THE PROBLEMS OF PRODUCTION AND MARKETING IN THE CARDAMOM INDUSTRY WITH PARTICULAR REFERENCE TO KERALA

Thesis submitted to the University of Calicut
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DOCTOR OF PHILOSOPHY IN COMMERCE

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2006

DECLARATION

I, S. KRISHNAN NAIR, do hereby declare that this thesis entitled **The Problems of Production and Marketing in the Cardamom Industry with particular reference to Kerala** is a bona fide record of the research work done by me under the guidance of Dr. E.P. Sainul Abideen, Professor (Retd.), Department of Commerce and Management Studies, University of Calicut. I further declare that this thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title of recognition.

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CERTIFICATE

Certified that this thesis, **The Problems of Production and Marketing in the Cardamom Industry with particular reference to Kerala** is a bona fide record of the research work carried out by **Mr. S. Krishnan Nair** under my supervision and guidance. No part of this has been submitted earlier for any other purpose.

Dr. E.P. SAINUL ABIDEEN

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CONTENTS

LIST OF ABBREVIATIONS

Cm/cms	:	Centimeter/s
CPCRI	:	Central Plantation Crops Research Institute
DAP	:	Di Ammonium Phosphate
D.E. & S.	:	Directorate of Economics & Statistics
FAO	:	Food and Agriculture Organisation
FTA	:	Free Trade Agreement
Gms/g	:	gram/s
ICRI	:	Indian Cardamom Research Institute
KAU	:	Kerala Agricultural University
Kg	:	Kilogram/s
L/lt	:	Litre/s
M/m	:	Metre/s
MOP	:	Muriate of Potash
MSL	:	Main Sea Level
MT	:	Metric tonne/s
WTO	:	World Trade Organisation

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

S. Krishnan Nair "The problems of production and marketing in the cardamom industry with particular reference to Kerala" Thesis. Department of Commerce and Management Studies, University of Calicut, 2006

CHAPTER I
INTRODUCTION

The growing demand for increased agricultural production and the inability of traditional methods of cultivation to cope with the demand have led agronomists and economic planners to experiment agriculture with industrial techniques. The recent tendency to treat agriculture, as an industry is the outcome of this wide spread experimentation. The application of scientific techniques in agriculture involves large scale farming with systematic land-dressing, sowing, manuring, watering and weeding, specialized management methods and systems of control of production and marketing, trade promotion, research and development, etc. In fact, the industrial approach and scientific methods of managing the input and output are not new to agriculture except that they have not been applied to all varieties of crops and all forms of cultivation.

SIGNIFICANCE OF THE STUDY

The economic development and industrial progress of developing countries mainly depend on the exports of agricultural produces. Indian economy is basically agrarian and hence export of food and agricultural products will play a crucial role in our economy. India is known as the 'land of spices' and can earn crores from the export of spices. Growth in agro-

exports not only brings the inevitable foreign exchange for our country but also benefits a large number of people working directly or indirectly in this field.

The Spice plantations of today evolved not much more than a hundred years ago when the concept of Limited Liability Corporation was first applied to agricultural production in South –East Asia. Since the Second World War, the management, methods and technology employed by the spice plantations made rapid advances. In 1980s they have become well-established institutions. However, in their modern form, they are confronted with a number of problems, which are basic and central to their functioning.

The importance of spices as an earner of foreign exchange, as an employer of labour, as a provider of revenue to the State and Central Government and as the most progressive of agricultural sectors in India makes Governments wary of any drastic proposals for change.

Spice crops figure very prominently in the country's international trade. Spice crops are produced mainly for the sale in internal and external markets. But their significance in respect of the land and resources used for their production and their contribution to the national economy by way of export earnings began to be fully realized during the last 20 years. There are some 2.23 million acres or about one million hectares of land under the spice crops in India. Most of them are perennial in the sense that their yielding

period lasts for a long time. This peculiarity makes the cultivation of these crops risky because of the endemic evil of uncertainty of future returns and most farmers who are prone to choose the "bird in the hand" of immediate return rather than "the two in the bush" of long-term investments, are reluctant to enter into this venture.

Spices in general are either export oriented or import substituting and therefore assume special significance from the national point of view. It is estimated that nearly 14 lakh families are dependent on this sector for livelihood. Consequent to the removal of quantitative restrictions on import, spice industry in general and Cardamom in particular are facing the threat of low quality imports.

Cardamom plays a vital role in the agricultural and industrial sectors of India. There are two types of cardamom. They are Large Cardamom (Amomum Subulatum Roxb.) and Small Cardamom (Elettaria Cardamomum Maton). Small cardamoms or green cardamoms are the 'true' cardamoms. Brown or black varieties of cardamom are larger. These 'false' cardamoms are found in South Asia, China, Nepal, Indonesia and Africa. This study concentrates on the various aspects of small cardamom, indigenous to the Western Ghats region of south India. In India small cardamom production extends over three southern states, viz, Kerala, Karnataka and Tamilnadu. Kerala has a substantial share in the production of cardamom and the state

accounts for 70 per cent of the national production. It is grown in small as well as large and medium sized plantations.

SURVEY OF LITERATURE

In the case of Cardamom the studies are basically on aspects related with the sale and export of the product instead of on methods, techniques, problems etc of production and marketing. However, the studies conducted by Pillai, Charles J Kithu, and Antony Cherian are on the productive aspects of the crops. Pillai V.R was the Chairman of the Committee appointed by the Government of Kerala to fix Minimum Wages for workers in Cardamom Plantations. The Committee found that fertility of the soil, climate and rainfall are the three ingredients that determine the yield of the crop. The soil should be highly fertile and virgin soil is most conducive to the crop's profuse growth. This shows that re-planting or re-cropping in the same area gives only diminishing returns. It takes 4 to 5 years on an average for the plant to start normal yield, and since the longevity of the plant being 15 years on the maximum, the yielding period of the plant is roughly 10 years. The sowing of Cardamom begins in May; and continues till July or August. Two varieties of Cardamom are grown in Kerala, namely, the local and the Mysore. The diseases common to Cardamom plants are Mosaic and Thrips. The committee found that in general the income from Cardamom is low and therefore the payment of wages is also very low.

A package of measures has been suggested by an expert panel headed by Dr. M.S. Swaminathan (1992) to enable India to double its spices exports by the turn of the Century. This include time bound intervention in planting, quality improvement, value addition, packing, market promotion and marketing, besides strengthening the Spices Board.

Manoharan Nair K. (1990) in his study on 'Problems and Prospects of Plantation Industries in Kerala' examined in detail the area, production, productivity, yield, sales and cost of production. The study came to the conclusion that the cost of production is high but the yield to compensate the cost are low and disproportionate compared to cost, which is increasing steeply. As far as sales and average price are concerned there is seasonality and frequent fluctuations in prices of all the plantation crops namely, Rubber, Cardamom, Tea and Coffee. Also seen that there is multiplicity of trade unionism in plantation Industries of Kerala and the management of the industry induces this practice to gain benefits. There is lack of finance and its availability from financial institutions is also very less. It is a comprehensive study on all the plantation crops in Kerala covering all most all the aspects.

Regarding the Report of the Working Group on Cardamom, the Government entrusted the Working Group (1988) to study and recommend appropriate long term, medium and short term strategy with regard to loans from Institutional sources for the development of Cardamom Plantations in

the 7th Plan. Based on the recommendations of this working group, plans were evolved by the Government during the 7th Five Year Plan

Antony Cherian (1987) discusses the recent trends in increasing productivity and reducing cost of production of Cardamom (Small) in India. The causes of low productivity are identified as Old age of plants, Economical changes, Climatic factors, Inadequacy of research and Input support and Predominance of small cultivators. Cherian's discussion also contains an analysis of the total production, domestic consumption and export of Cardamom of India. The domestic consumption is estimated as about 1500 MT per year.

Jose (1987) studies this problem of Cardamom cultivators in relation to Institutional Finance. Lack of infra-structural facilities affects production. This is more so in the case of agricultural production because agriculturists are by and large poor, illiterate and uninformed. Adequate finance is one such facility, the demand for which is vital to the production of all plantation crops including cardamom. He examines the nature of funds they receive and the rate of interest charged on those funds. He finds that they do not get enough funds from financial institutions with the result that they are constrained to practice the most unscientific methods of cultivation like improper manuring, untimely plant protection etc. The end result is that they are the perpetual

victims of the vicious circle of low productivity, low income, low wages and so on.

Korikanthimath (1987) is concerned with assessing the impact of an adverse climatic conditions namely, drought, on Cardamom. The yield of Cardamom, according to him is largely influenced by equal distribution of monthly rainfall and not by the total rainfall nor by the number of rainy days in a year. He suggests such measures as shade management; plot system, shelterbelts, mulching and contour farming to combat drought situations.

Gopalakrishan Nair (1987) analyses the marketing pattern of Indian Cardamom Industry. He also examines the possible course of action, which would lead to increased consumption of Cardamom both within India and overseas. He finds price fluctuations as one of the reasons for the unsteady income of primary producers, which in turn affects production as well as export. He is, therefore, concerned with making suggestions to control variations in prices in order that producers can get reasonable and stable prices and can be induced to produce more for internal consumption as well as for export.

Charles J Kithu's analysis of the productivity of Cardamom and his computation of the percentage of profit over income are contained in his article, "Productivity of Cardamom- An Insight" (1986). The results of his analysis indicate that improved agricultural operations and better management

of production will increase productivity, and increased productivity leads to increased farm income.

Nayar K.G. (1986) discusses Cardamom Marketing in India and examines the problems and prospects of the future Cardamom market. He analyses the demand for Cardamom in various countries and the age pattern of Cardamom in the World. He also lists the different uses to which Cardamom is put, viz., in medicine, in food preparation and in other baked products as sausage. Juxtaposing the supply and demand, the author advocates the need for finding out new markets by resorting to modern marketing techniques and for increasing the out put by exploiting the vast potential available in developing countries.

Narayanan's study (1986) comprising the quality factors of Indian and Guatemalan varieties of Cardamom reveals that Guatemalan I and II are similar in quality to Indian Cardamom like 'Alleppey Green' and 'Coorg Green'. His experimental results show that the Alleppey Green stands first in physical features, composition of volatile oils, flavour, etc compared with Guatemalan varieties. He therefore suggests that the qualitative factors have to be seriously considered and improved to promote foreign trade. One of the determinants of successful export trade is the quality of the goods exported. This is true of Cardamom also.

Joseph's purpose is to study the evolution of Cardamom cultivation and Marketing in Kerala (1985), to analyse the structure of the present marketing system by examining the functions of different agents and the marketing power they wield, and to understand the process of forming prices at the primary level taking into account the variations across sellers, across seasons and across years. The causes leading to the Indian Cardamom losing it preeminence in world market and its market share have been the subject matter of study of Maya for her M.Phil dissertation (1985). Examining the overall performance of the Kanor Cardamom Estates, she estimates the production trends of India cardamom and deals with the cause of low productivity, variations in price structure, export performance and declining market share

Narayana and others (1985) have analysed the trends in fluctuations of prices of Cardamom and their relationship with output and supply. The finding is that cyclical fluctuations in prices are the result of peculiar conditions of supply that is resulting from increased output through new planting and reduced output because of replanting after a significant time lag. Cyclical fluctuations have an implicit bearing on the conditions of supply through farmer's response. This has becomes all the more significant in recent years because of the emergence of a large number of small growers in the sector.

Swaminathan S. (1985) made a comparative study of the trends in Area, Production, Productivity, Exports and Prices of Cardamom in the three States of Kerala, Karnataka and Tamil Nadu It shows that there is an increase in the acreage under Cardamom cultivation. The overall annual growth rate of Cardamom is estimated as 2.34 per cent. Swaminathan suggests the need for re-plantation of existing Cardamom plants with better varieties to increase productivity.

For an economic appraisal of the Cardamom Marketing System, Asokarajan C. (1985) in the Bodinayakanur region of Uthampalayam Taluk, Madurai District, has conducted a field investigation. The field survey statistically proves that Cardamom export performance greatly depends on the level of output. Hence, to maintain the level of export, increase in production through better management techniques is necessary. The survey also shows that export prices are relatively attractive, but the rising levels of domestic consumption limit the volume of export. The secular trend has not exerted any great influence on the export price movements during all the seasons. The export price cycles of Cardamom have been studied for the period fro 1960-61 to 1983-84 and 8 years cycles have been tested through Fourier analysis and the same has been found to be highly significant.

The Cardamom Delegation of the UPASI (1983), which visited all the importing countries, has reported that there is serious threat to India's export

markets from Guatemala. The delegation has therefore suggested the need for export promotional activities such as advertisements, improvements in the mode of packing, introduction of export inspection control etc. to protect India's export markets for Cardamom. It has also suggested long term and short-term measures to improve Cardamom trade in India.

Krishnan Nair S. (1983) in his article on 'Plantation Crops in the economy of Kerala' has analysed the importance of plantation crops in the economy of Kerala. In another article by the same author the threat to India's export trade from her potential rival Guatemala is analysed.

A study Report on a Realistic Assessment of the Cost of Cultivation of Eight Crops via, Paddy (Three Seasons), Coconut, Ginger, Arecanut, Tapioca, Banana, Pepper and Cocoa are mainly done for the formulation and implementation of Schemes in Agricultural Sector, fixation of floor and support prices, and provision of incentive to cultivators etc. The cost estimation is made on the basis of cash and kind expenses (paid out costs) actually incurred by the cultivators, imputed costs and interest on fixed capital.

Among a large number of studies available on the trade and export promotion aspects of Cardamom, the analyses of Prasad V and others (1982) and Barik B.B. (1982) are largely concerned with the share of agricultural commodities in India's foreign trade and its impact on the country's balance

of trade position. Hence plantation crops in general and cardamom in particular enter into their discussion only incidentally. However, all of them are of the opinion that agricultural exports can be increased through output expansion, cost reduction and removal of infrastructure constraint horizontally and vertically.

In Saleem.C.P's study on Cardamom (1980), the discussion is on the export strategy and the perspective plan for the 1980s. After analyzing the export situation of cardamom, its price and export earnings, Saleem suggests long term and short term strategies for improvements. The long-term strategy includes higher productivity, lower costs and steady and remunerative returns to the growers. The short-term strategy is to intensify the existing developmental programmers, and to increase production and export. The export to the oil-rich Arab nations should be maximized so that those markets should not be captured by other Cardamom producing countries.

The Minimum Wages Committee on Cardamom (1960) headed by Prof. V.R. Pillai has pointed out that climatic conditions seriously affect the production of Cardamom

STATEMENT OF THE PROBLEM

The studies conducted till now are mainly based on cost and price aspects. No recent study has been made to probe into the problems of

production and marketing of cardamom growers, other than cost and price variations

Cardamom is the second important spice grown in Kerala. It comes under Plantations Labour Act also. It is one of the export earning industries. Because of its importance, a separate Board – Cardamom Board - was constituted by the Government in the year 1965. Later it was included under spices after the constitution of Spices Board under Spices Board Act, 1986. A Spice plantation is, in fact, an agricultural holding large enough to apply industrial and managerial techniques. The activities in the plantation estates such as planting, cultivation, maintenance, harvesting etc. are agricultural operations and onsite processing, grading, packaging etc. can be treated as marketing activities organized on the basis of managerial techniques. Thus, for a proper study on spice plantation industry, the organizational and managerial activities and problems connected with planting, cultivation, onsite processing, marketing, finance and administration in the estates have to be looked into in depth. Hence, the present study examines the problems in the production and marketing of cardamom industry in Kerala.

OBJECTIVES OF THE STUDY

On the basis of the problem stated above, objectives set for the study are:

1. To examine the trends in the area, production and productivity of cardamom in Kerala.

2. To study the production pattern and to asses the problems of Cardamom growers in the cultivation of Cardamom in Kerala.

3. To study the Marketing practices and to ascertain the problems in the marketing of Cardamom in Kerala

4. To look into the role of Spices Board in the development of Cardamom plantation industry.

5. To suggest measures based on the findings of the study for the improvement of the working of Cardamom industry.

METHODOLOGY

The study is a descriptive one and the data for the study is collected from both secondary and primary sources.

SECONDARY DATA

The Secondary Data have been collected from the Official Publications of the Central and State Governments, Reports of Committees and Commissions; Trade/ Economic Journals like Commerce, Southern Economist, Capital, Economic and Political Weekly, Yojana, Kurukshetra; papers presented in seminars and conferences; News Papers like Economic

Times, The Financial Express, Business Line, Business Standard, New Indian Express, The Hindu, Mathrubhoomi, Malayala Manorama, Kerala Kaumudi, Deepika, Mangalam, Chandrika and so on; Statistical Reports and Annual Reports of the erstwhile Cardamom Board and Spices Board; Cardamom Statistics of Cardamom Board, Spices Statistics of the Spices Board, The Spices Journal published by the Spices Board; Publications brought out by various Research Institutions; Economic Reviews published yearly by the State Planning Board, Kerala; various issues of Statistics for Planning, Agricultural Statistics, Prices Statistics and the like published by The Directorate of Economics and Statistics; Economic Surveys of Union Government; Working Papers of the Centre for Development Studies (CDS, Trivandrum); Books, though few on Spices crops, and web sites.

PRIMARY DATA

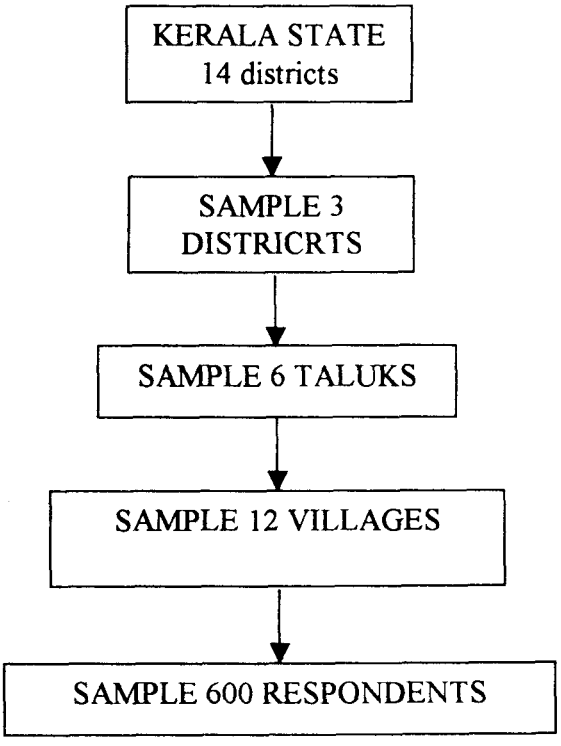
Since most of the information necessary to fulfill the objectives of the study is not available from secondary sources, the study is mainly based on primary data, collected through a sample survey of cardamom growers using structured and pre-tested Interview Schedule. Data were also collected from e-mail correspondence and discussions held with concerned officials of governmental agencies and experts in the field of cardamom production and marketing.

SAMPLE DESIGN

The unit selected for the study is Cardamom growers. The study adopts Stage, Purposive and Stratified Random Sampling techniques. Purposive sampling is employed to select sample Taluks and villages where the area under cardamom cultivation is more.

Figure 1

Stage sampling design



SELECTION OF DISTRICTS

At the first stage, from the 14 districts in Kerala, three districts namely, Idukki, Wynad and Palakkad were chosen. Idukki, Waynad and Palakkad are the major districts in which cardamom is grown. Only a minor acreage under cultivation of Cardamom is seen in other districts. A major part of the cultivation of the Cardamom is in Idukki District of Kerala. Next is Wayanad district and then the Palakkad district in the order of importance.

SELECTION OF TALUKS

Idukki District has four Taluks, namely, Peermedu, Udumbanchola, Devikulam and Thodupuzha. Of these two Taluks namely, Peermedu and Udumbanchola are taken in the second stage. This selection is made on the basis of the area under cultivation of Cardamom.

In Wayanad District major part of the area is used for the cultivation of Coffee. 15 per cent of the area under cultivation is used for Cardamom. There are three Taluks for revenue administration namely, Sultan Bathery, Vythiri and Mananthody. Of the three Taluks, Vythyri and Sultan Bathery are selected.

Palakkad District is having cardamom cultivation, but only under a small area. This District is having five Taluks viz, Ottapalam, Mannarkkad,

Chittur, Alathur and Palakkad, of which Mannarkkad and Palakkad are selected.

SELECTION OF VILLAGES

The Peermade and Udumbanchola Taluks of Idukki District have 10 and 23 Villages respectively. From among the respective Taluks two top ranking Villages of each Taluk in respect of area under cultivation of Cardamom during the five years from 2000-01 to 2004-05 are selected for the field study. They are Vandiperiyar and Kumili from Peermedu Taluk and Udumbanchola and Vandanmedu from Udumbanchola Taluk.

The Sultan Bathery and Vythiri Taluks of Wayanad District have 19 and 14 Villages. From these 33 Villages in the two Taluks, four top ranking villages, two from each Taluk according to the area under cultivation of cardamom during 2000-01 to 2004-05, are selected. They are Kalpetta and Muttil from Vythiri and Sultan Bathery and Nadavayal from Sultan Bathery Taluk

The Palakkad and Mannarkkad Taluks of Palakkad District are having 33 and 25 villages respectively. Of these, two top ranking Villages namely, Mannarkkad and Shollayar from Mannarkkad Taluk and Kongad I and Kongad II of Palakkad Taluk are selected for the present study.

SELECTION OF GROWERS OF CARDAMOM

From each of the four Villages, growers are selected using the method of Stratified Sampling. The stratification is made on the basis of area of holdings. First stratum consists of small holdings with below 10 acres and the second with medium and large holdings with 10 acres and above. The grower respondents are so selected as to represent each stratum in each village. The size of the whole sample population for the present study comes to 600 - 480 from the small holder stratum and 120 from medium and large plantation stratum. Such stratification is done because there is difference in parameters like farming operations, cost per unit, productivity and the problems faced by small and large growers.

TOOLS USED FOR DATA COLLECTION

Field survey was conducted to collect primary data from growers by using Structured Interview schedule. A pilot survey was conducted to check the adequacy of questions included in the schedule. The schedule is mainly devised in such a way as to elicit information regarding area under cultivation, quantity of output, yield per unit of land, cultivation practices followed, harvesting methods, processing techniques, storage details, pattern of marketing, prices realized over a period of time, financial and credit facilities available and various problems encountered in production and marketing.

On the basis of the experience of the pilot survey, the interview schedule was revised and re-drafted. Interview schedule, postal and e-mail correspondence are the tools used for data collection. A specimen of the Interview Schedule is given in Appendix –I.

ANALYSIS OF DATA

The focus of analysis of data has been on the dimensions of cardamom production, marketing and their problems. The data on the area, production and productivity were analysed to identify the present and future development policies in this sector. The analysis of farm level processing, end use, demand, supply, marketing and financing was to broaden the understanding of the working of the cardamom industry. For analyzing and interpreting the data mathematical and simple statistical tools like ratios, averages, percentages etc. are used. Compound growth rate in respect of area, production and productivity is also studied with the help of SPSS Program. To make presentation, graphs and charts are used.

LIMITATIONS

The following are the limitations of the study:

- Being a study based on social science, it is not free from the defects of social investigation like sample bias.
- In many cases the respondents were reluctant to supply required data.

- The Owners/Managers were not keeping proper accounts and records in several cases.
- The period of study is limited to five years.
- There was only little chance to get the accuracy of the data counter checked
- Thus, the study suffers from the limitation of completely relying upon whatever information made available by the respondents in the sample.
- Some of the sample respondents were found to be inconsistent.

However, earnest efforts were taken to verify the accuracy of the data and to reach at meaningful conclusions by discussions held with the responsible officers of the Spices Board, Growers' organisations, Trade union leaders and experts in the field.

PRESENTATION OF THE REPORT

The report is presented in six chapters.

CHAPTER I

It deals with the introduction part stating the significance, a brief review of literature, statement of the problem, objectives, methodology, sample design, statistical tools used and limitations of the study.

CHAPTER II

This chapter gives a brief description about plantation and spice crops, as cardamom is treated both as a plantation crop and as a spice, at the international, national and state levels and the role of Spices Board in the Development of Cardamom in India and particularly Kerala.

CHAPTER III

Chapter III examines the trend in the area under cultivation of cardamom, production and productivity of cardamom in India. It also explains the trend in the area, production and productivity of cardamom state wise and district wise.

CHAPTER IV

Chapter IV analyses the structure of cardamom marketing and the channels of distribution of cardamom - both internal and external.

CHAPTER V

The problems faced by the growers in the production and marketing of cardamom are discussed in this chapter.

CHAPTER VI

This is the last Chapter which gives the summary of the whole study, lists the findings and offers a few suggestions.

SPICES INDUSTRY - AN OVERVIEW

S. Krishnan Nair "The problems of production and marketing in the cardamom industry with particular reference to Kerala" Thesis. Department of Commerce and Management Studies, University of Calicut, 2006

CHAPTER II

SPICES INDUSTRY – AN OVERVIEW

Agricultural crops that form the input of agro-based industries may be broadly classified into Food Crops and Commercial Crops. However, this classification is not specific as many crops are both commercial and food crops, for example - Sugarcane, Tea, Coffee, Cardamom and other spices. But it is common practice to include these among commercial/cash crops, as they are primarily cultivated for earning money income and not for direct consumption by the producers.

Spices and Condiments need no introduction. Spices constitute an important group of agricultural commodities, which are virtually indispensable in the culinary art. They also play a significant role in our national economy and in the national economies of several spice producing, exporting and importing countries.

Spice is defined as "a strongly flavoured or aromatic substance of vegetable origin, obtained from tropical plants, commonly used as a condiment".[1]

According to International Organisation for Standardization (ISO) the term Spices and Condiments applies to such natural plant or vegetable

[1] World of Spice of Kerala, web site: Indiatravelite

products or mixtures thereof, in whole or ground form, as are used for imparting flavor, aroma and piquancy to and for seasoning of foods.[2] Spices are pungent, aromatic plant substances used to flavor foods or beverages. Spices are the common dietary adjuncts that contribute to the taste and flavor of foods. Besides, spices are also known to exert several beneficial effects. In traditional medical systems, the ability of spices to heal various physical, mental and emotional problems has widely been reported. A growing body of research has demonstrated that the commonly used herbs and spices such as garlic, black cumin, cloves, cinnamon, ginger, thyme, allspices, bay leaves, mustard, and rosemary, possess antimicrobial properties that, in some cases, can be used therapeutically. Other spices, such as saffron, a food colorant; turmeric, a yellow colored spice; tea, either green or black, ginger, and flaxseed do contain potent phytochemicals, including carotenoids, curcumins, catechins, lignan respectively, which provide significant protection against cancer.

There are above 70 spices grown in different parts of the world. Many of them are grown in India. Important Spices are given in Appendix 2.

Spices and condiments can be broadly classified into 6 groups, based upon the parts of the plants from which they are obtained, namely (i) rhizomes and root spices, (ii) bark spices, (iii) leaf spices, (iv) flower spices,

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[2] Government of India, Spices Board, International Spice Fair, Workshop on Strategies for Export Development of Spices, Kochi 1989. p3

(v) fruit spices and (vi) seed spices. Thus spices can come from almost any part of a plant including seeds, leaves, barks, rhizomes, latex, stigmas, floral buds and modified stems.

In other words, spices may comprise different plant components or parts such as Floral parts (Cloves, Saffron etc), or Fruits (Cardamom, Chillies etc), or Berries (all Spices, Black Pepper, Juniper), or Seeds (Aniseed, caraway, Celery, Coriander), or Rhizomes (Ginger, Turmeric), or Roots (Angelica, Horse-Radish and Lovage), or Leaves (Bay Leaves, Mints, Marjoram and Tejpat), or Kernel (Nut Megs), or Aril (Mace), or Bark (Cinnamon and Cassia), or Bulbs (Garlic, Onion etc), or other parts of Spice plants.

Individually, Spices could also be classified or grouped according to different basis such as (a) Botanical Analogies or families; (b). Economic Importance viz, Major and Minor Spices ;(c) Similarity in methods of cultivation; and (d) Similarity in plant parts or components such as Seedy Spices, Leafy Spices, Bulbous Spices, Rhizomes and Root etc.

Varied are the uses to which spices have been put from time immemorial. Spices are well known as appetizers and are considered essential in the culinary art all over the world. They add a tang and flavor to otherwise insipid foods. Some of them also possess anti-oxidant properties, while others are used as preservatives in some foods like pickles and chutneys etc. Some

Spices also posses strong anti microbial and antibiotic properties. Many of them possess medicinal properties and have a profound effect on human health, since they assist many functional processes. For instance, Spices intensify salivary flow and secretion of Amylase, Meuraminic acid and Hexosamines. They facilitate the cleansing of the oral cavity from food adhesion and bacteria. They may help to check infection and carries, and to protect the mucous membrane against thermal, mechanical and chemical irritation. Spices increase the secretion of Saliva rich in Ptyalin which facilitates starch digestion in the stomach, rendering the meals which are rich in Carbohydrates, more digestible Spices possibly activate the Adreno-Cortical function and fortify resistance and physical capacity. Blood Pressure and Stroke can be markedly diminished or augmented by means of spices and condiments. They deserve our serious consideration and further thorough probe. They are used as additives and for the propitiation of the gods. They also stimulate digestion on account of their carminative properties. Most of the spices find place in various medicines.

Spices for Diabetes or blood sugar control

Among the spices, fenugreek seeds (Trigonella foenumgraecum), garlic (Allium sativum), onion (Allium cepa), and turmeric (Curcuma longa) have been experimentally documented to possess antidiabetic potential. In a limited number of studies, cumin seeds (Cuminum cyminum), ginger

(Zingiber officinale), mustard (Brassica nigra), curry leaves (Murraya koenigii) and coriander (Coriandrum sativum) have been reported to be hypoglycaemic.

Phenolics in Spices

Spices are known to significantly contribute to the flavor, taste, and medicinal properties of food because of phenolics. Most spices contain phenolic acids such as tannic, gallic, caffeic, cinnamic, chlorogenic, ferulic and vanillic acids. A high amount of tannic and gallic acids are found in black mustard and clove. Caffeic, chlorogenic and ferulic acids are found in a good amount in cumin. Vanillic and cinnamic acids are found in onion seeds.

Spices and Cancer

Ginger spice can kill ovarian cancer cells while the compound that makes peppers hot can shrink pancreatic tumors. The study on ginger was done using cells in a lab dish, which is a long way from finding that it works in actual cancer patients. Researchers tested ginger powder dissolved in solution by putting it on ovarian cancer cell cultures. Ginger killed the ovarian cancer cells in two different ways—through a self-destruction process called apoptosis and through autophagy in which cells digest themselves. Ginger spice has been shown to help control inflammation, which can contribute to the development of ovarian cancer cells. In multiple ovarian cancer cell lines, ginger induced cell death at a similar or better rate than the platinum-based

chemotherapy drugs typically used to treat ovarian cancer.[3] Latest research shows that garlic possess certain properties which can kill cancer cells. Researchers at Rajiv Gandhi Centre for Bio-technology, Thiruvananthapuram and IIT Madras, here have developed a compound from garlic that acts in synergy with known anti-cancer agents to kill cancer cells.[4]

India, as already mentioned, is the land of Spices. There are a number of Spices grown in India. The major Spices grown are Pepper, Cardamom, Ginger, Turmeric and Chillies. The important minor Spices grown in India are Ajowan, Aniseed, Caraway, Celery, Coriander, Cumin, Dill Seed, Fennel, Fenugreek, Garlic, Onion, Saffron and Vanilla.

Pepper is the most important spice of India rightly termed the 'King of Spices' and is also known as 'Black Gold of India'. Cardamom comes next, and is called the 'Queen of Spices'. Though Spice crops are cultivated in comparatively small units as compared to food crops, they contribute a sizeable share in the international trade.

The history of Spices in India was not started in a day, month or year. It was, perhaps, with the beginning of civilization of this great country. The oldest literary record in India is found in Rig Veda dating around 6000 BC and three other Vedas, namely, Yajur, Sama and Atharva. During the Veda period, there was no writing available but with the help of human memory

[3] www.raysahelian.com - Spices: Information by Ray Sahelian, M.D.
[4] The New Indian Express, 17 Nov 2006, p6.

information was transferred in the form of hymns from generation to generation. The first reference of Spices found in Rig Veda is about Horseradish, which is a near relative of Mustard and Turnip The Yajur Veda, mentions the use of Black Pepper and the Atharva Veda of Turmeric.

Manu, the first Law Exponent, who lived around 4000 B.C, was aware of the origin, growth and use of Garlic as well as Onion. According to him, Saffron was the best offering to a Brahmin guest.

There are some references, about Spices in Ramayana. Valmiki, the great Rishi, who wrote this epic, mentioned a dish called Meat Pilaf, in which meat, rice, vegetables and spices were boiled and cooked together. King Dasaratha's body was preserved with Spices oils and balms, similar to Egyptian mummies. Babylonians and Assyrians knew the use of Spices around 3000 BC. The Bible, particularly the Old Testament gives many instances of the use of Spices .The Queen of Sheba came to Solomon of Israel (1015-977 BC) renowned for his wisdom, with camels that carried Spices.

From the 15th century, European countries, especially Portugal, Spain and UK showed keen interest to trade in Spices. It was on May 17th 1498 Vasco-da-Gama anchored his ship at Kappad, a few kilo meters north of Calicut in search of Spices. He was welcomed by Zamorin of Calicut and established Spices trade between Portugal and Malabar.

There are innumerable instances of the development of Spices trade between India and Great Britain. In the history of Indian Spices, thus there are a number of references about Pepper, Ginger, Turmeric, Saffron, Cumin, Fenugreek and Garlic, which glorified as well as tarnished the image of India.[5]

The fame of Indian Spices is older than recorded history. Centuries before Greece and Rome had their birth; sailing ships were carrying to Mesopotamia, Arabia and Egypt, the Indian spices, perfumes and textiles. It was the lure of these that brought many seafarers to the shores of India.

Long before the Christian era, the Greek merchants thronged the markets of South India, buying Spices among other precious things. Epicurean was spending a fortune on Indian Spices, Silks, Brocades and Cloth of Gold etc. The Parthian wars are believed to have been fought by Rome largely to keep open the trade route to India. It is also said that there might have been no crusades and no expeditions to the East without the lure of Indian Spices and her other famed products.

Today, when spices cost so little, it seems unbelievable that they were once a royal luxury and those men were willing to risk their lives in quest of them. Like Columbus, Vas Co Da Gama too was searching for a new route to

[5] Report on the Domestic Survey of Spices (Part I) Spices Board, Government of India, Oct. 1988.

the spice lands of Asia. While Columbus failed to achieve that goal, Da Gama succeeded. In a two year, 24000 miles round trip, he took his ships around the continent of Africa to India and back to Lisbon. Only two of the four ships survived to reach their home port. These two ships brought back a cargo of spices and other products worth 60 times the cost of the said voyage.

The spices of the east were valuable in Da Gama's time, as they had been for centuries, because they could be used to compensate for Europe's inadequate supply of food. During these middle ages, a pound of Ginger was worth three Sheep or half a Cow. Pepper, the most valuable Spice of all, was counted out in individual Peppercorns, and a Sack of Pepper was said to be worth a man's life. Da Gama's successful voyage intensified an international power struggle for control over the Spice Trade. For three centuries the nations of Western Europe-Portugal, Spain, France, Holland and Great Britain – fought bloody sea war over the Spice producing colonies.

In a nutshell, the fascinating history of Spices is a story of adventure, exploration, conquest and fierce naval rivalry. The people of those times used spices, as we do today, to enhance or vary the flavor of their foods.

Though India has attained adequate progress in a number of sectors on the industrial front, the objective of decentralized industrial structure remains unattained. The five-year plan documents and industrial policy resolutions have laid stress on decentralization of industries by promotion of agro based

small-scale industrial units. But rapid strides could not be made on this front. Economists on more than one ground advocate the setting up of agro-based industrial units. The existing unemployed and under employed rural population can be profitably employed. The migration of rural population to urban centers can be prevented. The locally available resources – human and natural - can be utilized for improvement of the income levels of the village economy. These are the virtues that merit the location of agro-based industries in rural area, which, in course of time, make it self – sustaining with improved position of savings and investment.[6]

In spite of the importance of spices in dietary, medicinal and other uses, and their commercial importance, the research inputs on these crops have not been adequate. The important spices and condiments under commercial or large-scale cultivation are cardamom, pepper, chillies, turmeric and ginger. The total area under these spices and condiments in India is over one million hectares, and they account for an annual export earning of over 40 crores of rupees.

The economy of Kerala has historically been tied to trade and export. The region's unique coastal geography shaped this aspect of its economy, while its topography and climate encouraged agriculture that came to be characterised by a diverse mix of crops. The spice trade from the west coast

[6] Venkaian, V .Impact of agro-based Industries on Rural Economy: a case study (Bombay: Himalaya Publishing House, 1987) p.74

originated as early as the 3rd millennium B.C., and continued to dominate the region's trade until fairly recent times. By the late 1930s, in addition to spices, the State was exporting coffee, rubber, tea, coir, coconut oil and other coconut products. The combined acreage of cash crops, by this time, equaled that of paddy, the major crop of the State.

The spice cultivation in Kerala is concentrated on the high range areas of the erstwhile princely state of Travancore forming the southern part of the present day Kerala. The Travancore part comprises an area of 7,662 square miles and is endowed with favorable agro-climatic conditions most suited for the growth of a variety of crops. On the basis of physical feature, Travancore may be classified into three divisions, via, the low land division bordering the Arabian Sea in the West, the Mid Land division and the High Land division touching the Western Ghats in the East. The Low Land division has roughly an area of 1371 square miles consisting of flat alluvial and sandy tracts along the seacoast. A line of backwaters runs through this region from North to South. The Midland Land Division lies east of the Low Land Division and has an area of about 2700-sqare miles Low hill and hillocks of varying sizes and heights from the topography of the Mid Land Region. The High Land

Division comprises the Eastern tracts, mainly of dense forest with a total area of about 3500-sqare miles.[7]

The favorable topographical and climatic conditions were the incentives that paved the way to the concentration of Spice Crops on the Midland and High Range areas of the State. The availability of cheap labour, both skilled and unskilled, especially belonging to lower income groups was yet another compelling force for local people to start Spice Plantations. The Travancore Government has also adopted certain measures for creating conditions favorable to their development. The Governmental measures were:

- Land policy of the 1865 granting full ownership rights to the holder of Government Pattom land,
- Land proclamation of 1867 giving security of tenure of Janmom lands;
- Encouragements and tax concessions given for starting Plantation Crops
- Construction of roads to connect hilly tracts with trading centers;
- Encouragement for reclamation activities; and
- Expansion of irrigation facilities.

In Kerala three kinds of crops are cultivated, namely, Seasonal Crops maturing within six months, Annual Crops giving yield within twelve months

[7] Cameron J, Report of the village of Chevayur-1866, (Calicut - Malabar Government Press 1968)

and Perennial Crops extending for more than three years. The Perennial Crops may be further sub divided into two types namely, Garden Land Crops (Coconut, Arecanut, Pepper, Cashew etc) and Plantation and Spice Crops (Rubber, Cardamom, Coffee, Tea etc.). Now-a-days most of the industries in India require large quantities of agricultural products from the plantation sector as raw material and this leads to the importance of plantations in the industrial sphere.

Kerala exports a variety of spices. For Kerala, therefore, the implications of India's entry into the World Trade Organisation (WTO) in 1995 as a signatory to the World Trade Agreement (WTA), is of particular significance. The implementation of the provisions of the Agreement on Agriculture (AoA) coincided with a price crash of serious proportions in Kerala's cash crop economy. The brunt of this was borne by the small and marginal farmers who constitute the major segment of the State's agricultural producers. To help them manage the crisis and respond to the pressures on the State's agricultural trade arising from the new global trade regime, the government of Kerala set up a Commission[8] on WTO Concerns. The Commission carried out a wide-ranging consultative process involving agricultural experts, representatives from many commodity boards,

[8] The A.K. Antony government in Kerala set up the Commission on WTO Concerns in Agriculture in July 2001 under eminent agricultural scientist M.S. Swaminathan. K.N. Shyamsundaran Nair, former Vice-Chancellor of the Kerala Agricultural University was its Vice-Chairman.

representatives of the State government departments and agencies concerned, *kisan* organisations, representatives of political parties and the media, and others. Task forces were set up under the Commission to look into the economy of specific crops.

The Commission, in its five formal sittings, made several interim recommendations. They are given in Appendix 3. The Commission has made 19 Kerala-specific recommendations. As they are wide-ranging and multi-sectoral in their sweep, the implementation of these recommendations would require a high-level, yet fully representative, coordination body that must function, in the words of the Report, "like a symphony orchestra". The Commission has therefore recommended the constitution of a Standing Committee on Agricultural Trade, which is to be chaired by the Chief Minister, with the Minister for Agriculture as the co-chair. The Committee must represent the principal stakeholders within agricultural trade. It must coordinate programmes, provide policy direction, monitor trade, initiate pro-active action, promote trade and Intellectual Property Rights (IPR) literacy, and generate ideas and action to promote agricultural trade.

As a response to the extreme distress faced by plantation labour owing to the crisis in the plantation economy, the Commission, in one of its first interim recommendations, asked the Government of India to initiate a "Food for Wage and Employment Stabilisation in Plantation Crops Programme"

under the Sampoorn Gramin Rozgar Yojana. The Kerala government acted on this recommendation. The Commission has proposed that a range of domestic support measures be created to offer income support to small and marginal farmers. They are given in Appendix 4.

Writing 60 years ago, E.M.S. Namboodiripad – former Chief Minister of Kerala - had this to say in an essay entitled "From Militarist to Colonial Economy": "It is thus clear that agriculture in Kerala is directed towards the production of cash crops to be sold in the world market and that only the barest minimum of goods are produced for the purpose of local consumption. Every peasant is today dependent on the condition of the world market in a two-fold way: he has to buy commodities produced abroad; he has to sell his own produce abroad."

Although the economy and society of Kerala have seen radical transformation since then, EMS' observations on the predicament of the peasantry appears almost prescient. If the peasant's dependence on the world market during colonial times was dictated by the requirements of British colonialism, the Kerala peasantry is today caught in a modern-day global trade regime that is unfavourably weighed against it. The impact of this has been particularly hard on producers in Kerala and it will perhaps require a

nationalist movement of a different kind to set right the iniquities of the new global trade regime.[9]

Spices industry is an agro- based industry. But rapid strides could not be made on this industrial front of Kerala. Almost all economic experts and economic planners have emphasized the inter-relationship between agriculture and industry. Among the various states in India, Kerala is fortunate in growing a variety of spices and a review of their development and progress and their contribution to the state and national economy seems not out of place.

ROLE OF THE SPICES BOARD AND THE ERSTWHILE CARDAMOM BOARD IN THE DEVELOPMENT OF THE CARDAMOM INDUSTRY

Cardamom, the second important Spice Crop in Kerala was under the Cardamom Act, 1965 and Rules 1966 and now it is included under Spices, which comes under the Spices Board Act, 1986, and Rules 1987. So it needs clarification on the constitution, working, powers and functions and the schemes extended to Cardamom growers in the past and the present and the developmental activities of both Cardamom Board and the Spices Board.

The Cardamom Act, 1965 which extents to the whole of India came into force in that year. It is an Act to provide for the development (under the

[9] Guidelines for Trade Bargain -PARVATHI MENON, Volume 20, February 14, 2003 – Frontline (The Hindu).

control of the Union Government) of the Cardamom industry. A Board called Cardamom Board was established under section 4 of the said Act.

As per this Act, Cardamom means the fruit of Cardamom Plant and includes Green Cardamom, Bleached Cardamom, Bleachable White Cardamom, Sun-dried Cardamom, Cardamom Seeds, Powdered Cardamom and Oil extracted from Cardamom and the Cardamom Plant - Elettaria Cardamomum Maton.

CONSTITUTION OF THE CARDAMOM BOARD

The cardamom Board was constituted by the Central Government and consisted of:

A Chairman

The Director of Cardamom Development (Ex-Officio)

Three Members of Parliament of whom Two shall be elected by the House of People and One by the Council of States.

Three members to represent respectively the Ministries of the Central Government dealing with:

Commerce

Agriculture; and

Finance

Such members of other members not exceeding 15 as the central Government may think expedient, to be appointed by that Government by notification in the Official Gazette from among persons who are in its opinion capable of representing –

The Government of the Principal Cardamom growing States

The Cardamom growing interests

The Cardamom trade Interest

The Interest of labour

The Consumer; and

Such other persons or class of persons, in the opinion of the Central Government, ought to be represented on the Board.

1. The Board shall consist of a Chairman, the members specified in clauses (b), (c) and (d) of sub section 3 of Section 4 and 15 other Members representing other members specified in sub rule (2)

2. Of the aforesaid fifteen members:

Three Members shall represent the principal Cardamom growing States, One representing each of the States of Kerala, Tamil Nadu and Karnataka to be appointed in consultation with the respective State Government

Six Members shall represent the Cardamom growing interests in the Principal Cardamom growing States of Kerala, Tamil Nadu and Karnataka; Of these Six, 1 not less than Three shall represent the Registered Owners owning land planted with Cardamom plants the area of which is less than 20 acres whether such land is comprised in one State or more.

Two Members shall represent the Cardamom Trade Interest of which one at least shall be from the State of Maharashtra

Two Members shall represent the Interest of Labour

One Members shall represent the Consumers; and

One Member shall represent such other persons or class of persons in the opinion of the Central Government, ought to be represented on the Board.

The Board has the power to elect a Vice- Chairman.

FUNCTIONS OF THE BOARD

The Cardamom Board came into existence in April 1966, by an enactment of the Parliament via the Cardamom Act, 1965. It shall be the duty of the Board to promote, by such measures as it thinks fit the development under the control of the Central government of the Cardamom Industry. The following are the functions of the Board:

- Promoting co-operative efforts among growers of Cardamom

- Ensuring remunerative returns to growers of Cardamom
- Financial or Other assistance for improved methods of cultivation and processing of Cardamom, for Replanting Cardamom and for extension of Cardamom growing areas
- Regulating the Sale and Export of Cardamom and stabilization of prices of Cardamom
- Training in Cardamom testing and fixing grade standards of Cardamom
- Increasing the consumption in India and elsewhere of Cardamom and carrying propaganda for that purposes
- Registering and Licensing of Brokers (including Auctioneers) of Cardamom and persons engaged in the business of Cardamom
- Improving the Marketing of Cardamom in India and elsewhere
- Collecting Statistics from Growers, Dealers and such other as may be prescribed on any matter relating to the Cardamom industry the publishing of statistics so collected or portions there of or extracts there from;
- Securing better working conditions and the provisions and improvement of amenities and incentives for workers;
- Undertaking, assessing or encouraging scientific, technological and economic research; and
- Such other matter as may be prescribed.

Registration of estates:

Every Owner of land planted with Cardamom Plants, whether such land is comprised in one Estate or more than one Estate shall before the expiration of one month from the date on which he first became owner of such estate or estates or before the expiration of three months from the date of coming into force of this Section, whichever is later, apply to the Registering Officer appointed in this behalf by the State Government to be registered as an owner in respect of each Estate owned by him.

Taking into consideration the importance of Cardamom and other spices in the domestic as well as overseas markets, the Government of India decided to constitute a comprehensive organisation encompassing all the spices. Moreover the government wanted direct control over the development of spices sector. The SEPC (Spices Export Promotion Council) was functioning in the lines of an autonomous council working on grants from the government and it had many limitations inherent to a council form of organisation. Export promotion is not simply trade promotion in overseas markets. It starts from the farm gate itself. The SEPC had no control over farming and processing activities. So the situation called for a single organisation which could promote scientific farming and trade promotion activities. So the Spices Board was constituted.

The Cardamom Act 1965 and Rules 1966 were replaced by another Act called the Spices Board Act, 1986. It is an Act to provide for the constitution of a Board for the development of Export of Spices and for the control of Cardamom industry including the control of cultivation of Cardamom and matters connected there with. This Act came into force from 26th February 1984. All the properties, assets, debts and other obligations of the *Cardamom Board* and the *Spices Export Promotion Council* shall vest with the Spices Board.

The Head Office of the Board is located at Cochin. Board has Regional Offices Zonal Offices and Field Offices. A central Quality Evaluation Laboratory (QEL) is located at the Head Office. A Biotechnology Lab also functions at the Head Office. Indian Cardamom Research Institute the research wing of the Spices Board has its main station at Myladumpara (Idukki, Kerala) with Regional Stations located at Thadiankudissai (Tamil Nadu) Saklespur (Karnataka) and Gangtok (Sikkim).

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According to the provisions of the Act, Spices means Spices specified in the Schedule [Section 2 (n)]. The fifty two spices covered by the schedule are given in Appendix 5.

Provided that the Central Government may, if satisfied that it is necessary or expedient in the public interest so to do, by notification in the Official Gazette, add any other spices to the schedule of omit any Spice there from.

CONSTITUTION OF THE BOARD

1. The Central Government shall, by notification in the Official gazette constitute, for purpose of this Act, a Board to be called the Spices Board

2. The Board shall be a body corporate having perpetual succession and a common seal with power to contract and sue and be sued.

3. The Board shall consist of such number of members, not exceeding thirty two, and it shall consist of the following members, namely:

A Chairman;

Three Members of Parliament, of whom two shall be elected by the House of the People and one by the Council of States;

Three Members to represent respectively the Ministries of the Central Government dealing with:

Commerce; Agriculture; and Finance'

Six Members to represent the growers of Spices;

Eleven Members to represent the exporters of Spices;

Three Members to represent major Spice producing States;

Five Members, one each to represent;

i. The Director of Cocoa, Areca nut and Spices Development, Calicut;

ii. The Indian Institute of Packaging, Bombay;

iii. The Central Food Technological Research Institute, Mysore

iv. The Regional Research Laboratory, Thiruvanthapuram; and

v. The Central Plantation Crops Research Institute, Kasaragode.

The Board may appoint the Secretary and such other Officers and Employees, as it considers necessary for the efficient discharge of its function under this Act.

FUNCTIONS OF THE BOARD

1. The Board may:

- Develop, Promote and Regulate Export of Spices;
- Grant Certificate for Export of Spices and Register Brokers therefore;
- Undertake programmes and Projects for Promotion of Export of Spices;
- Assist and encourage Studies and Research for improvement of processing, quality, techniques of grading and packaging of spices;
- Strive towards stabilization of prices of Spices for Export;
- Evolve suitable quality standards and introduce certification of quality through "Quality Marking" of Spices for Export;
- Control quality of Spices for Export
- Give Licenses, subject to such terms and conditions as may be prescribed, to the manufacturers of Spices for Export;

- Market any Spice, if it considers necessary, in the interest of promotion of Export;
- Provide Warehousing facilities abroad for Spices;
- Collect Statistics with regard to Spices for compilation and publication;
- Import, with the previous approval of the Central Government, any Spices for Sale; and
- Advise the Central Government on matters relating to Import and Export of Spices.

2. The Board may also:

i. Promote Co-operative efforts among growers of Cardamom;

ii. Ensure remunerative returns to growers of Cardamom

iii. Provide financial or other assistance for improved methods of cultivation and processing of Cardamom, for replanting cardamom and for extension of Cardamom growing areas

iv. Regulate the Sale of Cardamom and Stabilisation of prices of Cardamom;

v. Provide Training in Cardamom testing and fixing grade standards of Cardamom

vi. Increase the consumption of Cardamom and carry on propaganda for that purpose

vii. Register and License Brokers (including Auctioneers) of Cardamom and persons engaged in the business of Cardamom;

viii. Improve the Marketing of Cardamom;

ix. Collect Statistics from Growers, Dealers and such other persons as may be prescribed on any matter relating to the Cardamom Industry publish Statistics so collected or portions thereof or extracts there from.

Secure better working conditions and the provision and improvement of amenities and incentives for workers; and undertake, assist or encourage scientific, technological and economic Research.

PRODUCTIVITY IMPROVEMENT

Scheme for Production and Supply of Planting Materials:

The scheme aims at production and distribution of quality planting materials of cardamom through departmental nurseries and certified nurseries in farmers' field to enable the growers to use them for replanting and gap filling. The different components of the scheme are:

i) Departmental Nurseries:

There are 2 departmental nurseries in Kerala and 5 in Karnataka. Cardamom, planting materials of pepper, vanilla and shade trees are produced here. Planting materials are sold at no profit a loss basis.

Registered growers can collect planting materials on payment of the price fixed every year.

ii) Certified nurseries in growers' field:

Farmers are encouraged to produce planting materials in their own certified field nurseries.

Planting materials produced here are for their own use/ distribution for nearby farmers.

Grant-in-aid

@ Rs. 5, 000/- per bed nursery producing 10, 000 seedlings.

@ Rs. 7, 500/- for poly bag nursery producing 10,000 seedlings

@ Rs. 10, 000 for sucker nursery producing 10, 000 suckers towards 14 per cent, 21 per cent and 10 per cent of the cost of production, respectively, will be paid to eligible growers.

Grant-in-aid released will be proportional to the surviving seedlings/suckers at each stage when payment is made.

Approval from the Board is necessary for cardamom growers interested in setting up certified nurseries.

Agreement should be executed after approval.

The applicants must be trained in nursery operations

Should source seed materials from approved sources and supply 50 Per cent of the seedlings/suckers to other needy growers at rates fixed by the Board.

Field Officers of the Board, based on applications received and eligibility will make selection of growers.

Cardamom Replanting Scheme:

The objective of this scheme is to promote re plantation of old, senile and uneconomic plantations using quality-planting materials.

Eligibility- Small and marginal registered growers owning up to four hectares can apply.

Subsidy- Rs. 9, 000/- per hectare, payable in two annual installments of Rs. 6, 000/- and Rs. 3, 000/-.

Application in the prescribed format should be submitted before planting season.

Applicants should provide copy of survey plan and proof of ownership.

Field Officer will issue re-plantation permit after inspection.

Technical feasibility certificate will be provided to those who wish to avail institutional finance.

Eligible subsidy will be released on completion of replanting, after field inspection.

Minimum area to be replanted is 0.10 hectares.

Subsidy will be paid only in case of where minimum survival rate of 85 per cent in the first year and 95 per cent in the second year.

Irrigation and Land Development Programme:

Under this scheme the Board provides assistance in construction of water storage devices, installation of irrigation equipments, soil conservation and forestation.

Eligibility- Small and marginal registered growers owning up to 8 hectares are eligible.

Subsidy varies from 25-50 per cent depending on type of growers and the component of the programme subject to ceiling of NABARD (National Bank for Agriculture and Rural Development) norms

Scheme is implemented by the Board with financial support from Govt. of Kerala, Karnataka and Tamil Nadu under Western Ghat Development Programme.

Applications should be submitted to the Field Officer.

Applicants should also submit plans and estimates certified by a qualified engineer not below the rank of Asst. Engineer of PWD/minor irrigation

department /Zilla Parishad or an engineer appointed for the purpose by the Board.

Beneficiaries can begin construction/purchase of equipment on obtaining permission.

After completion of the aforesaid work applicants should inform the matter to Field Officer and eligible subsidy will be granted based on field inspection.

CARDAMOM (Large)

Planting material production through nursery:

This scheme is intended to produce quality suckers in the growers' field for taking up re plantation /gap filling in their plantations.

Eligibility: Farmers with land up to 4 hectares are eligible.

Subsidy: Rs. 10, 000/- will be provided to the nursery producing 10, 000 suckers, payable in two annual installments of Rs. 5, 000/- each.

Requirements: Growers should seek approval of the Board. Execute an agreement and be trained in nursery operations and supply 50 per cent of the suckers to needy growers at rates fixed by the Board.

Replanting Scheme:

Objective of this scheme is to motivate growers to take up re plantation of old, senile and uneconomic plantations.

Eligibility: Same as above

Subsidy: Rs.6, 000/- per hectare, payable in 2 annual installments of Rs. 3, 500/- and Rs. 2,500/- during first and second year of planning, respectively.

Applicants should conform to the stipulations of the Board.

Minimum area to be replanted is 0.10 hectare in a contiguous block.

Subsidy will be paid in cases where minimum survival rate of 85 per cent in the first year and 95 per cent in the second year is observed.

Supply of Sprinkler Irrigation Units:

This programme is implemented for growers owning up to 4 hectares.

Subsidy of 50 per cent of the cost of the sprinkler unit will be provided, subject to a maximum of Rs. 2, 000/- per set.

Interested growers should apply in the prescribed pro forma with necessary invoice obtained from authorized dealers of sprinkler set.

Permission will be issued after feasibility assessment.

Low Cost Driers:

Envisages - popularizing the curing system devised by the Board.

Board provides a subsidy of Rs. 10, 000/- per drier.

Small growers owning up to 4 hectares are eligible to avail this scheme.

Construction can be begun after the approval of the Board and the grant-in-aid will be disbursed after inspection.

Processing/ Powdering Units:

This is meant to modernize processing methods

The Board provides assistance to growers to set up their own processing/ powdering/packaging units.

Assistance to the tune of 50 per cent of the cost subject to a maximum of Rs.50,000/- per unit having combined units of processing, powdering and packaging

Construction can be begun after the approval of the Board and the grant-in-aid will be disbursed after inspection.

DEVELOPMENT OF EXOTIC AND HIGH VALUE SPICES

Vanilla Development:

Farmers owning land up to 4 hectares will be provided with planting material in subsidized rates.

Vanilla rooted cuttings/ tissue culture plantlets can be got from Board offices/ departmental nurseries and also through NGO's.

Subsidy @ Rs. 5/- is given per planting material. The Board will decide the rates every year.

Applications are to be submitted at the concerned offices when called for.

Vanilla Curing Units:

Subsidy @ 25 per cent subject to a maximum of Rs. 2, 500/- per unit will be given to small and marginal farmers to set up on farm curing unit.

Permission will be issued after the scrutiny of the application and subsidy will be released on satisfactory completion of the unit.

Development of Herbal Spices:

Development of herbal spices like Rosemary, Thyme, Parsley and Oregano are mooted through this scheme.

Certain areas in Tamil Nadu and the North East along with some hilly areas are identified to be suitable for its cultivation.

Subsidy @ Rs. 20, 000/- per hectare will be given towards 40 per cent of the cost of planting materials to small and marginal growers owning up to 4 hectares of land.

Scheme will be implemented with the assistance of the State governments and NGO's.

Development of Saffron:

Scheme intended to give financial support to State Agricultural Universities/Institutions to continue research (including biotechnology) and to generate quality-planting material (corns).

Implemented in Jammu & Kashmir and Himachal Pradesh:

Planting materials will be used for area expansion by providing assistance to the tune of 25 per cent of the cost subject to a maximum of Rs. 1.5 Lakhs per hectare.

Promoting Cultivation of Paprika for Export:

Aims to promote paprika cultivation in Andhra Pradesh, Karnataka and Tamil Nadu:

50 per cent of the cost of the hybrid seed materials imported from Spain, South Africa, Zimbabwe and Hungary will be subsidized, subject to a maximum of Rs. 7,500/- per hectare.

Chilli exporters with buy back arrangement will import the paprika seeds from the aforementioned countries and supply it to growers taking up contract farming.

Clearance after technical feasibility test and subsidy will be released on satisfactory completion of the project.

EXTENSION ADVISORY SERVICE

This scheme envisages technical/extension support to growers on the scientific aspects of cultivation through personal contact, field visits and group meetings and spreading awareness among farmers of Kerala, Karnataka and Tamil Nadu through literature in vernacular for increasing cardamom productivity. The scheme is also meant for spreading awareness among farmers of Sikkim and West Bengal through literature in vernacular for increasing cardamom productivity.

Spreading awareness among farmers of Kerala, Karnataka, Andhra Pradesh and Tamil Nadu through literature in vernacular for development of vanilla is also intended.

Also development of selected spices in the North East is mooted.

Post harvest improvement of spices like pepper, chilly, ginger, turmeric, cumin, coriander, fenugreek and fennel, which have export potential.

Promoting organic farming in spices of major growing areas including North Eastern states are also components of this scheme.

Production related programmes like replanting, irrigation, planting material production are provided.

Post harvest programmes like supply of polythene sheets/bamboo mats, construction of dying yards, supply of pepper threshers are done.

Post harvest-training programmes, development of high value spice crops like vanilla, saffron and paprika, promotion of organic farming and IPM in spices is undertaken.

Development of spices in NE region is also implemented through the extension network of Spices Board.

EXPORT ORIENTED PRODUCTION AND POST HARVEST IMPROVEMENT OF SPICES

The 10^{th} Plan (2002-03 to 2006-07) programmes are aimed at:

Improving productivity in cardamom (small & large)

Area expansion of vanilla.

Post harvest improvement of spices with export potential.

Development of organic spices and programmes aimed at creating replicable models of development of exotic and some high value spices.

Development of production models based on IPM is also implemented.

Development programmes for spices with high export are implemented in the North Eastern States.

However, the main mandate of Spices Board is to develop measures to improve the cultivation of Cardamom and trade promotion of all the fifty two spices under its purview.

The Indian Cardamom Research Institute (ICRI), Myladumpara, Idukki District, Kerala, is the research wing of the Spices Board. It has regional offices in Tamilnadu, Karnataka and Sikkim. ICRI under the Spices Board is mainly engaged in Research and Development with regard to Cardamom cultivation activities.

The ICRI is disseminating valuable information through its publications and official broadcasts. Information regarding healthy cultivation practices and preparation of bio-fertilisers were relayed frequently. A demonstrative programme was relayed recently.[10]

Agriculture is one of the main economic activities of Kerala State. It accounts for about 45 per cent of the State's income and 46 per cent of the total employment. Kerala is the leader in the production of various Spices Crops in India. Cardamom, Pepper, Ginger, Turmeric, Clove, Nutmeg, and Cinnamon are the major Spice Crops grown in the State. Other Spices like Kokum, Curry Leaf, Mint, Vanilla; Chillies etc are also grown on a small scale.

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[10] Relay on 10th October 2006 in 'Krishi Darsan' programme of Doordarsan Malayalam channel.

The physical configuration of the State is diversified for the successful cultivation of various crops including Spices. From the Western Ghats, the land undulates to the west presenting a series of hills and valleys intersected by numerous rivers and streams. The western portion of the state lying near the Arabian Sea is more or less level or plain. A number of Lakes and Back Waters adorn this narrow coastal belt. These diverse characteristics of the land and consequent changes in plant growth demarcate the state into three distinct regions via, the Highland, Midland and Lowland (Coastal region).

The Highland is best suited for the cultivation of crops like Cardamom. The Highland covers an area of 18563 Sq. km. The Midland is famous for its diverse Crops. While Rice is grown in valleys, Coconut, Arecanut, Rubber, Pepper, Cloves, Nut Meg, Cinnamon, Tapioca etc are grown in the slopes of the Hills. The Midland comprises an area of 16231 sq.km. The Coconut and Paddy monopolize the Lowland, which covers an area of 3979 sq.km.

The State is blessed with a salubrious climatic condition which is of tropical forests with abundant rainfall, warm, humid atmosphere and fairly uniform temperature through out the year, which is ideal for the cultivation of spices. A short description of important Spices cultivated in Kerala is given here.

PEPPER

It is the dried matured berry of "Piper Nigrum" a perennial climbing vine. In addition to India, other major Pepper producing countries are Malaysia, Indonesia and Brazil. India has the highest area under cultivation with about 1.23 lakh hectares, which is nearly 50 per cent of the total area in the world. About 190 percent of the total area under Pepper in India is confined to Kerala. The native home of Pepper is Western Ghats and the cultivation of the same has started in the state from time immemorial. But lit is paradoxical to note that the average yield of pepper in Kerala stands as the lowest when compared with other Pepper producing countries, which started the cultivation only few centuries back. The Indian Black Pepper is considered to be superior in quality when compared to those produced in other countries and consequently it fetches a higher price in the internal market. The most important varieties cultivated in the State are the following:

Panniyur I, Karimunda, Kalluvally, Kottanadan and Narayakkody and other popular varieties are Balankotta, uthirankotta, Kaniyakdan, Kuthiravalley, Arakulam, Munda etc

Pepper is grown from sea level to an altitude of 1200 Metres. It requires a warm and humid climate. The plan tolerates a minimum temperature of 10° C and maximum of 40° C, the optimum being $20\text{-}30^{0}$ C.

It requires plant protection and shade regulation. It is affected by Quick Wilt (Foot rot), Slow Wilt and Pollu (inflammation) are the common diseases. The Pepper Vines begin to bear after three years of planting. Pepper berries become mature and ready for harvest in about 180 to 200 days depending upon the variety. In the plains the harvesting season is from November to January and at high altitudes from January to March. Spikes are ready for harvest when a few berries turn bright orange or red. The spikes are plucked from the vines and the berries are separated. The berries are sun dried on clean a cement floor or bamboo mats for 3 to 5 days. The dried berries are ready for marketing

The cost of cultivation of pepper has been worked out from the details such as leveling, clearing the plot, cost of dad ups cuttings as standard, planting dad ups, cost of pepper rooted cuttings, pits, planting the cutting, cost of coconut fronds for covering the cuttings, weeding, mulching Bordeaux mixture spraying, cost of cattle manure, compost and cost of other inputs.

The growers are selling their produce directly to the local traders after proper drying on cash payment. Local dealers are procuring ungarbled Pepper on 10 to 15 per cent profit from the growers on the prices prevailing in the Cochin market or other major pepper market. They get the prices as per newspaper or radio.

The middlemen traders are charging sales commission, packing loading charges and transportation charges. Exporters are procuring pepper from the dealers through their agencies on daily clearance basis. USA, Canada, UK, East European countries, Africa, Middle East and Far east are the countries to which pepper is exported The exportable varieties for grading are Tellicherry Garbled Special Extra bold(TGSEB), Tellicherry Garbled (TGEB), Tellicherry Garbled (TG), Malabar Garbled (MG),Malabar ungrabled (MUG), Garbled Light (GL) and Pin heads (PH)

GINGER

Ginger is cultivated in almost all the States in India, but Kerala stands foremost accounting for about 50 per cent of the country's total production. The major Ginger producing Districts in Kerala are Wynad, Kottayam, Ernakulam, Kozhikode and Idukki.

The varieties of Ginger cultivated in Kerala are Maran, Nadia, Wayanad local, Wayanad, Mananthody, Ernad, Thodupuzha, Kuruppanpady and an improved variety of Ginger is also introduced by NRCS, Calicut.

It grows well in warm and humid climatic condition up to an altitude of 1500 M. Ginger thrives well in a wide range of soil with good drainage like sandy or clay loam, red loam or lateritic loam soils.

The planting season is in April to May and it cultivated as a rain-fed crop in Kerala. Rhizomes are used as planting material. The major pest and diseases reported are Shoot Borer, Rhizome flies, Leaf Roller; Scales, Soft Rot, Bacterial wilt and Leaf Spot.

Depending upon the intensity of weed growth, one to three rounds of weeding are done and proper mulching is also done three times. The crops most commonly rotated with Ginger are Tapioca, Chilli and Paddy.

The components of cost of cultivation are site clearing, digging, bed formation, cost of seed, opening small pits and planting, cost of farmyard, manure, cost of fertilizer, cost of mulch materials, plant protection chemicals, earthling up and weeding, removing outer skin and other miscellaneous expenses.

The main assembling centers are Cochin, Calicut, Tellicherry, Alleppey, Ponkunnam, Palai, Thodupuzha, Adoor, Muvattupuzha, Peramba, Kattapana, Nedumkandam, Adimali, Kothamangalam, and Perumbavoor.

Growers are selling their produce directly to the local traders as against cash payment. Local dealers are procuring the Ginger on 10 to 20 per cent profit from the growers. The price prevailing in the Cochin market is taken into account for fixing the procuring price. The middlemen or local dealers are charging sales commission, packing loading charges and transportation charges while selling Ginger in the market.

The main export marketing center is Cochin land a few exporters are also doing export from Calicut, Alleppey and Kottayam. After procuring the UN graded dry Ginger from the dealers or through their agencies, they are graded and exported to foreign countries such as USA, UK, USSR, Canada, and West Germany.

The price is determined by exporters depending upon the demand in the International market and supply at the production centers.

TURMERIC

Turmeric is an important spice used in culinary preparations. It is also used for dyeing in Silk, Wool, Cotton and Carpet Industry. Cosmetic industry and pharmaceutical industry use it for external application as an ointment. Turmeric contains about 6 to 7 per cent Oleoresin of which 35 per cent is Curcumin. India is the largest producer in the world. More than 35 per cent of the production in India is from Andhra Pradesh. Kerala, Maharashtra, Tamil Nadu and Orissa also grow turmeric.

Turmeric is mainly propagated vegetatively through rhizomes, both finger and mother rhizomes are used as planting materials. The rhizomes are planted during April may on receipt of pre monsoon showers The following varieties are cultivated by the growers viz, Tekkurpatta, Sugantham Alleppeyand Muvattupuzha. Sugantham is the commonly grown variety. Cochin, Calicut, Alleppey, Tellicherry, Muvattupuzha, Kalpetta, Baliapattam,

Thodupuzha, Wayanad, Kunnamkulam, Koduvalli, Kattappana, Kodaancherry, Badagara and Taliparamba are the important assembling centers. The terminal markets include Cochin, Calicut, Alleppey, and Tellicherry. Cochin Port handles maximum quantity for export.

Growers sell their produce directly to the middlemen against cash payment. The growers know the present market prices through daily newspapers and radio broadcasting.

CLOVE

Clove is mainly grown as mixed crop in Coconut, Arecanut and Nut Meg plantations. It is also grown as a pure crop mainly in the districts of Kottayam, Quilon (Kollam) and Thiruvananthapuram. Clove is strictly a tropical plant and hence, it requires a Warm climate. Humid atmospheric conditions and an annual rainfall of 150 to 250 Cm are the ideal requirements of this crop. Deep rich loamy soil with high humus content is best suited for clove cultivation. It grows well in the elevations ranging from sea level up to an altitude of 800 to 900 Meters. Clove is propagated through seed. Usually the seeds are available for sowing from August to October. One to Two years old seedlings are used for planting. The source of seedlings is mainly from the State Government Agricultural Farms. Private nurseries also exist in Trichur, Kuravilangad in Kottayam District and Achan kovil area in Quilon District. It is reported that no regular manuring; is practiced in Kerala for this

crop. The attack of pests such as Termites, Ants, Tree Spiders, Scale insects and Borers is reported . Diseases such as Leaf Spot, Twig Blight, and Flower Bud Shedding are also reported.

Clove tree begins to yield from the 7^{th} or 8^{th} year onwards after planting. The full bearing state is attained after 15 years. After processing the Clove, the growers sell their produce to the local dealers or brokers. It is reported that the brokers come and collect the produce from the growers against cash payment. As the growers are not aware of the market prices, the price is determined on the basis of market reports in some daily newspapers. More than 60 per cent of the produce goes to Nagarcoil Clove market and from there it is dispatched to the various markets like Madras, Bombay, Kanpur, Calcutta and Delhi.

Clove is very aromatic and imparts warming qualities. In Kerala, it is used as a culinary spice as the flavour blends well with both sweet and savoury dishes, it is highly valued in medicine as a carminative, aromatic and stimulant.

NUTMEG

Nutmeg tree is a Spice plant that produces two separate and distinct products-the Nutmeg, which is the kernel of the seed and the Mace, which is the dried covering around the seed. It is a spreading evergreen tree with male and female flowers on different trees. The crop is not grown on a large scale

and its cultivation is confined to homesteads only. This crop is not grown on a large scale and its cultivation is confined to homesteads. This crop is usually propagated through seeds. Large sized and fully matured seeds are used for sowing purposes. Seedlings are transplanted into the field when they attain an age of 18 months. Young plants are provided with shade and irrigation is done periodically. As this is grown as mixed crop along with other midland crops, no systematic cultivation operations are carried out. Hence, the maintenance expenditure is practically nil or negligible except the amount spent on harvesting and processing.

Nutmeg is used for flavoring sweet dishes, puddings, vegetable dishes and beverages. It is an ingredient of many readily prepared and ground spice-mixtures. It has many uses in the Indian medicines. The mace is used to flavour Cakes, Biscuits, Sauces, Pickles, Meat and Fish dishes. The growers sell the Nutmeg seed and Mace to the nearest dealers against cash payment. Kottayam, Kalady, Angamaly, Trichur and Calicut are the main assembling centers and terminal market is Cochin. A major quantity goes to Nagarcoil and from there it is dispatched to the upcountry markets.

CINNAMON

Cinnamon is one of the oldest known Spices. It is a hardy plant, which is grown in all types of soils under wide range of climatic conditions. The tree attains a height of about 10 to 15 'Meters, but in cultivation it is coppiced

regularly maintaining a height of about 6ft. It is also grown along with other crops. The only plantation where it is grown as a pure crop is Ancharakandy in Cannanore (Kannoor) District of Kerala, where around 250 acres are planted with Cinnamon. Though the plant yields barks as well as oil from leaves, the growers are mainly interested in the extraction of oil from leaves on account of better prices obtained from Cinnamon oil.

Cinnamon is a plant, which can tolerate a wide range of soil and climatic conditions. The quality of the bark is also highly influenced by the soil and ecological factors. It grows well from sea level up to an elevation of about 1000 M. Annual rainfall of 200 to 250 cm are considered to be good for the crop.

Cinnamon is propagated through seed, which is the most widely adopted method, it is also be propagated by painting cuttings and layers .Normally planting is done by the growers in October-November and irrigation is also provided during the first year . One and two years old seedlings are used for planting. The plants will be ready for harvest in about 3 years after transplanting depending upon the availability of peeler shoots.

When the plants a re two years old they are coppiced or cut back during June-July to a height of about 12 cm from ground level. The operation encourages the development of side shoots from the stump. Regular peeling

operations are commenced in the case of seedling bushes from the fourth or fifth year, depending upon; the extent of development of peeler shoots.

Harvesting is conducted during two seasons; the first season begins in May and the second starting in November. The appropriate time for cutting the shoots for peeling is determined with reference to the circulation of sap between the wood and the corky layer. The peelers judge the sap flow and the time for peeling by making a test cut on the stem with a sharp knife. If the bark separates readily the cutting commenced immediately, otherwise such shoots, which do not satisfy the test, are left for a future occasion .The peeling is a specialized operation peculiar to this industry which requires skill and considerable experience. The bark as it dries contracts and assumes the shape of a pipe otherwise known as quill. The quills are rolled by hand when they are soft and fresh. The rolling is dried on mats in shade. The drying takes 2 to5 days, depending upon the weather conditions and type of bark.

The commercial grades of cinnamon quill are Quilling, Featherings, Special Scrapped Chips, Ordinary scrapped chips and Unscrapped Chips. Cinnamon cultivation in Kerala is in neglected condition, since the growers are not getting remunerative prices for quills as well as oil. In Ancharakandy where the crop is cultivated on an extensive scale, oil from leaves is extracted in a factory attached to this plantation. This is the only factory in the state where oil is extracted on a commercial scale. The oil extracted is sold mainly

to Kottackkal Arya Vaidya Sala and the manufactures of Chandrika Soap. Since the quantity of Cinnamom bark produced is very much limited and its cultivation is scattered in a few districts there is no established marketing system. At present brokers or middlemen are collecting the barks from the growers directly on cash payment. The major assembling centers are Cochin, Calicut, Palghat and Kottayam.

VANILLA

Vanilla is a costly spice grown in the Jungle areas, it requires a warm climate with frequent rains preferring an annual rainfall of 150 –3000 cm. Vanilla requires a support, up to a height of 135 cms. Cuttings of Plumeria Alba (Chembagam) are used as support for creeper to climb. The growth of this support-standard is adjusted as to make them branch at a height of 120-1150 Cm to facilitate training of the vines around the branching shoots. Vanilla is propagated vegetatively. Longer rooted cuttings bear earlier than shorter ones. Vanilla is not at present grown an extensive scale except in a plantation of about 1.5 acres located in Vijaya Group Estate, Kumbalakaud in Waynad District.

Flowering starts from third year onwards. It is reported that self-pollination is impossible due to the peculiar structure of flowers. Hence, artificial pollination is done by the labourers .It is used for flavouring in Milk, Ice Creams, Tea and Coffee.

OTHER MINOR SPICES

Kerala also grows other spices like Chilli, Curry leaves, Kokam, Mint and All Spices on a limited scale. However, Chillies are grown on a large scale in North Kerala bordering Tamil Nadu and Karnataka where the rainfall is less. All the other spices are grown in kitchen garden for household purposes only.

CARDAMOM

Cardamom grows wild in the evergreen monsoon forests of Western Ghats in South India and Sri Lanka. Up to the year 1800 the world's whole supply came from these forests, where partial clearing of the forest around the wild plants alone was necessary for the plant's growth. Cardamom of commerce or 'true cardamom' is the dried fruits of a perennial herb, Elettaria Cardamomum Maton, which belongs to the Ginger family, Zingiberaceae. The plant is indigenous to South India, especially in the evergreen rain forests along the Western Ghats spread over Kerala, Karnataka and Tamil Nadu, at altitudes between 760 m and 1500 m. It is an expensive spice, the price of which is exceeded only by Saffron and Vanilla among Spices. It is also cultivated on a large scale in Sri Lanka and Guatemala'. The inferior grades are known as Amomum or Large Cardamom, which is of secondary importance. , Amomum Subulatum or the Large Cardamom is cultivated in

Sikkim, West Bengal and Assam in the Himalayan and sub-Himalayan regions. Thus there are two types of Cardamom available in the market.

By the First Century A.D. Rome was importing substantial quantities of Cardamom from India. It was one of the most popular oriental Spices in the Roman Cuisine. Cardamom was listed among the India Spices liable to Duty in Alexandria in A.D.176.[11]

Ridley[12] affirms that there was some spice known to the Greeks and Romans as Cardamom and Amomum , but it appears to be certain that these spice plants were, whatever they were, not the Cardamom of the present day, although the name of this spice as we know it, is evidently taken from these words. Whatever the Greeks and Romans had, Europe has now ceased to ask for any Cardamom other than that of Elettaria, and the word Cardamom has passed into all the languages of Europe.

Cardamom is used for flavouring various food preparations, confectionary, beverages and liquors. It is also used for medicinal purpose, both in Allopathy and Ayurveda systems. In the Middle East countries, cardamom is mainly used for preparation of 'Gahwa' (cardamom flavoured coffee).

At present Guatemala is the highest producer of Cardamom in the World. Other nations are India, Tanzania, and Sri Lanka etc. More than 50 per

[11] Cardamom Board, Government of India, Cardamom Statistics 1984-85, p5
[12] Henry N Ridley, Spices, McMillan, London, 1912, p326.

cent of the Cardamom comes from Guatemala. India is placed in the second position, producing 41 per cent, and the rest is shared by Tanzania (5 per cent) and Sri Lanka (2 per cent) and others.[13]

Indian and Arabic writers knew this spice from very early times. The Indian writer Susrut (about Eighth Century) mentions it under the Sanskrit name, Ela which, with variants, is the prevailing name over India and Arabia, and it is mentioned in the list of Spices liable to duty at Alexandria in A.D. 176-180. It was mentioned by Edrisi as a product of Ceylon about A.D 1154, and was probably a trade Spice in Europe long before that, though there is no definite record of it. Marco Polo does not mention it in his travelogue. Barbosa, the Portuguese traveller, mentions it as a product of Malabar Coast in 1514. Linschoten refers to both the lesser and greater Cardamom as used in Southern India. Of the former he writes: "It is most grown in Calicut (present day Kozhikode) and Canannoore" (at present Kannoor) - places of the coast of Malabar. The greater Cardamom he refers to is doubtless the Nepal Cardamom.[14] The Indian varieties are found growing at an altitude of between 2500 ft and 5000 ft.

Cardamom plays a vital role in the agricultural and industrial sectors of India. During 1966 the Government of India set up a Cardamom Board to

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[13] Spices Statistics, 2004. Spices Board, Kochi, Kerala.

[14] Sivanandan P., Narayanan Nair K., Land , Hunger and Deforestation – A Case Study of the Cardamom Hills in Kerala, CDS, Trivandrum, Oct. 1985, Working Paper No. 212, p 3.

develop its cultivation. The production and productivity of Cardamom have gone up considerably during the last few years because of the efforts of the Cardamom Board. About 70 per cent of the annual output is exported.

In India Cardamom production extends over three States viz., Kerala, Karnataka and Tamil Nadu. Kerala accounts for 70 per cent of the production of Cardamom in the country.

The High Range Division of Travancore is believed to have been the original home of Cardamom, though subsequently the Spice has come to be grown luxuriantly in many other parts of the tropical world as well. Cardamom Hills, which constitute a major portion of the High Range Division, accounts for 85 per cent of the area and 80 per cent of the production of cardamom in Kerala.

The early commercial policy followed by the Travancore Monarchy was one of the reasons for the perpetuation of State Monopoly of Trade in almost all commodities of commercial importance including Cardamom.[15]

Until the first quarter of the 19th century, Government used to collect Cardamom for mercantile purposes from wild growth as well as from Ryots' Plantations. After the first geographical survey conducted by Lieutenants Ward and Corner (1817-1820), the Government initially appointed a

[15] Sivanandan P. et al op cit p5.

conservator of forests and then in 1823 created a special Cardamom Department. The product was gathered and transported to Aleppey where it was sorted, graded and eventually auctioned.[16] Aleppey (now renamed as Alappuzha) was one of the main trading centres for cardamom and other spices. Aleppey was popularly known as the 'Venice of the East.' Later it lost its importance to Cochin (now renamed as Kochi). At present most of the cardamom exports are through Kochi port.

As the trade prospects of this crop improved in course of time, the Government began to increase its control by deploying a detachment of its infantry (the Nayar Brigade) and posting large numbers of watchmen at various places in and around the Cardamom growing region to watch the Thavalams (camps in the Cardamom Hills where the harvested Cardamom was brought for drying and transportation purposes under State Monopoly) and the States frontiers, with a view to prevent smuggling of Cardamom and for effective supervision of the collection and the transportation of the produce to the marketing centers.[17] Even now the practice of appointing paid watchmen continues irrespective of size of the plantation. Small growers who cannot afford to appoint separate watchman individually appoint one or two

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[16] Nagam Iyya, Travancore State Manual, Vol. III, Asian Educational Service, 1989, p84.

[17] Heath Lowette, A Short History of the Peermedu, Vandiperiyar District (1972 Feb.) p21.

watchmen by forming groups among themselves. For this purpose farmers of adjacent estates combine together informally.

Since land revenue and tax on agricultural produce constituted in those days the most important source of income for the State, the Government Policy emphasized, the need for encouraging commercial cultivation of the most remunerative crops, which naturally included Cardamom. The various land revenue and allotment rules framed during the period between 1860 and 1925 were essentially meant to attract more people into the process of expansion of commercial agriculture.[18] Land suitable for cardamom cultivation was mostly vested with the Government under the Forest department. The then government followed a liberal policy of allotment of such lands for cardamom plantations. Therefore, Cardamom plantation grew up in the Western Ghat Region with land available at very liberal terms.

In order to sustain the production of Cardamom for the State's monopoly trade in the earlier phase, the Government also offered special grants of land for settlement purpose and financial help to Cardamom Growers.[19]

The system of cultivation of Cardamom in this region, on a plantation basis, was initiated by persons from Kerala- either the British (usually heirs of

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[18] Govt. of Travancore, Administrative Report of Travancore, ME 1047, p21.
[19] Heath Lowette and Mrs. Lowette, An Administrative Report of Travancore, p68.

colonial officials or missionaries) or cultivators from the Madurai District of Madras Presidency (mostly from Gudallur, Cumbum, Thevaram, Cambay and other neighbouring Tamil villages and small towns).[20] Among the growers, the European Planters and the Chetties (a special ethnic group of Hindus) of Tamil Nadu owned most of the area under the crop.

The Tamil growers recruited plantation workers from all over the Madurai District to perform the agricultural operations in the Cardamom Estates. Till now most of the workers in the cardamom plantations, who live in 'Padies' (sort of line buildings like military barracks) are of Tamil origin. The European Planters, on the other hand, kept gangs of coolies permanently in their estates to carry out various agricultural operations on a regular basis.[21]

The terms offered by the State for the procurement of Cardamom were, however, not favorable to the growers during the period of the Monopoly Trade. But the growers have to accept the price offered by the government. They were not free to dispose of their cardamom crop at a competitive price, as is done at present. Between 1823 and 1841, the Ryots (lease holders who cultivated cardamom on government lands) were given a Kudivila (Production Price) at the rate of Rs 8, 6 Annas (one Anna is equal to 1/16 of the then prevailing rupee) and 9 Paise per Thulam (one Thulam is worth 20

[20] Nagam Iyya, op cit, p3

[21] Nagam Iyya, op cit p85

English pounds) of dry Cardamom, and between 1841 and 1869, this rate was further reduced by 11 Annas per Thulam.[22] At that time the price so paid was considered to be reasonable and the farmers were content with what they received. This fact is ascertained by the absence of any agitations reported in this regard in the history of Travancore. Moreover, there was no need to incur indirect selling and marketing expenses like warehousing charges, commission and brokerage, as far as growers were concerned. Cardamom was directly procured by the State and auctions were conducted at Aleppey.

In 1870, a change was made in the system of payment. The Ryot's claim was calculated as a share of the average rate of auction price at Alleppey. Under the revised system the Ryots were also entitled to receive a loan or advance from the Superintendent of Cardamom Hills at the commencement of each season for weeding and harvesting operations. After the sale of their produce, they were entitled to a share (at the rate of 1/3 between 1870 and 1887 and 2/5 between 1887 and 1896 of the average price of each variety) of the market value of their produce less the loan amount and supervision charges and a further reduction of the total amount in lieu of ground rent.[23]

The uncertainty in production and marketing of cardamom eventually lead to significant shift in the State Policy, namely, abolition of State

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[22] op cit p86.
[23] Government of Travancore, Census of Travancore 1891 – 1901, p56.

Monopoly of trade in Cardamom in 1896. In the Kannielam tract (Nagarampara and Thodupuzha reserves of the Thodupuzha Taluk, where also Cardamom is grown, are known as Kannielam tract) the Monopoly was lifted only in 1907. Then began the era of active Governmental encouragement and support to private enterprises in cultivation for increasing production

With the abolition of State Monopoly, trading in Cardamom had passed initially to the control of a group of traders called Nattukkotta Chetties (a sub group of main ethnic group). They purchased all the Makaraelam Cardamom tracts (the area under cardamom in Devikolom, Udumbanchola and Peerumedu Taluk in Idukki District are known as Makaraelam tract) from the Ryots. In the Cardamom Hills the number of traders increased from 183 (118 of them were Chetties) in 1891 to 277 in 1898.[24]

As in the case of growers, traders also came from the nearby Tamil region. They controlled large estates in the high ranges and handled most of the Cardamom produced in the Palani Hills of the Madras Presidency and in the Travancore region. With overwhelming influx of the Tamil traders, the marketing center shifted from Alleppey in Travancore to Bodinaykanur (in the Madras Presidency). The Small Town of Bodinaykanur, situated in the eastern outskirts of the High Ranges, in Madurai District, assumed

[24] Sivanandan P. et al op cit p 7

subsequently the status of Cardamom City on account of the huge trade in Cardamom in that center.[25]

Rapid expansion of area under Cardamom plantation was the result of the deliberate policy of the State followed during the early decades of the last (20^{th}) century. A system of tax at a uniform assessment rate of Rs 61/4 per acre was the first step in the direction. Apart from this, the Government also introduced a scheme of assigning Cardamom lands to prospective cultivators on payment of Tharavila (basic Land Value) and issue of Pattas (title deed). At the beginning, 655 Pattas (title deeds) were issued in the Makaraelam division and 9,435 acres were registered for cultivation. Since then both the area under Cardamom and the number of Pattas increased significantly.[26]

By 1904-05, the total area under assessment was reported to be 13,693 acres, distributed among 1103 Pattadars (title holders), by 1908-09 the area and the number of Pattas increased to 19022 and 1,515 respectively. The scheme was further revised and assignment continued under the revised rules of 1935, 1937, 1939, and 1942. The rate, which was initially Rs 10 per acre, was subsequently raised to Rs 25 and Rs 851 per acre in the case of normal

[25] Government of Travancore, Travancore Administration Report (ME 1071 – 1084) 1873.

[26] Ramakrishnan K V., Report of Cardamom (1975) p9.

registry, and to Rs 125 per acre for lands entered upon without permission for Cardamom cultivation.[27]

During the early period of expansion of area under cardamom cultivation, the rules were very liberal and there was no ceiling on the extent of a single holding. However, by an Executive Order in 1940, it was stipulated for the first time that all single applicants might be given land only up to 60 acres. Such order was deemed necessary on account of the increasing demand from a host of immigrant cultivators in the High Ranges for assignment of land for Cardamom cultivation. Immigration of both cultivators and labourers has remained a regular phenomenon in the High Range Division ever since the beginning of the 20th century. During the period 1911 to 1951, the percentage increase in population was the highest in the High Range Division, the highest rate of increase within this period being in the decade 1921 to 31, caused by the expansion of the area under crops like Tea, Coffee, Rubber and Cardamom.[28]

In 1944, under the Kuthakapattom Lease Rule, the lease period was raised to 20 years and the individual ceiling fixed earlier at 60 acres was reaffirmed. The State Policy of encouraging the cultivation of Cardamom through assignment of forest land resulted in significant expansion in area under the crop. An important aspect of the encroachment of forest land since

[27] Sivanandan P et al op cit p8.
[28] Hareer A E, Modern Coffee Production, Leonard Hill Books, London, 1962. p5

the early fifties was the occupation of a large proportion of the land not suited for Cardamom cultivation.

For the last several millennia India is known as the Land of Spices the world over. Indian Spices were on par with precious stones even in royal possession outside the country. Spices had a glorious role in Cookery, Preservatives, Perfumes, Medicines and in Cosmetics. The Western Ghats spread over Kerala, Tamil Nadu and Karnataka are believed to be the home of more than 70 varieties of Spices.

India established foreign trade in Spices several centuries back. Our Spices reached Middle East 5000 years ago. Cardamom had an inevitable position in the international trade of Spices from India. It became an important element of Arab culture by becoming part and parcel of their daily food and customs.

The Arabs were the first to establish international trade with India in Spices. Later the Egyptians came in. With the Roman invasion of Egypt; the Rome took over the Spice trade with India.

We have several references on Cardamom in ancient scriptures, documents and Vedas. Cardamom had a very important place in the indigenous system of medicine. It was used to cure several ailments since 3000 B.C when the indigenous system of medicine was perfected and put to practice.

The Cardamom plant had its origin in South India and the Generic name Elettaria is believed to have originated from Elathari - literally meaning the Cardamom Seeds. The specific name is derived from the Latin word Amomum, which had its origin from the Arabic Hamama. Hamama means to warm, or heat. The Cardamom belongs to the natural order Scitaminae and the family Zingiberaceae to which Ginger and Turmeric also belong.

Reliable estimates of production and cultivation of Cardamom were not available till the Cardamom Board was constituted in the year 1966. Considering the economic importance of Cardamom in the domestic as well as external trade of the country and its unsteady prices in the market, the Government of India decided to develop the industry on scientific lines. As a first step, the Cardamom Development and Marketing Advisory Committee was constituted in Feb 1963 to advice the Government on specific steps to be taken for the rapid development of the industry. Later the Central Government brought Cardamom under the Export Trade Control Regulation in May 1963 and fixed the maximum Export prices for various grades. An executive body - The Directorate of Cardamom Development and Marketing - was also set up to implement the recommendations of the Advisory Committee.

Of the various Spices crops cultivated in Kerala cardamom is selected for the present analysis. It is evident from the discussion in the present chapter that cardamom occupies a pride of place among the spices. But this crop did

not get much attention of the authorities. Though India had a virtual monopoly in the world trade of this crop for a long time its place is being taken over by Guatemala in recent years. So a detailed discussion about its production pattern is made in the next chapter which will be followed by the marketing aspects. The problems of production and marketing are delineated in the subsequent chapter.

PRODUCTION PATTERN

S. Krishnan Nair “The problems of production and marketing in the cardamom industry with particular reference to Kerala” Thesis. Department of Commerce and Management Studies, University of Calicut, 2006

CHAPTER III
PRODUCTION PATTERN

Spice production differs considerably from the general pattern of agricultural production. It combines both primary and secondary stages of production in the sense that most output coming out of spice plantations go for further processing.

Types of cardamom

There are two types of cardamom. They are Large Cardamom (Amomum Subulatum Roxb.) and Small Cardamom (Elettaria Cardamomum Maton). Small cardamoms or green cardamoms are the 'true' dried cardamom fruits and are sweetly fragrant with a slightly pungent flavour. Brown or black varieties of cardamom are larger, coarser in flavour and scent and tend to be used more in meat dishes and pickles. These 'false' cardamoms are found in South Asia, China, Nepal, Indonesia and Africa. This study concentrates on the various aspects of small cardamom.

Small Cardamom

Cardamom (Elettaria cardamomum Maton) rightly called the "Queen of Spices" enjoys a unique position in the international spices market, as one of the most sought after spices. From time immemorial, India is known as the

home land of cardamom. Cardamom is indigenous to South India and Sri Lanka. The cardamom of commerce is the fruit (capsule) of the plant, Elettaria cardamomum Maton. The genus belongs to the natural order Scitaminae, family Zingiberaceae under Monocotyledons with diploid chromosome number of 2n=48. It is basically a pseophytic plant growing under shade in evergreen forests. It is propagated through seeds, suckers and tissue cultured plantlets. Cardamom plants mature in about 20-22 months after planting polybag seedlings or rhizomes. Economic yield starts from 3rd year onwards after planting, and it continues up to 8-10 years. The total life span of cardamom plants is about 15-20 years. However pseudo stem is biannual in nature.

Varieties of small cardamom

Two varieties of cardamom (small) plants are identified, and they are Elettaria cardamomum maton, variety *major* comprised of wild indigenous types of Sri Lanka and "Elettaria "cardamomum Maton,-variety, *minor* comprising of cultivars like, Mysore, Malabar and Vazhukka. These types are grown in different tracts and are mostly identified on the nature of panicles, size of plants and other morphological characters. Variety of Cardamom cultivated varies with location of the plantation.

1. Cultivar Malabar

Malabar type is not widely cultivated in Kerala and Tamil Nadu. These cardamom plants have medium size and attain two to three meters height on maturity. The dorsal side of leaves may be pubescent or glabrous. The panicles are prostrate and the fruits are globose to oblong shaped. This type of cardamom plants is better suited to areas of 600 to 1200 meters elevation. 'Malabar' type is considered as relatively less susceptible to thrips. This type' is mostly cultivated in Karnataka. It can thrive under low rainfall and seasonal rainfall conditions.

2. Cultivar Mysore

This type is mostly cultivated in Kerala and in certain parts of Tamil Nadu and Karnataka. Plants belonging to this type are robust and attain three to four meters in height. The leaves are lanceolate.or oblong -lanceolate or glabrous on ,both sides. The panicles are erect and the capsules are ovoid bold and dark green in colour. They are better adapted to altitudes-ranging from 900 to 1200meters from sea level and thrive well under assured, well distributed rainfall conditions.

3. Cultivar Vazhukka

This variety is extensively cultivated in Kerala and Tamil Nadu. This is considered to be the natural hybrid of Malabar and Mysore types and

consequently, the plants belonging to this group exhibit various characteristics intermediate to Mysore and Malabar types. The plants are robust like Mysore type. Its leaves are deep green, oblong-lanceolate or ovate, panicles are semi-erect (pendent) in nature and capsules are bold globose or ovoid in shape.

Morphology of cardamom

A mature cardamom plant may measure about two to four meters in height. It is a shallow rooted plant. Leaves are distichous, lanceolate or oblong-lanceolate or ovate in shape with short petioles. Primary leaves are reniform or roughish in shape. Ligules are green or red tinted purple in colour with pigmented or non-pigmented midrib. Leaves are glabrous or pubescent. Pseudo stem has light green or reddish purple or purple colour. Tiller production takes place throughout the year. However, peak period is from January to March. Flowers are borne on panicles which emerge directly from the swollen base of the aerial shoot. Flowers are open, bisexual, with calyx, corolla, staminode, anther, stigma and well developed labellum. Stigma is positioned above the anther. It is a cross pollinated plant and pollination occurs by external agents like honey bees, the chief pollinators. Labellum is prominent and attracts honey bees who insert their proboscis into the two nectar glands situated at the base of the flower. The foraging activities lead to pollination in flower. The 2 panicles are erect in the 'Mysore', prostrate in the 'Malabar' and intermediate (pendent) in 'Vazhukka' type. Panicles may be

branched or simple. The peak period of panicle emergence is from -November to March. Flowering normally commences from February and extends up to October, May-August being the peak flowering period. After fruit set, about 90 to 120 days are required for the fruits to attain maturity. The capsules are globose or ovoid or narrowly ellipsoid to elongate in shape, trilocular, containing 15 to 20 seeds. On maturity seeds turn dark brown to black in colour. Capsules are pale green to dark green in colour.

HIGH YIELDING VARIETIES

Various research institutions working on the crop improvement aspects of cardamom have developed a number of elite high yielding clones having an yield potential of above 250 Kg/ha (rain fed) and superior capsule characters. They are being successfully taken up for cultivation in planters fields according to their agro-climatic adaptability.

CLIMATE AND SOIL

The natural habitat of cardamom is the evergreen forests of Western Ghats. It is found to grow within an altitude ranging between 600 and 1200 meters above MSL. Considerable variations both in the total rainfall pattern and its distribution are noticed in the cardamom tracts. In most of the cardamom areas,. the annual rainfall is between 1500 to 4000 mm. and the temperature ranges from 10 to 35^0 C. Cardamom generally grows well in forest loamy soils. These soils are generally acidic in nature, with pH from 4.2

to 6.8 Analytical data of soil samples in cardamom growing tracts indicate that they are high in organic matter and nitrogen, low to medium in available phosphorous and medium to high in available potassium.

NURSERY MANAGEMENT

In order to raise a cardamom plantation, seedlings or suckers of high yielding varieties are to be used. Given below are the different steps involved in raising nurseries.

1. Primary nursery

a. Size selection:

Nursery sites are usually located on gentle sloppy area and preferably near to a perennial water source. Next step is cleaning the area from all existing vegetation, stumps, roots, stones etc. In the cleared area, beds can be prepared with one meter width, 20 cm height and required length, generally six meters. Jungle top soil can be spread to a thickness of 2 to 3 cm on the beds. Fumigation of the beds with 2% formaline (10 Lt. per bed) will help in eliminating pathogens, nematodes and other soil pests. Fumigation should be done in raised nursery beds before sowing. The beds should be made air tight by covering with polythene sheets and the fumigant is allowed to penetrate into the soil for two or three days. Later the treated beds should be kept open for another week before sowing.

b. Seed collection:

Fully ripened bold capsules from high yielding and disease-free mother clumps from trusted sources can be collected from second and third harvests. Seeds after extraction should be washed using water to remove the mucilage. It is then mixed with wood ash and dried in shade. Storage of seed is not advisable for longer period, because it is experimentally proved that 15 days of storage decreased germination for about 20% and 3 to 5 months storage decreased germination up to 94%. Therefore sowing of seeds after the extraction should not be delayed much. Sowing in September is the best for good germination. Sowing in winter and during south-west monsoon should be avoided.

c. Seed treatment:

Cardamom is having a hard seed coat which will prevent good germination. Seed treatment with acid or similar chemicals improves the germination. The seed is to be cleaned with water if it is covered with ash or other materials and then dry them in shade. Take the seed in a glass jar and place the jar in cold water. Then slowly pour acid in the jar so as to drench the seed, stir gently for about two minutes and drain the acid using a strainer. Transfer the seed immediately to a large volume of water. Wash the seed free of acid in running water and later soak in water and keep overnight. The seed is ready for sowing on the next day.

d. Sowing:

Sowing can be done in rows at a distance of 10 cm. Seed rate is 30 to 50 gm per 6x1 m size bed. After sowing cover the bed with thin layer of fine soil and then with mulch material, such as potha-grass or paddy straw. Avoid the contact of mulch materials with soil by supporting twigs laid across the bed. Water the beds to sufficient moisture conditions. Once sprouting is observed, remove the mulch and cover the bed with thinly sliced mulch material. To protect the seedlings from direct sunlight, provide overhead pandal (canopy). Germination commences 20 to 25 days after sowing and continues for further 30 to 40 days.

2. Secondary Nursery

There are two types of secondary nurseries. They are bed nurseries and polybag nurseries.

a. Bed nursery:

Beds are prepared as in primary nursery. A layer of cattle manure and wood ash may be spread on the bed and mixed with soil. Seedlings of three to four leaf-stages from the primary nursery beds can be transplanted in the secondary nursery at a distance of 20 to 25 cms. Mulching and watering of beds should be done immediately after transplanting. Over head pandal is to be erected to protect seedlings from direct sunlight.

b. Poly bag nursery:

Black HM/HDP bags of 20 x 20 cms size and thickness of 100 gauges with 3 to 4 holes at the bottom can be used for this purpose. Fill the bags with potting mixture in the ratio of 3:1:1 jungle top soil, cow dung and sand. The bags may be arranged in rows of convenient length and breadth for easy management. One seedling at three to four leaf-stages can be transplanted into each bag. Adequate space in between the bags may be provided for better tillering. The advantages of raising seedling in polybags are:

1. Seedlings will be of uniform growth and tillering.

2. Nursery period can be reduced to five to six months after transplanting the seedlings where as it takes 10 to 12 months in the secondary nursery.

3. Better establishment and growth of seedlings in the main field can be ensured.

Cardamom plants from secondary nursery or polybags can be transplanted to the main field during the last week of May after receipt of pre-monsoon showers or the first week of June soon after commencement of south west monsoon.

3. Vegetative propagation

This is the most popular method now. This method is simple, reliable and facilitates easy multiplication of selected types. Plants raised from rhizome (tillers) come to bearing earlier than the seedlings raised from seeds by about a year. Vegetative propagation is advantageous in areas where viral diseases are not a problem.

Rhizome multiplication may be taken up from the first week of March to the first fortnight of October. The site is selected in open gently slopping well drained areas near a source of water. Trenches of 45 cm width and 45 cm deep and convenient length are taken across the slope or along the contour at 1.8 m apart. They are filled with equal quantity of humus rich top soil, sand and cattle manure. Uproot a part of the high yielding mother clump. Care should be taken to identify and collect mother clumps only from areas totally free from viral diseases. Trim the roots and separate suckers so that the minimum planting unit consists of one grown up tiller and a growing young shoot. Plant them at a spacing of 1.80m x 0.60 m in filled up trenches. Provide sufficient mulch and stake each planting unit. Provide overhead panda I as in the case of seedling nursery and remove shading material with onset of monsoon rains. Provide irrigation once in a fortnight and adopt necessary plant protection measure. Apply fertilizers 100:50:200 kg/ha NPK in six splits at an interval of two months. Application of DAP and MOP for

first two rounds enables better establishment and growth. Apply neem cake @ 100-150g per plant along with fertilisers. On an average 20 to 30 suckers/initial planting unit can be produced within one year of planting.

PLANTING AND MANAGEMENT

Before taking up the planting, field should be made ready. For planting in a new area, ground should be cleared and if it is replanting area, aid plants should be removed. Shade regulation, terracing and preparation of pits should be done during summer months.

a) Shade regulation:

Under Indian conditions shade regulation is absolutely necessary. But in Guatemala it is not so. There Cardamom is grown in plain and hilly tracts and not necessarily in forest regions.

Shade regulation should be attended to during summer (March-April) in the new planting areas and during May-June after the receipt of summer showers in the existing plantation. If there is thick shade due to dense branches and bigger leaves, chopping off branches should be done to provide filter-red light of 40 to 60 per cent of the open area. Cut alternate side branches of tree in the lower one third to half portion of the total canopy height. Lopping should not be done on one side only. Cutting branches from all the sides ensures a balanced canopy. South-Western slopes should be

provided with more shade than North-Eastern slopes. Shade trees should have small leaves, tap root system and in summer it should not shed leaves. If plantation area is open due to tree fall, planting of tree species viz: Karuna (Vernonia arborea), Corangati, Chandana, Viambu, Njaval tree etc. should be taken up immediately to protect the plants from direct sun light. Too much shade or too much openness of area is not advisable for cardamom cultivation as it affects growth and yield.

b) Field preparation:

In areas having medium and steep slopes, soil preparation will be different from that of gentle slopes. In sloppy areas soil should be protected from soil loss (erosion) due to rains for which planting should be taken up in terraces. Terraces should be made across the slope at required distances depending on the spacing adopted. Almost 8 to 15 cm depth of top soil should be removed before making terraces and kept aside which can be used for pit filling. Width of terraces should be 1.5 to 1.8 m. Pits of 90 x 90 x 45 cm can be prepared before commencement of monsoon, about 1/3 of the pit should be filled with top soil and 1/3 should be filled with 1:3 mixture of organic manure and top soil. In low rainfall areas, trenches of size 75 cm width and 30 cm depth may be taken and plants may be planted at a spacing of 1 to 1.5m.

c) Planting:

Planting material of high yielding variety suitable for the areas may be selected for planting. They may be planted in the already prepared and filled pits and plants should be protected from wind by staking. For Mysore and Vazhukka cultivars plant to plant distance can be 3x3 m or 2.4x 2.4 m when planted in high rainfall or irrigated areas. A spacing of 1.8 x 1.8 m or 1.2 x 1.8 m is suitable in Karnataka. Immediately after planting, the plant base should be mulched well with available dried leaves to protect soil from erosion and for conservation of moisture. Planting should be done diagonally to the slope which will be helpful as a self protector of soil.

d) Weed control:

Weeds .are potential growths and consume water and nutrients which will depress cardamom growth. At the initial stage, if cardamom clump development is not enough, weed growth will be more. Two or three rounds of hand weeding at the plant base during May, September and December/January and slash weeding in other areas are advisable. Use of spade for weeding is to be avoided as it will loosen the soil and cause soil erosion. The weeded materials may be used for mulching.

e) Irrigation:

Judicious irrigation during summer months ensures increase in yield by at least 50%. Irrigation is required generally from February to April but at times from January to May depending upon availability of rainfall. But in Tamil Nadu, where the South-West monsoon is not very effective, irrigation during March-August is advisable. This is the period in which development of young tillers and panicles takes place. If plant suffers during this stage, yield will be reduced. Water may be stored during rainy season wherever possible by constructing check dams 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 20-30L per clump depending upon the clump size. In case of sprinkler, irrigation with amount of water equivalent to 35 to 45 mm rain at fortnightly intervals is recommended under average conditions. In case of drip irrigation, water at the rate of 4-6 L per clump per day can be given.

f) Soil and water conservation:

Conservation of natural resources like soil and water is very important for production of the crop. Cultivation of agricultural crops on sloppy hills with intensive operation which loosen and expose the soil will increase the

soil erosion. Planting in trenches across the slope, mulching of soil, diagonal planting and opening of rectangular silt pit (1.8 x 0.5 x 0.6m) in between four plants will help in soil and water conservation in gentle slopes. if slope is steep, construction of stone pitching walls at 10-20 m intervals across the slope and also making water collecting trenches along the wall will be helpful.

g) Forking and Mulching:

Forking the plant base to a distance up to 90 cm and to a depth of 9-12 cm is found to enhance root proliferation and better growth of plants. As far as possible, the entire plantation and particularly the plant base are to be kept under mulch. It is very essential to keep the plant base mulched (5-10 cm thick) except during June to September to reduce the ill-effects of drought, for reducing evaporation loss and to maintain optimum temperature.

h) Trashing:

Trashing consists of removing old tillers and dry leaves and leaf sheaths. This operation may be carried out once in a year at any time one month after completion of the final harvest. These materials can also be used as mulch.

i) Earthling up:

This operation is not required in a normal plantation. However, due to erosion of soil or mismanagement, at times it is noticed that the top soil covering the plant base is washed away and the rhizomes and roots are exposed and in such situations, earthing up of the plant base with top soil is recommended during Dec. - Jan. While carrying out this operation, care should be exercised to ensure that only top soil is used, and it is evenly spread at the base covering only half the bulb portion of the rhizome. This operation helps to keep the top 10 to 15 cm soil loose and friable enabling easy root penetration and water percolation.

SOIL TEST

The Spices Board has set up soil testing laboratories for testing cardamom growing soils and giving fertilizer recommendation. At present, the soil testing laboratories are functioning at the Indian Cardamom Research Institute, Myladumpara, Kerala and at the Regional Research Station, Saklespur, Karnataka. Soil testing provides precise information about the fertility of the soil for making fertilizer recommendation. Needed quantities of fertilizers of the right kind can be applied at the minimum cost. Balanced application of nutrients will ensure a better economic return to the grower. Only 5 to 10 g soil is used for each soil test. So care has to be taken to collect

representative soil samples. Otherwise, precision in analysis and interpretation cannot be guaranteed.

Fertiliser recommendation

Fertiliser use has become a regular operation in cardamom plantations. However this has to be carried out judiciously and with thorough knowledge. Indiscriminate application of chemical fertilisers will do more harm to the crop than applying no fertiliser at all. In addition, such an application will become a wasteful and expensive exercise. Hence it is absolutely essential that the planters follow a judicious fertiliser schedule to achieve satisfactory return and also reduce cost of cultivation.

Application of Organic Manures

Whether fertiliser is applied or not organic manure is a must for cardamom crop. Organic manures are considered essential in improving the physical characteristics of the soil, and nutritional value of the produce.

Diseases affecting cardamom crop

Small cardamom is prone to many diseases. These diseases are common to all plantations irrespective of the location. They are as follows:

A. NURSERY DISEASES

1. Leaf spots

Incidence and spread of diseases often interfere with the successful raising of cardamom seedlings. The major diseases observed in the nursery are leaf spots, damping off or seedling rots and leaf rots. Two types of leaf spots occur in the nursery. These are:

- Nursery leaf spot (Phyllosticta elettariae)
- Nursery leaf spot (Cercospora zingibefl)

2. Nursery leaf rot
3. Damping off or seedling rot
4. Clump rot (Rhizome root)

B. DISEASES IN PLANTATION

1. 'Katte,' (Mosaic) Disease
2. Nilgiri necrosis disease
3. Kokke kandu disease (Cardamom vein clearing)
4. Azhukal or capsules rot disease
5. Clump rot or rhizome rot

C. MINOR DISEASES

1. Chenthal
2. Leaf blotch

3. Leaf spots and leaf rusts

4. Capsule canker and capsule brown spots

5. Leaf blight

PESTS AND THEIR MANAGEMENT

Small cardamom is susceptible to infestation by a number of pests, right from the seedling stage to the cured cardamom in storage. Among insect pests, thrips, shoot/panicle/capsule borer, white fly, hairy caterpillar and root grub cause heavy crop loss. Mites, nematodes, lace wing bug, shoot fly, cutworms, midrib caterpillar etc. are of minor importance. Pests attacking cardamom plant can be classified into two. They are:

A. PESTS IN NURSERY

1. Shoot borer [Conogethes punctiferalis (Guen)]

2. Root grubs [Basilepta fulvicorne(Jacoby)]

3. Shoot fly (Formosina flavipes)

4. Spotted red spider mite

5. Cutworm (Acrilasisa plagiata)

6. Nematodes (Meloidogyne spp.)

B. PESTS IN PLANTATIONS

1. Cardamom thrips [Sciothrips cardamomi (Ramk)]

2. Borers

- Shoot/Panicle/Capsule borer [Conogethes. punctiferalis (Guen.)]
- Early capsule borer (Jamides alecto)

3. Cardamom whitefly [Kanakarajiella (Dialeurodes) cardamomi]
4. Root grub [Basilepta fulvicorne]: (Refer Pests in Nursery)
5. Hairy caterpillars:
6. Shoot fly [Formosina flavipes]
7. Lace wing bug [Stephanitis typicus]
8. Spotted Red spider mites
9. Nematodes

BEE AND INSECTICIDE MANAGEMENT

Cardamom flower is bisexual. The most conspicuous feature of the flower is the large white labellum with violet streaks, which attracts insect for pollination. The honey bee, Apis cerana Indica and Apis dorsata are the major pollinators of cardamom flowers. Fruit setting increases significantly in bee pollinated flowers compared to flowers prevented from bee pollination. For effective pollination in cardamom, four bee colonies per hectare are required. Since bees are highly sensitive to insecticides, precautions may be taken to prevent their destruction by insecticides.

Weeding, Forking and Mulching, Trashing and Earthing up

Weeding is the removal of waste in the plant platform. Clean weeding is recommended for the plant base, whereas slash weeding in the inner row areas is the ideal. Depending upon the density of weed growth, this operation may have to be repeated two or three times annually, especially during early years.

Forking the plant base to distance up to 90cms and to a depth of 9-12cms is found to enhance root proliferation and better growth of plants. As far as possible, the entire plantation and particularly the plant base are to be kept under mulch. It is very essential to keep the plant base mulched except during June to September to reduce the ill effects of drought, for reducing evaporation loss and to maintain optimum temperature.

Trashing consists of removing old tillers and dry leaves and sheaths. This operation is carried out once in a year, with the commencement of the monsoon season.

Earthing up operation is not required in a normal plantation. However, due to erosion of soil or mismanagement, at times it is noticed that the topsoil covering the plant base is washed away and the rhizomes and roots are exposed. In such situation, earthing up of the plant base with topsoil is recommended during December –January.

MANURING

Manuring has become a regular operation in Cardamom plantations. However, this has to be carried out judiciously and with through knowledge. It is absolutely essential that the planters follow a judicious fertilizer schedule to achieve satisfactory return and also reduce cost of cultivation. Organic manures are considered essential in improving the physical characteristics of the soil, in addition to its nutrient value. Application of organic manures such as neem cake or poultry manure, farmyard- cow dung compost may be made once in a year during May-June along with Mussoriephos and Muriate of potash.

In the survey, it was found that the respondents are using manure in three rounds a year. Also the growers of cardamom have become quite conscious of the importance of the application of fertilizer. But their application depends mainly on the size of the farm and the capacity of the farmers to make investments in time. The application cost (other than Input cost) is increasing at higher rates. More or less the same rate of increase is found in the case of cost of inputs like fertilizers. The most common manures used by the respondents are NPK mixture, urea, factomfose and vepin cake (neem cake).

IRRIGATION

Cardamom crop responds to irrigation. Depending on the moisture holding capacity of the soil and lie of the land the cardamom estates may be irrigated once in 15 to 20 days during summer seasons. Excessive irrigation is to be avoided. For it now they are using sprinkler irrigation methods .Judicious irrigation during summer months ensures increase in yield by at least 50 per cent. Irrigation is required generally from February to April but at times from January to May depending upon the availability of rainfall. 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 plantations. The watering depends upon the type of irrigation. For example, in the case of drip irrigation, water at the rate of 4-6 liter per clumb per day can be given.

SPRAYING

As mentioned earlier, Cardamom plants are susceptible to a number of diseases caused by fungi, bacteria and virus in the nursery as well as in the plantations. Cardamom is also prone to infestation by a number of pests, right from the seedling stage to the cured cardamom in storage. These pests and diseases shall be controlled by spraying pesticides. If pest control measures are not applied the entire plantation products are sure to be destroyed. There is, therefore, an imperative need for protection of this plant from these pests

and diseases. It is found that the farmers usually apply spraying thrice a year. At certain times it has to be done five times a year. The basic principle in respect of pest control is that prevention is better than cure.

HARVESTING

Cardamom plants take about two years to bear capsules. Generally flowering starts in April-June with its peak during July- August. Cool humid weather is necessary during flowering season for fruit set. It takes about three months for fruit maturity. Harvesting of cardamom is the most important operation that requires special attention of growers.

Picking the pods is hard work. The panicles lie on the ground, so workers must squat while picking the pods and gathering them into bags, and the pods do not all ripen at once, so enough skill is required to judge which pods to pick and which to leave on the plant. Sorting the picked pods is usually done by women in large warehouses. Proper harvesting will improve the quality and quantity of the produce. Whereas faulty harvesting of immature capsules reduces quality and realizes only lower price in the market. Hence judging the maturity of the capsule is very important.

Storing of harvested capsules is to be avoided. The harvested capsules should be immediately cured.

CURING

Cardamom reaches the market after harvesting, drying and curing/ bleaching of raw capsules. These processes, which precede marketing, have an important bearing on the quality of cardamom.

Processing or curing is a process in which the moisture of freshly harvested capsule is reduced from 80% to 10 - 12% at an optimum temperature of 50^0 C so as to retain green colour to the maximum extent. After harvest, the produce is dried either in the sun or in specially built drying houses using artificial heat. For the latter, the devices vary from sheltered mud platforms heated by a slow fire from beneath, to large furnaces. The harvested capsules are first washed with water and spread out thinly in the curing chamber and stirred frequently to ensure uniform drying. Drying will be done within 48 hours in curing chambers. Drying in curing chambers retains the green colour of the capsules. After drying the cardamom, polishing is done by rubbing against hard surface or using polishing machine or by hand or with rough coil matting or wire mesh and winnowed to remove other plant residues and foreign matters. They are then sorted mainly according to their size and colour. Since green coloured Cardamom capsules fetch a premium price in some of the foreign markets, it is essential to retain the colour as long as possible. It has been found that soaking the freshly harvested Green Cardamom capsules in 2 per cent Washing Soda Solution for 10 minutes

before drying is effective in preserving the green colour. Similarly, Bleached Cardamom constitutes a distinct trade quality.

Bleaching is done by exposing the dried capsules to the action of Sulphur Dioxide produced by burning Sulphur.

STORAGE

The dried cardamom is to be stored in gunny bags., For efficient retention of the green colour of cardamom during storage, it is essential that cardamom is to be dried down to a moisture content of 10 to 12%. Use of 300 gauge black polythene lined gunny bags improves the storage efficiency. It is better to keep these bags in wooden boxes, which prevent damage of capsule by rodents. In order to get prime price in the market, grading of capsules by sieving under different diameter sieves is to be done. The cardamom with good green colour and above 7 mm will fetch the highest price in the market.

So far we have discussed various aspects of cardamom cultivation, harvesting, processing, storage and grading. Now let us study the production pattern of cardamom.

WORLD PRODUCTION OF CARDAMOM

India is the second largest producer of Cardamom in the world. Her share in the world production is 41 per cent. Guatemala is the highest producer of Cardamom in the World (52 Per cent) and then Sri Lanka (2 per

cent). Detailed data regarding production in countries other than India and Guatemala are not available. Hence for comparison purpose data relating to leading producers India and Guatemala are taken.

The production of Cardamom by India and Guatemala during the period from 2000-01 to 2005-06 is given in Table 3.1. It is also depicted in Fig. 3.1.

TABLE 3.1

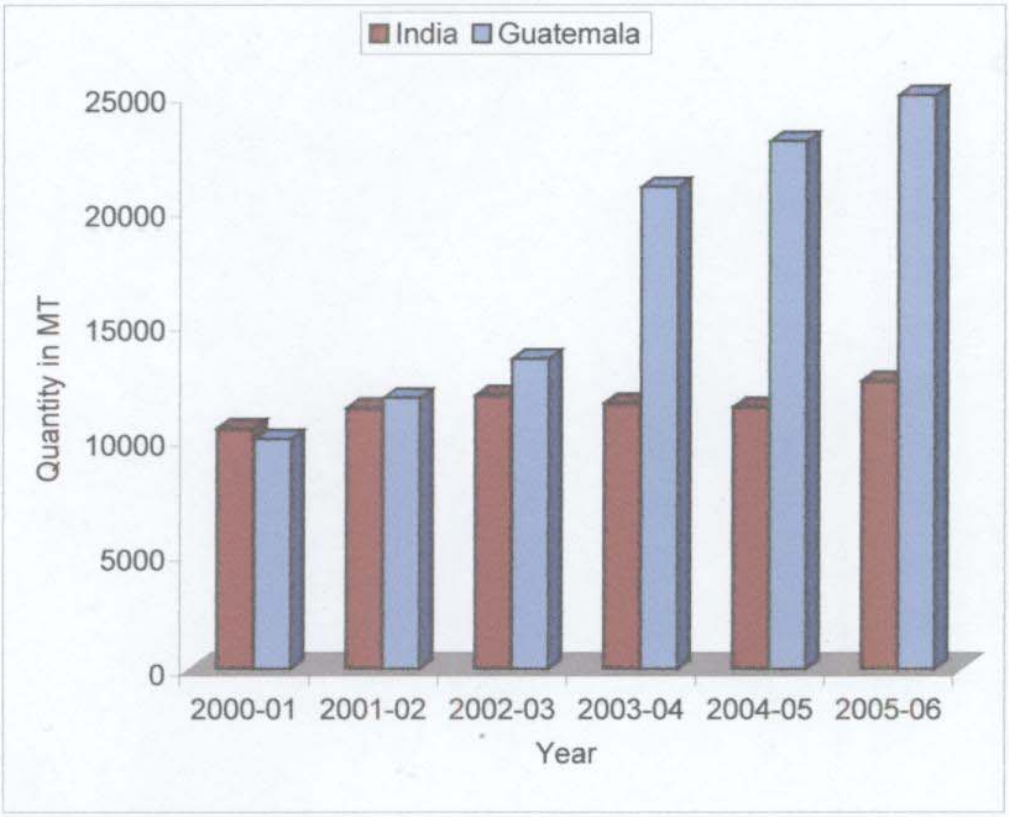
Production of Cardamom in India and Guatemala
(quantity in MT)

Years	India	Guatemala
2000-01	10480	10000
2001-02	11365	11800
	(+8)	(+18)
2002-03	11920	13500
	(+14)	(+35)
2003-04	11580	21000
	(+10)	(+110)
2004-05	11415	23000
	(+9)	(+130)
2005-06	12540	25000
	(+20)	(+150)

Source: Compiled from the official records of the Spices Board
Figures in brackets show percentage change over 2000-01.

Fig. 3.1

Production of Cardamom in India and Guatemala



It is noticed from Table 3.1 and Fig. 3.1 that the production of cardamom in Guatemala is increasing year after year in all the years under study from 2000-01 to 2005-06. There are fluctuations in Indian production. The production of cardamom in Guatemala in 2000-01 was 10000 MT, which came to 25000 MT in 2005-06 with 150 per cent increase. Here, the over all trend shows an increase. The production of cardamom during 2000-01 was 10480 MT in India, which came to 12500 MT in 2005-06 with 20 per cent increase. Indian cardamom production exceeded that of Guatemala by 480

MT in 2000-01. But it drastically dropped to 50 per cent of Guatemalan production in 2005-06. This is because of increase in productivity and favourable climatic conditions coupled with better farming techniques adopted by Guatemala.

Interestingly, cardamom isn't indigenous to Guatemala,[1] but to southern India and Sri Lanka. It is still produced in both countries, and India remains one of the major exporters.

Long before cardamom's 20th-century arrival in Guatemala, it was among the spices carried from India to the Middle East by Arabian mariners and caravan traders. Like many spices, it was used as a medicine well before it found culinary uses. The Ebers Papyrus, a pharmacological document dating from about 1550 BC, provides evidence that Egyptians were already using cardamom, as well as other spices, in medicines; they also used it in cosmetic ointments, perfumes and aromatic oils, for fumigation and for embalming.

The cardamom cultivated in Guatemala is Elettaria cardamomum, a native of India's Malabar Coast. Growing from large rhizomes resembling ginger, the plant puts out clusters of tall, graceful stems topped with rough, palm-like leaves. From the base of the cluster grow soft, horizontal, crooked

[1]Larry Luxner, March/April 1997 print edition, 'Saudi Aramco World' p.29

panicles up to one meter long that bear white flowers and, eventually, cardamom pods. The plant thrives in the moisture of a tropical climate.

"Cardamom in Guatemala first became a big crop on the volcanic slopes of the Pacific coast, but then a virus wiped out those plantations," Most production then moved north from the coast to Alta Verapáz, the humid, mountainous region where higher altitude helped increase yields.[2]

Cardamom pods are like Christmas trees.[3] The greener and bigger they are, the more they're worth. Guatemala surpassed India in overall production volume about 10 years ago. Other cardamom-exporting countries include Tanzania and Sri Lanka, but neither market more than 40 per cent of Guatemala's totals. Colombia, Mexico and Brazil have each tried to cultivate the spice commercially, but inhospitable growing conditions have kept them from success.

But other countries, such as Papua New Guinea, Costa Rica and Honduras, Guatemala's neighbor to the south, have successfully entered the global market in recent years. For the foreseeable future, Guatemala seems likely to remain the world's foremost exporter of cardamom.

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[2] ibid., p.30.

[3] Dr. Luis Pedro Torrebiarte, President of the Gremial de Exportadores de Cardamomo, (Cardamom Exporters' Association), Guatemala.

AREA PRODUCTION AND PRODUCTIVITY OF CARDAMOM IN INDIA

The Area, Production and Productivity of Cardamom in India for a period of fifteen year from 1991-92 to 2005-06 are analysed as follows:

A. Area under Cardamom Cultivation

The total area under cardamom in the country in 2005-06 is estimated at 73,795 ha, of which 41,367 ha is in Kerala. In India the area under cultivation of Cardamom is distributed in the three Southern States viz, Kerala (55 per cent), Karnataka (33 per cent) and Tamil Nadu (12 per cent).

The area under cultivation of cardamom in Kerala in 1991-92 was 43670 Hectares (53 per cent of the total 81854 Hectares in India). But a reduction in area was noticed in subsequent years. The area under cultivation of cardamom in Kerala and India and the percentage share of Kerala towards India from 1991-92 to 2005-06 is depicted in Table 3.2

TABLE 3.2

Area under Cultivation of Cardamom
(in Hectares)

Year	Kerala	India	% Share of Kerala
1991-92	43,670	81,854	53
1992-93	43,386	82,392	53
1993-94	43,456	82,960	52
1994-95	44,237	83,651	53
1995-96	44,248	83,802	53
1996-97	41,268	73,593	56
1997-98	40,867	72,444	56
1998-99	41,449	72,135	57
1999-00	41,491	72,429	57
2000-01	41,288	72,320	57
2001-02	41,336	72,663	57
2002-03	41,412	73,125	57
2003-04	42,332	73,237	58
2004-05	41,378	73,725	56
2005-06	41,367	73,795	56

Source: Compiled from Spices Statistics and official records of the of the Spices Board, Cochin

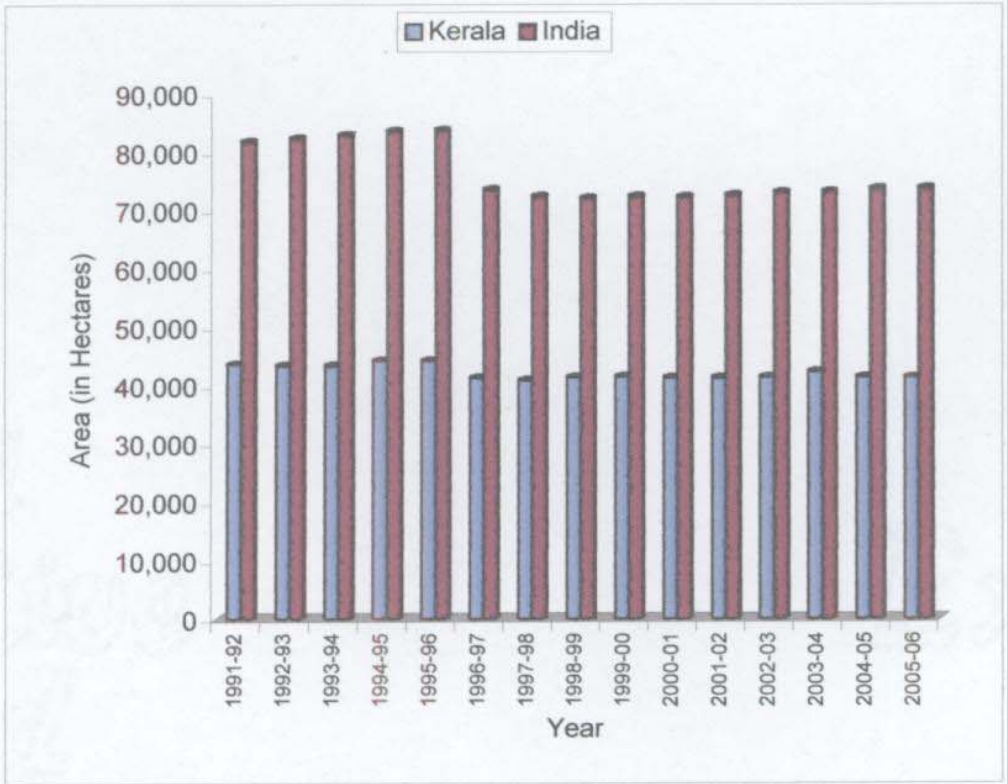
It is noticed from Table 3.2 that the area under cultivation of Cardamom in Kerala was 43670 Hectares in 1991-92 which came to 44,248 Hectares in 1995-96 with a marginal increase during the five year period

under analysis. It was 41,367 Hectares in 2005-06 with 5 per cent decrease compared to 1991-92.

The Area under cultivation of Cardamom in India was 81,854 Hectares in 1991-92 which increased to 83,802 Hectares in 1995-96 and then there was a decline, which came to 73,795 Hectares in 2005-06 with 10 per cent decrease compared to 1991-92. The over all position in India and Kerala in the case of area under cultivation of Cardamom is fluctuating during the whole 15 years period under analysis. The area under cardamom in India and Kerala is shown in Fig. 3.2 also.

Fig. 3.2

Area under Cultivation of Cardamom



The percentage share of Kerala towards India in respect of area under cultivation of cardamom shows an increase from 1991-92 to 1996-97, which was 53 per cent to 56 per cent. After that the share of Kerala towards the cultivation of cardamom in India varies, more or less, between 56 and 58 per cent. There has not been any considerable increase in the area under cardamom.

B. Production of Cardamom

The Cardamom (small) as an important plantation crop is cultivated mainly in three states of India. Of the three states, Kerala is the leading producer of Cardamom and the Second Karnataka and Tamil Nadu in the third place. The production Cardamom in Kerala in 1990-91 was 3450 MT (73 per cent of the total) and 4750 MT in India.

TABLE 3.3

Production of Cardamom

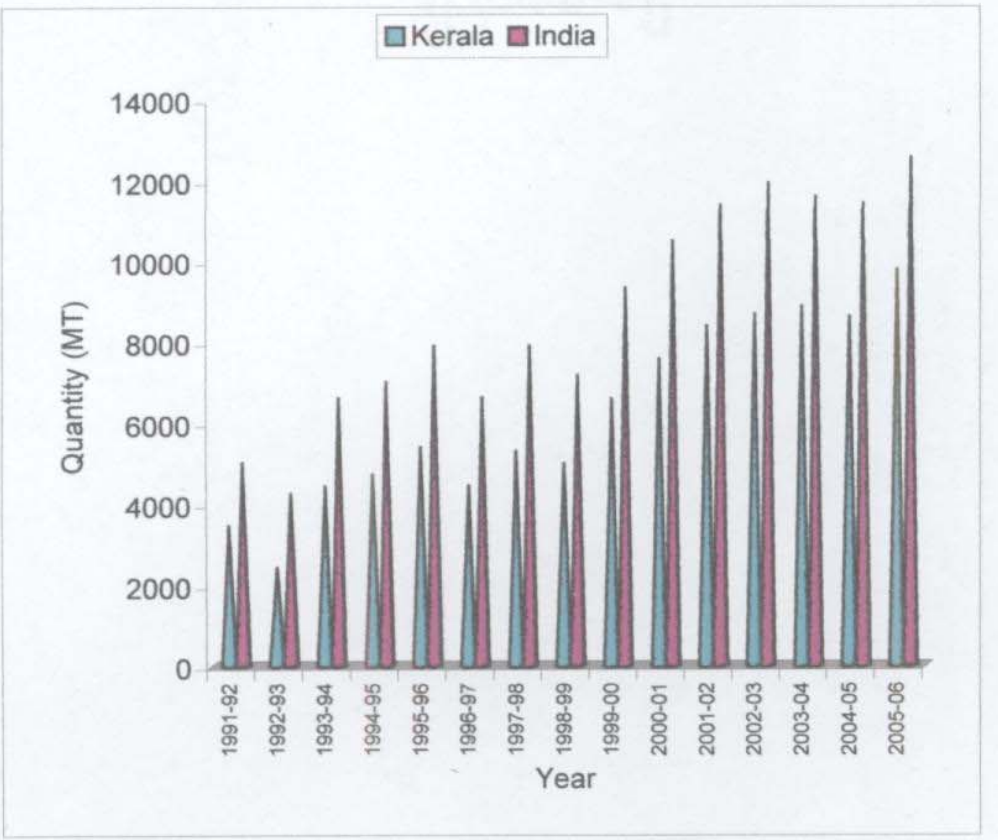
Year	Kerala (MT)	India (MT)	% Share of Kerala
1991-92	3450	5000	69
1992-93	2424	4250	57
1993-94	4430	6600	67
1994-95	4720	7000	67
1995-96	5380	7900	68
1996-97	4450	6625	67
1997-98	5290	7900	67
1998-99	4990	7170	69
1999-00	6585	9330	71
2000-01	7580	10480	72
2001-02	8380	11365	74
2002-03	8680	11920	73
2003-04	8875	11580	77
2004-05	8616	11415	75
2005-06	9765	12540	78

Source: Compiled from Spices Statistics and official records of the of the Spices Board, Cochin

As is noticed from Table 3.3 and Fig. 3.3, the Production of Cardamom in Kerala was 3450 MT in 1991-92 which came to 5380 MT in 1995-96 with 56 per cent increase during the Five year period under analysis. It was 9765 MT in 2005-06 with 183 per cent increase compared to 1991-92.

Fig. 3.3

Production of Cardamom



The Production of Cardamom in India was 5000 MT in 1991-92 and 7900 MT in 1995-96 and then there was an increase which came to 12540 MT in 2005-06 with150 per cent increase compared to 1991-92. The over all position in India and Kerala in the case of area under cultivation of Cardamom shows a trend of increase during the whole 15 years period under analysis.

The percentage share of Kerala towards India in respect of the production of Cardamom shows a negative growth from 1991-92 to 1995-96 periods, when it declined from 69 to 68 per cent. After that the share of Kerala towards the production of cardamom in India shows a gradual increase to 78 per cent.

C Productivity of Cardamom

In India the productivity of Cardamom in Kerala and Tamil Nadu is higher compared to Karnataka, in which case the productivity is very low. The over all productivity figure fails to register much progress at all India level on account of low productivity of Cardamom in Karnataka. The area under cultivation is very low in Tamil Nadu but the yield is very high. The per-acre productivity of cardamom in Kerala is high in India. The Productivity of Cardamom in Kerala and India during the period from 1990-91 to 2005-06 is given in Table 3.4 and Fig. 3.4

TABLE 3.4

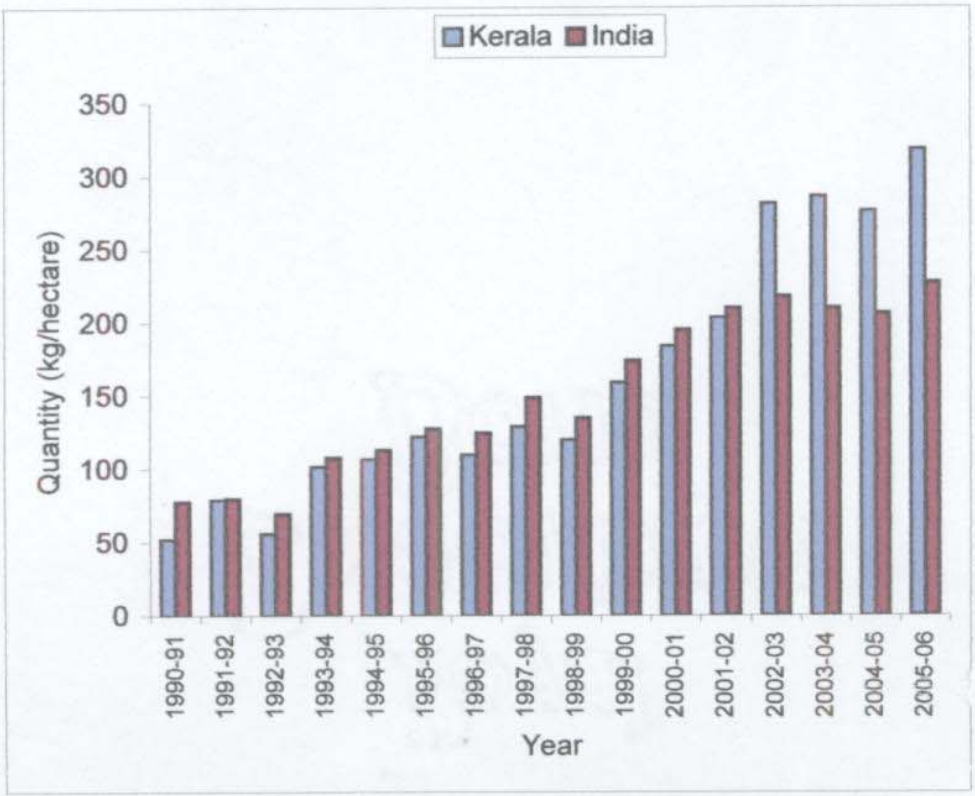
Productivity of Cardamom
(In Kg per Hectare)

Years	Kerala	India
1990-91	52	78
1991-92	79	80
1992-93	56	70
1993-94	102	108
1994-95	107	113
1995-96	122	128
1996-97	110	125
1997-98	129	149
1998-99	120	135
1999-00	159	174
2000-01	184	195
2001-02	203	210
2002-03	281	218
2003-04	286	210
2004-05	276	206
2005-06	318	227

Source: Compiled from Spices Statistics and official records of the Spices Board, Cochin

Fig. 3.4

Productivity of cardamom



The productivity was low in 1990-91 when it was 52 Kg per hectare in Kerala. It is seen from Table 3.4 that it was 122 Kg per hectare in 1995-96, which came to as high as 318 Kg per hectare in 2005-06 in Kerala. The percentage increase from 1990-91 to 1995-96 was 134. The yield per hectare further improved. So over the one and a half decade, productivity in Kerala increased more than six times.

The Productivity of Cardamom in India was 78 Kg per hectare in 1990-91 which increased to 128 Kg per hectare in 1995-96 with 60 per cent

growth over the period. It again increased to 227 Kg per Hectare in 2005-06 with 77 per cent hike compared to 1995-96. Over the fifteen year period productivity at national level recorded nearly three fold increases.

We can conclude that the production and productivity of cardamom are improving over the period under analysis. But the area under cultivation of Cardamom shows fluctuation.

Compound Growth Rate

The Compound Growth Rate in respect of Area, Production and Productivity of Cardamom in India and Kerala during 1991-92 to 2005-06 is tried and the result is shown in Table 3.5

TABLE 3.5

Compound Growth Rate of Area, Production and Productivity over 15 Years (1991-92 TO 2005-06)

Country / State	Area	Production	Productivity
Kerala	-1.4	8.4	1.2
India	-1.1	7.2	0.7

It is seen from the Compound Growth Rate in respect of Area under cultivation both in Kerala and India shows a negative growth rate. This is mainly because the farmers are shifting cultivation from cardamom to other cash crops. Another reason is that those marginal farmers who were in this

field with unsuitable land for cardamom discontinued their production. Urbanization has also played its part in this phenomenon. New opportunities in the fields of IT, insurance, other service and infrastructural areas attracted highland rural households who were once tied up in farming operations.

The production of cardamom shows an increasing trend in Kerala and at national level. This can be attributed to the adoption of intensive cultivation techniques and extension work carried on by the Spices Board and related governmental and non-governmental agencies.

Increase in productivity is mainly due to the disappearance of uneconomic farms. The role of Spices Board and other agencies cannot be overlooked in this context.

STATE WISE AREA, PRODUCTION AND PRODUCTIVITY IN INDIA

In India cardamom is cultivated and produced in three States via, Kerala, Karnataka and Tamil Nadu. Of the three states in India, Kerala is the largest producer of cardamom in India. Second is Karnataka and Tamil Nadu is in the third place. The State wise Total Area, Yielding Area, Production and Productivity of Cardamom in India are for the period from 2000-01 to 2005-06 are given in the following Tables.

State wise Total Area under cultivation

The total area under cultivation of cardamom includes yielding and non-yielding cardamom plantations. The area under cultivation of cardamom in various states in India is given in Table 3.6

TABLE 3.6

State wise Area under Cardamom (Area in Hectares)

Year	Kerala	Karnataka	Tamil Nadu	All India
2000-01	41288 (57)	25947 (35)	5085 (7)	72320
2001-02	41336 (57)	26258 (36)	5069 (7)	73125
2002-03	41412 (57)	26644 (36)	5069 (7)	73125
2003-04	41332 (57)	26838 (37)	5067 (6)	73237
2004-05	41378 (57)	27094 (37)	5253 (6)	73725
2005-06	41367 (57)	27173 (37)	5255 (6)	73795

Source: Compiled from the official records of the Spices Board, Cochin
Figures in brackets shows percentage share to total

It is seen from Table 3.6 that the total area under cultivation of cardamom shows ups and downs in Kerala, Karnataka and Tamil Nadu during the whole period under analysis. 57 per cent of the Total area of cardamom cultivation in India is from Kerala, 37 per cent and 6 per cent respectively of the areas in India is from Karnataka and Tamil Nadu as on 2005-06.

State wise Yielding area under Cardamom in India

The total area under cardamom in Table 3.6 included yield bearing and non-yield bearing areas. The State wise yielding area under cardamom cultivation in India during 2000-01 to 2005-06 is given in Table 3.7.

TABLE 3.7

State wise Yielding Area of Cardamom
(Area in Hectares)

Years	Kerala	Karnataka	Tamil Nadu	India
2000-01	30665 (57)	19330 (36)	3680 (7)	53675
2001-02	30837 (57)	19542 (36)	3658 (7)	54037
2002-03	30855 (57)	20038 (37)	3711 (6)	54604
2003-04	30991 (56)	20510 (37)	3720 (7)	55221
2004-05	31213 (56)	20743 (37)	3582 (7)	55538
2005-06	30733 (55)	20907 (37)	3542 (8)	55182

Source: Compiled from the Office records of the Spices Board, Cochin
Figures in brackets show percentage to total

It is noticed from Table 3.7 that the yielding area of cardamom in Kerala was 30665 hectares in 2000-01 which increased to 30773 hectares in 2005-06, with 1 per cent increase. The percentage share of Kerala towards India in yielding area was 57 per cent in 2000-01 which declined to 55 per

cent in 2005-06. This is mainly due to closing down of uneconomic plantations.

It is noticed from Table 3.7 that the yielding area of cardamom in Karnataka was 19330 hectares in 2000-01 which increased to 20907 hectares, marking 8 per cent increase, in 2005-06.The percentage share of Karnataka towards India in yielding area is 36-37 per cent.

It is clear from Table 3.7 that the yielding are of cardamom in Tamil Nadu was 3680 hectares in 2000-01 which declined to 3542 hectares in 2005-06 registering four per cent decrease over the period. The percentage share of Tamil Nadu towards India in yielding area is 7-8 per cent.

The total yielding area of cardamom cultivation in India was 53675 hectares in 2000-01 and it increased to 55182 hectares in 2005-06, recording nearly 3 per cent increase.

State wise Production of Cardamom

The largest producer of Cardamom in India is Kerala. The state wise production of cardamom in India during 2000-01 to 2005-06 is depicted in Table 3.8.

TABLE 3.8

State wise Production of Cardamom
(In MT)

Years	Kerala	Karnataka	Tamil Nadu	India
2000-01	7580 (70)	2100 (19)	800 (11)	10480
2001-02	8380 (73)	2115 (18)	870 (9)	11365
2002-03	8680 (72)	2310 (19)	630 (9)	11920
2003-04	8875 (76)	1740 (15)	965 (9)	11580
2004-05	8616 (75)	1879 (16)	920 (9)	11415
2005-06	9765 (78)	1775 (14)	1000 (8)	12540

Source: compiled from Official records of the Spices Board, Cochin.
(Figures in brackets show percentage to total)

It is evident from Table 3.8 that the production of cardamom in Kerala was 7580 MT in 2000-01 which increased to 9765 MT in 2005-06 with 29 per cent increase during the five year period under analysis.

It is seen from Table 3.8 that the production of cardamom in Karnataka was 2100 MT in 2000-01, which decreased to 1775 M T in 2005-06 with 15 per cent decline during the five-year period under analysis.

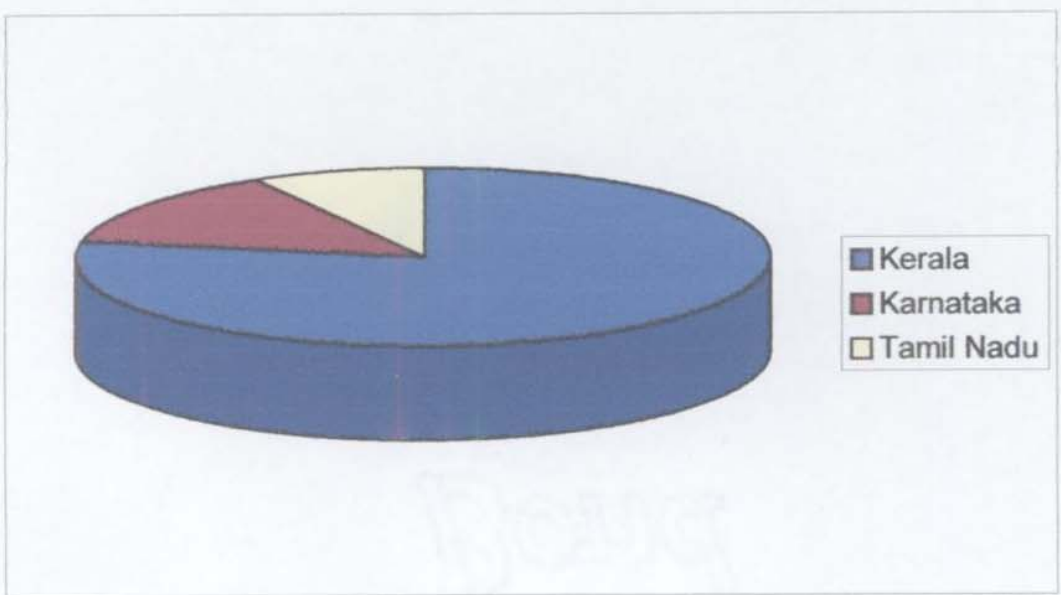
It is clear from Table 3.8 that the production of cardamom in Tamil Nadu was 800 M T in 2000-01, which increased to 1000 M T in 2005-06 with 25 per cent increase during the five-year period under analysis.

The Production of Cardamom in India during 2000-01 was 10840 MT, which increased to 12540 MT during 2005-06 registering a growth of 16 per cent over the period studied.

As on 2005-06 the share of Kerala in the production of Cardamom is 78 per cent, Karnataka 14 per cent and Tamil Nadu 8 Per cent as shown by **Fig.3.5.**

Fig. 3.5

State wise Production of Cardamom



State wise productivity/yield of cardamom

The State wise productivity/yield of cardamom in India during 2000-01 to 2005-06 is shown in Table 3.9.

TABLE 3.9

State wise Productivity of Cardamom
(Kg per Hectare)

Years	Kerala	Karnataka	Tamil Nadu	India
2000-01	247	109	217	195
2001-02	272	108	238	210
2002-03	281	115	251	218
2003-04	286	85	259	210
2004-05	276	91	257	206
2005-06	318	85	282	227

Source: compiled from official records of the Spices Board, Cochin.

It is seen from Table 3.9 that the productivity is highest in Kerala and higher in Tamil Nadu but it is the least in Karnataka. During 2000-01 productivity per hectare in Kerala was 247 Kg per hectare, which came to 318 kg per hectare in 2005-06. It was 217 kg per hectare and 282 kg per hectare in Tamil Nadu respectively. But the productivity is very low in Karnataka as it was 109 kg per hectare in 2000-01, which declined to 85 kg per hectare in 2005-06. During the period under review, Kerala has been able to maintain

the lead in productivity among the cardamom producing states. Another encouraging feature is that productivity of Kerala state has always been much above national average. Yield in Tamil Nadu also is higher than national average yield per hectare.

DISTRICT WISE AREA AND PRODUCTION OF CARDAMOM IN KERALA

The Total Area under cultivation of Cardamom in Kerala during 2004-05 was 41378 Hectares. The various Districts in which Cardamom is cultivated includes Idukki; Wynad; Palakkad; Pathanamthitta; Kottayam; Kasaragode; Malappuram; Kannoor; Kozhikode; Kollam and Thiruvananthapuram. Of the various Districts, a major part of which is concentrated in Idukki District with 32856 Hectares (79 Per cent to total in 2004-05); Wynad District 4110 Hectares (10 per cent to total); Palakkad District 2756 Hectares (7 per cent to total); Pathanamthitta District 664 Hectares (2 per to total); Kottayam District 200 Hectares (0.5 per cent to total); Kasaragode 367 Hectares (0.88 per cent to total); Kozhikode District 220 Hectares (0.05 per cent to total); Kannoor District 120 Hectares (0.29 per cent to total); Malappuram District 70 Hectares and Kollam and Thiruvananthapuram with negligible share. During 2004-05 7 Hectares were under cultivation of cardamom in Kollam District. Cardamom is cultivated in the Sadanandapuram region of Kottarakkara in Kollam district of Kerala. It is

called 'Kanni Elam.' It is not grown on commercial basis, but in kitchen gardens and the like. At present there is no cardamom cultivated area in Thiruvananthapuram District. District wise area and production are given in Appendix 6.

As is noticed from Appendix 6, the largest producer of cardamom; in Kerala is Idukki district (79 per cent of the total), Wynad comes next (10 per cent of the total) and the third Palghat (7 per cent of the total). Pathanamthitta (2 per cent of the total) and Kottayam (1 per cent of the total) and other districts follow.

As is seen from the analysis on the area, production and productivity of cardamom in Kerala, there is need for increasing the area under cultivation of cardamom. The increase in area under cultivation of cardamom leads to an increase in the production of the cardamom. Increase in production alone is not enough for solving the problems of growers. Increase in output without creating adequate demand will further worsen the situation. What is required is to create adequate demand for cardamom both in domestic and export markets. Creating adequate demand depends, in turn, on the consumption pattern of the product and the marketing practices followed in the industry. The next chapter gives an account of the consumption pattern and present marketing machinery of the product.

MARKETING OF CARDAMOM

S. Krishnan Nair “The problems of production and marketing in the cardamom industry with particular reference to Kerala” Thesis. Department of Commerce and Management Studies, University of Calicut, 2006

CHAPTER IV
MARKETING OF CARDAMOM

The economic prosperity of growers depends on the income earned by marketing the farm output, which in turn depends on the demand for the produce. Demand in turn depends on consumption pattern and the marketing machinery. An attempt is made in this chapter to examine the present marketing practices and marketing machinery in cardamom trade.

The demand for spices in the aggregate is relatively stable in the short run as in the case of any other agriculture produce like food stuffs and raw materials. The supply of agricultural products fluctuate widely from year to year, from one part of the year to another, and from one area to another, one farm to another on account of variations in acreage under cultivation and variation in yields due to seasonal and weather conditions, more supply during certain months of the year, variations in the conditions of marketing, variations in imports or exports, long chain of intermediaries between the consumers and producers etc. The fluctuation in supply constitutes the most important factor responsible for the wide fluctuations in prices of spice crops. Institutional efforts and arrangements in areas such as regulated markets, monopoly procurement, standardization of weights and measures, Agmark

grading, minimum support prices etc., have not always had the desired effect and failed to improve the marketing structure and their efficiency.

Consumption of Cardamom

At present, Saudi Arabia is the largest consumer of small cardamom in the world. Saudi Arabia consumes the bulk of the cardamom in the world. And demand is especially high one month before Ramadan. This is because, during the holy month, making cardamom coffee is a daily task in every family, in preparation for the breaking of the fast.[1]

Japan, Malaysia, UK, Oman, Kuwait, Bahrain, South Africa, Hong Kong, Greece, Qatar, USA, Italy, UAE, Korea (South), France, Canada, Singapore, Netherlands and others are also consumers of Indian cardamom.

India is the second largest consumer. Global consumption of Cardamom is estimated as 15000 Tonnes to 24000 Tonnes. On the other hand the current domestic demand for small cardamom has been estimated at 11000 MT. The retail market size in South India is estimated at around 30% for small cardamom. The share is highest in West India (45%) followed by the North India (35%) and lowest in East. Industrial consumption of cardamom particularly by the pharmaceutical / Ayurveda and cosmetics is the highest and accounts for over 45% of the total consumption. A clear regional

[1] Saudi Aramco World, March/April 1997 Print Edition, p29.

disparity is visualized in cardamom consumption pattern. Though the urban areas contribute large share of its consumption, in recent years rural market is also gaining importance and growing at a very high rate than the urban market. Household uses of this spice are very limited mainly due to the high price, but seasonal buying has been increased. Internal consumption of cardamom is given in the following table.

TABLE 4.1

Internal consumption of Cardamom
(Quantity – Tonnes)

Year	Production	Internal consumption*	Index
1970-71	3170	1465	100
1980-81	4400	2055	140
1990-91	4750	4350	297
2000-01	10480	8935	610
2004-05	11415	10540	720

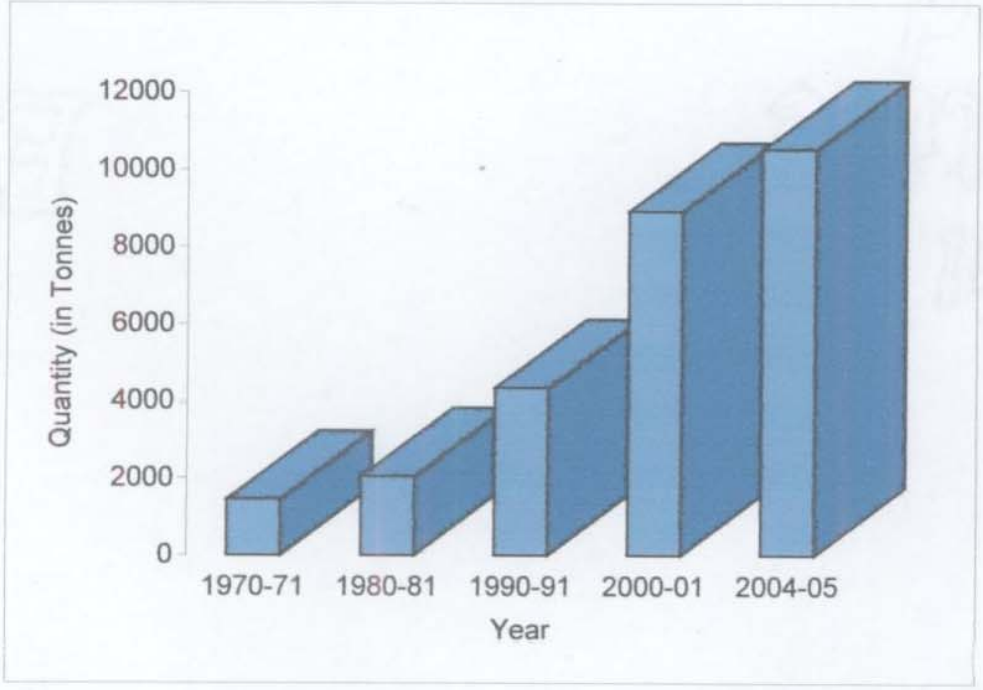
* Calculated as the difference between production and exports
Source: Compiled from Spices Board records

Table 4.1 shows the increase in internal consumption over the last two and a half decades. In the beginning of the period it was 1465 tonnes, which increased to 2055 tonnes over the next 10 years, recording a growth of 40 percent. Again during the next decade domestic consumption more than doubled, compared to 1980-81 levels. Almost the same tendency is noticed over the next 10 years also when internal consumption reached 8935 tonnes.

The index reached 610, compared to base year. In 2004-05 domestic consumption further increased to 10540 tonnes, registering a more than seven fold increase compared to 1970-71.[2] This phenomenal growth trend can be attributed to the promotion strategies adopted by erstwhile Cardamom Board and Spices Board and the increased affinity of consumers towards natural flavourings and food additives. Domestic consumption of cardamom in India is given in Fig. 4.1 also.

Fig. 4.1

Internal Consumption of Cardamom



Present day consumers are well aware of the ill effects of artificial ingredients and flavourings in food products and they prefer only natural

[2] Business Line, Oct. 12, 2006.

additives and supplements. And this consumers' preference indirectly influenced manufacturers and food processors to opt for natural cardamom wherever its flavour is required.

Household consumption in the country, according to industry sources, is estimated at 6,150 tonnes with an annual growth of 3.7 per cent, while 2,050 tonnes are absorbed by the industry engaged in manufacturing of mouth fresheners, ayurvedic drugs, pan masala and curry powders which is said to be growing at 15 per cent a year. The intake by confectionaries, sweet makers and bakers is estimated at 1,250 tonnes with annual growth of 10 per cent.

USES OF CARDAMOM

Demand for cardamom depends upon the nature and extent of requirement of cardamom capsules and cardamom based products for consumption. So it is worthwhile to discuss its various uses.

Cardamom is a versatile spice as far as its uses are concerned. Varied are the uses to which cardamom is put.. Perhaps, that is the only spice that can flavour fully blend with anything edible or potable. Cardamom goes extremely well with Coffee, Tea, Milk, Fruit Juice, Soft Drinks and Alcoholic Beverages. It also enhances the taste and flavour of vegetable curries, meat

preparations, bakery products and toffees. Cardamom has a calorie value of 229 kilo calories per 100 Gms. of edible portion.[3]

Cardamom flavour is smooth, spicy, slightly bitter, camphoraceous, cinolic, sweet, cooly, lemony with a tingling, metholic taste. Its aromatic content makes it ideal for supplementing or fortifying the existing flavour or for camouflaging or modifying some undesirable flavour inherent in the base product.

Cardamom is rich in proteins, carbohydrates, calcium, phosphorus, iron etc. It is the volatile oil, which is present to the extent of 6 to 8 per cent in the seeds that gives cardamom its characteristic aroma and related properties. The husk also contains about 0.2 per cent of the oil. The oil is a colourless or pale yellow liquid with a penetrating odour and pungent taste. The oil of cardamom is obtained by steam distillation of whole fruits and contains cineol, terpincol, terpinene, limonene and sabiene. Cardamom oil is volatile. It is easily soluble in alcohol. This is advantageous in its use for flavoring. But the oil lacks the full flavour of the cardamom seed. Oleoresin of Cardamom; is prepared by solvent extraction of ground seeds and the

[3] National Institute of Nutrition, ICMR, Hyderabad, India

subsequent removal of the solvent. It is a dark green liquid containing 70 to 75 per cent volatile oil.[4]

When the usage pattern of cardamom is analysed, it was seen that, in the Middle East Countries the highest per capita consumption of cardamom is prevalent. Cardamom is mainly used for the preparation of '***Gahwa***' or 'Cardamom Coffee'. Drinking of cardamom coffee is a universal habit among Saudees, Kuwaitees, Quatarees and others, and in fact, forms part of Arab tradition and culture. The Arabs regard serving of Gahwa to guests as a foremost gesture of hospitality. In their daily life Gahwa is taken at all times of the day, but it is customary to take it after each meal, lunch or dinner. In the Gahwa, which is a mixture of cardamom and coffee decoctions, the content of cardamom goes up from 50 to 90 per cent, depending upon the affluence of the person serving it.

In Saudi Arabia, however, cardamom enjoys almost universal popularity, and a well-prepared pot of Arab coffee, with praise for the generous quantities of cardamom in it, is a staple subject of traditional colloquial poetry in Arabia. During the period between Ramadan and the Hajj, the Muslim pilgrimage to Mecca, consumption increases because between one and two million Muslims enter the country as pilgrims, swelling the population during a three-month period. Throughout the kingdom, green

[4] www.indianspices.com

coffee beans are lightly roasted, crushed with a mortar and pestle, or ground in an electric coffee mill, and boiled briefly with ground cardamom seeds. If you order ready-ground cardamom coffee in a specialty store in Arabia, the clerk will add five or 10 grams of ground spice to 250 grams of coffee, but for special occasions, or to honor a guest with a particular display of generosity and good manners, quite large quantities of cardamom may be used. The spice gives the brew a greenish tint and a heady fragrance, and in some variations, it is the cardamom, and not the coffee, that is the dominant flavor.

It is important to note that the custom of drinking cardamom coffee is prevalent only among the Arabs of the Persian Gulf countries and not among other Arabs in Lebanon, Syria etc, who prefer to take " Turkish coffee", "Gahwa-Turk" as they call it, in which cardamom is added in small quantities not exceeding five percent. The extent of cardamom used in cardamom coffee thus varies from three per cent to 90 per cent among different sections of peoples in the Middle East. It is also interesting to note that the Government of Qatar imports cardamom from India and elsewhere and distributes the same through ration shops as an essential commodity. Arabs also use cardamom in rice and meat preparations. They buy bold green capsules of cardamom and use it after grinding it afresh. It is also customary; to show the quality of cardamom to the guests as a matter of prestige before it is used in the preparation and serving of Gahwa to them.

In Chinese system of medicine, cardamom oil is used as an aromatic, carminative and stomatic.

Cardamom first appeared in Europe after the scientists attached to the staff of Alexander the Great sent it back from India in the fourth century BC. Alexander had plants and other specimens sent to his tutor, Aristotle, and it was Aristotle's successor, Theophrastus, "the father of botany," who first mentioned cardamom in the West. It was later used in Rome to make perfume. When Roman trade collapsed after the empire's fall, cardamom, too, disappeared from Europe. It reappeared only in the early middle ages when the Crusaders returned from the Middle East, bringing with them, among many other comforts, spices used for medicinal and culinary purposes. In Scandinavia, Germany and Russia, cardamom is still commonly used in breads, cakes and pastries, though it has not been as warmly accepted elsewhere in Europe.[5]

Western countries import cardamom as capsules, powder, oil, oleoresin etc for the preparation of ready to use food or beverages.

The Scandinavians mainly use Cardamom in the baking of 'coffee-cake', the British and Japanese use it in curry, ham and sausages. The Germans use cardamom in various spice mixes for sausages and processed meat products. The Americans use it in baked food and the Russians in

[5] Saudi Aramco World op cit. p28.

pastries, cakes and confectionary. In certain European countries cardamom is used in beverages, including alcoholic liquors. In France it is used in perfumes and toiletries.

India is the second largest consumer of cardamom after Saudi Arabia. The main use in India is for flavouring food preparations especially sweet dishes. Pan masala or chewing mixture is another area in which cardamom is consumed in large quantities. In fact, cardamom traders and exporters have developed a particular grade of cardamom entitled 'Panbar', resembling Agmark grade of AGS 2 for supplying to Panwalas in North Indian centers.

The pan is a mixture of betel nut, arecanut, chewing tobacco etc and a capsule of cardamom. It is usually taken after the food and is said to be good for easy digestion when heavy meals are taken. Of late, manufactured pan masalas are also available in consumer packs to be used as mouth fresheners. The consumption of freshly made 'pan masalas' and manufactured ones are very common and popular in North India, that the consumption of cardamom; in this area would be high.

Hoteliers and bakers constitute another important group. They use cardamom in large quantities for flavouring food items, sweets and bakery products.

Cardamom also finds an important place in Ayurvedic Medicines and in a few medicines of other systems. Cardamom is a powerful aromatic,

carminative, stomachic and diuretic and checks nausea and vomiting. Cardamom is also said to be an effective cardiac stimulant and is indicated to be good for bronchial ailments. It is also an effective aphrodisiac.

In the great Ayurvedic treaties of Charaka and Susrutha, 'ela' (cardamom) is mentioned as a drug of choice in the management of diseases of digestive, respiratory and uro-genital systems. Cardamom is however rarely prescribed as such but commonly as adjuvant or correctives of cardio tonic, brochodialative and digestive medicines.[6]

Cardamom is used in as many as 24 of the most important preparations in Ayurvedic system in the form of decoctions, oils and powders as well as medicated fermented beverages like 'Arishta' and 'Asava'.

In India, cardamom was sometimes prescribed, along with cinnamon, ginger and turmeric, to remove fat and cure jaundice and urinary infections. The Indian Ayurvedic system of medicine, based on the earliest Brahmanic texts, recommended that spices such as cardamom and cloves be wrapped in betel-nut leaves and chewed after meals to increase the flow of saliva, help digestion and eliminate bad breath, and millions of Indians do precisely that today.

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[6] Pruthi.J.S., Spices and Condiments, National Book Trust of India, p3.

In Unani system of medicine, cardamom checks nausea, vomiting and headache. It is also a refrigerant, resolvent, cardiac stimulant, absorbs moisture, expels wind, helps digestion and hepatic colic.[7]

Cardamom is used in allopathic preparations like carminative mixture, tincture etc. Also in India, certain health foods have been brought out with cardamom flavour. Cakes, biscuits, toffees, chewing gums etc with cardamom flavour are popular in the Indian market.

Muslims in north India, who smoke hookah, add cardamom husk to tobacco in the ratio of 1:3. Betel nut factories in Andhra Pradesh mix cardamom with supari as flavouring agent. Kimam is a tobacco paste, made spicy by adding cardamom. Cardamom is sometimes presented as a prestigious gift during marriages and festivals.

The future of cardamom industry as a whole and that of India in particular, mainly depends upon its entry into the food industry and certain non food industries. New uses and related products are also to be developed. Along with marketing of cardamom capsules, its oil, oleoresin and powder in attractive consumer packs in the existing markets could be marketed.

[7] www.indianspices.com

A. DOMESTIC MARKETING OF CARDAMOM

The early commercial policy of the Government of Travancore* was one of perpetuating the State Monopoly of trade in almost all commodities of commercial importance. So Cardamom came under the monopoly of the State. Until the first quarter of the 19th century, the Government used to collect Cardamom for trade purposes.

The abolition of Cardamom Monopoly in 1896 was followed by the introduction of land tax system (for 5 years). This resulted in a change in the Marketing system also and there emerged the system of private trading in Cardamom. But in the wake of the abolition of Government trading of Cardamom and the introduction of private trading, there was no arrangement to ensure fair prices to the growers, especially to small holders. Because of the increase in area and production of Cardamom the number of traders also increased. There was no organized marketing system in Travancore during the 1920s and 1930s. The auction centers numbering nearly 10 organised by Planters Association and by individual auctioneers were spread over the Cardamom growing areas of Tamil Nadu and Karnataka.

An organized Marketing system was started in Kerala only in 1959 at Vandanmettu (presently in Idukki district), under the auspicious of the Cardamom Marketing Corporation, an organization of large growers of

* An erstwhile princely state, now part of Kerala

cardamom. This auction center till recently was one of the leading auction centers of cardamom in India. But now it is defunct.

For promoting cultivation and marketing of Cardamom, the Government of India constituted a Cardamom Development and Marketing Advisory Committee in 1963 and the Cardamom Board in 1966 under the Cardamom Act, 1965. In 1977 the Cardamom (Licensing and Marketing) Act was passed which brought different functionaries like Auctioneers, Dealers and Exporters under the control of the Board. The three market functionaries via, Auctioneers, Dealers and Exporters have to take licenses from the Board to function. However, Cardamom Board was abolished and Government constituted a new Board for all Spices including Cardamom in 1985 under Spices Board Act and all the activities performed by the Cardamom Board and Spices Export Promotion Council are brought under the purview of the Spices Board. Thus, Cardamom, at present, is having a regulated market by restricting the entry of different functionaries with a view to ensuring fair prices and timely payment of the sale proceeds to the growers.

As per the Cardamom (Licensing and Marketing) Rules, 1987 only the authorised dealers can distribute Cardamom. The Board grants permission for dealing in Cardamom both for internal and export trade. No producer of Cardamom shall sell his produce otherwise than through a Licensed Auctioneer or a Dealer licensed to purchase Cardamom from producer. The

aforesaid dealers alone can deal in the distribution of Cardamom in India and abroad. The License holders are exporters, Dealers, Auctioneer and RCM Licensees (Registration Membership Certificate and it enables them to get incentive while exporting cardamom). Dealers are simply license holders, having the right to purchase cardamom from growers or from auctioneers.

Major markets of Cardamom in India are Cochin, Thodupuzha-(Kerala); Saklashpur, Mercara, Medikeri, Mangalore-(Karnataka); Bombay-(Maharashtra); Virudhunagar, Cumbum, Bodinayakanur, Thevaram, Pattiveeranpatti-(Tamil Nadu). Major assembling markets of cardamom in Kerala are Kumili (Dist.-Idukki) and Vandanmedu (Dist. Idukki). Major trading centers of cardamom are given in Appendix 7.

In the Cardamom Industry, the traditional system of primary marketing i.e., the auction system has been prevailing in Kerala, Karnataka and Tamil Nadu. Normally, a major part of cardamom crop is sold through auctions conducted by the auctioneers in the producing areas of Kerala, Karnataka and Tamil Nadu. The planters sell the rest directly to the dealers licensed by the Board.

Grading

Grading is done both by growers and traders. As per the Cardamom Grading and Marketing Rules, 1962, there are 34 different Grades of Cardamom and the first five to six Grades are generally known as Exportable

Grades, as these grades are having good overseas markets. These varieties are:

1. AGEB	2. AGS
3. AGS-2	4. AGB
5. AGB-1	6. BL-2

Details of cardamom Grading and Marking Rules and are given in Appendix 8.

There are different varieties of cardamom based on weight and size of the capsules. Important of them are given below with a small description.

1. **Bold:** It is popular export grade; 90% and above capsules will be having 6.5 mm and above diameter, matured and Greenish colour. Lt. Wt. (weight per litre) will be 415 Gms.

2. **Super Bold:** It is a very special variety. All capsules will be matured greenish and having above 8 mm diameter size. Lt. Wt. will be more than 450 gm.

3. **Extra Bold:** Best in the Export market. All capsules will be matured, greenish and having 7 mm and above diameter. Lt. Wt. will be 435 gm.

4. **Bulk:** This is the grade of cardamom produced as it is. This grade will contain all size, matured and immature capsules, black, yellow and splitted cardamom. This is to be graded.

5. **Small:** Small size cardamom having size between 5.5 mm and 6.5 mm. Lt. Wt. will be around 385 Gms.

6. **Open / Splits:** More than 60% capsules will be in open condition and the colour may be partly greenish or pale yellow. All capsules will be matured and the sizes are 6.5mm and above.

7. **Seeds:** Black / Brown colour seeds are the original content in every cardamom capsule. The husks were fully removed. Lt. Wt may be around 550 gm to 600 gm.

8. **Fruit:** Fruits are generally over matured capsules with slight yellowish colour and Lt. Wt. over 425 gm.

The most important grades of Cardamom in the trade are; Greens (Green pods, artificially dried in kilns or hot rooms or, curing chambers); Sun dried pods (light coloured, dried in the Sun), Decorticated (Hulled seeds); Bleached (pods that have been chemically bleached by fuming with burning Sulphur or Hydrogen peroxide - this type has become less important in recent years). Green and sun dried pods account for 85 per cent of the world export market in cardamom, Seeds for about 10 per cent and Bleached for the balance.

Internationally accepted and most commercially imported varieties of Cardamom are Malabar Cardamom, Sri Lankan Cardamom and Cambodian Cardamom.

Different forms of cardamom marketed

- Cured and dried capsules
- Decorticated Cardamom – Seeds
- Oleoresin
- Cardamom powder

Present trends in cardamom marketing

Recently the cardamom marketing scenario is taking a new turn. The traditional and age old methods are done away with, which is a welcome move. The Cardamom growers in Kerala and Tamil Nadu formed a new company called South India Green Cardamom Company Limited to take up direct marketing both within India and overseas. Mr. P.C. Syriac, former Chairman of the Rubber Board, would be the Managing Director of the company. The company, registered under the Companies Act and promoted by 50 planters, will start its first trial retail marketing in Madurai next month.[8] The company planned to bring all the 25,000 planters registered with the Spices Board into it, in which traders would also be given shares. It has been

[8] The New Indian Express 20 Oct. 2006.

floated with an authorised capital of Rs 50 lakh and that would be enhanced based on its success.

The objective of the company is to ensure remunerative prices for the cardamom growers for which it would take up, apart from production, procurement, grading, pooling, handling, processing, marketing, selling, import and export of cardamom and its products. Besides, a R&D unit would also be set up. Already the company has set up a packaging unit at Cumbum in Tamil Nadu where small pouches are being manufactured. Initially, for trial marketing, pouches with two grams of cardamom, priced at Rs 2 will be made available. The idea is to sell it to small teashops and through other small retail outlets to cater to the poor people for whom this spice remains unaffordable. Depending upon the success of trial marketing in Madurai, it would be taken to other areas in due course.

At present, the consumers of cardamom in the country are mainly the elite and upper- and middle-class families. The marketing of small pouches would increase the per capita consumption of this commodity in the country, which would create more demand, according to Mr. S. Prabhakaran, a Cumbum-based planter. At the same time it would help eliminate the exploitation by a string of intermediaries and that it would ensure the farmers of better prices.

Another development is the decision of NMCE to start futures trading in cardamom. National Multi-Commodity Exchange of India Ltd (NMCE) has introduced futures trading in cardamom 7 mm AGEB variety from February-March 2006. The 7 mm contract will run concurrently with the 6 mm AGB variety on NMCE trading terminal. Most of the AGEB variety was usually meant for export; therefore, the exchange had designed the contract by focusing on export parameters of cardamom bold. The exchange would like to follow Agmark special grade with 435 g/l lighter weight. Its trading unit will be one quintal and moisture content 11 per cent. The exchange also proposes to add two new Central Warehousing Corporation warehouses for the storage of cardamom in Idukki district in Kerala.

Packaging

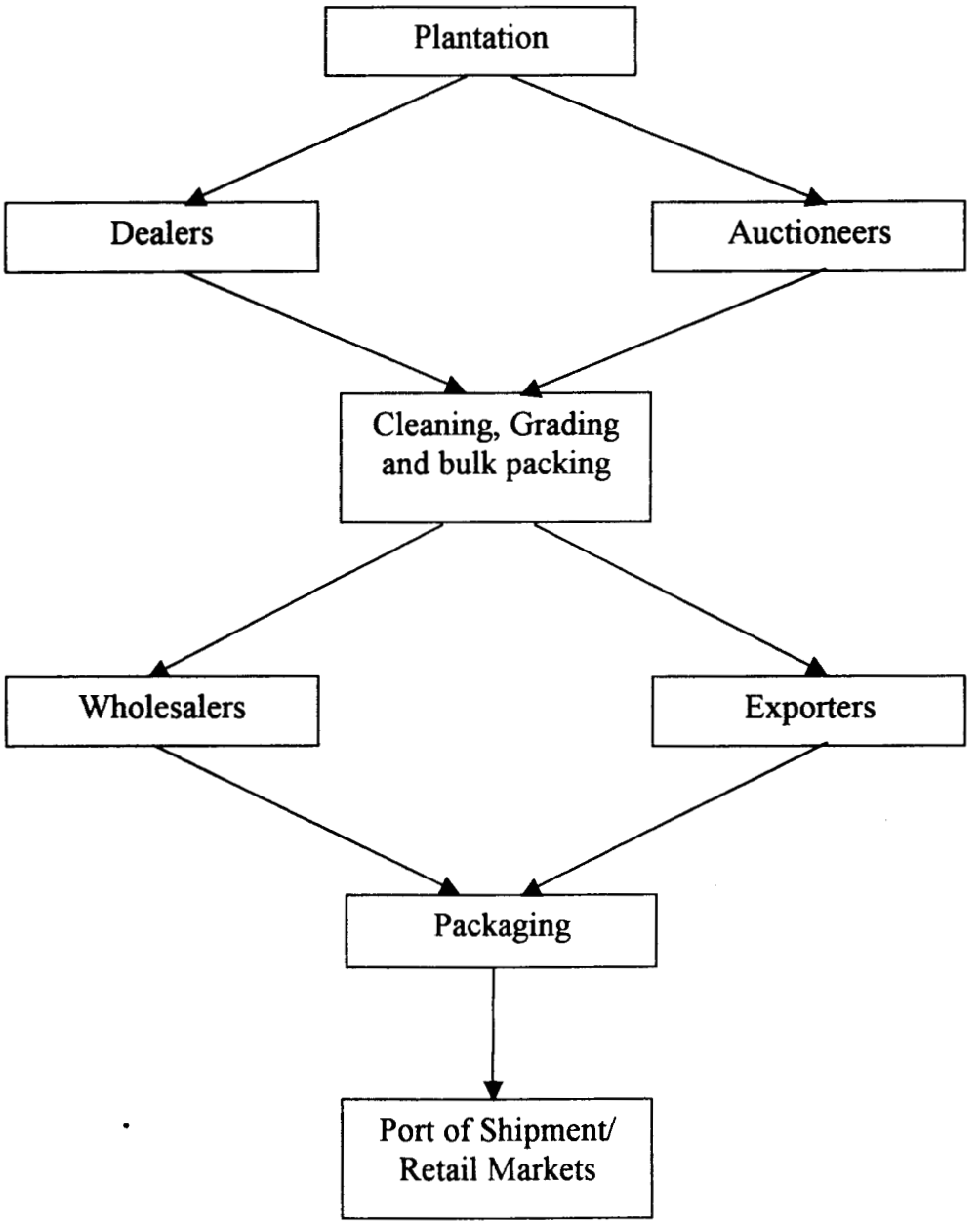
Proper packing helps retain the quality and much required green colour of cardamom. Different types of packing are adopted for domestic markets and for export. For export itself different packing systems are adopted for the Middle East Countries, Japan, Russia and European countries, with slight variations from exporter to exporter and according to the requirements of importers in those countries. Packaging was done in gunny bags and wooden cases. The black polythene-lined gunny bags were made into 'Moodas' by stitching them in such a way as to make them similar to drum like structures. These were then covered with stencil gunny and tied with coir ropes in a

decorative manner. The inside containers in 'Mooda' and wooden containers would be 300 gauge black polythene bags. While Moodas of 50 kgs capacity are used for internal dispatches, Mooda packing of different weights is mostly used for export to the Middle East Countries. Wooden packaging is commonly used for export to Russia and European countries. In earlier days buyers in the Middle East Countries preferred to have 'Jottas'. Four Moodas or Wooden cases were made into one Jotta by using steel straps. In earlier days the wooden and the mooda packing were also covered outside with stencil gunny and coated with tar as a measure of protection from light and pilferage. For exposure to direct sunlight diminishes the quality of green cardamom.

The Cardamom from plantation is processed and brought in for marketing. The total process of movement of cardamom from plantation to marketing stage is presented in Fig 4.2.

Fig 4.2

Movement of Cardamom from Plantation to Market



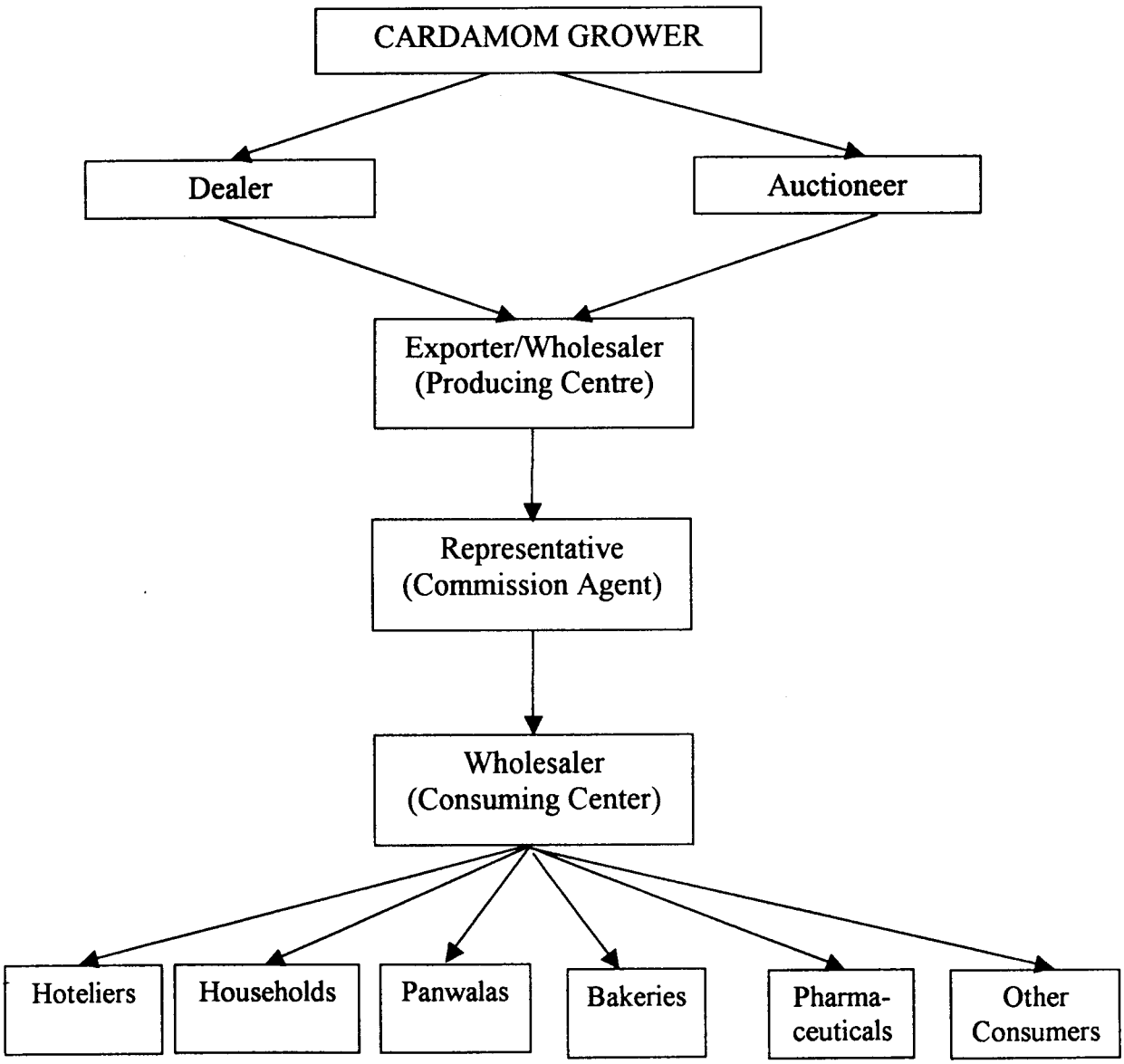
Firstly it is brought to dealers by head load in black polythene-lined gunny bags of different weights. The dealers store them temporarily in black polythene-lined gunny Bags of 50 kgs. Then they grade it normally by

winnowing and hand picking and then re-pack and it is transported by truck to ports of shipment/upcountry markets. During the crop season, the inventory is not kept waiting for more than two or four weeks with the wholesalers and exporters in the procurement centers. Off seasons stocks are also usually negligible with the planters, traders and exporters because of the high value of the commodity.

As regards sources of supply, packaging, mode of transport, peak season of consumption etc, a great degree of similarity is observed in the individual markets all over India. Cardamom moves from producers to dispatching centers which are the first wholesale centers, either through cardamom auctions or through small dealers who collect cardamom from the small producers. The main despatching centers for Alleppey Green Cardamoms are Bodinayakanur and Virudhnagar in Tamil Nadu and Cochin and Mumbai. The main despatching centers of Coorg Green and of the Bleached/Bleachable white cardamoms are Bangalore, Saklespur, Mercara and Sirsi in Karnataka and Mumbai. Cardamom is then made available to the representatives or the wholesalers in upcountry marketing centres. From these second level wholesalers, it is channeled to the Retailers who sell it to panwalas, housewives etc. The large users like the confectioners, pan masala manufacturers and tobacco paste producers get their supply from the second level wholesalers. The flow of Cardamom from the producer to the actual user or consumer is given in Fig 4.3

Fig. 4.3

Flow of cardamom from grower to end user



It is clear from Fig 4.3 that there are five intermediaries in the channel of distribution of cardamom between the actual user and the consumer. They are dealers/auctioneers, exporters/wholesalers at trading centres, commission agents, wholesalers at consuming centres and retailers. In the case of the sales

or distribution of branded cardamom, flavoured items like 'True' Biscuits, 'Complan' and 'Horlicks' other intermediaries also come in. Cardamom is also subjected to a number of levies and taxes. It also incurs other expenses at different stages like state sales taxes, central sales taxes, octroi, loading and unloading charges, packing and re-packing expenses, transportation costs and profit margin of the five major intermediaries.

Road transport is used to transport cardamom from the producing or procurement centers to consuming centers in India, always under insurance cover. Rail transport is not usually utilized by the traders, primarily because of the delay and secondarily because of the fear of pilferage. Moreover, cardamom being a low volume high price item, the cost of lorry transport is not high compared to railway transport charges. Also the season for peak dispatch of cardamom to upcountry markets from South India is October to December, as most of the festivals like Deepavali, Durga Puja and Christmas fall during this period.

Sale of cardamom through auction

As per the cardamom licensing and marketing rules of 1987, the dealers who buy cardamom from the growers or in auction and, the exporters have to obtain appropriate licenses for undertaking business in cardamom. From the field survey it is seen that majority of the growers sold their produce through auction or local dealers. There were 27 Auctioneers in India during

2004-05, all licensed by the Spices Board. Vandenmettu, Santhanpara, Kumili and Cochin in Kerala, Meracara, Saklespur and Mangalore in Karnataka and Pattiveerapatti and Bodinayakannur in Tamil Nadu are the major cardamom auction centres in South India. There are mainly four auction houses in Kerala. They are:

- Cardamom Planters Association - Wyanad
- Header Systems (India) Limited - Idukki
- MAS Enterprises Limited - Idukki
- The Kerala Cardamom Processing and Marketing Company Limited (KCPMC) - Idukki

A brief outline of the activities of KCPMC, one of the leading auctioneers, is not out of place.

The Kerala Cardamom Processing and Marketing Company Limited (KCPMC) is a registered exporter under Spices Board and member of All India Spices Exporters Forum. In 1997, KCPMC entered the world of Cardamom exports, bringing in valuable foreign earnings into the country. In 1997 - 98 it opened its accounts in the export market by exporting about 20 MT to the Middle East. In 1998 - 99, even though the general cardamom industry faced a low production due to adverse climatic conditions, KCMPC was able to maintain its export level at 20 MT. Apart from strengthening its ties in the Middle East it has also entered Japan, which is a rather difficult

market to break into. Till 2001, KCPMC has already increased its exports to more than 6 times of last year to around 123 MTs. of cardamom. KCPMC maintains an experienced team of professionals to procure good quality cardamom according to market needs. The procured cardamom undergoes a quality test so that it meets the quality specifications of the importer. After thorough examination and export quality inspection, it is shipped out to various destinations.

KCPMC has also started branding their cardamom in their own name "KCPMC" and is sold in consumer packages ranging form 250 gms to 1 Kg. The company also exports in bulk in 50kg gunny bags. KCPMC can also adhere to any packaging required by the importer. KCPMC has a strong presence in the 'Bodi' market and does vibrant trade with northern India where most of the Cardamom is consumed. Cardamom trade by KCPMC also has a hidden benefit for customers in ensuring truly genuine prices at auctions, which is represented by a large number of traders from all over India. Our long term plans include an ambitious project to trade and export a variety of commodities produced in Southern India, thereby developing the division into a trading house.[9]

It is also observed that some large growers act as auctioneers, traders and exporters at the same time. They to a certain extent control the market

[9] www.kcpmc.com

and fix prices. Also certain big planters makes a complaint that they are liable to pay high tax in certain cases due to the excess charging of quantity of cardamom to their names. The auctioneers often add to the names of large growers who give large quantity to the auction, than the small bit given by the small growers for auctions.

THE AUCTION SYSTEM

The first sale of the commodity is largely through the cardamom auction centres located in the main plantation areas. Vandanmedu, Santhanpara, Kumili and Cochin in Kerala; Mercara, Saklespur and Mangalore in Karnataka and Pattiveeranpatti and Bodinayakanur in Tamil Nadu are the major cardamom auction centers. Of the various auctioneers, One auctioneer via, The Cardamom Marketing Corporation, Vandanmedu, a partnership firm of large growers, handles the bulk of the cardamom produced in Kerala and the country. Spices Board has estimated that about 60 to 70 per cent of the cardamom produced in the country is first sold through auctions. The growers sell the rest directly to the dealers and exporters.

Cardamom auction system is one of the oldest methods of marketing. At present there are six auction centers for Cardamom. Their sites and days of business are given below.

1. Monday – Bodinaykanur (Tamilnadu)
2. Tuesday – Kumily (Kerala)

3.	Wednesday	–	Kumily (Kerala)
4.	Thursday	–	Bodinaykanur (Tamilnadu)
5.	Friday	–	Vandanmedu (Kerala)
6.	Saturday	–	Vandanmedu (Kerala)

There are 17 firms currently conducting auctions in Kerala, Tamilnadu, Karnataka & Mumbai. The volume of business transacted in auctions is given in the following table together with the share of total output dealt through auctions.

TABLE 4.2

All India auction sales of Cardamom

Year	Production (MT)	Quantity. Sold through auctions (MT)	% of output sold through auction
2000-01	10480	5291	50
2001-02	11365	3305	29
2002-03	11920	4188	35
2003-04	11580	5526	48
2004-05	11415	4906	43

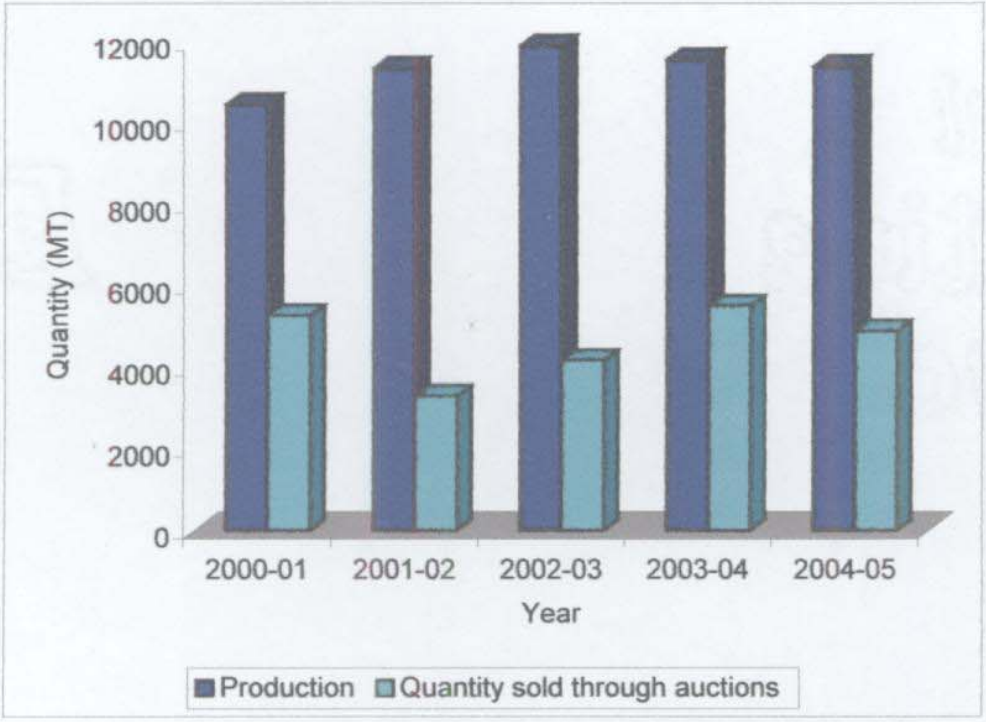
Source: Spices Board, Kochi

Table 4.2 shows that the quantity of cardamom sold through auctions as a percentage of quantity produced shows fluctuations over the five years. It

was as high as half of the total production in 2000-01. The lowest figure was recorded in 2001-02, when only 29 percent of total output was sold through auctions. This reveals that there is tendency of growers to take advantage of increased price by way of direct sale to dealers other than auctioneers. The trend of auction sale can be easily understood from Fig 4.4.

Fig. 4.4

All India Auction Sales of Cardamom



Due to continuous harvesting of small cardamom in different production centers in recent years, auction is being conducted throughout the year as desired by the growers. As per the cardamom (Licensing & Marketing) Rules 1987 all the producers of cardamom should sale their

produce through a licensed auctioneer / dealer. An auctioneer can conduct more than one auction centre subject to separate license for each functioning. For the service of the auctioneer up to 1% of the sale price is charged as commission.

The system of auctioning in cardamom is unique, and it has been in existence for the last several years, even before the introduction of licensing and control by the Cardamom Board in 1977. The process of open auction in an auction center is worth mentioning each auctioneer conducts the auction once in a week. The growers bring their weekly harvest of cured cardamom to the nearby auction centre and register the lots i.e., bags of cardamom. They generally deposit the cardamom for auction in two or three lots after making a simple sorting at their estates, according to size and colour. The auctioneer arranges the auction on a pre-fixed day by inviting exporters and wholesale dealers from important marketing centers. The exporters and; wholesale dealers licensed by the Spices Board, attend the auction for bidding. The growers who deposit their cardamom at the auction centre may or may not be present to witness the auction. The auctioneer announces the number and the quantity of cardamom of each lot and puts it for auction. Samples of cardamom in each lot are distributed among the bidders. The exporters and the traders bid and the lot is sold to the particular exporters or trader who bids the highest price. One per cent commission on the value of cardamom sold in

the auction goes to the auctioneer for the services rendered in this connection which is paid by the growers.

The bidding in the auction is supposed to be highly competitive. The expectation is that the auction enables to fetch the highest possible price for the produce at that point of time. But a close study of the auction that takes place in an auction centre, were a large number of exporters and traders take part, gives some evidence to suspect whether all the growers are getting a reasonable price for their produce through the auction system or not. This suspicion is based on the fact that, lots of bigger size fetches higher prices than the lots of smaller sizes.

One reason for this might be that lots of bigger sizes come from large growers, the quality of which might be better. Also the bidders are usually interested in getting bigger lots so that they can get the required quantum of the commodity in a lesser number of biddings. In most cases, the exporters and traders bid in the auction after having entered into contracts with overseas and upcountry buyers. They are keen to buy the required quantity as early as possible. However, it is also suspected that the large growers, who bring their produce for auction, are either traders or exporters themselves, or have close business relationships with exporters and land traders who come for bidding. This enables the large growers to influence the exporters and traders to bid their produce at a higher price, probably at the cost of small lots of small

growers. It is however, often argued that this private arrangement between large growers and exporters is not very appreciable because the identification of the lot, put to auction is not disclosed.

There are, however, major difficulties to fully agree with this argument, because most of the auctioneers, who practically control the auction, are themselves large growers, and they look after the interests of the large growers at the cost of the small growers. So, one who observes the auction in any big auction centre is inclined to believe that most of the small growers who bring small lots to the auction are not perhaps getting a reasonable price for their produce.

The indirect credit extended by the growers also plays an important role in this context. The auctioneers give 14 days credit to the exporters and traders who buy cardamom in the auction. Normally the traders and exporters give 14 days post-dated cheques and take delivery of the produce. The auctioneer will pay the growers on or before the 20^{th} day of the auction, even if the cheque of the bidder is not realized on the 14^{th} day. In view of this understanding among the big exporter, the traders, the auctioneers and the growers the deal is affected even if the exporters or traders or auctioneers delay the payment. The large growers are in a position to bear with such delays, whereas the small growers cannot afford to wait for payment for more than 20 days or one month. In many cases, the auctioneer pays the smaller

growers immediately after the sale of their produce in the auction. Ultimately, this also depresses the price of the produce of the small growers.

Probably the controlled marketing system introduced by the Spices Board at the primary level has not fully served the purpose for which it was intended. This is because; the auction is organized and controlled by private auctioneers. The Spices Board Officers only supervise the auction. It may be noted in this context that there are some people in the cardamom industry who are growers-cum-auctioneer-cum traders-cum-exporters. Such people are in a position to function as the actual price setters in this industry in a limited way; even through the base prices are set on the export demand of the commodity.

The auctioneers collect the sales or purchase tax at the auction and remit it to the State Government in lump sum. In Kerala, there is a single point sales tax at the rate of five per cent, which is levied at the first point of sale and is paid by the growers. In Karnataka and Tamil Nadu, it is a single point purchase tax at the rate of four per cent, which is also levied at the first point of sale, but is paid by the trader or exporter.

SALE OTHER THAN THROUGH AUCTIONS

Even though the auctioneers handle a sizeable quantity of cardamom produced in the country, direct sales by the growers to the dealers and exporters also constitute a fairly large quantity. Direct sales come from the small growers, who does not have a significant quantity to offer for sale at the

weekly auctions and who is not in a position to wait for longer period to collect larger quantities for sale in the auctions. This group actually owns less than 10 acres. Such growers usually sell their cardamom to small traders outside the auctions. These small traders either sell it to large traders or to the exporters

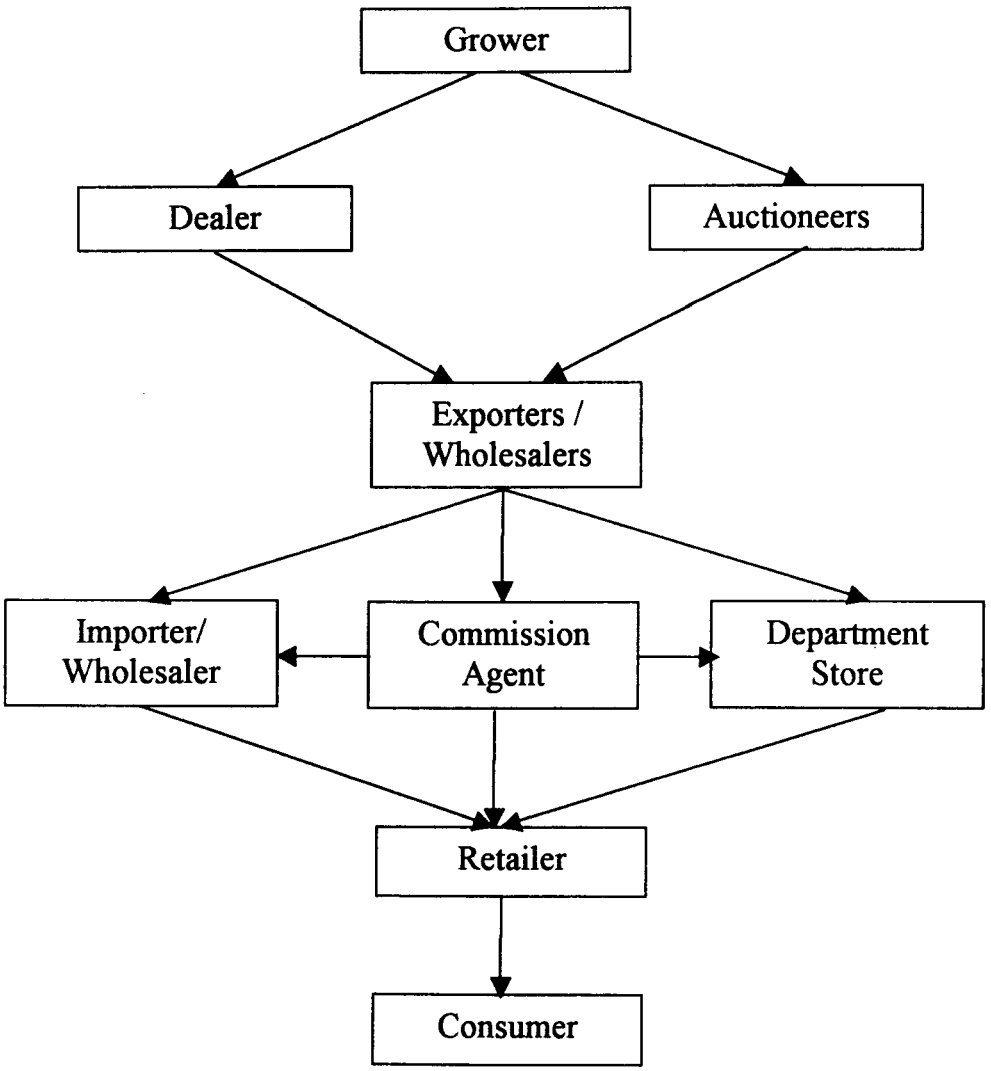
B. EXPORT MARKETING OF CARDAMOM

Indian economy is basically agrarian and hence exports of food and agricultural products assume greater significance in our economy. Growth in Agro-exports not only brings in additional foreign exchange for the country but also benefits a large number of people involved in the production, processing and export of such products.

Intermediaries of cardamom trade abroad, including those in Middle East countries are minimum compared to those in India. The cardamom importers mostly act as the wholesalers and the commodity directly moves from them to the retailers, departmental stores and manufacturers of food products. Some foreign traders directly import cardamom from India and make their own consumer packs for sales to actual users and consumers. The channel of distribution of export of cardamom is shown in Fig 4.5.

Fig. 4.5

Export Channel of Cardamom



Market share of Indian Cardamom

Till 1970s, India was the main producer and exporter of cardamom. Of late, Guatemala has emerged as a key competitor to Indian cardamom in the International Spice market. Tanzania, Sri Lanka, El Salvador, Vietnam,

Lagos, Cambodia and Papua New Guinea are the other cardamom growing countries in the World.

About 5000 years ago, the Cardamom of South India entered the market of the Middle East Countries. India still continues to be a major producer and exporter of Cardamom, the "Queen of Spices". Nearly 41 per cent of World's Cardamom production is in India and more than 30 per cent of the cardamom produced is exported from India.

Indian cardamom is exported mainly to Japan, Saudi Arabia, and UAE etc. India's cardamom exports face stiff competition from other producing and exporting countries in the world especially Guatemala which in recent years has emerged as a major producer and exporter. Guatemala offers cardamom in the world market at very low prices threatening India's position.

Due to stiff competition from Guatemala and the late availability of Guatemalan crop in the market, Indian exporters are resorting to air freighting of cardamom so as to take the commodity as early as possible to the core markets of the Middle East. The low volume, high price nature of the commodity, the need for preservation of quality in transportation, the relatively easy availability of cargo space in the passenger flight of Air India from Mumbai and Thiruvananthapuram to the Middle East destination, the mandatory rates of Air Freight for Cardamom are the major contributing factor for increased exports by Air to the Middle East Countries.

Country wise export of cardamom from India during 2001-02 to 2005-06 is shown in Appendix 9.

It is seen from Appendix 9 that India is exporting cardamom to Saudi Arabia, Japan, Malaysia, UK, Oman, Kuwait, Bahrain, South Africa, Hong Kong, Greece, Qatar, USA, Italy, UAE, Korea (South), France, Canada, Singapore and others.

Of the various countries, Saudi Arabia is the largest importer of Indian Cardamom. It was 321 MT (31 per cent of the total) during 2000-01, which came to 527.1 MT (59 per cent of the total) during 2004-05. The value was Rs 2270 Lakhs (36 per cent of the total) in 2000-01, it was Rs 1729.1 Lakhs (64 per cent of the total) in 2004-05.Next to Saudi Arabia is Japan. Kuwait, UAE and others follow. Netherlands is also emerging as a potential importer of cardamom. Netherlands plays a central role in world cardamom trade by importing whole cardamom for cleaning and processing and re-exporting primarily to the US, Eastern Europe and West Asian markets The total demand for cardamom in the Netherlands is around 158 tonne in 2001-02 and India's contribution is 24 tonnes. About 65 per cent of the imports into the country are for export only. The popularity of cardamom has risen of late in the Netherlands, though next only to pepper and ginger. It is used mainly in ready-to-use mixtures by the industrial sector and by grinders. Cardamom is used primarily in the food industry. In the ground form, it is used in baked

goods, curry powder, sausages, soups and tobacco flavouring. Its oil and oleoresin is used in canned soups and meat preparations. Although the Netherlands is a small consumer of herbs and spices compared with neighbour countries such as Germany and France, it is an important intermediary in world trade of spices and has a long tradition in this trade. Apart from caraway seed and some fresh herbs, no spices are domestically produced in any significant quantity. In 2001, the Netherlands accounted for 27 per cent of all EU imports of spices and herbs. The Dutch traders import large quantities for cleaning, reconditioning, blending and mixing to the specifications of different end users.[10]

Though Indian cardamom fails to compete and fetch a place in the international market, it is a major item of export to Middle Eastern countries. Indian Cardamom has a deep parrot green colour. It is this colour, which is the chief source of attraction of Indian cardamom in the eyes of the consumers of the Middle East countries who are also the largest per capita consumers of cardamom. They use cardamom mainly for the preparation of 'Gahwa' or 'Cardamom Coffee'. It is also interesting to note that the Government of Qatar imports cardamom from India elsewhere and distributes the same through ration shops as an essential commodity. Arabs also use cardamom in rice and meat preparations. They buy bold green capsules of cardamom and use it after grinding it fresh. It is also customary to show the

[10] Business Line Oct. 13, 2004

quality of cardamom to the guests as a matter of prestige before it is used in the preparation and serving of Gahwa to them.

The Government of India withdrew the Export Cess on spices with effect from 2nd June 2006 (Cess Laws (Repealing and Amending) Act, 2006. As per this the Spices Cess Act 1986 has been repealed as a whole. Accordingly, now there is no provision for the Export Cess at the rate of 0.5 per cent, which was otherwise levied hitherto under the Spices Board Cess Act on export of spices and spice products.

The export of Spices from Kerala is mainly through Cochin and Trivandrum ports. Major items of exports of spices from Kerala are Pepper, Cardamom, Ginger, Turmeric, Curry Powder, Spices Oil, Oleoresins, Vanilla, Nutmeg and Mace. The export of Nutmeg, Mace and Cardamom also shows a downward trend both in quantity and value. The export value of Cardamom declined by 35 per cent and Nutmeg and Mace by 16 per cent, in 2004-05 compared to 2003-04. This is mainly due to fall in the unit price of these products.

Export of Cardamom from Kerala and India and percentage share of Kerala towards India in terms of quantity and value during 2000-01 to 2004-05 is given in Table 4.3.

TABLE 4.3

Export of Cardamom

Years	Export of Cardamom				% Share of Kerala to India	
	Kerala		India			
	Quantity (in MT)	Value (in Rs. Crores)	Quantity (in MT)	Value (in Rs. Crores)	Quantity	Value
2000-01	825	42.41	1545	84.68	53	50
2001-02	630	40.32	1031	61.70	61	65
2002-03	475	32.78	682	47.74	70	69
2003-04	435	21.62	757	36.92	57	58
2004-05	387	13.99	650	23.9	60	59

Source: Compiled from Economic Review (Govt. of Kerala), various issues.

It is noticed from Table 4.3 that the export of Cardamom from Kerala during 2000-01 in terms of quantity was 825 MT, which declined to 387 MT in 2004-05 with 53 per cent fall in quantity. The corresponding figure in respect of quantity of cardamom export form India was 1545 MT in 2000-01 which declined to 650 MT in 2004-05 with -58 per cent increase. The share of Kerala towards India in terms of quantity exported was 60 per cent in 2004-05 and share in value realized 59 per cent as against 53 and 50 per cent respectively in 2000-01. This shows that the share of Kerala to all India level has improved over the period under study, which can be attributed to the increase in productivity and quality of the crop.

The value of export of Cardamom from Kerala during 2000-01 was Rs.42.41 Crores, which declined to Rs 13.99 Crores in 2004-05 recording a fall of 67 per cent. The value of export of cardamom from India during 2000-01 was Rs 84.68 Crores, which declined to Rs 23.9 Crores with a decline of 72 per cent. The percentage share of Kerala towards India in terms of value was 58 per cent in 2004-05.

In the last two chapters the discussion mainly focused on production and distribution pattern of cardamom. But there are a host of problems faced by the planters in both the production and marketing of Cardamom. They are explained in the next Chapter titled 'Production and Marketing – Problems.'

PRODUCTION AND MARKETING PROBLEMS

S. Krishnan Nair “The problems of production and marketing in the cardamom industry with particular reference to Kerala” Thesis. Department of Commerce and Management Studies, University of Calicut, 2006

CHAPTER V

PRODUCTION AND MARKETING - PROBLEMS

Having discussed the production pattern, consumption pattern and marketing practices in the cardamom industry in the last two chapters, this chapter analyses the crucial issues of the cardamom growers of Kerala especially in the matter of production and marketing. Though the climatic conditions and natural factors are conducive for cardamom cultivation there are a host of problems which land the growers in hardship. In the first part of this chapter those problems relating to production are discussed and in the next part marketing problems.

A. PROBLEMS OF PRODUCTION

As we all know farming industry has several problems inherent and incidental to agriculture. Spices industry is no exception. In the production front, cardamom Industry is facing several problems from the selection of farm site till harvesting and readying the crop for consumption. There are controllable and uncontrollable problems. Certain situations like draught, unfavourable climatic conditions and other vagaries of nature or acts of God are beyond the control of farmers. But some others are controllable with

planned and concerted effort. Most important among the problems are discussed here:

Land Tenure

About 20 per cent of the Cardamom plantations in Kerala are raised on Government lands given on lease. The risk of termination of the lease rights on the expiry of the period, or earlier, makes the planters reluctant to make any attempt for implementing long term development activities or permanent improvements in existing plantations. The outcome is that productivity declines, which in turn affect volume of output. At present we are importing cardamom from other cheap sources to meet demand.

Predominance of Small Growers in the Industry

It is pertinent to note that 94 Per cent of the Cardamom growers possess less than 8 acres of plantation. In effect they are not able to adopt scientific methods of cultivation for increasing production. Out of the 73,725 hectares under the crop in the country, 41,378 hectares are in Kerala. In Kerala, cardamom estates are predominantly smallholdings - nearly 98 per cent. Of the cardamom holdings in Kerala, the average extent of a unit is 2.25 hectares. Hence they cannot enjoy the economies of scale.

Deforestation

Cardamom grows well under the green canopy of forest trees. Therefore, cardamom cultivation and conservation of forest are inter-dependent. Large-scale cutting and clearing of lands in and around cardamom plantation have resulted in changing the eco-system required for cardamom cultivation. Of late large scale smuggling of trees from Kuttakappattom[1] cardamom lands is reported from Elamala (Cardamom Hills) region of Vandanmedu taluk of Idukki district. The timber is transported through Peermedu to Perumbavoor and other destinations in Central Kerala. The law is that not even small branches of trees in 'Kuthakapattom' lands shall be cut. But the forest mafia is somehow able to ransack the forest of trees which maintain the desirable eco-condition of our cardamom estates.

Not only in Idukki, but the same problem is persisting in other parts of Kerala also. Clearing of bamboo forests in and around cardamom plantations in Wyanad district, in accordance with an agreement between State Government and Hindustan News Prints Ltd., has toppled the eco system in that district. This has led to severe draught situation of hitherto unheard dimensions.

[1] A form of lease.

Pest and Disease Surveillance

Change in the eco-system of cardamom areas has resulted in the cropping up of a large number of pests and diseases in Cardamom plantations, which is to be considered a serious threat to the industry. Management of these involves high cost. The crop loss from their attacks is estimated to be 30 percent.

Cultivation based on Traditional Means

Even though there are some technological advancement in the cultivation of cardamom in Kerala, majority of the planters use outmoded technology basically on account of the smallness of acreages under cultivation and also due to lack of information and knowledge about better farm management practices. Technology transfer in spice farming sector moves at snail's pace. Scientific and modern farm management is very important in case of cardamom production, especially in determining maturity of the capsules. In Kerala majority of the cardamom planters are having only lesser acreages under cultivation and they are least bothered about scientific management of plantations. Weeding and pruning are made improperly due to lack of knowledge in scientific farm management practices and absence of qualified managerial personnel.

Ignorance of Organic methods

The world demand for organically produced foods is growing rapidly in developed countries like Europe, USA, Japan and Australia. The current estimated share of organic foods in these countries is approximately 1 to 1.5 per cent. Worldwide, food trends are changing with a marked health orientation. Since organic foods are free from chemical contaminants, the demand for these products should steadily increase in the new millennium. But most of our farmers are ignorant of organic cardamom.

Land put to other uses

Cardamom growing tracts are now diverted for cultivation of other crops to reap temporary advantages. Eucalyptus and 'kattadi' trees are widely grown in cardamom areas. These trees can be cut and sold after a period of five to six years at a sizeable profit. This practice is also promoted by public sector undertakings like Hindustan Newsprints Limited (HNL) and the Forest Department. HNL provides seedlings, polythene bags and extensive technical assistance to selected voluntary organisations to raise superior quality pulpwood saplings. The species distributed among farmers are high-yielding, eco-friendly products like bamboo, manjium, reed, acacia, eucalyptus, albizia and casuarinas.[2]

[2] The New Indian Express, October 30, 2006.

Climatic factors

The cardamom plant requires humid moist climate and shade for protecting it from the heat. Cardamom crop shrivels as the mercury rises. Too much rain and heat, both adversely affect the production of cardamom. Mostly cardamom plantations are situated in forest lands taken on the basis of the Kuthakapattom (a form of lease), in which case the climate is gloomy and shady but lacks irrigation. Providing irrigation is a difficult task and pose problem to the growers. But the situation is grim in the case of small growers. In their case irrigation is a must due to the absence of or too little shade trees. The erratic southwest monsoon is likely to affect the cardamom crop. So there could be a decline of 20-30 per cent in the overall production this year (2006).[3]

Labour problems

In the days of yore plantation labour was treated as slaves and they were content with what they got from the estate owners. Now the situation has changed. They are demanding amenities in tune with those enjoyed by workers in other manufacturing and service industries. Labour problems are severe in large estates.

[3] T. Asokkumar, President Kerala Cardamom Growers Union.

Lack of skilled work force

Workers are unaware of modern methods and technologies. There is a dearth of skilled manpower in the farm sector, particularly in the spice plantation sector of remote hilly regions. People are moving to sunrise sectors like IT, insurance etc which seems lucrative as of now, and according to them, are better paying. Therefore employers in the farm sector as a whole are getting frustrated.

Earnings not in proportion to the increase in cost

A very crucial problem faced by all the cardamom growers, irrespective of the size of holding, is that there is high cost of production and it is increasing steeply. Cost per unit of output is very high in small holdings compared to medium and large holdings. But the high cost of production to a very great extent is remedied with intensive cultivation and high yield of the crop in larger estates. But the yield of the small holder is low which worsens their condition. They are of the opinion that the cost of production is increasing year after year but the yield increase is not in proportion to the cost of production.

Peculiar nature of agricultural production

Most farmers cannot ordinarily adjust, in response to changes in the price level, the quantity and quality of their output etc. by timely alterations.

Unlike the industry, nature plays a very significant role in agriculture in the determination of the quality and the quantity of the output. Farming is a biological process and there is a greater time lag between the changes in prices and adjustments in production. More over, farming is often a complementary enterprise so that certain produces have to be included in the production schedule not because they can be produced at the lower unit cost but because they increase the overall profitability of the farm. Technical efficiency in farming is not, therefore, synonymous with economic efficiency.

Absence of scientific surveys and target fixation

Scientifically fixed targets act as reliable demand projections based on which farm level output decisions can be taken in the medium and long run. Targets for production are not set for cardamom production either at individual farmer level or at the institutional/government level. Fixing a targeted output can have a psychological advantage and induce farmers to achieve the predetermined end. In case of food crops like paddy targets are fixed. The main problem with target fixation is absence of a comprehensive survey of domestic market. There are only some export potential surveys and they too are not conducted periodically or regularly.

Lack of proper processing facilities

The demand for cardamom depends on it quality to a considerable extent. The quality of the produce is determined to a large extent on the

processing techniques adopted by the producer. Proper processing of Cardamom, preserving the green colour, and keeping in tune with the market demand, calls for much skill and experience on the part of the producer. An ideal curing house, which will facilitate proper curing, requires sizeable investment, which is beyond the reach of small growers.

Debt trap and unremunerative prices

The debt trap often leads to a situation where the farmer is forced to commit suicide. There are several cases of farmer suicides reported in the media. The Government is well aware of the situation.

"Due to the non-remunerative prices the farmers' loan liabilities have touched Rs 150 crores. The association has already requested the government to convert short-term loans into long-term loans, besides waiving the interest in commercial banks. The prices of fertilisers and pesticides had risen exorbitantly. In most areas, the seasonal works have not started for want of funds. In fact, most of the growers are in debt, forcing them to approach moneylenders. Unremunerative price for cardamom in 2005-06 seems to have forced growers to scale down agricultural inputs, which might negatively affect the crop next season. The farmers have reduced the use of fertilisers, extended the interval for spraying, stopped earth work and pruning has also not been done on time. The decline in cardamom prices to around Rs 200 a

kg, which is far below the remunerative levels of Rs 300 a kg, has inflicted a loss of an estimated Rs 120 crores to the growers.

The Spices Board subsidy is available only for irrigation, soil conservation and replanting, and the amount is too little."[4]

Credit gap

Farmers are not getting sufficient institutional finance because in majority of cases the property offered as security is a leased one. So they are unable to make long term investments and improvise production and undertake value addition activities like extraction of spice oil and oleoresin, which needs further investment in equipments, buildings and additional infrastructure.

The present auction system and the credit extended by the growers to the traders and exporters are also beset with several problems. It is noticed in the field survey that the indirect credit period extended by the growers to traders sometimes go beyond six months, in dire contrast to the stipulated forty five days. There were several instances when the farmer had to pay exorbitant interest for the unexpired period, if he wants early payment. This aggravates the financial crisis faced by the growers.

[4] http://sify.com/finance/commodities/cardamom– 2006 April 26.

Inadequate Government expenditure

Government investment in the spices sector is not adequate. The government is also well aware of the situation. There is lack of sufficient infrastructural facilities in cardamom growing areas. Mainly the problems relate to transport and communication, banking services, warehousing facilities etc.

Information gap

Growers are unaware of the consumers' preferences regarding quality and prices. Knowledge of consumers' tastes and preferences will facilitate adjustments in production, at least in the long run. When producers meet consumers and sell them the goods face to face, this problem does not arise. Consumers can tell producers directly just what they want, and why they want one thing rather than another.[5] But the situation is different in cardamom trade. There is a wide distance between growers and consumers, especially in international trade. This coupled with the existence of too many middlemen creates producer-consumer communication gap. The Spices Board is not taking effective steps to keep growers in touch with consumers. However, there are several publications of the Board, disseminating useful information. But they are not reaching the growers.

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[5] Marketing Farm Products, Geoffrey S. Shepherd, Gene A Futrell and J. Robert Strain. The Iowa State University Press, Iowa, USA, 1975. p 11.

Most of the cardamom growers, especially in the small holdings stratum are unaware of the publications of Spices Board or Indian Cardamom Research Institute and other concerned agencies. There is urgent need to popularize such publications. Otherwise they will continue to be ignorant of the benefits of latest methodologies, technologies and developments in production and marketing. There is lack of adequate market exposure to farmers. They are ignorant of vital information like cleanliness standards demanded by overseas as well as domestic consumers; for example, ASTA (American Spice Trade Association) specifications, BIS (Bureau of Indian Standards) specifications, AGMARK grades etc., knowledge of which will help them improve their lot.

Another important area ignored by our farmers is the increasing demand for oleoresins and spice oils in domestic and export markets. Barring a few producers, majority of farmers has not entered the field of value addition. This is mainly because they are not trained in the manufacture of such value added products and also, as mentioned earlier, due to lack of funds to invest in machinery.

Increase in Cost of Production

Among the various problems cited above, most crucial one reported by the respondents is the increase in the cost of production at an alarming rate. So this variable is further analysed item wise to see which component of cost

is increasing year after year and also to see how it will vary among the different strata.

With the cost of agricultural inputs going up, increasing labour costs, erratic climatic conditions and depleting water resources necessitating heavy investments for irrigation and other protective measures, the cost of cardamom production has increased substantially. The net result is that cardamom cultivation has become non-remunerative,

Cost of production includes the entire cost involved in producing the crop plus a portion of the non-recurring cost incurring during the gestation or development stage. The common expenses incurred recurrently by yielding plantations are the cost of manuring, spraying, weeding or pruning, irrigation, picking (harvesting), curing/ processing the produce, other general/indirect costs and a portion of the development cost (cost for gestation period. Each item of cost is taken up separately for discussion. Item wise cost details as compiled from the survey are given in Appendices 13 to 20. An abstract view of the costs is given in Table 5.1.

TABLE 5.1

Item wise cost per acre (Rs.)

Item of cost	Stratum I up to 10 acres			Stratum II > 10 acres		
	2000-01 cost	2004-05 cost	Increase in percentage	2000-01 cost	2004-05 cost	Increase in percentage
Manuring	3245	4104	26	3577	4571	28
Spraying	3097	3851	24	3276	3912	19
Weeding	3106	3958	27	3375	3945	16
Irrigation	2106	2700	28	3153	3950	25
Picking	4996	5832	17	5227	5920	13
Curing	2495	2980	19	3490	4800	38
General	1250	2000	60	2300	3300	43

Source: Compiled from primary data
Cost in Rupees

1. Manuring Cost

From 5.1 it can be seen that the highest cost per acre is noticed in second strata because they are applying various scientific fertilizers in time and also because of the use of adequate quantity required and as directed by the Spices Board from time to time. It was Rs 3577 per acre in 2000-01 which increased to Rs 4571/ in 2004-05. But it is low in the case of smallholdings. This is because of the use of lesser quantity of fertilizer and more use of natural manures likes cow dung. In the first stratum manuring cost was Rs 3245 per acre in 2000-01, which increased to Rs 4104 in 20004-05. Anyhow, the cost is increasing year after year in both the strata groups over the period

under analysis. The increase is 26 per cent over five years in the first stratum and 28 per cent in case of second stratum. Full details for five years are given in Appendix 10.

2. Spraying Cost

This cost is increasing year after year. The average amount spent by growers of cardamom for this purpose and the percentage change over the years 2000-0l and 2004-05 is shown in Table 5.1. Detailed costs are given in Appendix 11. It is seen that the larger strata groups (Second strata) recorded the maximum cost of spraying. It was Rs 3276 per acre in 2000-01, which increased to Rs 3912 in 2004-05. This was because of more use of pest control techniques to protect the plant from the attack of pests and insects. But the cost in the lower strata recorded far less than the larger groups. This was Rs 3097 in 2000-01, which came to Rs 3851 in 2004-05. These costs are not incurred evenly during every year but in particular months or seasons. Reference to Table 5.1 reveals that the increase over five years was 24 per cent in small holdings group and 19 percent in medium and large group.

3. Weeding, Forking and Mulching, Trashing and Earthing up cost

The average acre wise amount spent by cardamom growers during 2000-01 to 2004-05 for weeding etc. is depicted in Appendix 12. It is noticed that the weeding cost during 2000-01 to 2004-05 shows an increasing trend in both the strata groups. It was Rs 3106 in 2000-01, which increased to Rs

3958 in 2004-05 in the case of those owning up to 10 acres of cardamom. In the case of those having cultivation above 10 acres, incurred weeding cost to the tune of Rs 3375 per acre in 2000-01, which increased to Rs 3945 in 2004-05. This is on account of the fact that improper methods of cultural operations leads to lesser maintenance cost as is seen in lower strata groups compared to larger strata group of holdings where the percentage increase works out to be 27 and 16 respectively over last five years, as per Table 5.1

4. Irrigation

The cost of irrigation per acre from 2000-01 to 2004-05 is shown in Appendix 13. Table 5.1 shows that the amount spent by way of irrigation cost during 2000-01 was Rs 2106 which came to Rs 2700 in 2004-05 with a percentage increase of 28 in the case of small holders. Where as it was Rs 3153/- in 2000-01 which came to Rs 3950 in 2004-05 with 25 per cent increase in the case of medium and large planters.

5. Picking (harvesting) Cost

The average cost of picking during 2000-01 to 2004-05 is given in Appendix 14.

It is clear from Table 5.1 that the cost of picking is increasing year after year in both the strata. The picking charges are the labour cost and the charge is paid based on the actual picking or plucking of cardamom from the

plant. The amount spent on account of picking of cardamom by the small planters during 2000-01 was Rs 4996/ per acre, which increased to Rs 5832 per acre in 2004-05 with 17 per cent increase. But this cost was high in the case of medium and large growers. This is mainly due to the difference in density of plant population per acre. An average small farmer plants 400-435 plants per acre whereas the number is 900-1000 in large estates. The amount incurred by large estates was Rs 5227 /- in 2000-01 which increased to Rs 5920 in 2004-05 with 13 per cent increase.. The Kerala Government has enhanced the minimum wages by Rs 5.46 to Rs 92 a day. When bonus and other fringe benefits are added the wages now come to Rs 120 a day. The picking cost comes to Rs 30 a kg.[6]

6. Curing and its charges

The cost of processing involves chemical charges, if it is chemically processed and charges for drying and a portion of the original cost of smoke house (cost divided by number of years of life) or depreciation cost. The average amount spent under this item of cost among various strata is shown in Appendix 15. Table 5.1 reveals that the curing cost also shows a trend of increase over the years under investigation. The average cost per acre of curing during 2000-01 was Rs 2495/- but it increased to Rs 2980 with 19 per cent increase in the case of small holders and it was Rs 3490 / per acre in

[6] Business Line Feb. 28, 2006

2000-01 which came to Rs 4800 in 2004-05 with 38 per cent increase as far as medium and large growers are concerned. This increase can be attributed partly to hike in labour charges and partly to increase in yield per acre.

7. General Expenses (Indirect Expenses)

Management expenses, allowances and salary of the watchmen, transportation and other indirect labour costs are included under this head. According to Table 5.1 the increase in general expenses over last five years were 60 and 43 percentage respectively for small and large holdings. Detailed costs in this respect are given in Appendix 16. The cost of establishment and other indirect expenses are also increasing. It was Rs 1250 per acre in 2000-01 which recorded Rs 2000 in 2004-05 in small holders. But it was very high in larger estates stratum because they employ more number of watchmen etc, the cost of which was Rs 2300 in 2000-01, which increased to Rs 3300 in 2004-05.

8. Development Cost

Development cost or cost for the gestation period includes cost of cultivation up to yield bearing stage The gestation period of cardamom being 3 to 4 years of planting, This cost includes expenses on clearing of land, uprooting stems, lining, collecting pegs, taking pits, filling pits, planting, cost of plants, mulching, pre-planting manuring, supervision and provision for farm security, cleaning and weeding, fencing, pest control and other labour

charges. The initial cost spent for cardamom cultivation for the three years before bearing fruit came to be Rs 4852 per annum in the case of medium and large growers and it came to Rs 4487 as far as the small growers are concerned. This increase in case of medium and large growers is due to difference in number of plants per acre, variation in other farming operations, better care extended by them right from the very beginning and so on.

From the foregoing analysis on cost of production, it is seen that cost is increasing year after year and there is variation in cost in between different strata groups depending on density of plant population per acre, difference in farming operations etc. High cost is recorded in bigger strata than the lower strata. All the planters are confronted with the problem of increasing cost of production, which in turn adversely affects the marketability of the produce.

PROBLEMS IN THE MARKETING OF CARDAMOM

As reported by the planters of cardamom, in addition to the problems in the production of cardamom there are problems in the marketing of cardamom as well. The marketing of agricultural produce is affected by a host of problems like inadequate infrastructure and processing facilities, credit, transportation, communication and growers characterized by mass illiteracy, ignorance and poverty. The low productivity, violent fluctuations in prices (both domestic and export), exploitation by middlemen and the numerous

unfair and mal-marketing practices add fuel to flame. So these problems are detailed hereunder.

Transportation

Cardamom estates are situated in hilly regions with in sufficient motorways. A crucial problem faced in the marketing of cardamom according to growers is that of transportation. Large planters have their own vehicles but the maintenance of which is very difficult on account of the increasing running and maintenance cost. This cost is increasing in the wake of hike in oil prices. Small growers hire trucks or jeeps for transportation from farm to marketing centres. But the availability of hired vehicles cannot be ensured at all times. This compels them to store the crop for a while which is unadvisable.

Frequent Labour problems due to multi-unionism

Another problem reported by the growers, both small and large alike, is the unscientific bargain from the part of casual workers for claiming loading and unloading charges at farm gates and marketing centres. There is multiplicity of trade unions in plantation areas. It affects the industry in general and cardamom marketing in particular. In large plantations there are politically motivated trade unions and resultant labour problems. Poor labour relations adversely affect the movement of the produce from the farms to marketing centres The main issues, other than those connected with

remuneration, are inadequate accommodation, lack of infrastructural facilities, long working hours, insufficient incentives etc. This leads to an atmosphere not favourable to the growers to properly manage the trade by adhering to pre contracted supply schedules.

Trade hit by sealing of up-country selling outlets:

There were several instances when cardamom trade in the auction centres of Kerala was affected as a result of sealing of unauthorized trading establishments in upcountry markets. This adversely affects the farmers. The latest instance of this problem was reported in Nov. 2006, when the Delhi government sealed some unauthorised selling outlets. Delhi is a major market for small cardamom. Traders in the capital buy large quantities from the auctions conducted in the centres of Kerala and Tamilnadu. Later it is sold to retailers in and around the capital city. Cardamom also moves to Pakistan from Delhi through border trade. As a result, domestic sales in Kerala and Tamilnadu are adversely affected by the refrain of buyers in the upcountry markets. The inevitable consequence is that prices nose dive and local growers and sellers are put in jeopardy.

Existence of many intermediaries/middlemen

Appropriation of value by market intermediaries at the cost of farmers is a serious problem. In the chapter on marketing, the distribution channels for both domestic and export trade have been explained figuratively.[7] There are six or seven intermediaries in foreign trade and six middlemen in domestic trade. Uncertainty in margin expectations makes it difficult to plan and implement future courses of action. The margins charged by different intermediaries in the spice trade are influenced by many factors, such as current and expected future harvest situation, availability or number of sources for the spice, level of demand and trend in prices. All these factors make it extremely difficult to provide information on typical margins in trade.[8]

Export prices are informally or formally decided well in advance according to the contract entered into by exporters and agents/dealers of importing countries. Exporters or their agents who participate in the auctions bid accordingly, keeping their margins in mind. The end result revealed from the survey is that cardamom farmers get only 59 to 65 percent of the final price.

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[7] Fig. nos. 4.3 and 4.5

[8] A study jointly conducted by Dr P. Arunachalam, Cochin University of Science and Technology, and Dr Wim Pelupessey, Tilburg University, The Netherlands.

Collapse of major dealers/auction houses:

The shutting up of trading houses cause irreparable damage to the financial and social status of cardamom growers by way of heavy bad debts, non fulfillment of personal obligations etc. For example, The Cardamom Marketing Corporation (CMC), which had earned the wrath of cardamom planters and others from Kerala and Tamil Nadu, who claim to have lost money to the tune of Rs 50 crores they had deposited with the firm, and whose premises were later raided by the CBI, now has its back to the wall as the Spices Board has sent a show cause notice to the firm seeking a reply as to why the board should not suspend the license it has given to the firm.[9] The details in this connection could not be revealed as the case is pending before the court.

Limited participation of Spices Board

The activities of the Spices Board in trade promotion are confined to the participation in select food fairs and exhibitions in India and abroad to boost up demand for increased sales. It has not entered the field of cardamom procurement and distribution like some other commodity boards in India and abroad.

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[9] Joe A Scaria - Economic Times - Feb. 15.2006.

Inadequate participation of corporate sector:

Only a few corporate giants like Cadburys and Nestle are engaged in production of cardamom added products. This is mainly because of the prevalence of fluctuating price and supply trend in Indian cardamom industry.

Errant credit facilities

The present auction system and the credit extended by the growers to the traders/dealers and exporters are beset with several problems. It is noticed in the field survey that the indirect credit period extended by the growers sometimes go beyond six months. In other words, price realisation/settlement is delayed for more than the stipulated forty five days, according to respondents. So, most of the farmers have to depend on money lenders for temporary funds which carry heavy interest burden. This aggravates the economic condition of the growers.

Price war declared by Guatemala in international markets:

The real problem faced by Indian cardamom exporters is that of Guatemalan cardamom dumped in the Middle East market. This depresses the prices of fresh Indian cardamom.

Guatemala – a late entrant in the field - has been identified as a potential rival even before two and a half decades. Though our cardamom is superior, due to its high flavour profile and oil content, it has become

uncompetitive in terms of price. Guatemala had been offering at $3-$5 a kg in the Gulf markets as against the Indian price of $7.5 a kg. As a result, despite providing the airfreight subsidy of Rs 45 a kg, India couldn't compete in terms of price.

A comparison of latest available international prices of Guatemalan and Indian cardamom is given in Table 5.2

TABLE 5.2

International Prices (Spot Prices)

(Price: US $ per MT)

Origin/Grade	Market	For the week 5.8.06	Last week 28.7.06	Last month 7.7.06	Last year same week 5.8.05
Guatemala/ Fancy Green	New York	8820	8820	8820	8820
Guatemala/ Mixed Green	New York	2867	2867	2867	2867
India/ AGEB	Saudi Arabia	8640	8500	7920	9390

Source: Spices Board.

It is evident from Table 5.2 that Guatemala is maintaining prices steady in the international market. But price of Indian cardamom has declined from US $9390 in Aug. 2005 to 8460 US $ per MT in Aug. 2006, registering a fall of 8 per cent over one year.

However, there are traditional and quality conscious customers in Saudi Arabia. Considering this potential, the Board has decided to send a delegation of officials, traders and exporters to the country to explore the possibilities of launching a strategic marketing campaign soon.[10]

Price fluctuation in domestic market

There is violent fluctuation in prices of cardamom in domestic market also. Prices of cardamom during the current season (2006) were at the lowest levels and this had driven the growers into serious financial crisis. The downward trend in prices can be attributed to the imports of cardamom from Guatemala via legal and illegal routes. The Cardamom Growers Union had appealed to the Union Commerce Ministry to initiate action to arrest this practice in the interest of the Indian growers. Nepal and Bangladesh had been the transit centre from where Guatemala cardamom was entering India under the Free Trade Agreement with these countries. The prices failed to move up, which the growers claimed, also because of the imports of cheap cardamom from other producing countries.

It is because of this price fluctuation and uncertainty that leaders of consumer products like 'Brooke Bond', 'Lipton', 'Dunken', and 'Nestle' who are successfully handling tea, coffee etc in consumer packs, have not come to the cardamom trade or export. Among the various marketing problems the

[10] S. Kannan, Director (Marketing), Spices Board.

most crucial one reported by the respondents in the sample is price fluctuation.

Imports into India

Demand for cardamom in internal as well as world market is increasing. It is expected to outstrip supply. If the demand projections were considered true then the indigenous production should fall short of the demand.[11] Normally in such a situation domestic prices should increase. But the prices failed to move up, which the growers claimed is because of the imports of cheap cardamom from other sources like Guatemala, mainly for value addition and re-export.

The foregoing discussion revealed various problems in production and marketing. Some of the problems cannot be rectified at the farmer level as they are general in nature. However, some others can be mitigated, if not eliminated, provided, proper attention is given. So some suggestions to remedy the problems are included in the next chapter along with summary of the study and findings.

[11] Business Line, Tuesday, 13 June, 2006

SUMMARY, FINDINGS AND SUGGESTIONS

S. Krishnan Nair "The problems of production and marketing in the cardamom industry with particular reference to Kerala" Thesis. Department of Commerce and Management Studies, University of Calicut, 2006

CHAPTER VI

SUMMARY, FINDINGS AND SUGGESTIONS

This chapter brings together a summary of the study, major findings of the analysis presented in the preceding chapters and conclusions. A few suggestions that emerge from the study to solve the problems faced by Cardamom growers are also made in this chapter.

Spices are important as earners of foreign exchange, as employer of labour, as a provider of revenue to the State and Central Government and as the most progressive of agricultural sectors in India. Spice crops are produced mainly for the sale in internal and external markets. There are some 2.23 million acres or about one million hectares of land under the spice crops in India. Spices industry provides employment to thousands of people, either directly or indirectly. Among the various spices, cardamom – The Queen of Spices - occupies a place of indubitable importance..

There are two types of cardamom. They are Large Cardamom (Amomum Subulatum Roxb.) and Small Cardamom (Elettaria Cardamomum Maton). Small cardamoms or green cardamoms are the 'true' dried cardamom fruits and are sweetly fragrant with a slightly pungent flavour. Brown or black varieties of cardamom are larger, coarser in flavour and scent and tend to be used more in meat dishes and pickles. These 'false' cardamoms are found in

South Asia, China, Nepal, Indonesia and Africa. This study concentrated on the various aspects of small cardamom. Wherever the term cardamom is mentioned in this study, it denotes small cardamom.

Cardamom is the second important spice grown in Kerala. It comes under Plantations Labour Act also. It is one of the export earning industries. Because of its importance, a separate Board – Cardamom Board - was constituted by the Government in the year 1965. Later it was included under spices after the constitution of Spices Board under Spices Board Act, 1986.Cardamom plays a vital role in the agricultural and industrial sectors of India. In India Cardamom production extends over three states, via, Kerala, Karnataka and Tamilnadu. Kerala accounts for 70 per cent of the production of Cardamom in the country.

No recent study has been conducted on problems of production of Cardamom growers and the marketing aspects in a detailed manner. The present study analysed the production problems and prospects of Cardamom cultivators and the present marketing system in Kerala and allied problems.

The specific objectives set for the study are:

- To study the trends in the area, production and productivity of cardamom in Kerala.

- To study the production pattern and to asses the problems of Cardamom growers in the cultivation of Cardamom in Kerala.
- To study the Marketing practices and to ascertain the problems in the marketing of Cardamom in Kerala
- To look into the role of Spices Board in the development of Cardamom plantation industry.
- To suggest measures based on the findings of the study for the improvement of the working of Cardamom industry.

The study has been designed as a descriptive one based on survey method. Both primary and secondary data have been used for this purpose. For the analysis of data, mathematical and simple statistical tools have been applied. On the basis of the study, various aspects relating to production and marketing of Cardamom and cultivators' problems and future prospects are assessed.

The sample unit selected for the study was Cardamom growers. Stage, Purposive and Stratified Random Sampling techniques were adopted. Purposive sampling is employed to select sample taluks and villages where the area under cardamom cultivation is more. From the four villages so identified, growers are selected using the method of Stratified Sampling. The stratification is made on the basis of area of holdings. The first stratum

consisted of small growers owning up to ten acres of land under cardamom and the second of large growers with more than ten acres.

The data on the area, production and productivity, farm level processing, end use, demand, supply, marketing and financing were analysed to identify the present and future development policies in this sector and to broaden the understanding of the working of the cardamom industry.

The whole study is presented in Six Chapters:

CHAPTER I is the introduction part stating the significance, a brief review of literature, statement of the problem, objectives, methodology, sample design, statistical tools used and limitations of the study.

CHAPTER II gives an overview of plantation and spice crops, as cardamom is treated both as a plantation crop and as a spice, at the international, national and state levels and the role of Spices Board in the Development of Cardamom in India and particularly Kerala.

CHAPTER III examines the trend in the area under cultivation of cardamom, production and productivity of cardamom in India. It also explains the trend in the area, production and productivity of cardamom state wise and district wise.

CHAPTER IV analyses the structure of cardamom marketing and the channels of distribution of cardamom - both internal and external.

CHAPTER V examines the problems faced by the growers in the production and marketing of cardamom.

CHAPTER VI, the last Chapter, gives the summary of the whole study, lists the findings and offers a few suggestions.

FINDINGS

- Indian Cardamom has a deep parrot-green colour. It is this colour, which is the chief source of attraction of Indian cardamom in the eyes of the consumers of the Middle East countries who are also the largest per capita consumers of cardamom.

- The Area under cultivation of Cardamom in India was 81,854 Hectares in 1991-92 and then there was a decline and it reached 73,795 Hectares in 2005-06 with a negative growth of 10 per cent. The percentage share of Kerala towards India in respect of area under cultivation of Cardamom shows an increase from 53 per cent to 57 per cent over one and a half decades ending 2005-06. The total yielding area of Cardamom cultivation in India was 53675 hectares in 2000-01 which increased to 55182 hectares in 2005-06.

- The area under cultivation of Cardamom in Kerala in 1991-92 was 43670 Hectares (53 per cent of the total 81,854 Hectares in India). It registered 41,367 Hectares in 2005-06 with 5 per cent decrease

compared to 1991-92. And the share of Kerala in all India hectarage went up to 57 percent from 53 percent. (41367/73795)

- The main districts in which Cardamom is cultivated are Idukki; Wynad; Palakkad; Pathanamthitta; Kottayam; Kasaragode; Malappuram; Kannoor and Kozhikode. Of the various districts, a major part of cardamom is concentrated in Idukki District with 32856 Hectares (79 Per cent to total in 2004-05). Wynad District has 4110 Hectares (10 per cent to total); Palakkad District 2756 Hectares (7 per cent to total); Pathanamthitta District 664 Hectares (2 per to total); Kottayam District 200 Hectares (0.5 per cent to total); Kasaragode 367 Hectares (0.88 per cent to total); Kozhikode District 220 Hectares (0.05 per cent to total); Kannoor District 120 Hectares (0.29 per cent to total); Malappuram District 70 Hectares and Kollam and Trivandrum with negligible share. During 2004-05 7 Hectares were under cultivation of Cardamom in Kollam District whereas as there was no such cultivated in Trivandrum District.

- India is the second largest producer of Cardamom in the world. Her share in the world production is 41 per cent. Guatemala is the highest producer of Cardamom in the World with 52 Per cent and Sri Lanka accounts for2 per cent in world production. The individual share of other countries is less than 1 percent.

- It is noticed from the study that the production of cardamom in Guatemala is increasing year after year in all the years under study from 2000-01 to 2005-06. There are fluctuations in Indian production. The production of cardamom in Guatemala in 2000-01 was 10000 Metric tones, which came to 25000 Metric Tone in 2005-06 with 150 per cent increase. Here, the over all trend shows an increase. The production of cardamom during 2000-01 was 10480 MT in India, which came to 12500 MT in 2005-06 with 20 per cent increase. Indian cardamom production exceeded that of Guatemala by 480 MT in 2000-01. But it drastically dropped to 50 per cent of Guatemalan production in 2005-06. This is because of increase in productivity and favourable climatic conditions coupled with better farming techniques adopted by Guatemala.

- The production of Cardamom in Kerala was 7580 Metric Tones in 2000-01 which increased to 9765 Metric Tone in 2005-06 with 29 per cent increase over the five year period under analysis. The production of Cardamom in Karnataka was 2100 Metric Tones in 2000-01, which decreased to 1775 Metric Tone in 2005-06 showing 15 per cent fall during the five-year period under analysis. This is mainly due to fall in productivity. The production of Cardamom in Tamil Nadu was 800 Metric Tones in 2000-01, which increased to 1000 Metric Tone in

2005-06 recording 25 per cent increase during the five-year period under study.

- The percentage share of Kerala in the national production of Cardamom is 78 percent, Karnataka 14 per cent and Tamil Nadu 8 Per cent. The share of Kerala to India in respect of the production of Cardamom shows an increase from 69 per cent in 1990-91 to, 78 per cent in 2005-06.

- The Productivity of Cardamom in Kerala and Tamil Nadu is higher compared to Karnataka, in which case the productivity is very low. The over all productivity declines at all India level on account of low productivity of Cardamom in Karnataka. The area under cultivation is very low in Tamil Nadu but the yield is high. The productivity per-acre of Cardamom in Kerala is highest in India.

- The productivity of Cardamom in India was 80 Kg per hectare in 1991-92 which increased to 128 Kg per hectare in 1995-96 with 160 per cent increase which again increased to 227 Kg per Hectare in 2005-06.

- The productivity is higher in Kerala and Tamil Nadu, compared to Karnataka. During 2000-01 productivity per hectare in Kerala was 247 Kg, which came to 318 kg per hectare in 2005-06. It was 217 kg per hectare and 282 kg per hectare respectively in Tamil Nadu. But the

productivity is very low in Karnataka and it was 109 kg per hectare in 2000-01, which declined to 85 kg per hectare in 2005-06. In Kerala the productivity was low in 1990-91 which was 52 Kg per Hectare. The percentage increase from 1991-92 to 1995-96 was 154 which again increased to 260 in 2005-06.

- The compound growth rate (CGR) in respect of area under cultivation both in Kerala and India is negative.

- The CGR of production and productivity of Cardamom shows an increasing trend in Kerala and at national level.

- The Cardamom Industry is facing several problems in its efforts for increasing production. Most important among them, which are explained in the last chapter, are those connected with Land Tenure; Predominance of Small Growers in the Industry; Deforestation; Limited scope for extensive cultivation; Pest and Disease Surveillance; Cultivation based on traditional methods; Land put to other uses; Climatic factors; Labour problems; Improper management of plantations; absence of work force education; Low yield and the yield is not in proportion to the increase in cost; Peculiar nature of agricultural production; Absence of target fixation and lack of domestic survey; Lack of proper processing facilities; Debt trap and unremunerative prices; Credit gap; Inadequate government investment;

Information gap; and, the most important, increasing cost of production.

- It is noticed in the field study that though majority of the cardamom lands are in Idukki, Kerala, most of the owners, especially of large plantations, live in Madurai district of Tamil Nadu and are engaged in other occupations and a sort of remote control is exercised by them over farming operations.

- Even though cardamom cultivation is uneconomical on account of low productivity and fluctuating prices, farmers are compelled to stick on to this crop because the terms of lease or permit does not allow them to divert to other profitable crops. This is especially true in case of Karnataka farmers. Their yield is comparatively as low as 100 kgs per hectare, on an average, compared to all India average of 200 kgs per hectare.

- It is seen that cost per acre is increasing year after year and there is variation in cost in between different strata groups. High cost is recorded in bigger strata than the lower strata. But it does not necessarily mean that small estates are favourably placed in terms of cost.

- A marked difference in farming practice is noticed between the two strata. The lower stratum consisting of small growers, owning up to ten acres adopt 10'x10' plant spacing. So at the most 400 plants can be set in one acre. There must be some walkways or roads in the plantation. But the large farmers adopt 9'x5' spacing, so they can accommodate 900 to 1000 plants per acre.

- No regular replanting is carried on by small estate owners. But large estates replant a part of the estate regularly. What the small growers do is that, as there is more space between plants, they take some pits and cover it with plant waste, other material etc for eight to ten years and when old plants start rotting or give fewer yields, such pits will be filled with new tillers (gap filling) and uneconomic plants are removed. This process goes on continuously.

- There was no instance noticed when cardamom is sold in raw form. Growers either process the produce under sun or cure it in owned/hired curing chambers.

- In the Cardamom Industry, the traditional system of primary marketing i.e., the auction system has been prevailing in Kerala, Karnataka and Tamil Nadu. Normally, more than 70 per cent of Cardamom is sold through auctions conducted by the auctioneers in the producing areas.

- The process of open auction is worth mentioning. Each auctioneer conducts the auction once in a week. The grower brings their weekly harvest of cured Cardamom to the nearby auction center and register the lots i.e., bag of Cardamom. They generally deposit the Cardamom for auction in 2 or 3 lots after making a simple sorting at their estates according to size and colour. The auctioneer arranges the auction on a pre-fixed day by inviting exporters and wholesale dealers from important marketing centers. The exporters and wholesale dealers, licensed by the Spices Board, attend the auction for bidding. The grower who deposits their Cardamom at the auction center may or may not be present to witness the auction. The auctioneer announces the number and quantity of Cardamom of each lot and puts it for auction; samples of Cardamom in each lot are distributed among the bidders.

- The Spices Board Officers only supervise the auction. It may be noted in this context that there are some people in the cardamom industry who are growers-cum-auctioneer-cum traders-cum-exporters. Such people are in a position to function as the actual price setters in this industry in a limited way; even through the base prices are set on the export demand of the commodity. This situation will have to be changed if the small growers are to be assured of reasonable and remunerative prices. The strategy for cardamom marketing should be

such as to avoid the kind of private control in setting the prices, in both internal and external markets.

- Direct sales by the growers to the dealers and exporters also constitute a fairly large quantity

- Different types of packing are adopted for domestic marketing centers. Among different importing countries also different packing systems are adopted for the Middle East Countries, Japan, and Russia and European countries. There are slight variations from exporter to exporter, depending upon the requirement of the importers in the different countries. Packaging was done in gunny bags and wooden cases. Traditionally, black polythene-lined gunny bags were made into 'Moodas' by stitching them in such a way as to make them look like drum like structures. In earlier days buyers in the Middle East countries preferred to have 'Jottas'. Four moodas or wooden cases were made into one Jotta by using steel straps.

- In domestic trade there are five Intermediaries in the channel of distribution of Cardamom between the grower and the consumer. In the case of the sales and/or distribution of branded, Cardamom flavoured and manufactured items like 'True' Biscuits, health drinks like 'Complan' and 'Horlicks' other intermediaries also come in. In export trade there are six/seven middlemen.

- Cardamom is also subjected to a number of levies and taxes. But a welcome move from the part of Spices Board is that it was decided to do away with the export Cess. 'With effect from 2nd June 2006, the export Cess at the rate of 0.5% leviable under the Spices Board Cess Act has been withdrawn. Hence from 2.06.2006, no Cess is leviable on export of spices and spice products.'

- The season for peak dispatch of Cardamom to upcountry markets from South India is October to December, as most of the festivals like Deepavali, Durga Puja and Christmas are celebrated during this period.

- Varied are the uses to which Cardamom is put. Perhaps, this is the only spice that can flavour and fully blend with anything edible or potable. Cardamom goes extremely well with coffee, tea, milk, fruit juice, soft drinks and alcoholic beverages. It also enhances the taste and flavour of vegetable curries, meat preparations, bakery products and toffees. Cardamom is also widely used in Ayurvedic and other system of medicine. Middle East countries are the largest consumer of Cardamom where they use Cardamom mainly for the preparation of 'Gahwa' of 'Cardamom Coffee'. It is also customary to show the quality of Cardamom to the guests as a matter of prestige before it is used in the preparation and serving of Gahwa to them

- The Cardamom importers mostly act as the wholesalers, and the commodity directly moves from them to the retailers, departmental stores and manufacturers of food products.

- India exports Cardamom to Saudi Arabia, Japan, Malaysia, UK, Oman, Kuwait, Bahrain, South Africa, Hong Kong, Greece, Qatar, USA, Italy, UAE, Korea (South), France, Canada, Singapore and others. Of the various countries, Saudi Arabia is the largest importer of Indian Cardamom.

- Guatemala exported around 73 per cent of its production, where as India exported only 5 to 10 percent of her total production nowadays because of increased internal consumption as is clear from Table 4.1, in the chapter on marketing.

- However, the marketing of cardamom is not free from problems. The cost of packing, transportation, loading and unloading is increasing year after year. But the prices are fluctuating.

- The present auction system and the credit extended by the growers to the traders and exporters are beset with several problems. It is noticed in the field survey that the indirect credit period extended by the growers sometimes go beyond six months in dire contrast to the

stipulated forty five days. This aggravates the economic condition of the growers.

- The real problem faced by Indian Cardamom is that of the unsold stock of Guatemalan Cardamom dumped in the Middle East market during off seasons This depresses the prices of fresh Indian Cardamom during the October-December period

- There is violent fluctuation in prices of Cardamom in both domestic and export trade. It is seen that leaders of consumer products like 'Brooke Bond', 'Lipton', 'Dunken', and 'Nestle' who are successfully handling tea, coffee etc in consumer packs, have not come to the Cardamom trade or export. This is due to violent fluctuations of price in Cardamom from season to season and year to year and also the deterioration in quality over a short period of time. Price fluctuation is the most important among the various problems faced in the marketing of Cardamom.

- The price of cardamom is determined mainly by its size and the intensity of the green colour of its skin. Cardamom with a deep green parrot colour fetches a premium price in foreign markets, especially in the Middle East countries. The extra price for the green variety with large size or boldness ranges from 15 per cent to 25 per cent.

- The auction price of Cardamom is actually determined by the export prices and not by demand and supply relationship in the domestic market.

- The prevalence of lower prices during the first and the last months of the crop season can be attributed to the quality of Cardamom arriving at the auctions during that period will be inferior to that arriving in the peak season from October to January.

- The study revealed that nearly eighty percent of the respondents do not keep proper books of account.

SUGGESTIONS

The only way to ensure remunerative prices for cardamom growers is to increase the per capita consumption of the aromatic spice both within the country and abroad. The Board already has a Cardamom Development Fund of Rs 7 crores, which could be utilised effectively to explore new applications in medicines, cosmetics and so on, besides developing the market for value-added cardamom.

The climatic, soil and shade conditions in Kerala are the best suited for the successful operation of Cardamom cultivation. The growers will come forward to bring more area under cultivation of cardamom, if they are ensured fair and stable returns.

For increasing the yield by better methods it is advisable to teach the growers about the need of better farm management practices, especially to those who own smaller area of cultivation. For this the Spices Board should take initiative. Our agricultural scientists and technologists have to work for at least doubling the productivity of available cardamom lands. This is more so because land is scarce. This situation coupled with availability of less water and limited number of farmers makes it absolutely necessary to multiply yield per unit of land.

Considering the plight of the growers, subsidies for replanting, new planting, irrigation, curing facilities and rainwater harvesting projects should be enhanced, besides re-introducing subsidies for fertilisers and pesticides through the Board.

Training of the workers on methods that increase production and productivity is indispensable. There is also a dire need to reorient agricultural research. In order to increase the production and productivity of Cardamom there is need for extending cultivation in the non traditional areas, if possible, by originating new varieties. The Cardamom Research Institute shall take steps to impart excellent coaching to growers in modern methods of cultivation. The Institute shall also train the concerned personnel in modern manuring and preparation of vermi-compost and other bio fertilisers as importers are stressing the need to avoid chemical fertilisers.

Co-operative farming and marketing can be popularized to help the farmers to acquire agricultural inputs at reasonable cost and to reduce the number of intermediaries who causes disadvantageous price spread. At present there are seven intermediaries in foreign trade and six middlemen in domestic marketing

The practice of fixing targets, as in the case of industrial production, finance and service sector etc., may be followed in this sector also. Now there are only crop estimates and projected export figures, anticipated domestic consumption etc.

Proper curing of harvested capsules will yield better quality and as a result, better prices.

A few tips to improve the quality of cured cardamom are:

1. Dry cardamom immediately after harvest to retain the original colour at which they are harvested.

2. Maintain temperature inside the room between 40^0 and 50^0 C in the first 10 to 20 hours, then increase to 550 C for rest of the curing period.

3. Provide proper openings for expelling the moisture from the room while curing, which is essential to retain good green colour during drying.

4. Avoid rising of temperature above 65^0 C inside the room in order to reduce splitting of capsules and loss of vital volatile cardamom oil.

5. Polish the cured capsules when they are hot

6. Use black polythene lined gunny bags for packing cured cardamom and store them in wooden boxes for better storage efficiency.

The necessity to enlighten our farmers about the advantages of using organic inputs cannot be overlooked. Demand for organic spices is increasing day by day from within and abroad India.

Farmers should be trained to manufacture oleoresin and cardamom oil which are easy to market and would fetch premium prices in India and abroad. Value-addition of spices before export improves export potential.

Farmers should also be made aware of cleanliness standards demanded by overseas consumers, like ASTA specifications, European standards etc.

The Guatemalan cardamom comes to the world market only after December because of the late cropping practice prevalent there. The distance from Guatemala to Middle East Countries is almost double the distance from India .These two advantages, along with the age old reputation of Indian Cardamom, could be better encashed in the Middle East markets by resorting to air lifting of the maximum quantity before December, that too in attractive consumer packs. The peak consumption period in the Middle East is October

to December, coinciding with winter and *Ramzan* periods. Even if the Guatemala can come with good quality cardamom at a cheaper price from January-February onwards, the peak consumption period in the Middle East would be over by that time.

The potential for increasing exports of whole cardamom and seeds in consumer packs is very high, provided we meet the stringent quality requirements of importing countries. The consumers in importing countries insist on 'clean spices' and to meet this challenge we have to make every effort to prevent contamination from external sources during harvesting, post harvest handling, processing and storage. This can be achieved only through an integrated approach with the collective effort of the growers, traders and agencies like Spices Board and ICRI. Improved quality of Indian cardamom will enable us to increase exports of cardamom and its by-products.

The Government and The Spices Board should ensure fair and reasonable prices to cardamom planters. A feasible solution to ensure remunerative prices to cardamom growers is to increase the per capita consumption of this spice in the country and abroad so as to enhance demand. For the benefit of farmers pricing have to be regulated or else a poor crop with higher prices or a fair crop with low prices would mean the same to the growers. The Spices Board and the Government of India can also consider

fixing of floor prices for different grades of Cardamom, so that the growers are assured of a remunerative and more or less stable price for their produce.

Downward trend in prices can be attributed to the imports of cheap cardamom from Guatemala via legal and illegal routes The Union Commerce Ministry should initiate action to arrest this practice in the interest of the Indian growers. Nepal and Bangladesh had been the transit centre where from Guatemalan cardamom was entering India under the Free Trade Agreement with these countries.

For assessing consumption potential of cardamom comprehensive surveys shall be conducted periodically in both domestic and overseas markets.

The Government and the Spices Board should draw up and implement comprehensive plans to promote export of cardamom and promote research on new end uses for this product.

The Government shall work to fill the gap in public investment in the spices sector through increased budgetary allocations.

Another way towards stabilisation of prices may be to enter into long term pacts with major importers of cardamom.

Spices Board may consider the possibility of entering the field of cardamom procurement and distribution. It can at least open and operate

either by itself or by leasing out some kiosks in domestic market, as is done by MILMA for dairy products. The Board shall also consider establishing sales outlets in the lines of MPI (Meat Products of India Limited).

Spices Board should take initiative to conduct auctions on its own to protect the small growers from the exploitation of private auctioneers.

There is an imperative need to shift from current practice of sale to marketing of cardamom in attractive consumer packs.

Timely delivery of the produce to up-country markets is inevitable to induce prompt payment. Unless the consignments reached the dealers in the north Indian markets payments would not come and this, in turn, would result in liquidity problems.

The Spices Board shall join hands with other organisations like CII (Confederation of Indian Industry) to solicit corporate participation in boosting up the marketing of cardamom in internal as well as overseas markets. Corporate giants like Cadburys and Nestle are already in the field. Other big companies in the agri-business field shall be induced to enter into this field. The big companies can make use of their world famous brand names to popularize cardamom products.

Spices Board may also make tie up with ITDC (Indian Tourism Development Corporation), State Tourism Development Corporations like

KTDC (Kerala Tourism Development Corporation), TNTDC (Tamilnadu Tourism Development Corporation) and other non governmental organisations in the tourism field in India and abroad to promote the cause of cardamom among foreign and Indian tourists.

Planter education shall be given importance. Simple literacy is not enough for scientific farm management. The Spices Board may enter into collaborative projects with universities to conduct courses on Plantation Management, Cultivation and Processing Technology and the like. Open and Distance Education methods may be adopted for traditional farmers.

Prime importance shall be given to cost effectiveness than cost reduction programmes. In the existing socio-political set up it is highly impracticable to go for cost reduction. At present what the farmers try to formulate is methods to maintain the existing level of activity al a lower cost. But what is advisable is to device strategies to get better output for the same cost. The former is labour arbitrage whereas; the latter is much desired intellectual arbitrage.

Most of the cardamom growers need to be made aware of the publications of Spices Board, ICRI and similar agencies. Similarly there should be more seminars/conferences to disseminate latest technology to farmers on production and marketing.

CONCLUSION

From the study it can be concluded that there is vast scope for the development of Cardamom in Kerala. The existence of production and marketing problems of Cardamom growers are also significant. The government's concern for this crop was made clear when very recently our Prime Minister asked the Ministry of Commerce and Industries to prepare and submit a comprehensive package of programmes for the revival of cardamom industry and other plantation crops like pepper, tea, coffee etc., well in advance of the commencement of the budget session of parliament in early 2007.. The Spices Board, functioning under the Ministry of Commerce, has already entered into contract with Tata Consultancy Services for conducting a project study on the cardamom market in the West Asian market, in a bid to boost export of Indian cardamom in the region.

It appears safe to believe that there is a large potential market for Cardamom within the country. In the context of the threats to India's export trade in Cardamom and the possibility of increasing production through raising productivity, it appears imperative that the industry adopts immediate measures to promote the marketing of Cardamom within the country. The strategy for marketing Cardamom in India essentially lies in policies and programmes that will lead to proper control of the entire marketing system

starting from the purchase of Cardamom from the grower to the sale of Cardamom and Cardamom products to the consumer.

New foreign markets should also be explored. At the same time our traditional markets in the Middle East should be protected. Otherwise the much loved Indian cardamom will become an 'old flame' to the Arabs. Moreover there should be proper market exposure to growers. In fact, export strategies should begin at the farm gate.

For meeting the demands for Cardamom special care and attention is needed in extending the area under cultivation and to improve the production and productivity through better and scientific farm management practices. Availability of credit is to be ensured at the time of its requirement. Also it needs extensive help and advice from the Spices Board in promoting and protecting the interests of the Cardamom industry and the growers.

In this IT age only a fraction of the effort of the past is required to usher in revolutionary measures to uplift the condition of cardamom growers, provided there is adequate utilization of existing resources and development of new strategies in tune with contemporary technology.

The present study highlighted the production pattern, marketing practices, problems persisting in the industry, especially of growers in Kerala and the promising future for cardamom in Kerala. Such a study has not been made so far. Still there is ample scope for further inter-disciplinary research in

areas such as institutional assistance, intensive cultivation, crop insurance, value addition, developing new end uses, on-line/internet trading and so on.

It is high time to initiate every effort to glorify Indian Cardamom – ***The Queen of Spices***.

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APPENDIX I

INTERVIEW SCHEDULE

This is a study on the **'Problems of production and marketing of Cardamom in Kerala'**. This survey is conducted as a pat of my research work for Ph. D in Commerce. This is purely for academic purpose. All the information supplied by you will be taken only for the purpose of my research work and will be kept confidential.

1.1 Sample code no. :

1.2 Method of cultivation : a. Cardamom only b. Mixed

If mixed : a. Acreage under cardamom:
b. Acreage under other crops:

1.3 Registration under Spices Board: Y / N

1.4 Covered by Plantation Act : Y / N / Do not know

1.5 Specify the area to which you belong:

District	Taluk	Village

1.6 Total area of holding :

1.7 Nature of ownership : Owned/Leased/Others

If leased,

a. Source : Government / Private

b. Period of lease : .....years

c. Unexpired period : .....years

1.8 Do you intend to convert cardamom land for other purposes : Y/N

If yes, 1. how much area : .....

2. in which year : .....

3. reason : a. better profits b. other.....

1.8 Do you plan to increase area under cardamom : Y/N

If yes:

a)	source of land	:	1. from other crops 2. new
b)	how much area	:	.....
c)	in which year	:	.....
d)	reason	:	1. adequate earnings 2. other.....

If no,

a)	non availability of suitable land	:
b)	lack of funds	:
c)	unprofitable	:
d)	other	:

2.1	Variety of plant	:	Malabar / Mysore / Vazhukka / other
2.2	Planting material used	:	Seedlings/ Vegetative propagation (tillers)
2.3	Source of seedlings	:	a. Dept nursery b. Own certified/uncertified nursery c. Private nursery d. Other
2.4	Source of tillers	:	Own / Bought
	If bought, source	:	a. Private b. Department c. Other
2.5	Number of plants per acre	:	a. 400 to 600 b. Above 600
2.6	Output of last year	:	1. Raw.....Kg 2. Cured.....Kg
2.7	Do you hire labourers?	:	Y / N

If yes,

a. Full time	:	Male..... Female.....total.....
b. Part time	:	Male.....Female.....total.....

2.8 Do you face there any problem in getting labourers? Y / N

If yes :
a. scarcity
b. high cost
c. other

2.9 Do you keep written accounts/records? Y / N

2.10 Give estimated cost for the gestation period (3 years)

Item of Cost	First year	Second year	Third year
Land Preparation			
Pitting			
Planting			
Manuring			
Weeding/ pruning			
Irrigation			
Labour charge			
Pest/Insect control			
Miscellaneous			

2.11 Whether any subsidy received from the Spices Board: (a) Yes (b) No

If yes:
1. for nursery
2. for irrigation and land development
3. for replanting

2.12 What is the proportion of subsidy to total cost?

a. nursery .....
b. irrigation and land development .....
c. replantation .....

2.13 Any other assistance received from Spices Board (specify):

2.14. Specify the cost incurred on following items:

Cost	2000-01	2001-02	2002-03	2003-04	2004-05
Manuring					
Spraying					
Weeding etc					
Irrigation					
Picking					
Curing					
General					
others					

2.15. Do you store processed cardamom? Y / N

If yes, specify:

a. period : .....(days)

b. location : own premises/hired/other

c. reason : i. To realize better prices in future
: ii. To meet pre-contracted obligation
: iii. Others

If no reasons : a. no storage facility
: b. low quantity of output
: c. immediate requirement of cash
: d. others

2.16. State the problems faced by you in the production of cardamom

a. drought :

b. heavy rains :

c. attack of pests :

d. diseases :

e. delay in getting farm inputs :

f. inadequate curing facility :

g. increasing cost of inputs :

h. shortage of funds :

e. others : .....

2.14 State your suggestions for improving the present position of cardamom production:

a. afforestation :
b. increase subsidies :
c. increase artificial irrigation sources :
d. training to workers from governmental agencies :
e. establish departmental curing houses :
f. ensure more credit facilities :
g. seminars/conferences to be conducted :
h. others :

2.15. How do you sell cardamom?
a. raw form
b. processed
c. consumer packs
d. others

2.16 If you sell in raw form, specify reason:

a. no curing facility
b immediate cash requirement
c. other

2.17. If you process, what is the method of processing for marketing?

1. Sun dried
2. Curing chamber

2.18. Do you own curing house/chamber? Yes / No

If no, specify how curing is done : a. hired b. other

2.19 Method of packing for market centre:
a. gunny bags
b. plastic bags
c. both

3. Mode of transportation of produce : Jeep/lorry/head load/other

3.1 Do you own motor transport vehicle?: Yes / No

If yes, specify : Jeep / Lorry / Others

3.2 What is your term of sale? : a. cash b. credit c. both

3.3. State your outlet of sales : (a) Dealers (b) Auctioneers
(c) Others .....

3.4 Your preferred outlet :

Reason thereof :
a. better price
b. prompt payment
c. no malpractices
d. others

3.5 Do you face any problem in price realisation? Y / N

If yes :
a. delay in payment
b. bad debts
c any other.....

3.6 Do you grade the produce before it is sold? (a) Yes (b) No

If no:
a. do not know grading
b. not necessary
c. others

3.7 Do you extract spice oil/oleoresin Yes/No

If yes, specify the method:
a. steam distillation
b. non-aqueous solvent extraction

If no, specify reason:
a. lack of know how
b. lack of machinery
c. immediate cash requirement
d. other

3.8. State the problems encountered in the marketing of cardamom:

a. no proper lodging facilities at market centres/ sales outlets
b. inadequate storage and transportation facilities
c. complicated documentation
d. price fluctuation
e. absence of co-operative sector
f. too much sample
g. any other

3.9. State your suggestions for improving the existing marketing system for cardamom:

a. improve transportation facilities
b. improve accommodation facilities

c. government should fix floor prices
d. direct procurement by Spices Board
e. governmental schemes to increase consumption
f. give training in extraction of spice oil and/oleoresin
g. provide information on latest technology
h. provide godowns/warehouses
i. organise seminars/conferences
j. other

3.10 Source of funds : Owned/borrowed

If borrowed :
a. advance from dealers/auctioneers
b. Commercial banks
c. money lenders
d. friends
e. relatives
f. Co-operative bank
g. subsidy/grant
h. any other

3.11 Do you receive financial assistance from government: Y / N

If yes,

a. for what purpose :
i. crop loss due to drought
ii. crop loss due to heavy rains
iii. other

b. specify the percentage to total loss/requirement.....

APPENDIX 2

LIST OF IMPORTANT SPICES

Allspice
Alum
Anise Seed
Asafoetida
Bay leaf
Bishop's weed
Caraway Seed
Cardamom
Cassia
Celery Seed
Chili Powder
Cinnamon Sticks - Cinnamon spice
Cloves
Coriander
Cumin Seed
Curcumin spice
Curry Powder
Dill Seed
Fennel Seed
Fenugreek
Garlic
Ginger
Mace
Mustard spice
Nutmeg spice
Onion
Paprika
Pepper
Saffron
Tamarind
Thyme
Turmeric spice

APPENDIX 3

RECOMMENDATIONS OF THE COMMISSION

The final two-part report was submitted to the Chief Minister in January 2003. In the report entitled "Building a Sustainable Agricultural Trade Security System for Kerala", the Commission has made a preliminary assessment of the adverse impact of the new WTO-regulated global trade regime for Kerala's agriculture and agricultural trade. It has suggested modalities by which the State's many strengths and achievements in the agricultural sector can be protected in an unfavourable trade environment. Can the State convert some of the challenges posed by the WTO-regulated trade regime into new opportunities? The Commission, in its report, believes it can. While the State government must necessarily provide the direction and, where feasible, the resources in managing and meeting this challenge, its role in a society as educated and politically conscious as Kerala's must be coordinated with other equally important players within the State's social spectrum - such as political parties, organisations of farmers and agricultural workers, political and civic groups and organisations, the media, women's groups, college and university teachers, research institutes, and, most importantly, the vibrant panchayat bodies (local administration bodies).

"Under the conditions of Kerala if agricultural trade goes wrong, nothing else will have a chance to go right," the Commission has noted. More than 80 per cent of Kerala's agricultural commodities are dependent on domestic and international markets. The State accounts for 45 per cent of the plantation crops in the country which provide daily employment to nearly four lakh workers. Nearly 20 per cent of its population depends on plantation crops for livelihood. The State's field crop mix includes paddy, tapioca, banana, rubber, coffee, cardamom, arecanut, cashew, pepper and coconut. It is the only State in the country that has a substantial stake in all the four major plantation crops - tea, coffee, rubber and cardamom.

APPENDIX 4

MEASURES SUGGESTED BY THE COMMISSION

Statutory Minimum Support Price (MSP) to field and plantation crops, a measure that is fully WTO-compatible.

The use of variable tariffs to protect cultivators against sharp fluctuations in international prices and import surges.

Re-imposing quantitative restrictions within the framework of a Livelihood Security Box.

Introducing policy measures like crop insurance, imaginative rural credit services, new forms of agricultural extension; providing facilities for marketing, storage and processing, and so on.

Initiating multi-disciplinary policy research on various forms of domestic support and their feasibility.

Initiating a massive programme of replanting and rehabilitation of all perennial crops such as coconut, cashew nut, rubber, tea, coffee and cardamom.

The Commission has drawn special attention to the revitalisation of fisheries, where it has called, among other changes, for a movement to enhance the quality of domestically consumed fish.

A multi-stakeholder study of the current subsidies in the fisheries sector so that support that is non-actionable under the relevant WTO agreements can be provided to the sector.

Aquarian reform that will restrict the rights to own fishing vessels to those who actually fish.

New measures for environmental protection and sustainable management of fishing grounds.

While the Commission has made a blanket recommendation to the Government of India to review periodically issues such as Quantitative Restrictions (QRs), variable tariffs and statutory MSP in respect of all cash and plantation crops, it has also made specific recommendations in respect of each of these crops which have experienced sharp price declines in recent years. It has recommended that the government make efforts to have rubber re-categorised as an agricultural crop so that it can be brought within the AoA. To avoid distress sales and price manipulation in plantation crops, it has called for participatory buffer stocking through a modification of the Rural

Godown Scheme of the Government of India. Such a system is best maintained by farmers' unions/cooperatives.

Herbal medicine and ayurveda, along with tourism, are potential high-growth areas which the Commission has identified as deserving of special attention. The growing global demand for traditional systems of healthcare presents great opportunities for Kerala but it also puts enormous pressure on the resource base of medicinal plants, which must be safeguarded by the groups concerned. The Commission has called for quality control and certification for ayurvedic medicines and the formation of medicinal plants growers associations, each covering about 100 hectares, for the cultivation and marketing of medicinal herbs. Areas rich in herbal plants can be developed into herbal sanctuaries. The Commission has recommended that the region from the Silent Valley Biosphere Reserve up to Wayanad be denoted a Herbal Bio-valley. "The Herbal Bio-valley should provide the biological software essential for a dynamic medicinal plant industry," the Commission has noted. The tourism sector must be reoriented to cater to health (ayurveda), spirituality, and nature tourism.

Unique to this Commission is its recognition of the media as playing an important role in meeting the challenges of the new trade dispensation. This is particularly so in a State where newspaper readership and media consumption are so widespread and the media so sensitised to livelihood concerns. The Commission has recommended the setting up of a WTO Media Cell that could perform the function of a clearing house of information pertaining to the WTO and Kerala. The Media Cell should work closely with yet another body that the Commission has recommended that the State government set up, namely, a Virtual University for Agricultural Trade. This is vital if Kerala is to become competitive in trade, knowledge and information empowerment for farm families, traders, consumers and exporters. "A computer-aided and Internet-connected Virtual University can be established on a hub and spokes model. The hub can be located at an appropriate location like the Kerala Agricultural University, with the spokes located in every district. The hub and spokes can be linked to television channels and community radio stations, so that relevant information reaches every farm family every morning," the Report notes. The Commission has called for a meeting of data generators and providers (the Indian Space Research Organisation, the India Meteorological Department, the Kerala Agricultural University, the National Dairy Development Board, the many Commodity Boards, Ministries and departments of the State and Central governments, and so on); data seekers (farm families, traders, consumers, exporters); and information managers (information technology or IT specialists, media representatives, extensions specialists, and so on) to work out a plan for the proposed university.

APPENDIX 5

THE SCHEDULE OF SPICES BOARD ACT

The Spices included in the Schedule (Section 2 (n) are:

1. Cardamom
2. Pepper
3. Chilly
4. Ginger
5. Turmeric
6. Coriander
7. Cumin
8. Fennel
9. Fenugreek
10. Celery
11. Aniseed
12. Bishops weed
13. Caraway
14. Dill
15. Cinnamon
16. Cassia
17. Garlic
18. Curry leaf
19. Kokum
20. Mint
21. Mustard
22. Parsley
23. Pomegranate Seed
24. Saffron
25. Vanilla
26. Tejpat
27. Pepper long
28. Star Anise
29. Sweet Flag
30. Greater Galangal
31. Horse- Radish
32. Caper
33. Cove
34. Asafetida
35. Caboodle
36. Hyssop

37. Juniper Berry
38. Bay Leaf
39. Lovage
40. Marjoram
41. Nutmeg
42. Mace
43. Basil
44. Poppy Seed
45. All-Spice
46. Rosemary
47. Sage
48. Savory
49. Thyme
50. Oregano
51. Tarragon
52. Tamarind

In any form including Curry Powders, Spice, Oil, Oleoresins and other mixtures where Spice content is predominant.

APPENDIX 6

DISTRICT WISE AREA AND PRODUCTION OF CARDAMOM IN KERALA
(Area in hectares and Production in Metric Tons)

Years	2000-01		2001-02		2002-03		2003-04		2004-05	
District s	Area	MT	Area	MT	Area	MT	Area	MT	Area	MT
Idukki	32671	7072	32668	7788	32743	8057	32815	8224	32856	7931
Wynad	4108	244	4106	300	4107	317	4106	329	4110	345
Palghat	2701	176	2754	190	2754	201	2754	213	2756	229
Pathanam-thitta	664	67	664	77	664	78	664	79	664	82
Kottayam	200	21	200	24	200	24	201	26	200	25
Kasarcode	515	Negli	515	Negli	515	Negli	368	1	367	1
Malappuram	70	Negli	70	1	70	3	70	3	70	3
Kannoor	128	Negli	128	Negli	128	Negli	128	Negli	128	Negli
Kozhikode	220	Negli	220	Negli	220	Negli	220	Negli	220	Negli
Kollam	6	Negli	7	Negli	11	Negli	6	Negli	7	Negli
Thiruvananthapuram	5	Negli	4	--	--	--	--	-	--	--
Total	41288	7580	41336	8380	41412	8680	41332	8875	41378	8616

Source: Compiled from official records of the Spices Board, Cochin

Negli = Negligible
MT = Production in Metric tons.

APPENDIX 7

The major trading centers in India in which cardamom is traded are

- Vandanmedu (Kerala)
- Thodupuzha (Kerala)
- Cochin (Kerala)
- Thekkady (Kerala)
- Kumily (Kerala)
- Bodinayakanur (Tamil Nadu)
- Cumbum (Andhra Pradesh)
- Pattiveeranpatti (Tamil Nadu)
- Saklashpur (Karnataka)
- Mercara (Karnataka)
- Medikeri (Karnataka)
- Mangalore (Karnataka)
- Mumbai (Maharashtra)
- Virudhunagar (Tamil Nadu)
- Thevaram (Tamil Nadu)

Cardamom is also traded in Indian commodity exchanges namely, National Multi Commodity Exchange of India (NMCE) and Multi Commodity Exchange of India ltd. (MCE)

APPENDIX 8

CARDAMOM GRADING AND MARKING RULES

1. Short title and application:- (1) These rules may be called the Cardamom Grading and Marking Rules. 1962

   (2) They shall apply to cardamom (Elettaria Cardamom) (Capsules. seeds and powder) produced in India.

2. Definitions:- In these rules:

   (a) "Agricultural Marketing Adviser" means the Agricultural Marketing Adviser to the Government of India.

   (b) "Schedule" means a Schedule to these rules.

3. Grade designations:- Grade designations to indicate the quality of cardamom shall be as set out in column 1 of Schedules I to VI-A.

4. Definition of quality:- The quality indicated by the grade designations shall be as set out against each designation in Schedules I to VI-A.

5. Grade designation marks:- (1) The grade designation mark in the case of cardamom (capsules. seeds and powder) packed in polythene or paper bags shall consist of a design incorporating the number of certificate of authorisation the word "Agmark" and the grade approved by the Agricultural Marketing Adviser.

   (2) The grade designation mark in the case of Cardamom (capsules. seeds and powder) packed in tin or glass containers shall consist of a paste on label specifying the grade designation and bearing the design of a map of India with the word Agmark.

   (3) The grade designation mark in the case of cardamom (capsules seeds and powder) packed in containers of jute or cloth or in wooden cases as also in containers in which sealed polythene bags of graded Cardamom (capsules, seeds and powder) are packed, shall consist of a
   label specifying the grade designation and bearing a design consisting of an outline map of India with the word "Agmark" and the figure of the rising sun with the words "Produce of India" and resembling the one as set out in Schedule VII.

6. Method of marking:- (1) The grade designation mark shall be securely affixed to, or printed on, each container in a manner approved by the Agricultural Marketing Adviser.

(2) In addition to the above, the following particulars shall also be clearly and indelibly marked on each container.
(a) Date of packing in code or plain letters:
(b) Lot number and
(c) Net weight.

(3) An authorised packer may, after obtaining the prior approval of the Agricultural Marketing Adviser, mark his private trade mark on a container, in a manner approved by the said officer, provided that the private trade mark does not represent a quality or a grade different from that indicated by the grade designation mark affixed to or printed on the container in accordance with these rules.

7. Method of packing:- (1) Cardamom capsules shall be packed in clean and sound containers e.g. wooden cases suitably lined with waterproof or craft paper or new jute bags with water-proof lining. Cardamom seeds shall be packed in clean and dry tin plate containers or wooden cases lined with water-proof or craft paper.

(2) Each container shall be securely closed and sealed in a manner approved by the Agricultural Marketing Adviser.

(3) Each package or container shall contain only goods or the crop of the year specified and of one grade designation only. Where more than one package is put in a large container, all the packages shall bear agmark labels and the outer container shall also bear an agmark label indicating particulars of the contents.

8. Special conditions of certificate of authorisation:- In addition to the conditions specified in rule 4 of the General Grading and Marking Rules, 1937, the conditions set out in Schedule VIII shall be the conditions of every certificate of authorisation issued for the purpose of these rules.

APPENDIX 9

COUNTRYWISE EXPORT OF CARDAMOM FROM INDIA
(Quantity in Metric Tons & Value in Rupees Lakhs)

Years	2000-01		2001-02		2002-03		2003-04		2004-05	
COUNTRY	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Saudi Arabia	321.1	2270	347.7	2430	408	2083	277.4	1111	527.1	1729
Japan	239.9	1530	242.7	1658	218.8	959.9	257	833	217.7	562
Malaysia	1.8	109	12.9	75	31.2	139	36	129	42.7	121
U.K	24.6	158	4	43	10	62	12.3	49	13.1	52
Oman	4.6	32	5	41	5.8	33	4.4	19	7.7	35
Kuwait	69.6	449	13.4	80	24.8	122	6.2	23	10	27
Bahrain	8.5	58	6.1	40	4	17	7.5	26	8.2	23.5
South Africa	8	43	4	24	8.6	34	6.3	23	6.4	17
Hong Kong	1.6	9	.4	3.2	.2	1.7	2.8	9.6	4.7	14
Greece	10	55	9.9	63	6.5	25	8.3	25.6	5	13
Qatar	.4	2	2.2	17	1.6	9	4.2	21	3.3	13
USA	6.2	46	4.4	39	2.4	21	2.8	15	2.2	10
Italy	8.8	39	4.7	26	4.9	20	1.7	5.6	2.3	7
UAE	87.8	523	--	--	14	77	.4	1.1	1.5	6
Korea (South)	4	28	1.6	12	2	13.8	2.3	8	1.5	6
France	4.4	27	2.5	16	5.7	26	4.6	19	1.7	5
Canada	.4	2.8	.3	3	.2	1.2	.7	4.2	1.3	5
Singapore	3.9	23	2.5	17	.8	4.9	.5	1.9	1.7	4.7
Others	205.8	765	17.8	121	6.9	41.9	14.6	68	17	52
TOTAL	1031	682	682	4707	757	3692	650	2390	875	2701

Source: Compiled from DGCI and Kolkotta Exporters return /DLE from custom houses

APPENDIX 10

ACRE WISE AVERAGE MANURING COST

Year	Below 10 acres	% Change over years	Above 10 acres	% Change over years
2000-01	3245	0	3577	0
2001-02	3501	+7	3648	+1
2002-03	3712	+14	3890	+8
2003-04	3979	+22	3984	+11
2004-05	4104	+26	4571	+28

Source: Primary Data

APPENDIX 11

ACRE WISE AVERAGE COST OF SPRAYING

Year	Below 10 acres	% Change over years	Above 10 acres	% Change over years
2000-01	3097	0	3276	0
2001-02	3396	+9	3475	+6
2002-03	3681	+18	3656	+11
2003-04	3566	+16	3860	+17
2004-05	3851	+24	3912	+19

Source: Primary Data

APPENDIX 12

ACRE WISE AVERAGE WEEDING COST

Year	Below 10 acres	% Change over years	Above 10 acres	% Change over years
2000-01	3106	0	3375	0
2001-02	3294	+6	3591	+2
2002-03	3423	+10	3716	+6
2003-04	3720	+19	3898	+11
2004-05	3958	+27	3945	+16

Source: Primary Data

APPENDIX 13

AVERAGE ACRE WISE COST OF IRRIGATION

Year	Below 10	% Change over years	Above 10 acres	% Change over years
2000-01	2106	0	3153	0
2001-02	2294	+8	3491	+10
2002-03	2423	+15	3625	+14
2003-04	2582	+22	3828	+21
2004-05	2700	+28	3950	+25

Source: primary data

APPENDIX 14

AVERAGE ACRE WISE COST OF PICKING

Year	Below 10	% Change over years	Above 10 acres	% Change over years
2000-01	4996	0	5227	0
2001-02	5070	+1	5482	+4
2002-03	5252	+5	5516	+6
2003-04	5572	+11	5716	+9
2004-05	5832	+17	5920	+13

Source: Primary Data

APPENDIX 15

AVERAGE ACRE WISE COST OF CURING

Year	Below 10	% Change over years	Above 10 acres	% Change over years
2000-01	2495	0	3490	0
2001-02	2625	+5	3625	+3
2002-03	2750	+10	3995	+14
2003-04	2800	+12	4500	+28
2004-05	2980	+19	4800	+38

Source: Primary Data

APPENDIX 16

AVERAGE ACRE WISE GENERAL EXPENSES

Year	Below 10	% Change over years	Above 10 acres	% Change over years
2000-01	1250	0	2300	0
2001-02	1450	+16	2590	+12
2002-03	1600	+28	2800	+21
2003-04	1800	+44	2970	+29
2004-05	2000	+60	3300	+43

Source: Primary Data