

**FARMERS LEVEL AWARENESS AND PARTICIPATION IN FUTURES
IN CARDAMOM MARKET**

By

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MAJOR PROJECT REPORT

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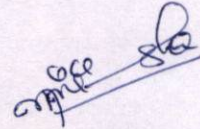
DECLARATION

DECLARATION

I, hereby declare that this project entitled **FARMERS LEVEL AWARENESS AND PARTICIPATION IN FUTURES IN CARDAMOM MARKET**. Is a bonafide record of research work done by me during the course of project work and that it has not previously formed the basis for the award to me for any degree/diploma, associate ship, fellowship or other similar title of any other University or Society.

Vellanikkara,

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CERTIFICATE

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CERTIFICATE

Certified that this project report entitled “**FARMERS LEVEL AWARENESS AND PARTICIPATION IN FUTURES IN CARDAMOM MARKET**” is a bonafide record of project work done by Miss. Nimisha Jose under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associate ship to her.



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Chapter I
DESIGN OF THE STUDY

CHAPTER I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

“Derivatives are one type of securities whose price is derived from the underlying assets. These underlying assets are most commonly Stocks, Bonds, Currencies, Interest rates, Commodities and Market indices” . Derivatives play a vital role in risk management in both financial and non-financial institutions. The derivatives can be classified as Futures contracts, Forward Contracts, Options, Swaps and Credit derivatives.

Commodities are things of value of uniform quality that were produced in large quantities by many producers. It includes all kinds of goods other than actionable claims, money and securities. “A Commodity Exchange is an association, or a company of any other body corporate organizing futures trading in commodities. It includes any organized market place where trade is routed through one mechanism, allowing effective competition among buyers and sellers. It would include auction-type exchanges, but not wholesale markets, where trade is localized, and effectively takes place through many non-related individual transactions between different permutations of buyers and sellers” 2 . The emergence of the derivatives markets as the effective risk management tools in 1970s and 1980s has resulted in the rapid creation of new commodity exchanges and expansion of the existing ones.

1.2 FUTURES TRADING

Commodity Futures

“The futures market is a centralized market place for buyers and sellers from around the world who meet and enter into commodity futures contracts. Pricing is based mostly on an open cry system, or bids and offers that can be matched electronically. The commodity contract will state the date of delivery and the price to be paid. Almost all futures contracts end without the actual physical delivery of the commodity” .

“A futures contract is an agreement between two parties: The party who agrees to deliver a commodity (short position), and the party who agrees to receive a commodity (long position). Everything is specified in every commodity contract (i.e.) the quantity and quality of the commodity, the specific price per unit, the date and method of delivery. The price of a futures

contract is represented by the agreed - upon price of the underlying commodity or financial instrument that will be delivered in the future". The profits and losses of a future depend on the daily movements of the market for that contract and are calculated on a daily basis. Unlike the stock market, futures positions are settled on a daily basis, which means that gains and losses from a day's trading are deducted or credited to a person's account each day. As the accounts of the parties in futures contracts are adjusted every day, most transactions in the futures market are settled in cash, and the actual physical commodity is bought or sold in the cash market. Prices in the cash and futures market tend to move parallel to one another, and when a futures contract expires, the prices merge into one price. So on the date either party decides to close out their futures position, the contract will be settled. The farmer's loss in the commodity contract is offset by the higher selling price in the cash market.

The trading of commodities consists of direct physical trading and derivatives trading. The commodities markets have seen an upturn in the volume of trading in recent years. "Over 40% of commodities trading on exchanges was conducted on US exchanges and a quarter in China. Trading on exchanges in China and India has gained in importance in recent years due to their emergence as significant commodities consumers and producers" .

1.3 INDIAN COMMODITY MARKET

India has a long history of commodity futures trading extending over 125 years. Accordingly FMC gave approval to four entities to setup National Multi Commodity Exchanges namely National Multi Commodity Exchange, National Board of Trade, Multi Commodity Exchange, National Commodity and Derivative Exchange. At present, there are 26 exchanges operating in India and carrying out futures trading activities in as many as 146 commodity items. The type of commodities traded in the commodity markets can be classified as Agricultural Products, Pulses, Edible oil complex, Spices, Guar complex, Cotton, Sugar Precious Metal Gold, Silver Other Metals Copper, Aluminium, Zinc, Nickel Energy Crude oil, Furnance oil etc

Performance

"Since 2003 two of the exchanges have emerged truly as national level representative exchanges namely NCDEX and MCX. The combined turnover on daily basis has crossed 15000 Crore which has surpassed daily volume of BSE equity trading.

In just two-year time MCX has reached on second position just after Comex for silver. It has surpassed TOCOM exchange volumes. Few of the commodity introduced over Indian exchanges have never been traded or listed on any other exchange of the world like Mentha oil, pulses etc . These two exchanges have established themselves and set price discovery platform for various commodities. Two of the exchanges and the commodities traded in it are having sync with other global financial and commodity markets”

The Regulator & Regulations

“Commodity Futures and the Commodity Exchanges are regulated by the Central Government under the Forward Contracts (Regulation) Act and the Forward Contract Regulation Rules. The Forward Market Commission (FMC), which functions under the Ministry of Finance, regulates the Futures Market in Commodities”. The FMC deals with exchange administration and seeks to inspect the books of brokers only if foul practices are suspected or if the exchanges themselves fail to take action. Moreover brokers are not required to register themselves with the regulators as like the equity markets.

1.4 REVIEW OF LITERATURE

“A Long-term relationship exists in case of pepper, sugar while a short-term relationship is found in case of Chick pea and Castor in considering the co-integration existing between the futures and spot prices of agricultural commodities (Jabir Ali 2000)”.

“It has been found that An unexpected increase in futures trading volume uni-directionally causes an increase in cash price volatility for most commodities while examining the Lead-lag relationship between futures trading activity and cash price volatility for major agricultural commodities (Jian Yang, Brian Balyeat 2005)”

“In examining the dynamic relationship between spot and futures prices of agricultural commodities found that spot prices are generally discovered in futures markets and the changes in futures prices lead changes in spot prices (Hernandez Manuel Jun 2010)”.

“A Bi-directional Causal relationship is also evident between spot and futures market of coffee suggesting that futures market are becoming increasingly efficient overtime (John M.Fry, Baoying Lai, Mark Rhodes Nov 2010)”

“With increased availability and lower cost there is faster assimilation of information resulting in effective Price discovery in futures market in case of Agri, Energy, Metal and Commodity Futures price Index and the reverse does not exist, while there is no co-integrating relationship between Metal futures and spot price index. The larger trading program and the speculative nature of futures trading reveals volatility spill over exist from futures to spot in case of Energy and Commodity index and the spill over exist from spot to futures in case of Agri index. Price discovery and volatility spill over being important aspects in formulating policy calls for government intervention to check the dynamics of both spot and futures commodity markets in India (Mantu Kumar Mahalik Apr 2012)”

“In the Price Discovery process of few agricultural commodities Chana, Potato, Blackpepper, castor seeds, turmeric, a Long-run equilibrium relationship is confirmed for all commodities except turmeric making futures market more informational efficient and cost competitive ensuring their lead role in price discovery function (Prof.Sanjay Sehgal Aug 2012)”

“Cardamom is known as the “Queen of Spices” occupies a unique position in spice trade. India was a leading producer of Cardamom until Guatemala overtakes India in 2000-01. Kerala has dominant role as a cardamom producing area among the Indian states and accounts for 80-90% of the total pepper production in the country. Pepper is cultivated extensively in Idukki district, it also accounts for 79% Cardamom area and 90% of total production”

1.5 STATEMENT OF THE PROBLEM

Indian economy will be driven by seven major sectors in the next 25 years. They are: agriculture, textile and clothing, housing and infrastructure, energy, healthcare, education and leisure. Of them, the first four sectors are heavily dependent on commodities. This will make the growth of Indian economy commodity intensive. The trade in commodities will increase and expand. India will be a major producer, processor, consumer and importer of commodities. In such a situation, more and more Indian commodities will be integrated with the global market. Such integration makes the commodity participants to have a global view. Among the agricultural produce cardamom is one of the important cash crop which is being traded in futures market. Kerala is the state where in cardamom is largely grown and actively traded in futures market. “Cardamom is known as the “Queen of Spices” occupies a unique

position in spice trade. India was a leading producer of Cardamom until Guatemala overtook India in 2000-01. Kerala has a dominant role as a cardamom producing area among the Indian states and accounts for 80-90% of the total Cardamom production in the country. Cardamom is cultivated extensively in Idukki district, it also accounts for 79% Cardamom area and 90% of total production”.

The Futures Market in respect of Agricultural Commodities has led to increase the exposure of agricultural produce to price and other market risks. This study relates to the futures trading of Cardamom and farmer level awareness. The cardamom futures contract was launched in 2006. Since the advent of cardamom futures the price discovery mechanism has become more efficient and many changes have happened in the eco system. Hence an attempt is made in this study to know the farmers level awareness and participation in futures in cardamom market.

1.5 OBJECTIVE OF THE STUDY

The study has the following specific objectives:

- To analyse awareness and participation of farmers in cardamom futures.
- To analyse the marketing behavior of the planters.
- To examine the changes in marketing ecosystem since the advent of cardamom futures.

1.6 METHODOLOGY

This part contains the description of the study area, sampling procedure adopted, method of survey, nature and sources of data and various techniques employed for analyzing the data.

Study Area

The present study was conducted in Idukki district in Kerala where cardamom is grown on a large scale. “Kerala has dominant role as a cardamom producing area among the Indian states and accounts for 79% Cardamom area”.

Data collection

The information pertaining to the study were collected both from primary and secondary sources to accomplish the various objectives of the study.

Primary data were collected from through a sample survey of cardamom planters by administering structured interview schedule.

The sample size is 45 famers in Idukki district.

Secondary Data & Period of Study

The secondary data were collected from Spices Board, Spices Park, and also from various articles and journals.

The period of the study was from July 21st 2017 to September 30th 2017.

1.7 SAMPLING DESIGN

Spices are widely traded items in Commodity Futures Markets. From among the Spices Cardamom is the most popular Commodity on Future Trading, both in terms of volume and trade. Farmers' awareness about Futures Trading was elicited by conducting a survey among them. In the present study 45 cardamom farmers were chosen as samples; 15 each from Kumily, Vandanmedu, Anakkara, Kattappana and Nedungandam regions. Samples were chosen on snowball sampling of total farmers whom having cardamom plantations or knowledge in the commodity market, from each area. Sample Frame Idukki District was the place in Kerala where Cardamom is grown largely.

LIMITATIONS OF THE STUDY

Because of the small sample size, the findings cannot be generalised. The reluctance of the farmers to disclose all information has also affected the outcome of the literature.

The pattern of study undertaken in Idukki District of Kerala may not hold good for other states.

1.8 CHAPTERISATION

CHAPTER 1:

The first chapter covers the Introduction, Statement of the problem, Objectives, Methodology, Scope of the study, and Limitations of the study.

CHAPTER 2:

The second chapter contains Review of Literature covering the studies on futures market.

CHAPTER 3:

The third deals about overview of futures market.

CHAPTER 4:

The fourth presents about the Data analysis and Interpretation.

Chapter II

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

The available literatures are categorized under the following heads.

2.1 Cardamom production and marketing system

2.2 Futures trading in agricultural commodities.

2.1 Cardamom production and marketing system

Potty et al (2000) stated that Indian spices face a series of problems in export scenario and low production, low competitiveness in price of spices in international markets, rising cost of production of spices and lack of quality management.

Venugopal et al (2000) stated that productivity of cardamom in India is severely hampered by the occurrence of two important viral diseases, viz. 'KATTE' or Mosaic and 'Kokke Kandu' are vectored by the Cardamom aphid *Pentalonia nigronervosa f. caladii* and through infected rhizomes. An integrated package of cultural/physical, chemical, biological and biotechnological methods are essential to formulate location specific disease management programmes in cardamom.

John (2005) stated that the area under cultivation of cardamom declined the production has increased many fold high yielding planting materials like ICRI-2, ICRI -3, and ICRI-4 and improved clonal selections like Njallani Green Gold, Panikulangara, Cardamom wonder etc to be cultivated in cardamom development programmes of the spices board. The average per hectare yield during 1970 was as low as 46 kg, which increased to 100kgs per hectare during 1990, which further increased to 206kgs per hectare during 2004 was recorded.

Varadarasan (2006) inferred that unusual increase in the number of a pest, which cause damage to cardamom plants. Abnormal use of chemical insecticides which results in high damage to cardamom plants. Undiscriminate use of pesticides, which cause harmful to human health, soil and water.

Sasikumar et al (2006) opined that Indian cardamom is superior in some of the important physical and quality traits like weight of 100 capsules, seed to husk ratio, bulk

density, circumference, and length which has rto srilanka and Guatemala. Indian cardamom rich in volatile oil like 1, 8, cineole and a terpinyl acetate are the most important quality trait for important aroma and favour to cardamom.

Murugesan (2006) inferred that the cost of production of cardamom in India was Rs.42,175 which was compared with Guatemala production cost of Rs. 31,175 for one acre of land with salary and cost of cardamom as constants during 2006.

Kurian (2007) stated that Spice Park will provide the much needed processing facilities, quality assuring services, packaging and advanced technology for sterilization, dehydration, cryo girding etc. This park will be able to get better prices for different spice produces when the park will be operational.

Vasanthakumar (2007) opined that cardamom is used extensively for flavouring wide categories of food stuffs and products. Cardamom is processed into a wide variety of products like cardamom like cardamom oil, cardamom seeds, cardamom powder , cardamom oleoresin, encapsulated cardamom flavour, super critical fluid extract, cardamom tincture, cardamom drops, cardamom flavoured beverages, cardamom coffee, cardamom tea, cardamom chocolate etc.

Nambiar (2008) stated that a brand has to deliver values and show consistency in attributes and image. Branding should be introduced in marketing of cardamom.

2.2 Futures trading in agricultural commodities

A well developed and effective commodity futures market facilitates price discovery and thereby, helps in minimizing the price risk associated with seasonal variations in the demand and supply of commodities. As part of Agree on Agriculture (AOA) under the World Trade Organization (WTO), Government had to withdraw from the role of fixing prices in agricultural sector and assign a new market mechanism i.e., futures market, for price discovery based on diverse domestic as well as international market information, such as price, demand and supply, climatic conditions, etc., and also a tool for hedging risk for various groups such as farmers, traders and exporters. Review of studies on futures trading in agricultural commodities in general, in India and in other countries, are the content of this section.

Gosh et al. (1987) suggested a well-developed and effective commodity futures market, unlike physical market, which facilitates offsetting the transactions without impacting on physical goods until the expiry of a contract. Futures market attracts hedgers who minimize their risks, and encourages competition from other traders who possess market information and price judgement. While hedgers have long term perspective of the market, the traders, or arbitragers as they are often called, hold an immediate view of the market. A large number of different market players participate in buying and selling activities in the market, based on diverse domestic and global information, such as price, demand and supply, climatic conditions and other market related information. All these factors put together result in efficient price discovery as a result of large number of buyers and sellers transacting in the futures market.

In the study conducted by Frank (1992) the introduction of an agricultural commodity futures market in South Africa was considered. A futures market can be used by both buyers and sellers of a commodity to significantly reduce price uncertainty. Theoretical arguments were used to show that the futures and cash prices should be very close, if not equal, at expiration and that the current futures price should be a good forecast of the cash price at expiration. The study revealed that speculators play an important role by providing liquidity to the futures market, but it is possible that they can distort prices. For a futures market to be a success in South Africa, it was suggested that, there needs to be a free cash market, adequate liquidity and well informed traders.

A computer-based trading system is an improvement on the traditional floor trading system mainly because prices are more likely to reflect the underlying supply and demand conditions. Akiyama et al. (1993) investigated into the ability of food-deficit developing countries to import food at stable prices. This paper examined the possibility of using commodity futures for the purpose of price smoothing of food imports for small developing countries. A tighter integration between the theoretical work on the competitive storage model and the role of futures in providing greater stability in imported food prices was presented, as an illustration of the approach using a simple model essentially based on the competitive storage theory. The paper begins by presenting a welfare analysis of stable imported food prices. Recent findings on spot and futures price behaviour relevant to import food price stabilization were reviewed followed by empirical confirmation of these findings

in the context of world wheat markets. An import food grain price stabilization programme using futures is presented with advantages of a futures programme over a buffer-stock programme.

A study by Backenhogg (1993) revealed that agricultural reforms will make prices of main farm products fall and fluctuations in prices increase in nearly all agricultural markets. The case was put forward for the development of futures markets for farm products in Germany. Such markets existed to a limited extent from the early 1900s but ceased to be necessary when Common Agricultural Policy (CAP) provided a safe market for most farm products. The function of futures markets in improving price information and reducing risks is explained and their possible benefits in Germany under conditions of CAP reform and agreement on GATT are discussed.

Link (1993) suggested various ways in which German farmers can protect themselves against price fluctuations with the advantages and disadvantages of each of these. The operation of a commodity futures market is explained and the effects of hedging operations on profits are illustrated for cases of rising and falling prices of potatoes and of pigs.

Pavaskar et al. (1993) opined that there is a lively debate amongst economists about the nature and practice of hedging in commodity futures markets.

The paper examined the debate, not with a view to sharpen the area of disagreement among rural economists, but to demonstrate that the differences are superficial rather than real, and that, underlying the diverse concepts and views, there is a consensus though unacknowledged, on a single, uniform concept of hedging. The agreement simplifies the task of measuring the economic efficiency of hedging. Subsequently, the paper examined the nature of risks and returns involved in hedging practices in order to ascertain theoretical efficiency of the futures market for the purpose of hedging. The analysis disclosed the principal economic determinants of hedging decisions, the character of hedging in future markets and its efficiency.

Morgan et al. (1994) found that the inability of individual developing nations to provide wide scale commodity price support and the continual recognition of international

commodity agreements have engendered a search for alternative mechanisms to reduce price volatility for soft commodities. One possibility is the use of futures market. The authors selected four commodities, viz., cocoa, coffee, sugar and wheat and analyzed the efficiency of associated futures market in terms of price discovery and risk reduction. All four markets exhibited efficiency and therefore provided, in theory, a viable policy alternative for developing economies. The study also briefly reviewed the work indicating why there has been a move away from international commodity agreements towards the use of futures market as a means of managing price risk in the phase of price volatility. The study also discussed the relationship between instability and futures trade lag. The last part of the study examined the price discovery and risk management functions for the futures market for the four commodities. According to the authors, futures trading provide an alternative to forward contracting or government intervention as a means of managing the risk associated with producing and trading in soft commodities. The effectiveness of futures market is dependent on the ability on that market to provide a forum for price discovery. The study suggested that the futures markets for four widely traded soft commodities perform the forward pricing function adequately and can thereby facilitate decision making by agents with respect to production, sale, purchase and storage. Evidence on short run basis and spot price variability suggested that the markets could facilitate risk management through hedging.

Morgan et al. (1994) identified that output and price variability were inherent features of temperate and tropical soft commodities. The author examined the role of futures markets in providing a means of reducing the instability associated with a perishable soft commodity, namely potatoes. The context for the analysis was the gradual reduction in the extent of market intervention and in particular, the lifting of import restrictions. A general overview of the potato market in the UK is presented, and relationship between trade liberalization, instability and futures trading is examined. The role of futures market in providing a reduction in price instability by focusing specific attention on both the price discovery and risk management functions of the market is examined. Forward contract had a history within the agricultural sector for guaranteeing a certain price for a certain quantity, but in the context of reducing instability such contract have the disadvantage of lacking flexibility. The alternative was futures trading that provide a more flexible and liquid means of managing the problems of instability within an agricultural commodity market.

Link (1996) illustrated the principles of hedging by an example of a maize futures contract at the Chicago Board of Trade (CBOT). The method by which a German maize producer could reduce risk from fluctuating prices by selling through futures market and the cost of the process are outlined.

Uhlmann (1996) outlined the principles on which commodity futures trading works and the advantages of hedging in reducing risks for raw material producers and purchasers. The essential role of speculators in carrying the risk and that of international merchants and processors in developing the trade is described.

Graf (1997) explained the way in which milling firms would be able to use the market to hedge against falling or rising prices of cereals with examples.

Penning and Meulenberg (1997) opined that agribusiness companies and farmers must cope with the risk of price changes when buying or selling agricultural commodities. Hedging price risk with agricultural commodity futures offers a way of minimizing this risk. Because many new agricultural futures markets, especially those in Europe, are thin markets, hedgers face liquidity risks which have to be taken into account while evaluation hedging effectiveness.

Tomek (1997) proposed that futures markets provide contemporaneous price quotations for a constellation of contracts with maturities of thirty or more months in the future. Futures markets simultaneously determine a price level. Futures price can efficiently reflect a complex set of factors but still provide poor forecasts. According to the author, forecasts based on quantitative models cannot, however, improve on efficient futures prices as forecasting agents, empirical models provide as poor, if not poorer, forecasts.

The purpose of the study by Manfredo and Libbib (1998) was to apply the concept of index futures contracts to the produce industry by developing indexes based on prices of fruits and vegetables and to determine the hedging effectiveness of potential futures contracts written on these indexes. Twenty representative fruits and vegetables were chosen to compile indexes for fruits, for vegetables, and for fruits and vegetables together using a trade-weighted arithmetic average of 1989-92 wholesale prices of selected commodities traded on the Dallas Wholesale Fruit and Vegetable Market. The indexes were then tested by

simulating a short and long hedge of a portfolio of commodities and by cross hedging selected individual New Mexico and California produce commodities with the indexes. US fruit and vegetable industry did not have a risk management instrument or a well-structured price discovery system, such as commodity futures contracts, to aid in the marketing and management of its price risk. Since the 1980's financial futures contracts based on indexes of stocks, commodities and currencies have been used to hedge these groups of assets.

Carter (1999) described the main contributions in the literature on commodity futures markets and attempts to determine potential gaps in the literature. It was argued that modern studies have focused primarily on technical questions, with insufficient economic content.

More research needs to be directed towards understanding fundamental economic issues such as why so few farmers hedge, the impact of government farm programmes on commodity futures, and the market impact of commodity pools. The literature has failed to explain the prevalence of inverted markets in grains and oilseeds, and there is unexplainable price volatility in markets such as pigs and orange juice.

Naik and Jain (2000) assessed the performance of Indian futures markets in terms of risk management and price discovery functions. The usefulness of futures markets in risk management was evaluated by analysing the risk involved in the spot, futures, and basis of commodities, while their role in price discovery was evaluated by examining forward pricing ability through tests of co-integration between cash and futures prices and tests for efficiency and lack of bias. Data used in this study pertain to the period 1990-2000 for castor seed, pepper, turmeric, potato and gur, and for 1993-2000 for Hessian. It was concluded that the Indian futures markets for agricultural commodities are yet to develop fully as efficient mechanisms of risk management and price discovery. In spite of the high volume of domestic and international trade in physical markets and the high price volatility of many commodities traded, the use of futures markets is relatively low as reflected in the volume of transaction.

Booth and Ciner (2001) investigated about alternative explanations of long term co-movements among the prices of agricultural commodity futures contracts. An analysis of Tokyo Grain Exchange future prices for maize, red bean, soybean and sugar (during the period of July 1993- March 1998) supported the common economic fundamentals or herd behaviour by market participants.

Dahlgrán (2001) developed a general model of cash and futures markets for a storable commodity. The cash market model was characterised by the incorporation of long-hedge to establish contractual claims against existing inventories, which may be either short-hedged or unhedged. The futures market model incorporates outright speculation as well as spread speculation. The paper then examined through mathematical analysis the characteristics these markets must possess if they are informationally efficient, if they are conformable for testing price discovery, and if they are integrated in the short or long run. Results indicated that informationally efficient futures markets were characterised by any one of five conditions, viz., perfectly inelastic utilization demand, perfectly inelastic speculation of infinitely elastic utilization demand, and perfectly inelastic speculation. These conditions further imply that if futures market informationally efficient, their prices are not determined simultaneously with cash prices. The extreme assumptions associated informational efficiency highlight the deficiency of the concept.

Hamloch et al.(2001) examined the experience of the commodity futures exchange in Hannover, Germany. This exchange commenced trading in 1998, following moves to establish futures markets in Germany in the mid-1990s. With pricing becoming less of an agricultural policy instrument, and less administrative influence on markets, planning risks are increasing. Futures trading can help maintain security of planning.

Morgan (2001) reviewed the arguments for utilizing futures markets in less developed countries (LCD's) as an instrument of risk reduction and examined the reasons underlying the review of price risk in internationally traded commodity markets by a World Bank task force. The authors concentrated on issues like, why there is currently an interest in the use an establishment of futures markets, what role a futures market can be expected to perform and to what extent producers in LCDs can be helped. The extent and scale of futures market usage across the world was illustrated. It was clear that there is a concentration of exchange is developed market economies rather than in LCDs, and that there is perhaps little cross-linkage between the two sets of market.

Yoon and Broresen (2001) revealed that as opposed to a normal market, an inverted market has a negative price of storage or spread. Market inversions in nearby spreads rarely occur during early months of the crop year since stocks are usually abundant after harvest.

However, market inversions frequently occur when the spreads rarely occur during early months of the crop year since stocks are usually abundant after harvest. However, market inversions frequently occur when the spreads are observed across crop years near the end of the crop year. The regressions of spreads on the logarithm of US quarterly stocks showed that there exists a positive relationship between the spread and the level of stocks, and further implies that when stocks are scarce, markets will be inverted. Simulations were conducted to determine whether a market inversion is a signal to sell the stocks. The results of the paired-difference tests revealed that as the crop cycle advances towards the end of the crop year, market inversions clearly reflect the market's signal to release stocks in anticipation of new crop supplies. The regressions of actual returns to storage on predicted returns to storage clearly showed that a market is a signal to sell. The results supported the behavioural finance hypothesis that producers are choosing to hold excess stocks because of some type of biased expectations.

Bryant and Haigh (2002) investigated issues of recent interest and controversy regarding bid-ask spreads in commodity futures markets. First, they applied competing spread estimators to open outcry transactions data and compared resulting estimates to observed spreads. This enables market microstructure researchers, regulators, exchange officials, and traders, the opportunity to evaluate the usefulness and accuracy of bid-ask estimators in markets that do not report bid and ask data, providing an idea of the "worst-case" transaction costs that are likely to be incurred. They also compared spreads observed before and after trading was automated on commodity futures markets, and discovered that spreads have generally widened since trading was automated, and that they have an increased tendency to widen in periods of high volatility. Their findings suggested that commodity futures markets an inherently different character than financial futures markets, and therefore merit separate investigation.

Futures trading have been recognised as effective machinery for controlling agricultural prices and as a hedging tool. Studies have shown mixed results indicating that futures trading have either driven up or brought down volatilities in spot prices, better price discovery and risk management in various countries depending on the commodities and underlying market conditions. Co-integration technique has been widely used in the study of price discovery of futures and spot which justify the methodology adopted in this study.

Chapter III

OVERVIEW OF FUTURES MARKET

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OVERVIEW OF FUTURES MARKET

3.1 INTRODUCTION

The word Derivative originates from Mathematics and refers to a variable which has been derived from another variable. Derivatives are so called because they have no value of their own. Derivatives are financial instruments whose value is derived from the value of something else. They derive their value from the value of some other assets such as commodities, bonds, equities, currencies, etc., which is known as the underlying, and are used to either hedge those assets or improve the returns on those assets. Derivatives are specialized contracts which signify an agreement or an option to buy or sell the underlying asset in the future at a prearranged price. If the underlying asset of the derivative contract is coffee, wheat, pepper, cotton, gold, silver, precious stone or for that matter even weather, then the derivative is known as a commodity derivative. If the underlying is a financial asset like debt instruments, currency, share price index, equity shares, etc., the derivative is known as a financial derivative. The derivatives markets are the financial markets for derivatives. The market can be divided into two, which for exchange traded derivatives and that for over-the-counter derivatives. This chapter gives an outline about the concept of Derivatives Market, Commodity Derivatives in general and Futures Trading of Cardamom in particular.

Types of Derivative Contract

The main types of derivatives are futures, forwards, options and swaps. The most common types of derivatives that ordinary investors are likely to come across are futures, options, warrants and convertible bonds.

- Futures are derivative contracts that give the holder the opportunity to buy or sell the underlying at a pre-specified price sometime in the future. They come in standardized form with fixed expiry time, contract size and price. Forwards are similar contracts but customizable in terms of contract size, expiry date and price as per the needs of the user.
- Option contracts give the holder the option to buy or sell the underlying at a pre-specified price sometime in the future. Options can be traded on the stock exchange or on the OTC market.

- Swaps are contracts to exchange cash (flows) on or before a specified future date based on the underlying value of currencies/exchange rates, bonds/interest rates, commodities, stocks or other assets.

3.2 COMMODITY

Derivatives are financial instruments whose value is derived from the value of some other assets such as commodities, bonds, equities, currencies, etc. Commodity is a physical substance that can be extracted directly from the environment, processed and sold commercially. Natural resource is often used to describe commodities which occur naturally in or on the ground. A commodity is a product having commercial value that can be produced, bought, sold, and consumed. Commodities are basically the products of the primary sector of an economy concerned with agriculture and extraction of raw materials which serve as basic inputs for the secondary sector of the economy. Commodities differ from paper assets. Paper assets can be held in brokerage accounts at little or no cost, while commodities require storage costs and cannot be stored in a vault or electronically in a database. Storage costs will impact the pricing structure of futures contracts of individual commodities. A commodity must possess the following characteristics to be successfully traded in the futures market.

- a. The commodity should have a suitable demand and supply conditions.
- b. Prices should be volatile to necessitate hedging through futures trading.
- c. The commodity should be free from substantial control from government regulations imposing restrictions on supply, distribution and prices of the commodity.
- d. The commodity should be homogenous and must be possible to specify a standard grade and to measure deviations from that grade.
- e. The commodity should be storable

3.3 COMMODITY MARKETS

A market where commodities are traded is referred to as a commodity market. It is the market where a wide range of products, viz., precious metals, base metals, crude oil, energy and soft commodities like palm oil, coffee etc. are traded. The commodities markets are one of the oldest markets where trading in commodities takes place and is similar to an equity market. Commodity Markets are markets where raw or primary products are exchanged. These raw commodities are traded on regulated commodities exchanges in which they are bought and

sold in standardized contracts. Commodity markets require the existence of agreed standards so that the trades can be made without visual inspection. Commodity market is an important constituent of the financial markets of any country. It is important to develop a vibrant, active and liquid commodity market. This would help investors hedge their commodity risk, take speculative positions in commodities and exploit arbitrage opportunities in the market.

There are two distinct forms of commodities market, namely, the over the Counter Market, and the Exchange-Based Market. The spot markets are the over-the-counter markets and the participation is restricted to people involved with that commodity.

The exchange-traded markets are only derivative markets where everything is standardized and a person can purchase a contract by paying only a percentage of the contract value. Exchange-traded derivative contracts are those derivatives instruments that are traded via specialized derivative exchanges or other exchanges. A derivatives exchange is a market where individual's trade standardized contracts that have been defined by the exchange. A derivatives exchange acts as an intermediary to all related transactions, and takes initial margin from both sides of the trade to act as a guarantee. The OTC markets are essentially spot markets and are localized for specific commodities. Almost all the trading taking place in these markets is delivery based. The buyers and sellers have their set of brokers who negotiate the prices for them. The goods and the money would be exchanged directly between the buyer and the seller and the market is restricted to only those people whom are directly involved with the commodity. Forward deals also takes place in these markets and is based on a delivery basis and is restricted to the participants in the spot markets. The exchange-traded markets are essentially only derivative markets and everything is standardized. A person can purchase a contract by paying only a percentage of the contract value. Many people who participate in the exchanges are those who are not involved with the physical trading of the commodity. Thus they would not like receiving delivery and would not be in a position to give delivery. The commodity exchange also facilitates delivery. It has been observed world-over that only 2% of all the trades result in actual delivery. Though there is a provision for delivery, most contracts are squared-off before expiry and are settled in cash.

Commodities can be traded on either spot markets or in the form of futures. Spot markets are those in which the commodity is traded immediately in exchange for cash or some other goods. Whereas Futures is a form of contract to buy or sell the commodity for a certain price by a stated date in the future. Futures are standardized contracts that are traded through an exchange to minimize price risk by hedging techniques. The futures market is a centralized market place for buyers and sellers from around the world who meet and enter into commodity futures contracts. Pricing is based mostly on an open cry system, or bids and offers that can be electronically matched. The commodity contract will state the price that will be paid and the date of delivery. Almost all futures contracts end without the actual physical delivery of the commodity. A futures contract is an agreement between two parties, the party who agrees to deliver a commodity and the party who agrees to receive a commodity. The commodity exchanges are more self-regulating than stock exchanges. If retail participation in commodities grows substantially this could change. Futures contract in the commodities market, similar to equity derivatives segment, will facilitate the activities of speculation, hedging and arbitrage to all class of investors.

3.4 COMMODITY MARKET PARTICIPANTS

An efficient market for commodity futures requires a large number of market participants with diverse risk profiles. Ownership of the underlying commodity is not required for trading in commodity futures. The market participants simply need to deposit sufficient money with brokerage firms to cover the margin requirements. Market participants can be broadly divided into hedgers, speculators and arbitrageurs.

□ Hedgers

They are generally the commercial producers and consumers of the traded commodities. They participate in the market to manage their spot market price risk as commodity prices are volatile and their participation in the futures market allows them to hedge or protect themselves against the risk of losses from fluctuating prices.

□ Arbitrageurs

They are traders who buy and sell to make money on price differentials across different markets. Arbitrage involves simultaneous sale and purchase of the same commodities in different markets.

□ **Speculators**

They are traders who speculate on the direction of the futures prices with the intention of making money. Most speculators do not prefer to make or accept deliveries of the actual commodities, rather they liquidate their positions before the expiry date of the contract. Thus, for the speculators, trading in commodity futures is an investment option. The fluctuation in commodity prices represents both, a risk and a potential for profit. The Hedgers seek to minimize and manage risk and transfer the risk by foregoing the associated profit. The speculators assume this risk in the hope of realizing profits by predicting price movements. The arbitrageurs make the process of price discovery more efficient.

Besides these three players other players connected with commodity markets are:

□ **Buyers/Sellers or Consumers/Producers**

They include Farmers, Manufacturers, Wholesalers, Distributors, Farmers' Cooperatives, APMC Mandis, Traders, State Civil Supplies Corporations, Importers, Exporters, Merchandisers, Oil Refining Companies, Oil Producing Companies etc.

□ **Logistics Companies**

It includes Storage & Transport Companies/Operators, Quality Testing and Certifying Companies, Valuers etc.

□ **Markets and Exchanges**

It includes Spot Markets (Mandis, bazaars, etc.,) and commodity exchanges (national level & regional level).

□ **Support Agencies**

It includes Depositories/De-materializing Agencies, Central and State Warehousing Corporations, and Private Sector Warehousing Companies.

□ **Lending Agencies**

It includes Banks and Financial Institutions. The users are the producers and consumers of different commodities. They have exposure to the physical commodities markets, exposing themselves to price risk. In turn, they depend on logistics companies for transportation of commodities, warehouses for storage, and quality testing and certification agencies for assessment and evaluation of commodity quality standards. Commodity derivatives exchanges provide a platform for hedging against price risk for these users.

3.6 BENEFITS OF TRADING IN COMMODITY DERIVATIVES

Trading in futures provides two important functions of price discovery and price risk management. It is useful to all the segments of the economy, particularly to all the constituents of the commodity market ecosystem. Investors, The following benefits are enjoyed by Producers, Consumers and Manufacturers.

□ **Price Risk Management**

All participants in the commodity markets ecosystem across the value chain of different commodities are exposed to price risk. These participants buy and sell commodities and the time lag between subsequent transactions result in exposure to price risk. Commodity derivatives markets enable these participants to avoid price risk by utilizing hedging techniques.

□ **Price Discovery**

This is the mechanism by which a “fair value price” is determined by the large number of participants in the commodities derivatives markets. This is the result of automation and electronic trading systems established on the commodities derivatives exchanges.

□ **Commodities as an Asset Class for Diversification of Portfolio Risk**

Commodities have historically an inverse correlation of daily returns as compared to equities. The skewness of daily returns favours commodities, thereby indicating that in a given time period commodities have a greater probability of providing positive returns as compared to equities. Another aspect to be noted is that the Sharpe ratio of a portfolio consisting of different asset classes is higher in the case of a portfolio consisting of commodities as well as equities. Even with a marginal distribution of funds in a portfolio to include commodities, the Sharpe ratio is greatly enhanced, thereby indicating a decrease in risk.

□ **Commodity Derivatives Markets are Extremely Transparent**

The manipulation of prices of a commodity is extremely difficult due to globalization of economies, thereby providing for prices benchmarked across different countries and continents.

□ **High Financial Leverage**

High financial leverage is possible in commodity markets. With futures contracts, the investor trades in the expectation of the price at a later date. This is possible with a margin deposit, which is usually between 5% and 10% of the value of the commodity. Whereas the

margins required for equity futures contracts are higher, due to higher volatility in equity markets as compared to commodities futures contracts.

An Option for High Networth Investors

With the rapid spread of derivatives trading in commodities, the commodities route too has become an option for high net worth investors.

Useful to the Producer

Commodity trade is useful to the producer because he can get an idea of the price likely to prevail on a future date and therefore can decide between various competing commodities, the best that suits him. Farmers can get assured prices, thereby enabling them to decide on the crop that they want to grow. Since there is transparency in prices, the farmer can decide when and where to sell, so as to maximize his profits.

Useful for the Consumer

Commodity trade is useful for the consumer because he gets an idea of the price at which the commodity would be available at a future point of time. He can do proper costing/financial planning and also cover his purchases by making forward contracts. Predictable pricing and transparency is an added advantage.

Useful to Exporters

Future trading is very useful to the exporters as it provides an advance indication of the price likely to prevail and thereby help the exporter in quoting a realistic price and thereby secure export contract in a competitive market.

Benefit to Corporate Entities

They can benefit by hedging their risks if they are using some of the commodities as their raw materials. They can hedge the risk even if the commodity traded does not meet their requirements of exact quality/technical specifications.

Improved Product Quality

Since the contracts for commodities are standardized, it becomes essential for the producers/sellers to ensure that the quality of the commodity is as specified in the contract.

The advent of commodities futures markets has also enabled defining quality standards of different commodities.

Credit Accessibility

41

Buyers and sellers can avail of the bank finances for trading in commodities. Nationalized banks and private sector banks have come forward to offer credit facilities for commodity trading.

3.7 ROLE OF COMMODITY EXCHANGES

Future markets provide a platform for risk mitigation, price discovery, arbitrage and clearing and settlement. It helps sellers and buyers hedge against future price risk. It provides liquidity by bringing together the buyer and the seller of agricultural produce and enabling traders to quickly transact their business at a fair price. Finally offers an opportunity for financial leverage for speculators, hedgers, and other traders trading in the futures markets. In a future exchange, traders are made and prices are discovered on the basis of current market information and expectations of future price movements. Futures markets are barometers. They enable the market to reach the equilibrium price. Futures market prices have become the most widely used pricing reference in agricultural markets. Futures exchanges act as a magnet, attracting risk avoiders (hedgers) and risk takers (speculators) alike. A key advantage of futures contracts is that the exchange provides a guarantee system that protects futures users from contract default.

3.8 GLOBAL SCENARIO

Although there is evidence that rice futures may also have been traded in China 6,000 years ago, trading in commodity futures is believed to have originated in Japan in the 17th Century for Silk and Rice. The first modern organized futures exchange began in 1710 at the Dojima Rice Exchange in Osaka Japan. In England the first futures transaction was in 1826. But the concept became popular only after the establishment of Chicago Board of Trade in Chicago, USA in the middle of 19th Century. Future trading is a natural outgrowth of the problems of maintaining a year-round supply of seasonal products like agricultural crops and has a long history both in the U.S. and around the world. Futures contracts for agricultural commodities have been traded in the United States for more than 150 years and have been under Federal regulations since 1920.

With the enactment of the Commodity Futures Trading Commission Act 1974, most futures trading took place in the agricultural sector. Organized trading in futures began in the US in the mid-19th century with maize contracts at the Chicago Board of Trade and later Cotton contracts in New York. The first U.S. futures exchange was the Chicago Board of

Trade formed in 1848, and was originally trading in forward contracts. Standardized futures contracts were introduced in the year 1865. In 1870s and 1880s the New York Coffee, Cotton and Produce Exchanges were started. There are ten commodity exchanges in the United States. The largest are the Chicago Board of Trade, The Chicago Mercantile Exchange, The New York Mercantile Exchange, The New York Commodity Exchange and the New York Coffee, Sugar and Cocoa Exchange. In the United States, the principal regulator of commodity and futures market is the Commodity Futures Trading Commission, and the National Futures Association enforces rules and regulations put forth by the CFTC. The biggest increase in futures trading activity occurred in the 1970s when futures on financial instruments started trading in Chicago. These had an enormous impact on the development of the Interest Rate Swap Market. Worldwide there are major futures trading exchanges in over twenty countries including Canada, England, France, Singapore, Japan, Australia and New Zealand. The products traded range from agricultural staples like Corn and Wheat to Red Beans and Rubber. Today, the futures markets have far outgrown their agricultural origins.

There are more exchanges which deal in commodities like **Chicago Board of Trade (CBOT)**, **Kansas City Board of Trade (KCBT)**, **Tokyo Grain Exchange (TGE)** etc. **National Commodity and Derivatives Exchange Limited (NCDEX)** and **Multi Commodity Exchange of India Limited (MCX)**, are the leading commodity exchanges in India incorporated in the year of 2003. Apart from these, there are around 22 regional Commodity exchanges in India. In total, there are 26 commodity Exchanges in India.

3.9 INDIAN SCENARIO

Commodity futures markets largely remain underdeveloped in India in spite of the country's long history of commodity derivatives trade as compared to the US and UK due to the extensive government intervention in the agricultural sector in the post-independence era. Futures trading have been selectively introduced with stringent regulatory controls. Free trade in many commodity remains restricted under the Essential Commodities Act 1955, and forwards and future contracts are limited to specific commodity items listed under the Forward contracts Regulation Act 1952.

India being a major exporter of spices and many other food stuffs has a long history of

commodity futures trading, dating back to more than 125 years. But futures trading in commodities was interrupted in the mid seventies as the government wanted to usher in an elusive socialistic pattern of society. The fragmented and unorganized Indian commodity market underwent transaction phase with the advent of futures market. Commodity markets are of great importance in case of economies like India, where more than 65 percent of the people are dependent on agriculture as majority of commodities traded on global commodity exchanges are agro-based. Indian commodities market has an excellent growth potential and has created good opportunities for market players. India is the world's leading producer of more than 15 agricultural commodities and is also the world's largest consumer of edible oils and gold.

The government realized the need for futures trading after India embarked on economic liberalization policies and signed the GATT agreement in the early nineties, to strengthen the competitiveness of Indian agriculture and the commodity trade and industry. Thus, the government approved futures trading in several commodities. Organized futures market emerged, when the Bombay Cotton Trade Association in 1875 and the Gujarati Vyapari Mandali in 1900 was established in India. It carried out futures trading in ground nuts, castor seeds and cotton. Several futures markets in oilseeds were functioning before the outbreak of the Second world war in the states of Gujarat and Punjab. Futures markets in Bullion began in Mumbai in 1920, and later, similar markets were established in Rajkot, Jaipur, Jamnagar, Kanpur Delhi and Calcutta. Several other exchanges were also established in the country, facilitating trade in diverse commodities such as pepper, turmeric, potato, sugar, jiggery and includes precious metals, ferrous and nonferrous metals, spices, pulses, plantation crops, sugar, and other soft commodities. The commodity derivative exchanges witnessed several ups and downs for the past 13 decades, with a booming phase of unbridled free futures trading in 300 markets during the pre-independence era, followed by a ban on such trading for almost a decade after the outbreak of the second world war in 1939. Subsequent to independence in 1947, the then government of Bombay enacted the Bombay Forward Contracts Act and permitted futures trading in cotton and oilseeds. Commodity futures trading was also revived outside Bombay Presidency, but remained free and unregulated except by the exchanges organizing such trading.

With the constitution of India coming into force on January 26, 1949, the Government

of India brought the Forward Contracts (Regulation) Act, 1952 and established the Forward Market Commission in 1953. Under the FCRA, futures trading was allowed in selected agricultural commodities and their products. The Forward Contracts (Regulation) rules were notified by the central government in 1954. By mid-1960s, around 30 associations were recognized for trading subject to severe regulatory measures. When the markets began to bloom, the government prescribed futures trading in almost all major food crops to restrain inflation in the economy. In order to monitor the price movements of several agricultural and essential commodities, futures trade was completely banned by the government in 1966. Following the launch of economic reforms in the early 1990s, the World Bank and UNCTAD submitted a joint report to the Government of India for the revival of futures trading in farm commodities to render trade in such commodities competitive in the world markets. Futures trading was revived towards the close of the 20th century. In order to boost the agricultural sector, the National Agricultural Policy 2000 envisaged external and domestic market reforms and dismantling of all controls and regulations in the agricultural commodity markets. It also proposed an expansion of the coverage of futures markets to minimize the wide fluctuations in commodity prices and for hedging the risk arising from extreme price volatilities. Growth in the organized commodity markets and their constituents implies that there would be tremendous advantages and benefits accrued to the Indian economy in terms of business generation and growth in employment opportunities.

The onset of the new millennium witnessed the setting up of three new national commodity exchanges permitting them to trade in commodities of their choice. Soon several commodity exchanges were born and the main among them are the Multi Commodity Exchange, the National Commodity and Derivatives Exchange and the National Multi Commodity Exchange.

Forward Markets Commission

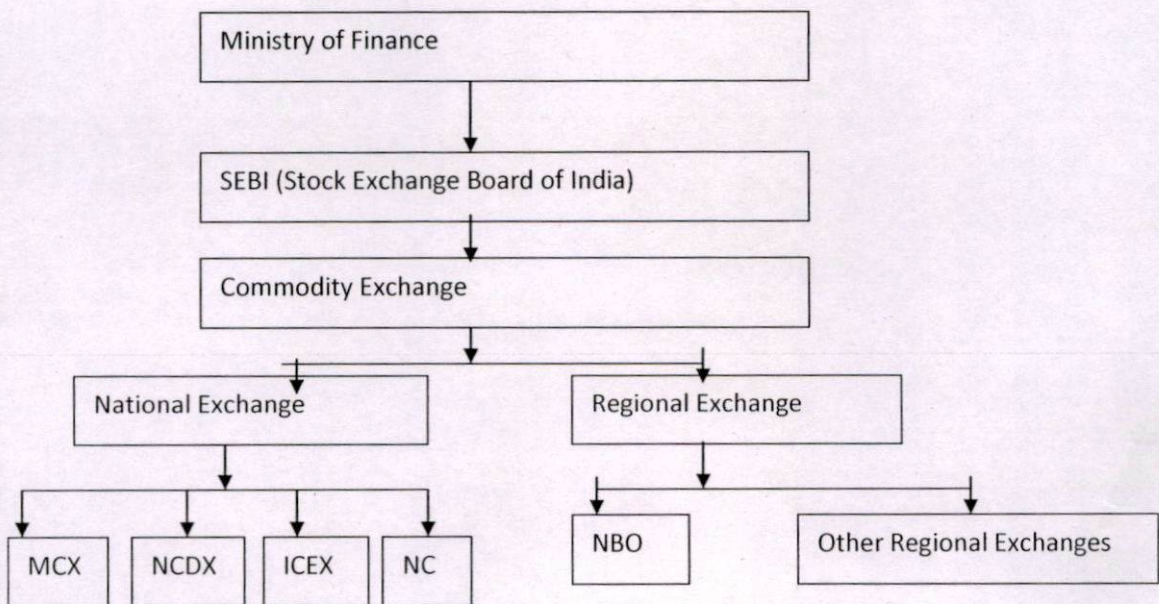
It is a regulatory authority for Commodity Futures Market in India. "It is a statutory institution set up in 1953 under Forward Contracts (Regulation) Act, 1952. Commission consists of minimum two and maximum four members appointed by central Government. Out of these members there is one nominated chairman. All the exchanges have been set up

under overall control of Forward Market Commission of Government of India. It is a regulatory authority for Commodity futures market in India. The functions of the Forward Markets Commission are as follows:

- (a) To advise the Central Government in respect of the recognition or the withdrawal of recognition from any association or in respect of any other matter arising out of the administration of the Forward Contracts (Regulation) Act 1952.
- (b) To keep forward markets under observation and to take such action in relation to them, as it may consider necessary, in exercise of the powers assigned to it by or under the Act.
- (c) To collect and whenever the Commission thinks it necessary, to publish information regarding the trading conditions in respect of goods to which any of the provisions of the Act is made applicable, including information regarding supply, demand and prices, and to submit to the Central Government, periodical reports on the working of forward markets relating to such goods.
- (d) To make recommendations generally with a view to improving the organization and working of forward markets.
- (e) To undertake the inspection of the accounts and other documents of any recognized association or registered association or any member of such association whenever it considers it necessary.

The typical structure of commodity futures markets in India is as follows:

Chart 3.1 Structure of commodity futures markets in India



At present there are 26 exchanges operating in India and carrying out futures trading activities in as many as 146 commodities. The government of India recognized the National Multi Commodity Exchange (NMCE), Ahmadabad; Multi Commodity Exchange (MCX), National Commodity and Derivative Exchange (NCDEX), Mumbai and Indian Commodity Exchange (ICEX) as per the recommendation of the FMC as nation-wide multi-commodity exchanges. Commodity exchanges have come a long way since the establishment up of the national electronic commodity exchanges. NCDEX has remained the leading commodity exchange for agricultural commodities with a market share of around 80%. Introduction of derivatives does not destabilize the underlying market, either there is no effect or there is a decline in volatility. The introduction of derivatives tends to improve the liquidity and informativeness of markets. Futures market helps in efficient price discovery. Commodity exchanges have a tremendous potential to benefit the vast multitude of Indian farmers by serving as a price discovery, delivery and hedging platform. There is an imperative need for an entity which can consolidate individual farmers' produce and allow them to participate in future trading. The aggregator would aggregate the produce of different farmers and provide the required logistical support services including transportation, grading, assaying and warehousing. Aggregators can be agro-extension service providers, producers' co-operatives and corporates using the end product or banks. Futures contractors benefit the farmers by enabling him to lock in prices so that he is protected if prices for his produce happen to fall in the future and also help him in crop selection through future prices. The availability of a futures price not only improves the bargaining power of farmers but also gives him the choice to decide on the timing of his sale.

Despite a long history of commodity futures trading in the country, futures markets are still viewed with suspicion by many in both the academic and official circles. The government also continues to suspend futures trading in commodities as soon as it suspects that such trading may affect adversely the prices of those commodities to the detriment of one or the other class of society. The biggest advantage of having an exchange-based platform is reach. A wider reach ensures greater participation, resulting in a more efficient price discovery mechanism. It comes to a stage where the derivative market guides the spot market in terms of pricing.

A distinct transfer was brought about by the new national commodity exchanges on

the commodity derivative trading landscape in the country. The new exchanges organized derivative trading on screen-based automated electronic system and also guaranteed then performance of the contracts, eliminating the counterparty risks. Electronic trading and settlement of transactions has created a revolution in global financial and commodity markets and these exchanges are expected to offer a nation-wide anonymous, order-driven, screen-based trading system. Many nationalized and private sector banks have announced plans to disburse substantial amounts to finance businesses related to commodity trading. The trading volumes are increasing as the list of commodities traded on national commodity exchanges also continues to expand. The volumes are likely to surge further as a result of the increased interest from the international participants in Indian commodity markets. It is expected that foreign institutional investors (FIIs), mutual funds, and banks may be able to participate in commodity derivatives markets in the near future.

3.10 NATIONAL EXCHANGES

In india there are 25 recognised future exchanges, of which there are three national level multi-commodity exchanges. After a gap of almost three decades, Government of India allowed forward transactions in commodities through Online Commodity Exchanges, a modification of traditional business known as Adhat and Vayda Vyapar to facilitate better risk coverage and delivery of commodities. The three exchanges are:

a) The National Multi Commodity Exchange of India Ltd. (NMCE) was conceived and promoted in **1999** by a group of Indian commodity-based corporations and public agencies, and listed its first contracts on 24 commodities in November 2002. As of October 2009, the NMCE lists futures contracts on a total of 44 different commodities, ranging copra to menthol, and boasts over 300 trading members. NMCE is currently India's third-largest commodity and derivatives exchange as measured by average daily turnover. NMCE recorded a spectacular year-on-year leap in trading for the first half of 2009 of over 500%. Whereas market leader MCX recorded 29% and NCDEX's with more modest 30% increase over the same period.

NMCE is promoted by commodity-relevant public institutions, viz., Central Warehousing Corporation (CWC), Punjab National Bank (PNB) National Agricultural Cooperative Marketing Federation of India (NAFED), Gujarat Agro-Industries Corporation Limited (GAICL), Gujarat State Agricultural Marketing Board (GSAMB), Neptune Overseas Limited

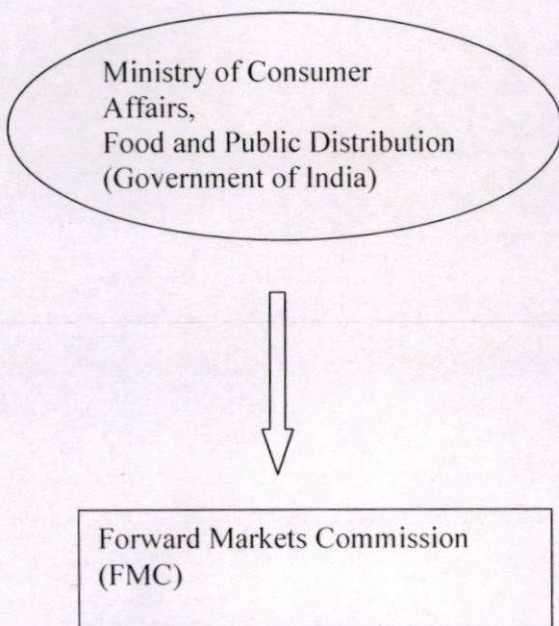
(NOL), National Institute of Agricultural Marketing (NIAM). NMCE has many firsts to its credit - the first, online, demutualised, multi commodity exchange in the country to get national status. NMCE not only revived futures trade electronically in the commodities in India after a gap of 41 years, but also integrated the centuries old commodity market with the latest technology. It is backed by compulsory delivery based settlement to ensure transparent and fair trade practices. NMCE offers electronic platform for future trading in plantation, spices, food grains, non-ferrous metals, oil seeds and their derivatives. Trading in Pepper futures was first introduced by NMCE in April 2003.

All contracts for futures trade have to be approved by the FMC before they can be launched on the exchange. As a self-regulatory organization, NMCE also plays an important role by ensuring that the provisions in the Articles of Association, and Byelaws etc are followed in letter and spirit. The regulation by the Exchange is rule-based and incorporated in the software itself. Regulation involving human intervention and of discretionary nature is implemented through various committees of professional and experts. Special care is taken while constituting these committees to ensure that there is no conflict of interest. National Multi-Commodity Exchange of India Limited is committed to provide world class services of on-line screen based Futures Trading of permitted commodities and efficient Clearing and guaranteed settlement, while complying with Statutory / Regulatory requirements.

CHART NO. 3.2

***. NMCE - LEGAL HIERARCHY**

Legal Hierarchy





National Multi Commodity
Exchange (NMCE)

b) National Commodity & Derivatives Exchange Limited (NCDEX) is a nation-level, technology driven on-line commodity Exchange with an independent Board of Directors and professional management. It is committed to provide a world-class commodity Exchange platform for market participants to trade in a wide spectrum of commodity derivatives driven by best global practices, professionalism and transparency. ICICI Bank Ltd, LIC of India, NABARD and NSE are its promoter shareholders. It was incorporated as a private limited company on **23 April 2003** under the Companies Act, 1956. It obtained its Certificate for Commencement of Business on 9 May 2003. It has commenced its operations on 15 December 2003. NCDEX is a closely held private company which is promoted by national level institutions and has an independent Board of Directors and professionals not having vested interest in commodity markets. NCDEX is regulated by Forward Market Commission in respect of futures trading in commodities. It is located in Mumbai and offers facilities in more than 550 centers in India. NCDEX currently facilitates trading of 57 commodities. It offers two types of products Agricultural products and non-agricultural products. Agricultural Products include Cereals and Pulses, Fibres, Oil & Oil seeds, spices, soft and other products. Non-Agricultural Products include Metals, Precious Metals, Energy and others. Using futures platform producers can minimize their price risk. Wide range of Market participants ensure good price discovery. With ever increasing export demand, exporters can insure themselves against price risk.

c) The Multi Commodity Exchange of India Limited (MCX), India's first listed exchange, is a state-of-the-art, commodity futures exchange that facilitates online trading, and clearing and settlement of commodity futures transactions, thereby providing a platform for risk management. The Exchange started its operations in **November 2003**, operates within the

regulatory framework of the Forward Contracts Regulation Act, 1952. MCX offers trading in more than 30 commodity futures contracts across segments including bullion, ferrous and non-ferrous metals, energy, and agricultural commodities. The exchange focuses on providing commodity ecosystem participants with neutral, secure and transparent trade mechanisms, and formulating quality parameters and trade regulations, in conformity with the regulatory framework. The Exchange has an extensive national reach, with over 2100 members, operations through more than 400,000 trading terminals spanning over 1770 cities and towns across India. MCX is India's leading commodity futures exchange with a market share of 87.3 per cent in terms of the value of commodity futures contracts traded in FY 2012-13. The Exchange was the third largest commodity futures exchange in the world, in terms of the number of contracts traded in 2012, based on the Futures Industry Association's annual volume survey released in March 2013. Moreover, as per the survey, during 2012, MCX was the world's largest exchange in silver and gold futures, second largest in copper and natural gas futures, and the third largest in crude oil futures. "The Exchange offers facilities such as calendar-spread facility, EFP (Exchange of Futures for Physical) transactions which enables participants to swap their positions in the futures/ physical markets. The exchange's flagship index, the MCXCOMDEX, is a real-time composite commodity futures price index which gives information on market movements in key commodities. Other commodity indices developed by the exchange include MCX Agri, MCXEnergy, and MCXMetal. MCX has been certified to three ISO standards including ISO 9001:2000 quality management standard, ISO 27001:2005 information security management standard and ISO 14001:2004 environment management standard. MCX has forged strategic alliances with leading international exchanges such as CME Group, London Metal Exchange (LME), Shanghai Futures Exchange (SHFE) and Taiwan Futures Exchange (TAIFEX) with an aim to integrate with the global commodities ecosystem. The Exchange has also tied-up with various trade bodies, corporates, educational institutions and R&D centres across the country. These alliances enable the Exchange in improving trade practices, increasing awareness, and facilitating overall improvement of commodity futures market. MCX's ability to use and apply technology efficiently is a key factor in the development of its business. The exchange's technology framework is designed to provide high availability for all critical components, which guarantees continuous availability of trading facilities. The robust

technology infrastructure of the exchange, along with its with rapid customisation and deployment capabilities enables it to operate efficiently with fast order routing, immediate trade execution, trade reporting, real-time risk management, market surveillance and market data dissemination. The Exchange is committed to nurturing communities that are vital for the development of its business. To achieve their goal of inclusive growth, they collaborate with diversified partners. Gramin Suvidha Kendra, their social inclusion programme in partnership with India Post, seeks to enhance farmers' value realisation from agricultural activities. MCX has been continuously raising the bar through effective research and product development, intelligent use of information and technology, innovation, thought leadership and ethical business conduct.

The MCX Cardamom futures contract is one of the most liquid contracts on the Exchange based on compulsory delivery. As the cardamom crop is highly sensitive to weather, and subject to high price fluctuation, the contract can be effectively used by the cardamom value chain – growers, planters, traders, exporters, and even retailers to hedge price risks. With production being centered in South India, and buyers are largely in North India. MCX platform gives excellent opportunity for buyers in North India to buy their stock requirement sitting in their office knowing the best competitive price. MCX, through its warehouse arm, NBHC, has the best warehouse practices ensuring quality of the crop. The underlier of the MCX Cardamom contract is Elettaria cardamom, also known as small green cardamom, grown in the southern states of Kerala, Tamil Nadu and Karnataka. Amomum cardamom, also known as black cardamom grown in North Eastern states is not tradable on the MCX platform.

3.5 CARDAMOM: PRODUCT FEATURES & TRADING

Cardamom known as the “Queen of Spices” firstly came into existence in the monsoon forests of Western Ghats in southern India as wild herbs. The fruits have been traded in India for at least 1000 years. The use of Cardamom in offerings during ceremonies is also mentioned in Sanskrit text called Kautilya's Arthashastra and in Taittiriya Samhita. Charak Samhita a medicinal literature written in between 2nd century BC to 2nd century AD in India provides that cardamom is a significant constituent in many medicines and preparations. Some more books in Sanskrit also mentioned about cardamom being used in some rituals and ceremonies. Greeks when initiated their exploration, started importing

cardamom from the East as a digestive medicinal herb. Exports of cardamom from the Malabar Coast were described by the Portuguese traveller Barbosa in 1524. The international trade in cardamoms was well developed by the time of Garcia da Orta in 1563. Most of the countries started to import this spice from India with the emergence of 16th century. Till 19th century, cardamom grew wild and was searched for in the monsoon forests.

Kerala continued to monopolise the cardamom trade until colonial times. But the British colonies suggested the establishment of plantations and domesticated the crop. Nowadays it is grown as a secondary crop with the coffee plantations. The fruits have been traded in India for at least 1000 years. The use of Cardamom in offerings during ceremonies is also mentioned in Sanskrit text called Kautilya's Arthashastra and in Taittiriya Samhita. The Greeks who were importing spices from the East called it as amomon and kardamomon. Kerala continued to monopolise the cardamom trade until colonial times.

i) Description

Cardamom is the dried ripe fruit (capsules of cardamom plant) often referred as the "Queen of Spices" because of its very pleasant aroma and taste. It is a perennial, herbaceous, rhizomatous plant. The cardamom plant is a long living tropical herb plant belonging to the ginger family Zingiberaceae and grows from a thick rootstalk up till around 6 to 10 feet. "Based on the nature of panicles, three varieties are recognized viz. Malabar with prostrate panicle, Mysore with erect panicle, and Vazhukka with semi erect panicle. Indian cardamom is offered to the international markets in different grades: 'Alleppey Green Extra Bold' (AGEB), 'Alleppey Green Bold' (AGB) and 'Alleppey Green Superior' (AGS). It is one of the highly priced and most expensive spices after vanilla and saffron. It is considered as a versatile spice as it is used in both sweet and salty foods. The fragrance of cardamom is also well recognized everywhere and it is used as a mouth freshener. Cardamom is a reputed fruit that grows on the cardamom plant and is used as an exquisite flavored spice all around the globe. Cardamom plant has dark green long leaves and also a long flowering stalk and bear fruits that are pale green or yellowish in color, elongated in shape. These ripen fruits are the ones which are used as spice and flavoring agent.

ii) Cultivation

Cardamom is a tropical herb that takes a fairly long period to mature i.e. 2 years. It is a very climate sensitive crop and the output largely depends on it. It requires a good amount sunshine and appropriate rainfall. The soil type needed by the plant to prosper is loamy soil enriched with organic matter. Moderate shade also plays a key factor in the high cardamom yield. The optimum altitudinal range on growing cardamom is 600 to 1500 mtr above MsL. The cardamom growing regions of South India lies within 8 - 30 degree N latitudes and 75-78 degree longitudes. "There are two types of cardamom grown in India, Small and Large cardamom. Large cardamom is cultivated in North Eastern parts of the country in Nepal, Bhutan, Sikkim, Darjeeling etc. and is not traded in the futures market. Small cardamom is produced in the Western Ghats mainly in Kerala, Karnataka and Tamil Nadu. The propagation of cardamom plant is done through either of the 2 ways that are planting a part of the rootstalk or planting the seedling of the plant. For vegetative propagation, the rhizomes of large clumps are divided into small pieces and are planted into prepared holes in the soil. This method gives earlier fruit yields than those planted as seedlings, but plant material is often limited and farmers can't always get hold it. It is common practise to sow seeds in special nurseries for large-scale propagation. Fresh cardamom seeds are sown quickly, as they remain viable only for 7-10 days. The very young plants that grow from the seeds are known as seedlings. They are planted into a field, below shade trees when they are about 1-2 years old. Cardamom is often intercropped with tea, betel nut palms or black pepper. The cardamom plant is considered matured enough to harvest when the cardamom seeds turn black or brown though the tree is still green. In India, the planting period of the cardamom plantation is from august to march and is harvested in around the 3rd year of the time of plantation in the months of October and November. The harvesting will be completed in 6-7 rounds by maintaining a gap of 20-30 days. . Harvesting of capsules should be started at the right stage otherwise it will result in cheap quality and lower output. Different methods can be used to dry the fruits. Whole green fruits are usually dried in special curing rooms, known as flue curing, which retains the green colour. Whole bleached cardamoms are sun dried and bleached in sulphur fumes. Some of the large enterprises use modern tray or tunnel dryers to reduce drying time.

iii) Uses of Cardamom

Cardamom is a multitalented and widely used spice. It encompasses variety of uses namely, it is considered as a versatile spice as it is used in both sweet and salty foods. Cardamom is used as cooking spice. It is used in adding flavours in both foods and drinks. Oil from the seeds of cardamom and the left over resin have their usage in processed foods, tonics, liquors and perfumes. Cardamom is therapeutic in nature and used to treat infections in teeth and gums, digestive disorders, throat troubles, skin conditions etc. In Arabia, cardamom is used in the preparation of 'gahwa' a strong cardamom coffee which shows hospitality among Arabs. In Northern Europe, cardamom is an essential ingredient in sweet foods. In South Asia, green cardamom is largely included in traditional Indian sweets and in the making of tea.

iv) Global Scenario

Cardamom as a crop is generally produced in the tropical regions of the world but some species of the spice can also be cultivated in the cooler areas of the world. The world production of this spice is around 35000 metric tons per annum. The largest cardamom producing country currently is Guatemala followed by India and Tanzania. The consumption of cardamom has sharply increased throughout the world during the last two decades Guatemala is the leading producer with a production of around 23000MT and a share of 66% in the global production, as there was a sharp rise in the domestic production of the country in the year 2003 and 2004. Earlier, India led the production list with the highest production. The major countries indulged in the production of cardamom are: Guatemala, India, Tanzania, Sri Lanka, El Salvador, Vietnam, Laos, Cambodia, Papua New Guinea, Thailand, Honduras, Nepal, Bhutan.

The average exports of cardamom per year stand at around 23000 tons. The major exporter countries of this famous spice are: Costa Rica, Guatemala, Indonesia, Brazil, Nigeria, India, Thailand, Nicaragua, South Africa. Costa Rica is the largest supplier of cardamom in the world. On the other hand, Saudi Arabia claims to be the single largest importer of it. The major importer countries are: Saudi Arabia, Kuwait, United Arab Emirates, China, Japan, Hong Kong, Netherlands, Singapore, United States of America. The major consuming countries of cardamom are: Saudi Arabia, India, Pakistan, United Arab Emirates, Norway, Sweden, Denmark, Finland, Iceland, Germany, Russia, England, United States, Japan. The countries in the western Asian region like Saudi Arabia, United Arab

Emirates, India etc have maximum consumption and these countries share around 60% of the world's consumption.

v) Indian Scenario

India is now the second largest producer of cardamom in the world. It produces around 11500 metric tons of cardamom every year. The cardamom cultivation is concentrated on the Western Ghats area in the country and it is also termed as Cardamom hills. The states in India that are indulged in the production of cardamom are Kerala, Karnataka and Tamil Nadu. Kerala is the maximum contributor of cardamom to the country having a share of around 70% in the total production. Karnataka shares around 20% production and Tamil Nadu shares the rest.

TABLE NO.3.5

AREA AND PRODUCTION OF CARDAMOM IN INDIA

YEAR	AREA (In Hectares)	PRODUCTION (In Tonnes)
2000-01	72320	10480
2001-02	72663	11365
2002-03	73125	11920
2003-04	73237	11580
2004-05	73725	11415
2005-06	73795	12540
2006-07	73228	1235
2007-08	69280	940
2008-09	71170	11000
2009-10	71110	10075
2010-11	71012	10380
2011-12	71285	15000
2012-13	69870	12420

2013-14	70865	11520
2014-15	69990	12350
2015-16	71452	12598
2016-17	70568	14854

Source: Spices Board of India

Table no. 3.5 shows the area under cultivation, production, export and import of cardamom during the period from 2000-01 to 2012-13 in India. It is inferred that the production of cardamom shows an increasing trend over the years. The cardamom output reported around 15000 tonnes during 2011-12 had fallen to 12420 tonnes in 2012-13 due to fall in yields. The export of cardamom also shows an increasing trend over the years. The export of cardamom increased to 1975 metric tonnes in the year 2009-10 than the previous years as the production in other major countries are affected by adverse climatic conditions. There has been a decline in import of cardamom during the years 2008-09 to 2011-12 due to adverse climatic change in Guatemala. However it finds its demand by the pan masala producers due to low quality and cheaper rate in the Indian market.

vi) Indian Cardamom Market

India holds the credit of being the country that discovered cardamom and made it famous in the world. The country has the maximum area covered in the cultivation of cardamom as compared to any country in the world. India stands at the 2nd place in the world consumption list also as it consume almost 90% of the domestic consumption. The maximum demand comes from the western part of the country at around 45% followed by the northern part constituting about 35%. As India's production is capable in satisfying the domestic consumption demand, it does not import any cardamom from outside countries. The country exports 5 to 8% of its total production. India also exports by-products of cardamom like cardamom oil and oleoresins to the European countries. The major countries that import cardamom and its by products from India are Saudi Arabia, Japan, Germany, Netherlands, United Kingdom. Saudi Arabia is the largest market for Indian cardamom. It gets a share of around 42% followed by Japan with 39% of the total India exports. Guatemala reduced India's export market as it provides cardamom at cheaper rates.

vii) Market Influencing Factors

Major characteristics like Freshness, colour, aroma and size that indicates quality of

cardamom

Production status in competing countries like Guatemala

Annual production in the country

Weather conditions in the country

Domestic consumption demand

Seasonal variations and time of arrival of the crop in the market

Chapter IV
ANALYSIS

CHAPTER IV

RESULTS AND DISCUSSION

Cardamom (*Elettaria cardamomum L.*), popularly, known as Queen of Spices is native to the evergreen rainy forests of Western Ghats in South India. It is cultivated in Kerala, Karnataka and Tamil Nadu. Cardamom is used for flavouring various preparations of food, confectionery, beverages and liquors.

Traditionally cardamom has been marketed through auction system conducted under the regulation of the Spices Board. According to the Cardamom (Licensing and Marketing) Rules, 1987, planters can sell cardamom only through licensed auctioneers or licensed dealers and only licensed auctioneers and dealers can trade in cardamom. Cardamom spot market is characterised by high price volatility and absence of transparency. Farmers being devoid of vital information and holding power often fall prey to the wide price fluctuations. In order to bring in efficient price discovery, price stability and to provide signals to the farmers, futures trading in cardamom was initiated by the National Commodity Exchanges. The emergence of the derivatives markets as the effective risk management tools in 1970s and 1980s has resulted in the rapid creation of new commodity exchanges and expansion of the existing ones. India has long history of commodity futures trading extending over 125 years. Since 2003 two of the exchanges have emerged truly as national level representative exchanges, namely NCDEX and MCX.

Futures trading were introduced mainly to facilitate the farmers of agricultural commodities to fetch fair price and ready market. This will help them to minimize and manage the risk in marketing their products. However, it is essential to get to know farmers perception about this risk mitigation product (i.e) Futures. The futures trading in cardamom has brought in several changes in the marketing ecosystem and marketing behaviour of various constituents of the marketing value chain of cardamom. The present study is an attempt to identify and quantify farmers' awareness and participation in cardamom futures in Idukki district.

In this chapter the socio-economic status, production and marketing of cardamom, awareness and participation of farmers in cardamom futures and the state of

the ecosystem are analysed. The data for the study were collected from a sample of cardamom planters. The sample consisted of 45 farmers (15 each from Small, Medium and large). The sample planters were selected from Vandanmedu, Nedumkandam, Pampadumpara, Anakkara, Puttady, Kumali of Idukki district. The farmers were classified into small, medium, and large farmers on the basis of land holding size. Small farmers were farmers having less than five acres. Farmers having five to twenty five acres were treated as medium farmers and farmers having more than twenty five acres were large farmers. The data were collected through personal interview using a structured schedule. The collected data were analyzed using average, percentage, composite index, etc. The present study is descriptive in nature and the analysis was done with the help of SPSS.

The present chapter contains analysis and interpretation of the results in respect of the following objectives:

- To analyse the awareness and participation of farmers in cardamom futures.
- To examine the changes in marketing ecosystem since the advent of cardamom futures.
- To analyse the marketing behaviour of the planters.

The findings emerged from the study are presented under the following heads:

- Profile of the farmers
- Production of cardamom
- Cost of cultivation
- Marketing of cardamom
- Warehousing
- Futures trading
- Awareness about futures
- Participation in futures

4.1 Profile of the Farmers

The profiles of the farmers' covers age, gender, educational qualification and experience in farming and are depicted in the following tables. All the respondents in the sample were men except one woman, which underscores the predominance of men in cardamom farming.

4.1.1 Age of Planters

The age-wise distribution of the sample planters is give in Table 4.1.1

Table 4.1.1 Age of Planters

Age (year)	Frequency	Percentage
30-40	6	12.0
40-50	16	36.0
50-60	11	25.0
above 60	12	27.0
Total	45	100.0

Source:Primary data

Out of the 45 planters, 12 per cent belonged to the age group of 30 – 40 and 36 per cent belonged to the age group of 40 – 50. Planters in the age class of 50-60 accounted 25 per cent of the sample. Planters in the age group above 60 years composed of 27 per cent. Vast majority(88 per cent) of the planters were above the age of 40 years.

4.1.2 Main Occupation of planters

The occupation of selected planters is found in Table 4.1.2

Table 4.1.2 Occupation of planters

Occupation	Frequency	Percentage
Farming	30	66.0
Trading (Pepper, Cardamom)	10	23.0
Fertilizer business	3	7.0
Processor(Cardamom)	2	4.0
Total	45	100.0

Source: Primary data

According to the table, the main occupation of 66 per cent of the respondents was agriculture and 23 per cent were traders. Another seven per cent were retailing fertilizer, and four per cent were cardamom processors.

4.1.3 Educational Qualification of Planters

The educational qualification of the farmers is given in Table 4.1.3.

Table 4.1.3 Educational Qualification of planters

Qualification	Frequency	Percentage
Below Secondary	5	11.0
Secondary	13	29.0
Higher Secondary	17	38.0
Graduation	10	22.0
Total	45	100.0

Source: Primary data

Among the selected planters, 67 per cent had secondary and Higher Secondary education. Graduates constituted 22 per cent of the sample. Planters with education below Secondary formed just 11 per cent. Majority of the planters (60 per cent) are well educated.

4.1.4 Experience of planters

The experience of selected farmers in cardamom farming is given in Table 4.1.4.

Table 4.1.4 Experience of planters in cardamom farming

Experience(year)	Frequency	Percentage
<10	5	11.0
10-20	9	20.0
20-30	21	47.0
30 and above	10	22.0
Total	45	100.0

Source: Primary data

It is obvious from the table that 47 per cent of the sample planters had 20-30 years experience in cardamom farming. Planters having 30 years and more experience in

farming formed 22 percent. Another 20 per cent had 10-20 years experience. Planters with less than 10 years constituted just 11 per cent. It may be inferred that vast majority of the farmers had more than 20 years of experience in cardamom planting.

4.2 Cardamom Cultivation

Idukki is Kerala's largest district and is called as the spice village of the world. Traditional planter Mr. Sebastian had developed a new variety of cardamom known as 'Njallaniyil Green Gold' which heralded a revolution in the cardamom cultivation.. Today the whole area under the cardamom cultivation in Idukki is under the cultivation of 'Njallani'. It was observed that a 'Njallani' variety produces 120-160 capsules compared to 30-35 in the ordinary variety. Instead of planting seedlings that take two to three years to bear fruit, 'Njallani' plant shoots within one year and was able to shorten the yield span to two years compromising neither on quality nor yield.

4.2.1 Area under Cardamom Cultivation

The yielding area of different classes of cardamom planters is shown in Table 4.2.1

Table 4.2.1 Area under cardamom cultivation

Planters	<5 Acre	5-15 Acre	15-25 Acre	>25 Acre	Total
Small	15(100)	0	0	0	15 (100)
Medium	0	7 (47)	8 (53)	0	15 (100)
Large	0	0	0	15 (100)	15 (100)
Total	15 (33.33)	7 (15)	8 (18)	15 (33.33)	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

Farmers holding less than 5 acres of land formed 33 per cent. Farmers having 5-15 acres accounted for 15 per cent. Farmers holding 15-25 acres and 25 acres constituted 18 per cent and 33 per cent respectively.

4.2.3 Total and Average area under Cardamom Cultivation

The total and average area under cardamom cultivation is shown in Table 4.2.3.

Table 4.2.3 Total and Average area under Cardamom Cultivation

Sl.No	Planters	Total Area (acre)	Average Area (acre)
1	Small	52	3.46
2	Medium	221	14.73
3	Large	431	27.30
	Total	704	

Source: Primary data

The total area under cardamom cultivation by the small scale farmers was 52 acres. The small farmers had an average of 3.46 acres. The medium scale farmers possessed a total area of 221 acres with an average of 14.73 acres. The total area under cardamom cultivation was 431 acres in the case of large scale farmers. Their average was 27.3 acres.

4.2.4 Production of Cardamom

The average yield of dry cardamom capsules from a well grown plantation would be around 450 to 500 kg/ha. However, the yield may vary depending upon the type of soil and variety. Normally 400-500 plants can be cultivated in an acre.

The production of cardamom by the selected planters in the year 2016-2017 is given in Table 4.2.4

Table 4.2.4 Production of cardamom

Planters	Production(Quantity in tonnes)					Total
	<2.5	2.5-5	5-10	10-20	>20	
Small	5 (33)	8 (54)	2 (13)	0	0	15 (100)
Medium	0	0	6 (40)	9 (60)	0	15 (100)
Large	0	0	0	11 (73)	4 (27)	15 (100)
Total	5 (11)	8 (18)	8 (18)	20 (45)	4 (9)	45 (100)

Source: Primary Data

Note: Figures in bracket indicate percentage to total

The table indicates that 54 per cent of the small farmers produced 2.5-5.0 tonnes of cardamom in 2016-17. Small farmers who raised less than 2.5 tonnes constituted 33 per cent

of the sample. The production of cardamom was 10-20 tonnes for 60 per cent of the medium scale farmers. As high as 73 per cent of the large farmers produced 10 - 20 tonnes of cardamom.

4.2.5 Total and Average production of Cardamom

The total and average production of cardamom is given in Table 4.2.5

Table 4.2.5 Total and average production of cardamom

Sl.No.	Planters	Total production (In tonnes)	Average production (In tonnes)
1	Small	25.5	1.7
2	Medium	155.75	10.38
3	Large	222.75	14.85
	Total	404	

Source: Primary data

The total cardamom production of small scale farmers was 25.5 tonnes, and the average production was 1.7 tonnes. The medium scale farmers had produced 155.75 tonnes and the average was 10.38 tonnes. The large scale farmers had a total production of 222.75 tonnes and the average production of 14.85 tonnes.

4.2.6 Cost of Cultivation

Cost of cultivation of cardamom (Kerala) is given in Table 4.2.6.

1 hectare : 1100 plants

Spacing : 10 X 10 feet

Wage rate : Rs.333/- per day (as per the labour wages revised in plantation crops in June 2016)

Table 4. 2.6 Investment Cost – Labour Cost

Sl. No.	Operations	First Year		Second Year	
		Number of Labourers Required	Cost (Rs.)	Number of Labourers Required	Cost (Rs.)
1	Clearing site	40	13320.00	--	--
2	Marking lines	8	2664.00	--	--
3	Making Roads / Foot paths	10	3330.00	4	1332.00
4	Taking drain	7	2331.00	--	
5	Shade regulation	21	6993.00	11	3663.00
6	Taking pits	73	24309.00	--	
7	Filling pits	36	11988.00	8	2664.00
8	Planting/Staking/ Mulching	29	9657.00	--	0.00
9	Manuring	26	8658.00	41	13653.00
10	Weeding	61	20313.00	69	22977.00
11	P.P. operation	32	10656.00	39	12987.00
12	Digging	45	14985.00	54	17982.00
13	Irrigation	38	12654.00	58	19314.00
14	Gap filling	--		6	1998.00
15	Maintaining drainage & foot paths	--		4	1332
16	Harvesting & Processing	--		100	33300.00
17	Curing charge(1000Kg green)			-	11000.00
18	Trashing	--		15	4995.00
	Total	426	141858.00	409	147197.00

Source: Indian Cardamom Research Institute, Myladumpara.

The total investment and labour cost for two years was Rs. 2.89 lakh. Total labours required were 835.

Table 4.2.7 Investment Cost – Material Cost

Sl.No.	Name of the component	First year (Rs.)	Second year (Rs.)
1	a. Cost of planting materials (1100 nos.) (@ Rs.40/-) b. Transportation	44,000.00 4000.00	4400.00 750.00
2	Cattle Manure @ 5 tonnes during first year, @ 5.5 t during 2 nd and 3 rd years @ Rs. 4.5/Kg	22500.00	24750.00
3	Neem /Ground nut cakes, bone meal, vermicompost etc. @ 1 kg. Per plant @ Rs. 20	27500.00	27500.00
4	Fertilisers:- I year 27.5:27.5:75 NPK 2 times II year @ 100:100:200	11850.00	15740.00
5	P.P. Chemicals +Bioagents(Trichoderma,Psuedomonas, Verticillium, Paecilomyces,EPN)+Bordaeux mixture	11,500.00	23,500.00
6	Application of quick lime@1/2 Kg/pit	6050.00	0.00
	Total	1,27,400.00	96,640.00
	Grand Total	2,69,258.00	2,43,837.00
	Total cost of replanting & maintenance during gestation period	5,13,095.00/-	

Source: Indian Cardamom Research Institute, Myladumpara.

The total (two years) investment cost for one hectare of cardamom works out to Rs. 5,13,095 consisting of labours cost Rs. 289,055 and material cost Rs. 2, 24, 040. Thus the total investment cost of cardamom for two years is estimated to be Rs. 2,05,238 per acre.

4.2.8 Production cost of mature cardamom plantation [3rd year onwards]

1 hectare : 1100 plants

Spacing : 10 X 10 feet

Wage : Rs.333/- per labour per day (as per the labour wages revised in plantation crops June 2016)

Table 4.2.8 Production cost of mature cardamom plantation

Sl. No.	Particulars	Cost (Rs.)	Number of Labours required	Labour charge (Rs.)
1	Maintaining drainage & foot paths		5	1665.00
2	Shade regulation		25	8325.00
3	Digging rain water pits		30	9990.00
4	Mulching 2 times		60	19980.00
5	Manuring	22,000.00	30	9990.00
6	Trashing (2 times)		55	18315.00
7	Weeding (2 times)		55	18315.00
8	Soil application(once in year)		30	9990.00
9	Soil raking	5,000.00	30	9990.00
10	PP Operations(7 rounds pesticide & 2 rounds BM spray, bioagent application)	15,600.00	45	14985.00
	Plant protection chemicals	10,000.00		
	Tools, implements	5,000.00		
11	Irrigation(4 months 15 days interval)	27,500.00	50	16650.00
12	Harvesting & Processing		255	84915.00
	Total	85,100.00	670	223,110.00
	Grand Total	308,210.00		

Source: Indian Cardamom Research Institute, Myladumpara.

From the third year onwards the production cost is estimated to be Rs. 308,210.00



4.2.9 Economics of Cardamom Cultivation

The economics of cardamom cultivation is given in Table 4.2.9.

Table 4.2.9 Economics of Cardamom Cultivation

Particulars	Cost (Rs.)
Labour cost – First Year	1,41,858.00
Material Cost – First Year	2,69,258.00
Labour cost – Second Year	1,47,197.00
Material cost – Second Year	2,43,837.00
Production cost – Third year	3,08,210.00
Total	11,10,360.00
Cardamom production – Third Year	1375 Kg.
Price realized (Rs. 900/- per Kg.)	12,37,500.00
Total income from cardamom sale (per ha.)	12,37,500.00
Profit (per ha.)	1,27,140.00
Profit (per acre)	50,856.00
Profit (per plant)	101.71

Source: Compiled from secondary data.

Cardamom cultivation is economically viable if a farmer got an average production of 500 kg per acre and price realized should be Rs. 900 per kg. Profit per plant is Rs.1001.71.

4.3 Cardamom Marketing

In the spices industry, marketing plays a vital role. Farmers who are efficient in production need an efficient marketing channel to realise remunerative price for their produce. The marketing channel of cardamom encompasses licensed dealers, auctioneers, commodity exchanges, exporters and traders.

Preparation of Cardamom for Marketing

The preparation of cardamom for marketing involves various stages like bleaching, cleaning and assorting, grading, packaging, storage and transporting. Cardamom pods are removed from the plant just when they are short of full ripeness, that is, before the pericarp turns yellow in colour. At this stage, by a gentle touch of fingers, the pods are separated from the plant. On the other hand, if cardamom pods are allowed to ripe fully, they tend to split and do

not develop a good dark green colour which is an important factor in determining their market value. Similarly, if immature cardamom pods are plucked and dried, they become very light in weight, which will be quoted only at lower prices in the market. Therefore, harvesting of cardamom is a skilled and important process. Picking is a job, which requires some fitness as well as perception to differentiate between the ripe and near ripe fruits from the rest. A rough handling of the rhizomes would spoil the crop while indifferent picking of unripe fruits would adversely affect the quality of the product and make loss to the producers.

Bleaching

Bleached cardamom is a distinct trade quality in the market. Bleaching is done normally to give uniform colour to cardamom capsules. The process of bleaching involves fumigation of sulphur vapour on cardamom in the special bleaching chamber for about six to eight hours. The process of bleaching is time consuming and expensive. It improves only the colour of the pericarp but gives a sulphurous odour to the seeds. The only advantage of bleached cardamom is that, it is protected from the attack of moths due to the persistence of sulphur fumes in it. But, majority of the cardamom traders and processors, especially the small planters consider bleaching as an unnecessary process. However, bleaching is done usually on the receipt of orders from consuming markets because of the varied extent of bleaching desired by the consumers. The consumers who prefer good coloured cardamom are the target group for bleached cardamom.

Cleaning and Sorting

For long-duration storage of cardamom and in order to bring out its aroma, the fresh cardamom capsules (with 80–85% moisture) has to be dried immediately after harvesting to bring down its moisture content to less than 10% (w.b.) through a curing (drying) process using dryers. After drying, cardamom capsules are gently rubbed by hand and cleaned to remove the foreign matter, stalks, etc. They are then assorted mainly according to their size and colour. Assortment can be done either manually or mechanically. The proportions of different grades obtained from the bulk depends on the climatic conditions, incidence of diseases, attack of pests, age of the plantations with precautions taken during picking and drying. The small planters are normally not very keen about cleaning and assorting while large planters, invariably, are cleaning and often assort them before despatching for sale.

Grading

Cardamom is graded as per grade standards prescribed by the customers for different varieties. Quality of cardamom is determined usually by its size, colour and weight. The other factors influencing the quality of cardamom are volatile oil content, percentage of refraction, freedom from thrip marks, etc. The taste and the development of typical aroma depends upon the stage of maturity of the plant, the time of harvest, the method of harvest, the due care in handling during transportation and other associated activities.

Packaging

Cardamom capsules can be packed in polythene bags of various sizes according to the market demand. The bags should be sealed to prevent moisture entering. Sealing machines can be used to seal the bags. Attractive labels should be used. The label needs to contain all relevant product and legal information – the name of the product, brand name (if appropriate), details of the manufacturer (name and address), date of manufacture, expiry date, weight of the contents, added ingredients (if relevant) plus any other information about the country of origin as the country to which it is being imported to may require a barcode, producer code and packer code are all extra information that is required in some countries to help trace the product back to its origin.

Transporting

Generally, from the production centre (plantation), cardamom is transported by road to an assembling centre (pooling centres or auctineers' depot) in the market where they are packed. Planters, usually, despatch their produce by cart, van or lorry in metric tonnes to the local market. Transportation by lorry is common in Idukki area from where, the product is sent to various markets. Depending upon the destination the freight charges vary.

Storage of Cardamom

Cardamom being a valuable agricultural commodity, generally due care is given for its storage at all levels from growers to ultimate consumers. After drying and assortment, cardamom is stored usually in black polythene lined gunny bags to retain the green colour. During storage, wooden chests are also used by the large planters. Medium and large farmers have their own private warehousing facilities. In the assembling centres (known as pooling centres of auctioneers) also cardamom is packed in the similar type of gunny bags which are

properly stitched, labelled and stacked. In the case of wholesalers, cardamom is stored in damp-proofed dark rooms.

In order to analyse the marketing behaviour of the selected farmers, data regarding production, marketing channel, price realised, grading, etc. were collected and results are presented in this part of the report.

4.3.1 Quantity marketed through Licensed Traders

The percentage share of cardamom marketed through licensed traders is given in Table 4.3.1

Table 4.3.1 Quantity marketed through licensed traders

Planters	Percentage					Total
	0	0-25	25-50	50-90	>90	
Small	0	0	3 (20)	12 (80)	0	15 (100)
Medium	8 (53)	4 (27)	3 (20)	0	0	15 (100)
Large	9 (61)	2 (13)	2 (13)	2 (13)	0	15 (100)
Total	17 (38)	6 (13)	8 (18)	14 (31)	0	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

According to the table, 62 per cent of the farmers marketed their cardamom through licensed traders and remaining 38 per cent through other channels such as e-auction centres and commodity exchanges. Small scale farmers marketed cardamom exclusively through licensed traders. When 47 per cent of the medium scale farmers depended on traders for marketing their produce only 39 per cent of the large scale farmers relied upon traders.

4.3.2 Physical quantity marketed through licensed traders

The physical quantity of cardamom marketed through licensed traders is shown in Table 4.3.2.

Table 4.3.2 Physical quantity marketed through licensed traders

Sl. No.	Planters	Quantity (tonnes)
1	Small	20.00
2	Medium	73.20
3	Large	75.73
	Total	168.93

Source: Primary data

The total physical quantity of cardamom marketed through traders was 168.93 tonnes by all the type of farmers. The quantity marketed by small farmers, medium farmers and large farmers through traders were 20 tonnes, 73.20 tonnes and 75.73 tonnes respectively.

4.3.3 Price paid by licensed traders

The price paid by licensed traders to the farmers is shown in Table 4.3.3

Table 4.3.3 Price paid by traders (2016-2017)

Planters	<700	700-800	800-900	900-1000	1100-1200	Above 1200	Total
Small	0	8 (53)	4 (27)	3 (20)	0	0	15 (100)
Medium	0	0	5 (33)	6 (40)	4 (27)	0	15 (100)
Large	0	0	4 (27)	7 (47)	2 (13)	2 (13)	15 (100)
Total	0	8 (18)	13 (29)	16 (36)	6 (13)	2 (4)	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

Price of cardamom depends upon the size, litre weight, colour and aroma. The first quality (7 mm and above) cardamom will get premium price. Usually medium and large scale farmers grade their produce before selling so that they will get premium price. The small scale farmers sell cardamom directly to the traders, and they get only lower price.

It may be observed that 53 per cent of the small scale farmers got Rs.700-800 rupees per Kg of cardamom. The main reason is that, the small scale farmers sold cardamom as bulk,

without grading. It may be noted that 40 per cent of the medium farmers and 47 per cent of the large farmers got Rs. 900-1000 for their produce. The share of medium and large sized farmers who got Rs. 1000 -1200 and above was 27 per cent and 26 per cent respectively.

4.3.4 Average price received by the farmers from licensed traders

The average price received by the small, medium and large scale farmers from the traders is given in Table 4.3.4.

Table 4.3.4. Average price received by the farmers from licensed traders

Sl. No.	Planters	Average Price (Rs.)
1	Small	837
2	Medium	917
3	Large	944

Source: Compiled from primary data

The small scale farmers realised an average price of Rs. 837 per Kg. An average price of Rs. 917 per Kg. was received by medium scale farmers from the traders. The large scale farmers received Rs.944 per Kg on an average.

4.3.5 Percentage share of cardamom marketed through e –Auction centre

The percentage share of cardamom marketed through e - Auction is shown in Table 4.3.5

Table 4.3.5 Quantity marketed through e –Auction centre

Planters	Percentage				Total
	0	0-50	50-90	>90	
Small	11 (73)	4 (27)	0	0	15 (100)
Medium	0	5 (33)	10 (67)	0	15 (100)
Large	0	0	5 (33)	10 (67)	15 (100)
Total	11 (24)	9 (20)	15 (33)	10 (23)	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

It is obvious from the table that 76 per cent of the planters were selling cardamom through e-Auction and the remaining 24 per cent sold through e-Auction. When 73 per cent of the small farmers were not using e-Auction for marketing, cent per cent of the medium and large farmers were using e-Auction. The table also reveals that 23 percent of the planters sold more than 90 per cent of the cardamom through e-Auction. The share of large farmers, who sold more than 90 per cent of cardamom through e-Auction, was 67 per cent.

4.3.6 Total Quantity marketed through e-Auction

The physical quantity of cardamom marketed through e-Auction appears in Table 4.3.6.

Table 4.3.6 Total Quantity marketed through e-Auction.

Sl.No.	Planters	Total Quantity(tonnes)
1	Small	5.5
2	Medium	70
3	Large	107.75
	Total	163.25

Source: Compiled from primary data

Small scale farmers traded very few quantity of cardamom through e-Auction (5.5 tonnes). When medium scale farmers traded 70 tonnes of cardamom through e-Auction, large scale farmers traded 87.75 tonnes through e- Auction centre.

4.3.7 Price received from e - Auction centre

The price received by the different classes of planters from e - Auction is given in Table 4.3.7

Table 4.3.7 Price received from e - Auction centre (Price in Rupees)

Planters	<700	700-800	800-900	900-1000	Above 1000	Total
Small	0	9 (60)	5 (33)	1 (7)	0	15 (100)
Medium	0	3 (20)	4 (27)	5 (33)	3 (20)	15 (100)
Large	0	2 (13)	3 (20)	4 (27)	6 (40)	15 (100)
Total	0	14 (31)	12 (27)	10 (22)	9 (20)	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

According to the table, 69 per cent realised Rs. 800 and above per kg. of cardamom from e-Auction. It may be noted that 20 per cent of the medium scale farmers and 40 per cent of the large farmers realised above Rs. 1000 per Kg. of cardamom from e-Auction.

4.3.8 Average price realised by farmers through e - Auction

The average price realised by the farmers through e – Auction is given in Table 4.3.8

Table 4.3.8 Average price realised by farmers through e - Auction

Sl.No	Planters	Average Price
1	Small	830
2	Medium	976
3	Large	1024

Source: Primary data

Small scale farmers realised Rs. 830 per Kg. of cardamom through e- Auction. However, medium scale farmers and large scale farmers realised Rs. 976/ kg and Rs. 1024/kg respectively from e- auction.

4.3.9 Quantity marketed through Commodity Exchange

The share (percentage) of cardamom marketed through Commodity Exchange is given in Table 4.3.9.

Table 4.3.9 Quantity marketed through Commodity Exchange

Planters	Percentage			Total
	0	0-25	25-50	
Small	15 (100)	0	0	15 (100)
Medium	7 (46)	4 (27)	4 (27)	15 (100)
Large	10	3	2	15

	(67)	(20)	(13)	(100)
Total	32	7	6	45
	(70)	(16)	(14)	(100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

From the above table it is clear that 70 per cent of the planters were not using futures market as a marketing channel. Only 30 per cent of the planters used futures market. It is clear that 14 per cent of the farmers had sold their 25-50 per cent of cardamom through futures. The remaining 16 per cent marketed up to 25 per cent of their cardamom through futures market. It may be noted that the number of farmers who sold through futures was more among medium farmers (eight out of 15).

4.3.11 Quantity marketed through Commodity Exchange

The physical quantity of cardamom marketed through Commodity Exchange is given in Table 4.3.11

Table 4.3.11 Physical quantity marketed through Commodity Exchange

Sl. No.	Planters	Quantity (in tonnes)
1	Small	0.00
2	Medium	12.55
3	Large	39.27
	Total	51.82

Source: Primary data

Medium scale farmers marketed 12.55 tonnes of cardamom through commodity exchanges. Large scale farmers traded 39.27 tonnes of cardamom through this channel.

4.3.12 Price received from Commodity Exchange

The price received from Commodity Exchange by the medium and large scale farmers is given in Table 4.3.12

Table 4.3.12 Price received from Commodity Exchange

Planters	900-1000	1000-1100	Above 1100	Total
Medium	3	3	2	8
	(38)	(38)	(24)	(100)

Large	2 (40)	1 (20)	2 (40)	5 (100)
Total	5 (38)	4 (31)	4 (31)	13 (100)

Source: Primary data.

Note: Figures in bracket indicate percentage to total

The table indicates that all the planters realized Rs.900 or above per kilogram from futures market. However, eight out of 13 (62 per cent) farmers realized Rs. 1000 and above per kilogram. It is worth noting that two large farmers out of five got above Rs. 1100 per kg. of cardamom.

4.3.12 Average price received through Commodity Exchanges

The average price received through commodity exchange is given in Table 4.3.12

Table 4.3.12 Average price received through Commodity Exchanges (Price in rupees)

Sl. No	Planters	Average Price
1	Small	0.00
2	Medium	1063
3	Large	1120

Source: Primary data

The average price realised through commodity exchange was higher than the price received from traders and e-Auction. When medium scale farmers realised Rs. 1063, the large farmers realised Rs. 1120 per Kg. of cardamom.

4.3.13 Comparison between the marketing channels

Sl. No.	Planters	Licensed Traders		e-Auction		Commodity Exchange	
		Qty. sold (tonnes)	Average Price (Rs.)	Qty. sold (tonnes)	Average Price (Rs.)	Qty. sold(tonnes)	Average Price (Rs.)
1	Small	20.00	837	5.5	830	0.0	0.0
2	Medium	73.20	917	70	976	12.55	1063
3	Large	75.73	944	107.75	1024	39.27	1120

Source: Primary data

While comparing the average price received by the farmers through the three marketing platforms, the highest price was received through commodity exchanges. Medium and large farmers were the beneficiaries of cardamom futures. The price difference between was Rs. 87 and Rs.96 between e-Auction and Commodity Exchange in the case of medium scale and large scale farmers respectively.

4.3.14 Cardamom Futures and Cardamom Auction Price Historical Data. (2016-2017)

The historical data of cardamom futures and auction price for the year 2016-2017 is given in Table 4.3.14. Futures price is taken as, closing price on the due date. (The data refers to 2016-17 financial year)

Sl. No.	Months	Futures Price	e-Auction Price	Difference (Positive)
1	April 2016	749.78	587.92	161.86
2	May 2016	783.1455	696.63	86.51
3	June 2016	820.22	733.78	86.44
4	July 2016	886.2	790.67	95.53
5	August 2016	995.85	921.54	74.31
6	September 2016	1114.01	952.99	161.02
7	October 2016	1141.244	1026.62	114.62
8	November 2016	1324.819	1245.90	78.91
9	December 2016	1350.686	1191.56	159.12
10	January 2017	1430.471	1243.38	187.09
11	February 2017	1473.411	1316.24	157.17
12	March 2017	1438.827	1184.35	254.47
Average Price		1125.72	990.965	134.755
Annual Standard deviation		1%	3%	

Source: Secondary data. /www.mcxindia.com/market-data/historical-data
 Source: Secondary data. E-auction centre – Puttady.

From the above table it is clear that the average price of MCX spot market (Rs.1125.72) was higher than the average price at auction centre (Rs. 990.965), the average price difference between them was Rs. 134.75. It may also be observed that the futures price was higher than the e-Auction price in all the months.

The annual standard deviation is calculated to measure the price volatility. e-Auction price had the higher annual standard deviation (3 per cent) when compared to annual standard deviation of MCX spot price (1 per cent) for the financial year 2016-17. Higher annual standard deviation means price volatility is higher. Therefore, e-auction price is more volatile than MCX spot price.

As the price volatility of e-auction centre is higher than MCX, it is more efficient in price discovery than futures market.

4.3.15 Change in marketing channel to futures

The change in the use of traditional marketing channels after the advent of futures trading by different classes of farmers is given in Table 4.3.8. The table depicts the change from marketing channels like traders, e-auction to futures trading.

Table 4.3.8 Change in marketing channel to futures.

Planters	Marketing Channel		Total
	Changed	Not Changed	
Small	1 (7)	14 (93)	15 (100)
Medium	5 (33)	10 (67)	15 (100)
Large	7 (47)	8 (53)	15 (100)
Total	14 (31)	31 (69)	45 (100)

Source: Primary data Note: Figures in bracket indicate percentage to total. The table shows that only 31 per cent of the sample planters changed marketing channel. Among them, the change was higher in the case of large (47 per cent) and medium farmers (33 per cent) and least in the case of small planters (7 per cent). Thus, it is evident that the lion share of farmers had not changed the marketing channels after the introduction of futures.

4.4 Grading of Cardamom

Grading and standardization are marketing functions that facilitate better price realization. Grading refers to sorting of unlike lots into similar lots based on some standard quality parameters. Each lot will possess substantially the same characteristics as far as quality is concerned.

4.4.1 Grading Behaviour of Farmers

To analyse the grading behaviour of farmers, the planters were classified into two groups, Class I and Class II. The planters who delivered cardamom in futures constitute Class I and planters who were not delivering cardamom in futures formed Class II. The grading behaviour of Class I and Class II planters are shown in Table 4.4.1

Table 4.4.1 Grading of Cardamom

Planters	Grading	Not Grading	Total
Class I	8(100)	0	8(100)
Class II	17 (46)	20 (54)	37(100)
Total	25(56)	20(44)	45(100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

In the futures market only 7 mm cardamom is traded. Hence, grading is a must for farmers who deliver cardamom in futures. Out of the sample, only 8 farmers delivered cardamom in futures. In Class I, cent per cent farmers were following grading. When all Class I planters adopted grading, majority of Class II planters (54 per cent) sold cardamom without grading. The results indicate that majority (56 per cent) followed grading.

4.4.2 Reason for not grading

Table 4.4.1 shows that 44 per cent of the planters sold cardamom without grading. The reasons for not grading cardamom are given in Table 4.4.2.

Table 4.4.2 Reasons for not grading

Planters	Low Margin	Small Quantity	Low price for the balance	Non - availability of grading facility	Total

Small	0 (53)	8 (20)	3 (27)	4 (100)	15 (100)
Medium	0	0	3 (100)	0	3 (100)
Large	2 (100)	0	0	0	2 (100)
Total	2 (10)	8 (40)	6 (30)	4 (20)	20 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

From the table it is evident that 53 per cent of the small farmers were not grading cardamom because of small quantity. Another 20 per cent of the small farmers reported that they were getting low price for the balance cardamom after grading. Low price for the balance cardamom was the only reason pointed out by medium farmers for not going for grading. Low margin for the remaining cardamom after grading was the reason for large scale farmers not to grade cardamom.

4.4.3 Mode of cardamom grading

The mode of grading cardamom followed by the Class I and Class II Planters is given in Table 4.4.3

Table 4.4.3 Mode of cardamom grading

Planters	Self Grading	By Grading Units	Total
Class I	5 (63)	3 (37)	8 (100)
Class II	11 (65)	6 (35)	17 (100)
Total	16 (64)	9 (36)	25 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

The table indicates that 64 per cent of the planters graded cardamom by themselves. They had grading facilities at their premises. Most of them adopted manual grading. Remaining 36 per cent followed grading by grading units. When 37 per cent of Class I

planters approached grading units for grading only 35 per cent of Class II planters approached grading units.

4.4.4 Distance to the nearest grading centre

Distance from the farm to the nearest grading centre is an important factor that influences the grading behaviour of planters. If the grading centre is far off it is a deterrent for the planters.

The distance to the grading centre from the farm is given in Table 4.4.4.

Table 4.4.4 Distance to the nearest grading centre from the farm (N = 25)

Distance	Number of planters
<5 km	10 (40)
5-10 km	6 (24)
10-15 km	6 (24)
Above 15 km	3 (12)
Total	25 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

The table shows that 60 per cent of the planters had grading facility at a distance of 5 km and above and only 40 per cent of the planters had a grading centre within the reach of 5 km. Planters who had grading centre within the range of 5-10 km consisted of 24 per cent. Another 24 per cent had a grading centre within the range of 10-15 km. And 12 per cent of the samples had a grading unit above 15 km. Only 25 are grading cardamom, out of the 25 planters, 16 are grading at home.

4.5 Warehousing

4.5.1 Distance to warehouse

The distance to the warehouse is given in Table 4.5.1.

Table 4.5.1 Distance to warehouse

Distance(Km)	Number of planters
<5 km	0
5-10 km	0
10-15 km	5 (63)
>15 km	3 (37)
Total	8(100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

From the table it is clear that only eight planters kept cardamom in warehouse.

In the case of 63 per cent of the planters, the warehouse was located within a distance of 10-15 kilometres. And the remaining 37 per cent planters had warehouse facility above 15 km distance. Farmers kept their cardamom in Kerala State Warehousing Corporation (KSWC), Vandanmedu.

4.5.2 Warehouse rent

The warehouse rent is given in Table 4.5.2. This rent is applicable to Kerala State Warehousing Corporation (KSWC).

Table 4.5.2 Warehouse rent

Kilogram	Price						
	1 st day	2 nd day	3 rd day	4 th day	5 th day	6 th day	7 th day
Up to 50 kg	27.70	42.80	55.45	61.10	69.40	71.80	81.50
51 – 75 kg	32.53	50.40	65.25	74.15	35.85	55.45	71.80

Source: Primary data , collected from KSWC.

The rent charged by KSWC is calculated per day and per Kg. The rent varied depending upon the quantity and number of days stored. KSWC is the designated warehouse for MCX.

4.5.3 Loan against warehouse receipt

Raising loan against warehouse receipt was not very popular among the planters. Out of the 8 planters who used warehouse facility only two planters raised loan against warehouse receipt. They availed loan from Federal Bank Ltd(Puttady branch).

4.5.4 Terms and conditions of Loan against warehouse receipt

Federal Bank offers finance credit Warehouse Receipts of Agricultural Commodities issued by State/Central Warehousing Corporations (SWCs/CWC) or approved Collateral Managers.

Key Features

- Best suitable for short - term fund needs.
- Loan amount up to 70 % of the value of goods pledged/covered by the warehouse receipt, upto a maximum amount of Rs 25 crores.
- Minimal paperwork
- Hassle free processing
- No hidden charges or heavy penalties
- No collateral security needed
- Repayment can be done as Lump sum
- Loan can be availed as demand loan or cash credit
- Primary Security of the loan will be Pledge of warehouse receipts/Storage Receipts issued by State/Central Warehousing Corporations or approved Collateral Managers
- Loan period will be up to 12 months

Eligibility

Any person, firm, company engaged in lawful activity properly identified by the branch holding warehouse receipts (negotiable or non negotiable) issued by State/Central Warehousing Corporations (SWCs/CWC) or approved Collateral Managers.

Approved Collateral Managers include

- National Bulk Handling Corporation (NBHC)
- National Collateral Management Services Ltd (NCML)

- Edelweiss Agri Value Chain Ltd (formerly Edelweiss Integrated Commodity Management Ltd (EICML))
- Staragri Warehousing & Collateral Management Ltd
- Shree Shubham Logistics Ltd, LTC Commercial Co Pvt Ltd
- Navjyoti Commodity Management Services Ltd)

Documents Required

- Proof of Identity (Passport / Voters ID card/ Driving License/PAN Card).
- Recent Passport size photograph.
- Address Proof (Ration card Tel/ Electricity Bill/ Lease agreement/Passport/Trade license /Sales Tax certificate).
- Proof of Warehouse receipts

Interest rate range for Commodity Based Finance (Loan Against Warehouse Receipt)

Product	Maximum	Minimum	Mean
Farmer	11.50	9.40	10.44
Non - Farmer	12.50	8.60	9.99

Source : <https://www.federalbank.co.in/ewhr>

4.5.5 Influence of commodity futures on warehouse usage

The 8 planters who used warehouse started using warehouse only after the advent of futures trading in cardamom. All these farmers were trading in futures market.

4.5.6 Quality consciousness after the advent of futures

100 per cent of the planters who sold in futures responded that quality consciousness of cardamom had increased after the introduction of futures.

4.6 Awareness of and participation in futures trading

The extent of awareness and participation of planters in futures trading is analysed in this section of the report.

4.6.1 Awareness about futures trading

The awareness of different classes of planters about futures trading is given in Table 4.6.1

Table 4.6.1 Awareness about futures trading

(N = 45)

Planters	Aware	Not Aware	Total
Small	10	5	15

	(67)	(33)	(100)
Medium	11 (73)	4 (27)	15 (100)
Large	13 (87)	2 (13)	15 (100)
Total	34 (75)	11 (25)	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

The table indicates that vast majority (75 per cent) of the planters were aware of futures trading. The awareness was highest (87 per cent) among large planters and lowest among small planters (67 per cent). Vast majority of the medium farmers (73 per cent) were also aware of cardamom futures.

4.6.2 Sources of awareness about futures market

The various sources of information about futures market is given in Table 4.6.2

Table 4.6.2 Sources of information about futures market

Sl.No	Source	Percentage
1	News Paper	8 (18)
2	T V	5 (11)
3	Peer group	3 (7)
4	Traders	11 (24)
5	Brokers	12 (27)
6	Exchange representatives	6 (13)
	Total	45 (100)

Source: Primary data .Note: Figures in bracket indicate percentage to total

It is found that 36 per cent of the planters came to know cardamom futures through newspaper, T.V., and peer groups, when 24 per cent of the planters became aware through traders, 27 per cent through brokers. Geofin, Vertex Commodities, and Climate Commodities are some broking firms having office in the area.

4.6.3 Participation in Cardamom futures

The details of trading in cardamom futures is found in Table 4.6.3

Table 4.6.3 Cardamom trading in futures

Planters	Sold cardamom in	Not Sold Cardamom in	Total
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	Futures	Futures	
Small	0	15 (100)	15 (100)
Medium	8 (53)	7 (47)	15 (100)
Large	5 (33)	10 (67)	15 (100)
Total	13 (29)	32 (71)	45 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

According to the table, 13 planters traded in cardamom futures which included 8 medium size farmers and 5 large size farmers. None of the small scale farmers were engaged in cardamom futures. It may be noted that the participation of small planters in futures was almost absent.

4.6.4 Experience in futures trading

The experience of planters in futures trading is given in Table 4.6.4.

Table 4.6.4 Experience in futures trading

Experience (year)	No. of planters
<1	3 (23.0)
1-3	5 (39.0)
Above 3	5 (38.0)
Total	13 (100.0)

Source: Primary data

Note: Figures in bracket indicate percentage to total

It may be understood that majority (39 per cent) of the planters had 1-3 years experience in futures trading. Planters who had more than 3 years experience constituted 38 per cent of the sample. Planters with less than one year experience constituted 23 per cent.

4.6.5 Delivery of Cardamom in futures

From Table 4.6.3 it is evident that 13 planters were trading in cardamom futures. The table below shows the details of delivery of cardamom in futures.

Table 4.6.5 Delivery of Cardamom in futures

Planters	Given delivery	Not given delivery	Total
Small	0	0	0

Medium	6	3	9
Large	2	2	4
Total	8 (61)	5 (39)	13 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

It is observed from the table that out of the 13 farmers who traded in cardamom futures only eight (61 %) farmers had given delivery in futures. It means that the remaining five farmers (39 per cent) were either hedgers or speculators. It may be observed that delivery based trading was more among the medium size farmers.

4.6.6 Quantity delivered through futures

The quantity of cardamom delivered by the planters is examined in Table 4.6.6

Table 4.6.6 Quantity delivered through futures

Quantity (Tonnes)	No. of planters
<10	5 (63)
10-15	3 (37)
Total	8 (100)

Source: Primary data

Note: Figures in bracket indicate percentage to total

According to the table five planters delivered less than 10 tonnes and the remaining three delivered 10-15 tonnes in the futures market.

4.6.7 Problems in participation

Out of the 13 planters who traded in cardamom futures, 5 found some of the contract specifications quite restrictive. The quality parameters are very high. In their opinion, just export quality was enough. For export, good quality cardamom is enough. It should having good colour and aroma without any thrips or splits. The minimum market lot size (100 Kg.) was found to be high by 31 per cent of them and 56 per cent of them expressed the need for more than two grades for delivery. (7 mm and 6 mm)

4.6.8 Influence of futures price in selling and holding decision.

Future price is taken as a price signal by the planters. Out of the 45 planters, 28 per cent reported that futures price influenced their selling and holding decisions.

4.6.9 Mode of futures trading

Out of the 13 planters who traded on the futures platform, five put orders through telephone, three through internet and five traded sitting at the terminal.

4.6.10 Suggestions

Futures' trading is expected to result in efficient price discovery and eliminating of middle men from the value chain, thereby ensure better price to the planters. Futures prices discovered on the commodity exchanges provide an important input to farmers for optimal decision making and resource allocation. Futures prices indicate democratically observed price expectations at future dates. It also guides him to take decision to sell or hold back his produce at the time of harvest. Thus, given his capacity and availability of other enabling infrastructure such as warehousing, working capital finance, etc. he will be able to exercise his marketing option in such a way as to maximize his income realization from his produce. Efficient production alone doesn't guarantees good return to the farmer. He has to take right decisions regarding marketing his produce also.

Futures market in cardamom attracts serious planters/traders/exporters as well as speculators. The speculator, if informed, adds to the liquidity and information flow from the futures market. However, a very high proportion of speculative trade may not ensure that good signals emanate from the trades..It was observed that though cardamom futures were settled on delivery, many a times the rules themselves were dissuading delivery based settlement such as; (i) The rule that in the absence of 7 mm, the contract seller could deliver 6 mm for proportionate value. This would penalize a serious trader/exporter who has hedged a delivery of 7 mm.

Poor price signals from the spot market. This may be because of poor signals emanating from the spot market. Because of imperfections in the spot market, the spot prices emerging from the auction process may not reveal the exact demand supply clearing price.

Imperfection in the spot Market

Issues with Market Structure: Kerala has not implemented APMC Act to support agri marketing activities. However, in the case of spices, the Spices Board had set up spices parks

to facilitate cultivation, post harvesting processing, packaging, storage and grading. Besides, Spices Park also facilitates electronic auction (e-auction) centre within its premises for efficient trading and price discovery. Specifically, in cardamom, two such e-auction centers are facilitated by the Spices Board: one in Bodinayakanur in 2009 and another at the Spices Park at Puttady in 2010. These auctions are conducted by private agencies (auctioneers). Spices Board has granted license to twelve auctioneers. The auctioneer brings together the producer holding a registration certificate and the dealers holding licenses issued by Spices Board. These, licensed dealers are provided with a login and password. The entire IT infrastructure for e - auction is created and managed by Spices Board.

The auction was supposed to bring in greater transparency, healthy competition and better price discovery. This system was aimed at facilitating error free documentation, speedy billing and invoicing and eliminating the chances of hidden costs. However, observations of the practices at the auction centre revealed otherwise. It was observed that though only licensed dealers should be allowed by the auctioneers to participate, the dealer may be one entity, the auction participant another and the final beneficiary of the settlement a third party. This makes it extremely difficult to trace the transaction and final settlement identity. This situation is even more grim considering the fact that most of the transactions are cash settled which leaves the transactions are cash settled which leaves the transaction trail even more difficult to identify. This makes it extremely difficult to trace the transaction and final settlement identity.

Conflict of interest: In cardamom auctions, the maximum credit period that the licensed dealer (bidder) can avail of is regulated (currently twelve days), however, the minimum credit period can be decided by the auctioneer. Hence, if needed, the auctioneer could impact the bid by altering the credit period. Put simply, if the auctioneer wants the prices to go up s/he may reduce the credit period and vice versa. If the credit period is lesser for an auctioneer, then traders will prefer that auctioneer. Therefore, it is very important that the auctioneer should be an uninterested party to the transaction. However, as stated earlier, though the auctions are facilitated by the Spices Board, the auctioneer is a private party. And, in almost all cases, the auctioneer is also a planter and/or dealer and/or exporter. Resultantly, there is evident conflict of interest which could distort the market clearing price discovery process.

Bill discounting: Cardamom is a high value, high maintenance crop. With known issues of labour shortage, in many cases, the producer may need cash once the transaction is settled at

the auction house. In cardamom auctions, the planter or the producer or seller, has the choice of either waiting for given credit period to avail the settlement price or can discount the 'Crop Receipt (CR)' generally @ 2-2.5% for twelve days. This would translate into an annualized yield of around 60%. Given that the counterparty risk is purportedly taken up by the auctioneer, financing of CRs should have been at much more competitive rates. However, on closer examination, it was found that the information contained in the CR is very minimal to invoke confidence from organized financial institutions. The CRs mention the auction lot number and the sample specifications and the name of the producer/seller. The market clearing price has to be verified from the auctioneer's website. Ideally, the seller has to have a cardamom Certificate of Registration. Hence, it is very important that the auction process ensures proper documentation that would enable the financier to trace the details of the trade executed and the beneficiary of the trade. This is in conjunction with objective of Spices Boards while implementing the e - auction procedure (increasing transparency through better documentation). However, the planter who has the cardamom registration, the individual who is executing the electronic trade on the terminal and the person in whose name the final crop receipt is drawn may be three different people. Consequently, organized financial institutions may be reluctant to discount a seemingly, safe transaction. As a result, much of the bill discounting is done by local money lenders and NBFCs resulting in high premiums (to the extent of 60% p.a.). This also empowers the position of the auctioneer who may attempt to indirectly 'facilitate' the discounting process.

4.7 Farmers attitude towards futures trading in Cardamom

The attitude of the planters towards cardamom futures was analysed using index numbers, which is found in Table 4.7.1. The attitude of the planters towards ten attributes of futures was obtained and classified into three zones viz.; highly favourable (67-100), moderately favourable (33 – 67) and least favourable (0-33).

The planters were classified in to two classes, viz., Class I and Class II, where the planters in Class I are those who deliver cardamom in futures and Class II consist of the planters who are not delivering cardamom in futures.

Table 4.7.1 Farmers perception about futures trading

Sl. No.	Statements	Class I	Class II	Average
1	Increased in cardamom production	62	62	62
2	Improved quality consciousness in the value chain	94	71	83
3	Better price realisation	77	65	71
4	Increased price stability (reduced price volatility)	77	65	71

5	Availability of marketing finance	84	67	76
6	Improvement in grading facility	80	66	73
7	Increased availability of warehouses	80	66	73
8	Increased availability of better quality of cardamom	94	71	83
9	Increased the bargaining power of the growers	69	62	66
10	Created more employment	84	67	76
	Composite Index	80	66	73

Source: Compiled from primary data

The composite index shows that the Class I planters were highly favourable (80 per cent) and Class II planters were moderately favourable (60 per cent) towards cardamom futures. All the nine statements were marked in the 'highly favourable zone' by Class I planters. The greatest benefits of cardamom futures according to Class I planters were 'improved quality consciousness in the value chain' (94) and futures brought 'increased availability of better quality of cardamom' (94). Class I planters, also rated statements such as 'futures created more employment' and 'increased the availability of warehouse'.

The statement futures brought 'greater quality consciousness in the value chain' was assigned maximum value (83) by Class II planters. The variable 'the advent of cardamom futures had not brought any increase in the production of cardamom' was assigned the lowest score by both Class I and Class II planters. Cardamom production mainly depends upon the rainfall and moderate climate.

Chapter V

SUMMARY OF FINDINGS AND CONCLUSION

CHAPTER V

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

Commodity markets have occupied a very important place in the economic growth and progress of countries offering tremendous potential to market participants for both profit making and managing price risk on account of price fluctuations. With the present era witnessing increased dealings in knowledge of the agricultural produce on commodity exchanges. This chapter presents a Summary of findings based on previous analysis along with suggestions for improvement and conclusion.

Cardamom is primarily marketed through auction under the control of Spices Board. Auction system was introduced for the trading of cardamom with the objective of ensuring fare price to the cardamom planters. However, auctioning has not been able to meet fully this objective. In these context futures trading in cardamom was allowed by the central Government. Futures trading provide the farmers opportunity to hedge against price risk and signal about the price trends. With cardamom futures trade having existed for almost a decade, it is worthwhile to assess the impact trading in cardamom futures has had on different participants in the cardamom value chain. Futures trading were intended to bring symmetry information across market participants. Resultantly, it is expected that the planters would be able to fetch a better price for their output, by deciding the best time to sell their harvest and also ease the channels of credit to the planter through effective implementation of warehouse receipt financing. Also, exporters would be able to hedge against input price fluctuations, get standardized input of specified quality and quantity at the right time. Overall, the power of information with middlemen has to come down resulting in reduced supply chain margins. With this objective in mind, this study is conducted to assess to the extent to which the trading in cardamom futures has realized the economic benefits with which it was introduced almost a decade back.

The data required for the study were collected from 45 planters from Idukki district. The major findings and conclusion of the study are presented in the following paragraphs.

5.1 FINDINGS

The sample for the study was dominated by planters in the age group of 40-50 years. Above 60 years also there. The main occupation of the sample was farming. Some of them are traders also. Majority of the farmers had pre-degree qualification (38) per cent. The study reveals that most of the planters are educated at least to perceive the norms of futures trading in agricultural commodities. Planters with less than 10 years experience in cardamom farming constitute only 11 per cent. A lion share of farmers had more than 10 years of experience.

When cent per cent of the small farmers had land holding of less than 5 acres, 53 per cent of the medium farmers had land holdings of 15-25 acres. Medium farmers had land holdings of 5-15 constitutes 47 per cent. Cent per cent of the large scale farmers had above 25 acres of land. The total area under cardamom cultivation by the small scale farmers was 52 acres. The small farmers had an average of 3.46 acres. The medium scale farmers possessed a total area of 221 acres with an average of 14.73 acres. The total area under cardamom cultivation was 431 acres in the case of large scale farmers. Their average was 27.3 acres.

The study shows that annual production of cardamom was between 2.5 to 5 tonnes for small scale farmers (54 per cent.). The annual production of cardamom was between 10-20 tonnes for 60 per cent of the medium scale farmers. As high as 73 per cent of the large farmers produced 10-20 tonnes of cardamom. The total cardamom production of small scale farmers was 25.5 tonnes, and the average production was 1.7 tonnes. The medium scale farmers had produced 155.75 tonnes and the average was 10.38 tonnes. The large scale farmers had a total production of 222.75 tonnes and the average production of 14.85 tonnes.

Traders constituted the main marketing channel of small scale farmers. And 80 per cent of them market more than 90 per cent of cardamom through traders. Majority of the medium and large farmers are not depending traders for marketing of cardamom. Majority (53) of the small scale farmers received price ranging from 700-800 Rs. Per kilogram. And majority (36 per cent) of the planters received price ranging from Rs.900-1000 from sales to traders. The total physical quantity of cardamom marketed through traders was 168.93 tonnes by all the type of farmers. The quantity marketed by small farmers, medium farmers and large farmers through traders were 20 tonnes, 73.20 tonnes and 75. 73 tonnes respectively. It may be observed that 53 per cent of the small scale farmers got Rs.700-800 rupees per Kg of

cardamom. The main reason is that, the small scale farmers sold cardamom as bulk, without grading. It may be noted that 40 per cent of the medium farmers and 47 per cent of the large farmers got Rs. 900-1000 for their produce. The share of medium and large sized farmers who got Rs. 1000 -1200 and above was 27 per cent and 26 per cent respectively. The small scale farmers realised an average price of Rs. 837 per Kg. An average price of Rs. 917 per Kg. was received by medium scale farmers from the traders. The large scale farmers received Rs.944 per Kg on an average.

As high as 76 per cent of the sample planters (small, medium and large) marketed cardamom through e-auction. All the large and medium planters marketed through e-auction. Small scale farmers traded very few quantity of cardamom through e-Auction (5.5 tonnes). When medium scale farmers traded 70 tonnes of cardamom through e-Auction, large scale farmers traded 87.75 tonnes through e- Auction centre. Small scale farmers realised Rs. 830 per Kg. of cardamom through e- Auction. However, medium scale farmers and large scale farmers realised Rs. 976/kg and Rs. 1024/kg respectively from e- auction.

The study shows that only 8 medium scale farmers and 5 large scale farmers are involved in futures market. Only 30 per cent involved in futures market. It is clear that 70 per cent of the planters are not using futures market as their marketing channel. And only 14 per cent of the farmers had sold their 50 per cent of cardamom through futures. None of the planters sold more than 50 per cent through futures. Medium scale farmers marketed 12.55 tonnes of cardamom through commodity exchanges. Large scale farmers traded 39.27 tonnes of cardamom through this channel. The planters realised Rs.900 or above per kilogram from futures market. However, 62 per cent farmers realised Rs.1000 and above per kilogram. Among the large farmers 4 per cent got above Rs.1100 per kilogram. The average price realised through commodity exchange was higher than the price received from traders and e-Auction. When medium scale farmers realised Rs. 1063, the large farmers realised Rs. 1120 per Kg. of cardamom.

While comparing the average price received by the farmers through the three marketing platforms, the highest price was received through commodity exchanges. Medium and large farmers were the beneficiaries of cardamom futures. The price difference between was Rs.

87 and Rs.96 between e-Auction and Commodity Exchange in the case of medium scale and large scale farmers respectively. While analysing the historical data of cardamom futures and auction price for the last year, it is clear that an average of Rs.1171.16 per kilogram is realised from cardamom futures during the year. And the average of auction price for cardamom is Rs.1009.68 per kilogram. It is evident that price realised for cardamom is higher in futures market than auction price. Only 31 per cent of the sample planters changed marketing channel after the introduction of futures. Among them the change was higher in case of large (47 per cent) and medium (33 per cent) farmers. And least in the case of small planters. The vast majority of the planters were aware of futures trading. The awareness was highest among large planters, and lowest among small planters. Majority of the farmers are able to seek price information from newspaper, T.V., and Radio pertaining to agricultural commodities. No small scale farmers were involved in futures market. It may be noted that the participation of small planters is insignificant in futures trading. From the study, 29 per cent of the planters were trading cardamom in futures market, which includes 53 per cent of medium scale farmers, 33 per cent of large scale farmers. Majority of the planters had more than 3 years experience in futures trading.

It is evident that 13 planters were trading cardamom in futures. And only 8 farmers have given delivery in futures. The remaining 5 farmers are just speculators. According to the planters, some of the contract specifications quite restrictive. The quality parameters are very high. The minimum market lot size was found to be high by 31 per cent of them and 56 per cent of them expressed the need for more than two grades for delivery. Futures price is taken as a price signal by the planters. The planters responded that their selling and holding decision was influenced by the movement of futures price. The main modes of futures trading are through telephone, internet and terminals.

In the case of 63 per cent of the planters, the warehouse was located within 10-15 kilometres distance. And another 37 per cent planters had their warehouse facility above 15 km distance. Rising loan against warehouse receipt was not very popular among the planters. Out of the 8 planters who used warehouse facility only two planters raised loan against warehouse receipt. Out of the 8 planters who used warehouse, 8 started using warehouse only after the advent of futures trading in cardamom. Cent per cent of the planters who sold in

futures responded that quality consciousness of cardamom has been increased after the introduction of futures.

The greatest benefit of cardamom futures according to Class I farmers were hedge against price risk and futures bought in quality consciousness in the value chain. The parameter that worked least favourable attitude among the planters were futures reduced volatility in the price and futures give signals about the direction in which price is moving. The advent of cardamom futures will not affected the production of cardamom. Cardamom production is mainly depends upon the rainfall and moderate climate.

Improve the availability of enabling infrastructure such as warehousing, working capital finance etc, poor price signals from the spot market, imperfections in the spot market, fix the spot price based on thorough market research, improve ware house receipt based loan lending facilities, include weather hedging in futures contract, include 6mm grade in futures etc are some suggestions derived through the survey.

The analysis of primary data revealed the following:

While respondents in general felt that even though introduction of futures trading had led to greater motivation to cultivate graded variety of cardamom, enhanced appreciation of scientific storage mechanism and reduced entry barriers, it did not result in higher income to the planters, nor did futures trading diminish the power of middle men.

- ❖ Further, the illustrative cases analyzed revealed that trading on exchange leads to efficient allocation of resources thus enabling graded varieties their stake their claim on premium prices. It was seen that typically farmers/planters resisted grading for fear of lower aggregate price realization.
- ❖ Though theoretically a futures trading exchange combined with a good warehouse receipt financing facility should have encouraged most planters to trade on the same (i.e. MCX platform), this has not happened because of two reasons one behavioural and another procedural. The behavioural reason is that planters expect spot price in future to be higher than what is current futures price. The procedural reason is that warehouse receipt financing (WRF) was used very sparingly. This was surprising, as the Reserve Bank of India had classified WRF as a part of priority sector lending. On further enquiry as to why

banks are reluctant to give WRF loans it was seen that RBI norms require the warehouse receipt to be a negotiable instrument. And most Warehouse Receipts in cardamom are non-negotiable because: (i) The warehouses are not recognized by WDRA, (ii) The warehouseman is not ready to take the risk of quality standards specified by AGMARK and/or Food Safety Authority and/or the Exchange and (iii) The warehouse does not have incentive to arrange for grading and laboratory testing.

In a nutshell, after a decade of trading in cardamom, it is seen that futures trading is yet to achieve most of its intended objectives. To achieve these objectives the following steps seem imperative:

- ❖ Plugging the gaps in the spot market. A weak spot market would not feed the correct information into the futures market. Hence, the first imperative for futures market to achieve its desired objectives is to remove the anomalies in the spot market.
- ❖ The process of issuing WDRs as negotiable instruments and its financing should be eased. It is really alarming that even after more than a decade of futures trading; this ecosystem is still to be developed. An important step towards this would be a well staffed and equipped grading centre (Spices board already has one but time taken for grading is a deterrent currently) which could be developed by the spices board may be in collaboration with the futures exchanges or on their own. Development of such a mechanism will go a long way in increasing the participation of small and marginal farmers as well as develop futures market as a delivery based platform.

5.2 SUGGESTIONS

- ❖ Since cardamom farmers have moderate agreement towards better alignment of spot and futures market, integration of spot and futures market for all commodities with respect to all exchanges can be made.
- ❖ The problems of inadequate infrastructure facility may be overcome as the farmers strongly disagree with the knowledge of benefits of warehouse.
- ❖ Steps may be taken to overcome the difficulties faced in settlement, delivery and in account registration.

- ❖ Steps may be taken to create awareness about futures trading especially among farmers as the cardamom farmers strongly agree on their unawareness about participation in commodity futures.
- ❖ Since the cardamom farmers face difficulties in physical delivery of commodities the delivery conditions need to match the duration of the crop and should be at the end of the harvest.
- ❖ The contract lot needs to be adequate for a small and marginal farmers as the cardamom farmers have moderate agreement towards fixation of contract specification.
- ❖ Since the farmers have strong agreement with delivery location problems the proximity of delivery centres is of prime importance for the farmers utilizing delivery option to their physical locations.
- ❖ Market and price information may be given on regular basis to assist farmers in planning and managing their operations .
- ❖ The procedures for participation may be simplified as per the convenience of farmers.
- ❖ The participation of farmers can be increased with the introduction of small trading lots as the farmers have moderate agreement towards futures trading encourages farmers to organize collectively and benefit from exchange services.
- ❖ Since the farmers have moderate agreement for increases access to service providers and helpful to grass-root level participants measures may be taken to remove the procedural hurdles with respect to participation of farmers.

5.3 CONCLUSION

Commodity derivative markets in India, although really old in origin went through various bans, suspensions and regulations. The traditional purpose of commodity derivatives is though risk management for those involved with the production or consumption of the commodity, these are now growing as an investment opportunity for speculators also. More and more developments are regularly happening in the Indian commodity markets. New institutions, procedures and legal changes are continuing to happen charting the possible future developments in these markets. Commodity futures and derivatives have a crucial role to play in the price risk management process, especially in agriculture. Commodity derivatives and futures serve as instruments to achieve price discovery and price risk

management. Hence it is felt imperative to study the working of futures markets in agro commodities particularly in Cardamom with the specific objectives of knowing the factors influencing futures trading and the impact of commodity characteristics on perception towards futures trading. The reason for choosing this commodity was that the market for this commodity will be much more vibrant and thus the imperfections which may happen in the pricing of derivatives for other commodities due to lack of participation will be much less probable in this commodity. In addition to making farmers, traders and processors aware of the utility and operational aspects of futures markets certain specific and focused action is required in order to develop vibrant markets in cardamom. The government, the regulator and exchanges have a role in transforming futures market to more participative and broad based. The most important step in this direction would be the establishment of aggregators who can operate as pool operators in futures markets. Farmers associations, co-operatives and national and state level marketing federations can assume the role of aggregators. There is also a need for a comprehensive awareness raising and training programmes in view of the prevailing misconceptions and lack of awareness about futures markets. Thus it can be concluded that despite the challenges and problems commodities futures with its huge potentials will move from its nascent stage to a role-playing stage. A carefully designed strategy and its effective execution will provide the economy with huge opportunities and will not only help in price discovery, but will also optimize its productivity by optimum distribution of factors of production. Realistic futures trading will enrich the farmer's future.

The main deterrents of futures trading was the high market risk, and availability of only 7mm grade which results in the low participation of planters and traders in Commodity Exchange. However, the planters and traders those who were participating in cardamom futures are fetching good profit out of that. The commodity Exchanges can take initiative to make farmers groups which will collect process and grade cardamom. This will help the small and marginal farmers to participate in the futures trading by getting minimum lot size. If separate contract specifications are available for split, thrips, discoloured and shrivelled cardamom, more farmers and traders will depend on futures trading for their sale. If it so they can sell more quantity through futures.

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APPENDIX

KERALA AGRICULTURAL UNIVERSITY

College of Co-operation, Banking and Management

Vellanikkara, Thrissur

MBA AGRI BUSINESS MANAGEMENT

Economic Benefits of Cardamom Futures

Interview Schedule for Cardamom Planters

(Information collected through the survey is meant only for study purpose)

Socio - Economic Profile

1. Name of the farmer: _____
2. Age: _____ (in years)
3. Domicile: Ward: _____ Village: _____ Panchayat/Municipality: _____
Block: _____ District: _____
4. Gender: Male Female
5. Do you have any occupation other than farming?
Yes No
6. If Yes, give details:
7. Educational Qualification – Below SSLC SSLC Plus Two (Pre-degree)
Graduation Post-graduation
8. Experience in farming (in years): Below 10 10 – 20 20 – 30
30 and above
9. Experience in Cardamom cultivation (in years): Below 10 10 – 20
20 – 30 30 and above

PRODUCTION:

1. Details of cardamom cultivation (area in acre/cents)?

Yielding							
Owned				Leased			
Cents/ Acre	Variety	No. of plants	Age of plants	Cents/ Acre	Variety	No. of plants	Age of plants

Non Yielding							
Owned				Leased			
Cents/ Acre	Variety	No. of plants	Age of plants	Cents/ Acre	Variety	No. of plants	Age of plants

2. How much was the Production of cardamom during the last 5 years?

Sl.No.	Year	Production(Kg)			Total(Kg)
		Grade A(Kg)	Grade B(Kg)	Grade C(Kg)	
1	2012-2013				
2	2013-2014				
3	2014-2015				
4	2015-2016				
5	2016-2017				

3. Cost of cultivation (2016-2017)?

Sl. No	Items	Labour Cost	Material Cost	Total Cost
1	Land Preparation			
2	Seedlings			
3	Fertilizer			
4	Crop Protection			
5	Irrigation			
6	Weeding			
7	Others(Specify)			

4. Marketing through various channels in 2016-2017

Channels	Grade A (Kg)	Grade B (Kg)	Grade C (Kg)	Bulk (Kg)	Total(Kg)	Price/(Kg)			Total value (Rs)
						Highest	Lowest	Average	
Licensed traders									
Auction centre									
Commodity exchange									
Exporters									
Any other (Specify)									

FUTURES TRADING

5. Awareness of and participation in futures trading

a) Are you aware of futures trading in cardamom?

Yes No

b) If yes, how did you come to know about futures trading in cardamom? Give the various sources?

c) Are you trading in cardamom futures?

Yes No

d) If yes, how long you are trading in futures market?

e) If yes, have you sold cardamom in futures market?

f) If yes, have you given delivery in the futures market?

g) If yes, quantity delivered during the previous year (2016-2017)?

h) Did you participate in the cardamom futures in the past for the purpose of cardamom hedging?

i) Have you ever used futures to hedge your position in the physical market?

Yes No

j) Do you use future price of cardamom as a reference price to sell or hold cardamom in the spot market?

Yes No

k) If yes, which price data you are using (source)?

k) Do you find any of the specifications of the cardamom futures contract restrictive?

Yes No

l) If yes, outline the restrictive specifications?

m) Do you know some your fellow farmers who are trading in cardamom futures?

n) Your suggestions to increase the participation of farmers in cardamom trading?

WAREHOUSING

6. Do you keep cardamom in the warehouse before selling? If yes, usage of warehouse?

Sl. No.	Year	Qty(Kg) stored
1	2015-2016	
2	2016-2017	

7. Where is the nearest warehouse? (Give details)

8. How long do you keep cardamom in the warehouse?

9. How much is the warehouse rent per kg?

10. How much is the transportation cost per kg (to the warehouse)?

11. What mode of transport is used to the warehouse?

12. Have you used the warehouse receipt for availing loans from banks / financial institutions?

13. If yes, give details (Bank, Loan amount, Scale of finance, Interest rate, tenure of the loan etc.)?

14. Have you started storing cardamom in the warehouse after the introduction of futures?

Yes No

15. Have you ever gone for grading or standardisation methods for better price realization?

Yes No

16. If yes, give the details?

17. Where do you grade your produce?

18. How far is the grading facility from your place?

19. Is there any change in cultivation practises after the introduction of futures?

20. If yes, what are the changes?

21. Do you see any perceptible change in your bargaining position with the traders knowing future possible prices of cardamom?

22. Has the cardamom futures helped you to improve your quality consciousness of cardamom?

23. Do you think that cardamom futures has helped in

Sl.No	Particulars	SA	A	NO	DA	SDA
1	Increase in cardamom production					
2	Improved quality consciousness in the value chain					
3	Better price realization					

4	Increased price stability					
5	Availability of marketing finance					
6	Improvement in grading facility					
7	Increased availability of warehouses					
8	Increased availability of better quality of cardamom					
9	Increased the bargaining power of the growers					
10	Created more employment					

(SA – Strongly Agree, A – Agree, NO – No Opinion, DA – Disagree, SDA – Strongly Disagree)

