Contributions of Central and State Governments

* The Central and State Governments, especially Kerala, where cardamom is cultivated in large scale, have played a vital role in cardamom production and marketing. The cardamom growers, particularly those who cultivate leased lands, have been facing problems which affect their attention to cardamom cultivation. To find a solution the Kerala State Government takes efforts by linking various agencies supporting the cardamom growers.

Non-Governmental Agencies

* Online futures contract in cardamom was inaugurated by the National Multi Commodity Exchange of India Limited (NMCEIL) through a terminal of Geojit Securities. This is now in operation.

Innovative farmers

☐ There are innovators in cardamom production and marketing practices. One of the prominent innovators is a cardamom grower who has introduced the PNS Vaigai variety of cardamom. His outstanding performance has brought him a National Award for the highest yield per acre of cardamom. He is a role model for his counterparts in India.

♦♦♦ The Malleswarar Engineering, Bodinaickanur, TamilNadu, has developed a low cost bio-mass based cardamom drier. This drier operates automatically on pre-set temperature levels. The biomass based cardamom drier has both the physical structure and the operating systems which are similar to those in the diesel based cardamom drier, except the firing system. The operation of the drier is simple compared to that of the other driers in respect of human safety, cost, quality of cardamom, consumption of heat energy, maintenance cost, price of fuel, pollution, etc.
**Socio-Economic** characteristics of Cardamom Growers

The majority of the cardamom growers belonged to the middle age group, Hindu religion, backward communities, were married, had studied up to higher secondary school; their primary occupation is cardamom plantation, their family type is nuclear, with a family size of three members, and they had an annual family income and expenditure between one and two lakhs of rupees. They lived in their own house and had farm house too. Most of them are small and marginal farmers owning land up to five acres.

About 60 per cent of the cardamom growers do not live very near to their farm. They live in a place, which is located more than 20 kms away from their farm and commute their farm for cultivation by bus or own vehicle like two wheelers. The frequency of visit of about 75 per cent of the farmers is more than 100 times in a year.

IV. PRODUCTION PRACTICES PERCEPTION OF CARDAMOM GROWERS;

**Cultivation** Practices

The study found that the small and marginal farmers are more in Karnataka and Tamil Nadu, whereas big farmers with more than five acres are more in Kerala.

Cardamom cultivation is taken up by farmers normally during June to August and there is a variation in the cultivation practices across the states in the Western Ghats due to variations in the climatic conditions.

The majority of the farmers from these states did not cultivate any other crops in their cardamom land. It is cultivated as a mono-crop. About one-third of the farmers reported to have cultivated coffee and pepper as inter-crop in their land.

Njallani is one of most well known high yielding varieties among the cardamom growers in Kerala. The farmers who cultivate this variety have
better confidence that this variety has better productivity despite high cost of production.
Most of the farmers did not borrow any loan from any sources. Among those farmers who borrowed, the majority borrowed only a meager amount for meeting the cultivation needs. This is mainly due to the income derived from sources other than cardamom plantation. Moreover the majority of the farmers are the family income holders of more than a minimum of two lakhs

The majority of the farmers have taken up gap-filling works in their field. The status across the states is more or less similar. Farmers from these three different states make use of different sources for procuring saplings for gap-filling work. While the majority of the farmers in Kerala and Tamil Nadu take their own efforts to raise the saplings, a substantial number of farmers in Karnataka depend on other agencies for saplings.

The majority of the farmers replanted their lands, either with the saplings raised on their own land or those purchased from the neighbouring farmers and private nursery agencies.

The majority of the cardamom growers in these three states had plantations of 5 to 10 years’ age and believe that the normal life span of cardamom plants is about 15 years.

The cardamom growers depend on rain for cultivation of plants. While all the farmers rely on rainfall in Karnataka, one quarter of them in Tamil Nadu cultivate in rainfed areas. On the other hand, farmers in Kerala use a variety of irrigation sources. However, the majority depend on wells and borewells.

There is a marked difference among the states with regard to the mode of irrigation. Tap irrigation was the most popular mode of irrigation among the majority of the farmers, followed by sprinkler irrigation.

The farmers are using oil motor system in two of the three states under study. Electric supply and connectivity has not reached the plantations to a great extent.
The farmers, irrespective of their location, apply both organic and inorganic manure at least two times in a cardamom season.

While the majority of the farmers in Tamil Nadu tested the soil of their land, farmers in Kerala and Karnataka have not shown the required attention to soil testing.

The majority of the cardamom farmers prefer to purchase inputs from private traders because of the reason that these private traders adopted door delivery system, and the quality of the pesticides and the insecticides are the same irrespective of the source. It means that non-institutional agencies are dominating as compared to the institutional agencies in the supply of agricultural inputs.

Rocker ram is familiar instrument among the farmers in Kerala and Karnataka. In Tamil Nadu, manual application of pesticides and fungicides is still preferred by the farmers.

Harvesting and post-harvesting Techniques

The majority of the farmers in all the three states harvested cardamom more than 6 times during 2005-06, except in Karnataka, where the majority of the farmers had 3 to 5 harvests. In Kerala, a few farmers harvested only less than two times. This may be due to low level of rainfall or lack of interest taken by the growers in the cultivation, due to financial constraints.

The majority of the farmers have their own processing units in Tamil Nadu and Kerala while, in Karnataka, farmers depend on others for processing. This may be due to the large amount of fixed capital required for installation of processing units, which the small and marginal farmers cannot afford to invest.

Most of the cardamom growers still follow conventional method of curing despite the fact that modern methods of curing are available in the market. One of the major reasons for this is availability of firewood at cheaper cost.
It is found that the majority of the farmers in Kerala and Tamil Nadu, before curing, washed the green capsules and in Karnataka, only 50 percent of the respondents had the practice of washing before curing. 

The majority of the farmers from the study area use coir mat or wire mesh for rubbing by hands to process and grade the cardamom. There is also a section of farmers who are not aware of the advantages of using the processing equipments, and sell their produce in bulk without having the knowledge of grading and standardization. Even among those farmers who have awareness, many did not own grading equipments. 

The study revealed that the majority of the growers do not stock cardamom for longer period in anticipation of better price for their produce. Lack of awareness of storage techniques to retain the colour and prevent pest attack are the major reasons for avoiding storage of their produce. 

A combination of plastic and gunny bags as packing materials for storage was the widely practiced method of storage of cardamom among the farmers. 

Most of the revenue villages in the study area have Agricultural Cooperatives, which do not provide pledge loans to the farmers because of the fluctuations in the price of the cardamom. As a result, there is lack of awareness among the farmers about the pledge loan facilities available for farmers who are stocking cardamom with Government approved godowns and warehouses. 

Among the farmers who have knowledge about pledge loan facility, the majority have reported Commercial Banks (in Kerala and Tamil Nadu) and Cooperatives Banks (in Karnataka) as the major sources. In Tamil Nadu Cooperative Banks in certain areas like Bodinaikanur, Cardamom Planters Cooperative Bank had the practice of extending pledge loan facility. This facility was recently started due to high fluctuations in the cardamom price.
Productivity

- Kerala farmers have reported better productivity performance where 49 percent reported 200-300 kg and about 18 percent reported 300-400 kg per acre. It is due to the use of the high yielding varieties like Nallani chosen for cultivation. Karnataka State presented almost a similar productivity performance with more farmers in the 200-300 kg. per acre (50 %) category and about 40 percent farmers with a productivity of 100-200 kg per acre.

- Tamil Nadu presents a dismal picture in respect of productivity with more than 83.3 percent farmers reported to have a productivity of 100-200 kg. per acre. Thus, in terms of productivity, Kerala has shown better performance followed by Karnataka ahead of Tamil Nadu. In terms of productivity, in the year 2005-2006, the farmers of Kerala have shown better performance followed by the farmers in Karnataka.

- The majority of the farmers (55.7 percent) were of the opinion that the production has increased in 2005-06. Despite this, the farmers felt the need for introduction and cultivation of high yielding varieties of cardamom in all the three states in order to improve the productivity.

- In all the three states about three-fourths of the cardamom farmers paid individual attention to the management of their farms, without appointing paid staff and seeking the support of registered labourers. This is due to the small size of the cardamom landholdings owned by the growers, which does not warrant appointment of farm managers to look after the plantations.

There is no marked difference in the opinion of the farmers on the activities, which required the individual attention of the cardamom growers.

Labourer - Farmer Relationship

- The majority of the cardamom growers have cordial relationship with the labourers. The labour unions in recent times have become an important
external force in maintaining the relationship between the farmers and the labourers.

Barring in Tamil Nadu, the majority of the farmers involved in cardamom cultivation have a positive opinion regarding the existence of labour unions in the plantation area.

The majority of the farmers have managed with unregistered labourers in Tamil Nadu and Karnataka. In Kerala about 50 percent used registered labourers due to strong unionism in cardamom plantations.

The majority of the farmers in Tamil Nadu relied on sources such as kangani and others (friends, relatives and neighbours) for meeting extra labourer demands. They used migrant labourers from neighboring states also.

The majority of the labourer were found to be affiliated with CITU in all the three states. In Kerala (32.4 percent) and in Karnataka (15.0 percent) the labourers had political affiliation with CITU, whereas in Tamil Nadu, only 10 percent of the labourer had affiliation with CITU.

The state-wise analysis shows that the farmers from Tamil Nadu and Kerala perceived that there has been an interference by labour unions. In Karnataka, the percentage of farmers who felt such an interference was very less.

Wage payments across three states vary considerably. There is no difference with regard to wages paid to male and female workers for the seven-hour working day in all the three states. Male and female labourers in Kerala are paid Rs. 90 per day and in Karnataka, the wages are Rs.70 per day. In Tamil Nadu, the labourers are paid Rs 60 per day, despite the fact that there is no difference among the three states in respect of working hours for both male and female workers. In all three states, the farmers follow the uniform pattern with regard to working time and the payment of wages. The wages are paid every weekend.
Cost—Benefit Analysis

The cultivation expenses per acre in 2004 for improved method of cultivation were estimated at Rs 87,275/-, excluding capital investments and interest on cultivation expenses. If the cost of cultivation for the initial period of two years during which no income can be derived, is taken into account the cost would be more than this. The poor returns from cardamom, particularly in the Kerala belt, where the growers subsist mainly on cardamom crop, affected the commercial activities in the region.

The situation in 2005 - 06 was that the majority of the farmers incurred a cost per acre ranging between Rs 20,001 and 60,000 for cultivation of cardamom. The cost of production of cardamom is high in Kerala compared to that in the other two states.

The farmers from Kerala realized a better income for their produce followed by those from Tamil Nadu due to more productivity.

The farmers from Kerala have a high average expenditure followed by farmers from Karnataka, The expenses of cardamom production in Tamil Nadu was less as compared to those in the other states.

While comparing the income against expenses, the farmers are not benefited much in Kerala compared to those in the other two states. Thus, more expenses and less income in Kerala and less expenses in the other two states is the present status of cardamom cultivation.

Farmers Awareness About Spices Board

Farmers’ awareness of the Spices Board is found to be weak as the majority of the farmers (54.7 percent) were not aware of the Spices Board.

There is a vast difference among the states in this regard. While in Tamil Nadu the majority of farmers (90 percent) were aware of it was only 35 percent in Karnataka. Though the headquarters of the Spices Board was in
Kerala, the awareness of growers in Kerala can be stated as only moderate (51.1 percent).

The government schemes with subsidy component have not reached the majority of the respondents from Karnataka and Kerala. In Tamil Nadu too, the reach is limited to less than 40 percent farmers. Lack of awareness and conditions imposed to avail of the subsidy are the major reasons for poor result in utilization of funds available from various schemes of Spices Board. Moreover, the majority of the farmers have not availed of the technical guidance, consultancy and financial assistance from the Spices Board. None of the farmers from Karnataka availed of any subsidy. Farmers, who had awareness, have used all the functions of the Spices Board for their best advantage. It is the farmers from Tamil Nadu who have made use of the subsidy in a better manner.

Major Problems in Cardamom Production

The major problems faced by cardamom growers are root rotting, root worms, followed by natural calamities and lack of interest in Cardamom cultivation due to low price for their produce. The majority of the farmers also stated that the quality deterioration due to natural calamities was the major problem prevalent in all the three states.

¥. MARKETING PRACTICES: PERCEPTION OF CARDAMOM GROWERS

Cardamom season and sales

The farmers consider June, July, October and November as the appropriate time for cardamom sales.

Though much difference could not be noticed among the states of Kerala and Tamil Nadu in regard to motivation factors for sale of cardamom, the farmers from Karnataka had the problem of distress sale, as 26.7 percent farmers sell it for the purpose of repayment of loans and debts.
The cardamom growers do not stock their produce for a long time in anticipation of price hike. They normally dispose of the produce immediately after harvest (as in the case of Tamil Nadu) or during the season as in the case of farmers from Karnataka. The farmers from Kerala follow the practice of selling their produce at the beginning of the season.

The majority of the respondents said that high cost of storage and the variation in the prices are the prompting factors for them to sell the produce immediately after the harvest.

The farmers perceived that the colour and size among other factors are the major attributing factors for fixation of cardamom price in all the three states selected for the study.

The study found that the majority of the growers from Kerala and Tamil Nadu have chosen the Cardamom Producers Associations for selling cardamom, while the majority from Karnataka have selected the private channels for the disposal of the produce.

While good price is the reason for choosing the agencies for sales in Kerala it is the immediate payment in the case of Karnataka and Tamil Nadu.

Pricing

The majority of the farmers either use brokers or act on their own (at times with the help of fellow farmers and friends) to fix the price for their produce.

Among the farmers from the three states, the majority of the respondents (95.2 percent) from Kerala realized a price between Rs 2(30 and Rs.400 as against the expected price of Rs 400-600 (56.7 per cent) and Rs 600/- and above (3.4 percent). In the case of Karnataka, 80 percent of the respondents expected the existing market price to prevail, while in Tamil Nadu 20 percent farmers expected the prevailing price in the market. Others have expected a much higher rate per kg of cardamom.
The majority of the farmers, especially from Tamil Nadu, insisted on the government fixing the standard price (33.3 percent) and expected the government to play an active role in the fixing of standard price in marketing and making necessary arrangements for the export marketing of cardamom to safeguard the interests of the cardamom growers.

Farmers from Kerala secured a relatively better price for their produce when compared to farmers of Karnataka and Tamil Nadu.

The quantum of cardamom sold by the farmers from Kerala is comparatively more than that sold by the farmers from Karnataka and Tamil Nadu. In Tamil Nadu, the majority had poor yield which resulted in poor sales.

The market information is available from the auctioneers and even from the T.V. The daily market rates can be had on T.V. channels. The farmers from Kerala have better access to market information, followed by those from Karnataka and Tamil Nadu.

**Auction Sales**

In Kerala, over 96 percent of the cardamom growers have attended the auctions, while in Karnataka 76.7 percent and in Tamil Nadu 66.7 percent, farmers have attended the auctions. The majority of the farmers, particularly from Kerala, have the practice of directly attending the auctions for realizing a better price for their produce.

The majority of the farmers from Kerala and Tamil Nadu reported satisfaction over the auction process, while a sizeable number of farmers expressed either no opinion or dissatisfaction. Thus, except Karnataka, where a sizeable number of farmers expressed dissatisfaction, the cardamom growers are by and large satisfied with the auction process.
In all the three states, the majority of the farmers do not find any variation in the price of cardamom as paid by the local traders and the price quoted in the auction centres.

The majority of the farmers are not aware of the undercover system widely practised by the private traders in the sale process of cardamom. Those growers who have the practice of selling their produce only through auctioneers could not have an opportunity to have knowledge about this indigenous system, of maintaining secrecy in the fixation of price.

Consortium of Cardamom Growers

A good number of farmers from Kerala by and large have membership with Cardamom Planters Associations. The status was not appreciable in Tamil Nadu and Karnataka.

About 53 percent farmers have become members of cooperatives in the three states.

Cooperatives have played a significant role in safeguarding the interests of the cardamom growers by supplying agricultural inputs and credit facilities. Particularly in Karnataka.

The state-wise analysis reveals that in Karnataka and Tamil Nadu, all the cardamom growers are willing to join a new cooperative society if it is formed.

SUGGESTIONS

Improved quality and productivity of Indian cardamom will facilitate better performance in the export of cardamom and its (cardamom based products) by-products from India, meeting effectively the competition from the other cardamom producing and exporting countries.

Under normal conditions the farmer may not find it difficult to irrigate the land. But when there is a shortage or even surplus rainfall, farmers have to plan properly to irrigate the land to get more yields. Therefore irrigation
must be carried out in such a way that yields per unit of water are high. Care should be taken not to spread water in the land unnecessarily, since a great part of it would be lost through seepage and evaporation, a scientific way of irrigation is necessary.

Water may be stored during the rainy season by constructing check dams or in some other ways without causing much damage to the environment. This water can be used for irrigation. Irrigation can be done through different methods such as pot irrigation, hose irrigation, sprinkler irrigation and drip irrigation, depending on the facilities available in the plantation. Pot irrigation or hose irrigation can be done at weekly intervals at the rate of 20-30 liter per clump depending upon the clump size. In case of sprinkler irrigation water equivalent to 35 to 45 mm rain at fortnightly intervals is recommended under average conditions. In the case of drip irrigation water at the rate of 4-5 litters per clump per day can be given.

- The manures should be thoroughly mixed with surface soil after application. For the subsequent application to be made in September organic manure need not be applied. In valley areas and in high fertile soils, soil application of chemical fertilizers may be avoided. Instead organic manure may be applied during May/June and NPK fertilizers given as foliar sprays.

- For commercial purposes, the cardamom should not be picked under ripe. Otherwise, the fruits will shrink while drying and also it leads to splitting of fruits during drying. Thus, proper harvesting will improve the quality and quantity of the produce, whereas faulty harvesting of immature capsules reduces quality, quantity and realizes only lower price in the market.

- Farmers should be educated to avoid the harvest of over ripped capsules as it results in loss of capsules due to rodents and squirrels in the field and splitting at the time of curing, which results in the disposal of cardamom at a lower market value. They should also be educated to adopt the practice of
washing the capsules with clean water and draining the water before curing to get good quality dried cardamom. The farmers should also be advised to avoid the storing of harvested green capsules.

- To improve the quality of cured cardamom the farmer should: dry cardamom immediately after harvest to retain the original colour at which they are harvested; maintain temperature inside the room between 40° and 50° c in the first 10 to 12 hours, then increase to 55° c for rest of the curing period; provide proper opening for expelling the moisture from the room while curing, which is essential to retain good green colour during drying; avoid raising of temperature above 65°c inside the room in order to reduce splitting of capsules and loss of vital volatile cardamom oil; polish the cured capsules when they are hot and use black polythene lined gunny bags for packing cured cardamom and store them in wooden boxes for better storage efficiency.

Those farmers, who do not undertake grading, sell their produce in bulk without having the knowledge of grading and standardization, need education on this which can be done by the Spices Board through demonstration in the farmers’ meeting to make them realize the significance of grading.

- When there is a gradual increase in the production cost due to the enhancement of wages to the agricultural labourers the fluctuation in the cardamom price affects the cardamom growers adversely in engaging the sustainable cardamom cultivation. Therefore, government should make necessary arrangements to have price stability.

The cardamom growers face difficulties at both ends. When there is an increase in the production and productivity across the country, the price comes down due to excessive, supply in the market and when there is an increasing price, most of the farmers find it difficult to produce more and avail of the price benefit. Therefore, government, should take concerted
efforts to stabilize the price level to enable the cardamom growers to get maximum price benefits. In this regard, the government should make arrangements to export the produce and also enhance the existing domestic consumption by permitting the private merchants to open approved retail outlets so as to enable the consumers purchase good quality cardamom at reasonable prices. The efforts taken by KCPMC in this regard is appreciable which can be extended throughout the country.

While the role of the Spices Board in cardamom production and marketing is worth mentioning, there is a vast scope for the Spices Board to pay attention to certain areas such as awareness creation for the best production and marketing practices, particularly in Karnataka. Reaching the unreached should be their main aim as far as their schemes and programmes are concerned. The board has to make cardamom growers aware of schemes and programmes offered by it. Moreover, the Spices Board can entrust the responsibility to the ICRI to conduct social research for which a separate department may be established. The Cardamom Development Fund may be made available for such kind of social science research activities.

Cardamom cultivation becomes a white-collar job to most of the absentee landlords. As a result, they do not pay personal attention to performing the most important production and marketing functions, which leads to higher cost of production and less return on investment. Therefore, cardamom growers may be educated to change their attitude and encouraged to pay personal attention at least to the most important production and marketing functions, to reduce the production cost.

The labour unions are supported by the farmers with the idea of avoiding labour-farmers’ unrest in the cardamom cultivation. The farmers should, therefore, try to extract work from the agricultural labourers as per the terms and conditions of agreement between labourers and farmers with the active support of well-organized agencies like trade unions and farmers’
consortiums. In fact the labour productivity has come down due to unionism and becomes one of the major reasons for high production cost.

The government should permit the farmers and traders to move of cardamom from one place to another place to sell it within the country without any legal hurdles.

Farmers may be encouraged to enroll in crop Insurance Scheme under the National Agricultural Insurance Scheme (NAIS) to reduce the loss incurred by the fanners clue to natural calamities and retain sustainability in cardamom cultivation.

► Inter-crop cultivation may be encouraged among the cardamom growers to reduce loss to some extent in cardamom cultivation.

Electricity supply and connectivity may be provided to the farmers free of cost.

• Farmers may be encouraged to strengthen close relationship with the trained agricultural field staff to adopt the best production and marketing practices.

The Cardamom Act should be strictly implemented to avoid deforestation.

The cardamom growers may be encouraged to follow modem methods of curing to avail of its benefits and avoid the disadvantages in adopting the conventional methods of curing.

► Subsidy for replantation may be enhanced by the Spices Board to encourage the farmers, irrespective of ownership of land, to avail of the benefit of replantation in their land. This facility may be extended to the lease land holders and land tax payers.

► A lab-to-land scheme may be introduced so as to reach the unreached places to propagate the best method of cultivation of cardamom including soil testing.

■ The supply of inputs should be done through a well organized set up and farmers may be educated to purchase and use the inputs in a scientific way and avoid unnecessary expenses incurred in over dosages.
Farmers may be encouraged to enhance productivity by using high yielding varieties of cardamom, in which the Spices Board has a vital role to play. The labour shortage is one of the reasons for abnormal increase in cost of production. This can be minimized by changing the attitude of the farmers to engaging direct cultivation and extract work from the labour force effectively. Further, they can also involve themselves in doing the work along with other agricultural labourers. This sort of approach helps to strengthen the relationship between the labourers and the farmers on the one hand and enhance the labour productivity on the other.

► Indian cardamom growers have to depend mainly on the domestic market. Focus on organized retail market, developing brands and making available quality cardamom in all the outlets at reasonable price will help expand the market and sustain the price level.

As suggested by the majority of the farmers, the Government should play a great role in fixation of minimum support price and making necessary arrangements for export of cardamom to safeguard the interests of the growers.

More awareness is required among the participants to reap the absolute benefit of price discovery and price risk management by Futures Market operations. In order to build up health and fair trade practices with the involvement of innumerable anonymous trade participants, the Futures Market is essential where artificial price rigging in the auction will be absent and also price discovery with proper gradation is possible.

Rise in productivity and phenomenal increase in production on the one hand and steep fall in prices and continuous decline in exports on the other, have depressed and demoralized the enterprising farmers who face a decaying situation. One of the viable options to balance the situation is to strike at the promising domestic market by transforming the unorganized into an organized network with the branded cardamom.
An inter-state cooperative society can be formed by encouraging the cardamom growers on the pattern of CAMPCO (Central Arecanut Marketing and Processing Cooperative Society, Mangalore) and registered under the Multi-State Cooperative Societies Act to safeguard the interest of the cardamom growers by performing production and marketing functions at a reasonable cost.

Smuggling of cardamom from Guatemala should be prevented by taking stringent action by the government to have judicious trading practices within the country.

In order to sustain the export market, efforts may be taken to improve the productivity and thereby reduce the cost of production and to undertake long-term development schemes especially regular replantation, irrigation and soil conservation.

The amount of export subsidy should be enhanced and made available to the exporters on a permanent basis, to make the prices competitive and make a strong presence in the international market.

The competitive freight advantage enjoyed by other producers, coupled with the cost involved in quality improvement in the international market has to be compensated. This could be possible by extending the WTO compatible subsidy for exports of this commodity.

Exporters may be encouraged to follow ASTA specifications to catch the market in developed countries like USA.

Farmers may be encouraged to follow scientific grading, standardization, packaging and storage to avail of the price benefits.

The government should make arrangements to educate all the cardamom planters to make use of the facilities available in the organized agencies. In this respect, the online trading introduced recently for cardamom has been
found to have benefited the traders and growers. Through this electronic trading price recovery is possible in the futures market.

The E-Auction system should be extended to all auction centres and it should be made mandatory to avoid unnecessary suspicion.

Cardamom trade should be regulated and brought under the organized agencies to avoid unscientific way of buying and selling of cardamom and reduce the exploitation by Intermediaries.’

In the case of grading under Agmark for internal trade, proper publicity and propaganda may be made through mass-media to highlighting benefits of grading. Also the co-operation of various sales organizations may be sought to push through the Agmarked cardamom.

For introducing grading at farmers’ level, necessary steps may have to be taken to bring the cardamom under the Agricultural Produce Markets Act of the concerned spices growing states where it has not already been done so.

Where cardamom has been brought under regulation, necessary steps may have to be taken to gear up the working of the regulated markets.

Regulated markets and cooperative societies dealing in spice crops should make it compulsory for the producers to grade the produce before bringing it to market for sale.

Necessary facilities may have to be provided to regulated markets and cooperative societies to enable them to take up experimental grading at their premises in order to educate their grower-members to take up grading of the produce at their level.

People should be educated through wide publicity to use only Indian cardamom as it has superior quality as compared to Guatemala cardamom.

Futures trading in cardamom depends on the level of understanding among the cardamom growers. Therefore, the leading market players have to
conduct a series of training programmes to educate the formers and traders about the commodity markets.

Since cardamom has medicinal value, wide publicity may be given to encourage the people with in and outside the country to use it, to avail the benefits out of it.

► The services of cooperatives may be utilised in production and marketing to reduce the unnecessary exploitation by the intermediaries between the cardamom growers and the consumers.

Pledge loan facility should be made available In all commercial and cooperative banks to the growers to enable them to enjoy the benefit of the holding power during off-season.

To sum up, cardamom is not an essential agricultural commodity but it is one of the cash crops which serve many purposes. One of the major reasons for sustaining cardamom cultivation is that it saves the forest and prevents deforestation because of the shade requirements for effective cardamom cultivation. It provides direct and indirect employment to hundreds of agricultural labourers. Many farmers subsist on cardamom cultivation. It also has medicinal and cosmetic value. Due to these reasons from time immemorial the cardamom trade has existed between India and many Arabian countries. The need of the hour is to find ways and means to protect the interests of the cardamom growers.

Cardamom cannot be cultivated like other crops. The cardamom growers should strive to become financially strong to invest money at least for two years initially during which normally there is no income from the farm. Farmes should be in a position to adjust the investment made in these two years with the amount of income derived out of the cardamom production in the years to come. If there is any crisis during this period a huge amount of investment made in the first two years and maintenance cost in the third year put together will be a heavy loss, which can not be compensated immediately in the years to follow by the cardamom grower. He has to wait another two
years, after replantation to realize income from the cardamom cultivation. The government should therefore keep in mind all these factors while preparing package of benefits offered to the farmers engaged in cardamom production. Failing which, there is a possibility of many cardamom growers stopping cardamom cultivation and then the cardamom land will become forest land. Moreover, many agricultural laboureres and farmers will be thrown out of the cardamom cultivation. A large amount of foreign exchange will also be lost. Therefore, all people involved in cardamom production and marketing should pressurize the government to take efforts to ensure sustainability in cardamom cultivation in order to save the queen of spices. The trade unions should also realize the situation and find ways and means to safeguard the interests of not only agricultural laboureres but also cardamom growers to improve cardamom production and marketing to make this a real agribusiness.