

RESEARCH REPORT

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IMPACT ASSESSMENT OF
E-TENDERING OF AGRICULTURAL
COMMODITIES IN KARNATAKA

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PREFACE

The marketing of agricultural commodities is vital for overall development of agriculture and rural economy. Changing trade environment and economic development has made agricultural marketing even more important. Accordingly, the government has taken a number of initiatives from time to time ranging from regulations to reforms in agricultural marketing to strengthen the agricultural marketing system to ensure remunerative prices to the farmers and bring more transparency in the price discovery mechanism. Efforts, in this direction, have been made by various state governments to bring transparency in trading by introducing information technology into agricultural marketing. One such initiative is being taken up by Government of Karnataka by introducing e-Tendering/ Auction System in different APMCs across the state. The system envisages bringing transparency in the tender process and eliminating various malpractices associated with the conventional method of tender at APMCs. Keeping in view the importance of such an important initiative in changing trade environment, an attempt was made to study the impact of e-tendering of agricultural commodities on various aspects of agricultural marketing.

The findings of the study revealed need for creating awareness about the system and its benefits among stakeholders. Better understanding of the benefits from the system in terms of transparency, better price discovery, quick settlement of sale proceeds and generation of accurate and timely market information may lead to better reporting of arrivals and greater acceptability for the system. The electronic tender system has shown positive impact on arrivals, prices and has helped in scientific discovery of prices. The system may be utilized effectively in enhancing the trade competitiveness by integrating different markets across the state. The system also has the potential of integrating with concepts like warehousing, grading, electronic payment, electronic weighment, packaging, branding, pledge financing, etc and may help in achieving the goal of having a Single Integrated Market.

Dr Shalendra, Research Officer, NIAM was associated with the study. It is expected that the study will be helpful for policy makers, planners and researchers, etc.

(Dr R P Meena)
Director General

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(SHALENDRA)

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Brief Summary and Policy Suggestion

The study reveals need for creating awareness about the system and its benefits among stakeholders. The gate entry of the arrivals at present is being carried out by only about half of the farmers visiting the market. Proper mechanism needs to be developed for increasing the rate of gate entry of the arrival to improve the effectiveness of e-tendering system and enhancing the overall efficiency of the market.

Better understanding of the benefits from the system in terms of transparency, better price discovery, quick settlement of sale proceeds and generation of accurate and timely market information may encourage more farmers to bring their produce to the market and better acceptance for the system.

The electronic tender system is having positive impact on arrivals, prices and has helped in better discovery of prices. Considering this, the scheme should be extended to other markets operating in the state.

The system is reported to be time saving. The system may be made more effective in reducing the work load of the traders by integrating the system with other service provides like automatic clearance of payments through arrangement with banks, provisions for facilitating traders in completing their forward transactions leading to low cost of logistics, prompt delivery and reduced inventories.

The system may be made more effective by introducing concepts like electronic weighment at the entry and exit gate, grading and market integration. The system may help in enhancing the trade competitiveness by integrating markets and encouraging more numbers of players to increase their effective numbers.

The biggest advantage of e-tendering system is the information being generated automatically. This should be disseminated vigorously as marketing information can help in predict, strategize, plan and act expediently, rationally and efficiently.

CHAPTER 1. INTRODUCTION

Agriculture is an important sector of Indian economy as it contributes about 17 percent to the total GDP and provides employment to over 60 percent of the population. Indian agriculture has registered impressive growth over last few decades. The foodgrain production has increased from 51 million tonnes (MT) in 1950-51 to 234 MT from an area of 122 million hectares in 2008-09. The production of oilseeds (nine-major oilseed) has also increased from 5 MT to 28 MT during the same period. The rapid growth has helped Indian agriculture mark its presence at global level. India stands among top three in terms of production of various agricultural commodities like paddy, wheat, pulses, groundnut, rapeseeds, fruits, vegetables, sugarcane, tea, jute, cotton, tobacco leaves, etc (GOI, 2008-09). In spite of this formidable growth in Indian agriculture, it is suffering from inherent problems on marketing front. The issue may only be addressed by integrating the production of agricultural commodities with their effective and efficient marketing that ensures remunerative prices to the producers and consistent supply of food to the consumers at affordable prices. The marketing of agricultural commodities have become even more important for the overall development of agriculture and rural economy for various other factors like liberalization of trade, globalization of markets, economic development leading to increase in income and purchasing power and awareness and demand for safe and quality food.

The agricultural marketing system of the country is characterized by various shortcomings like heavy sale of agricultural commodities at village level immediately after the harvest, absence of on-farm grading of produce, poor packaging, insufficient marketing infrastructure, long marketing channels, existence of various malpractices in the marketing of agri-produce, non-transparent price discovery mechanism, lack of market information system, low marketable surplus, etc. The government has recognized the importance of efficient marketing of agricultural produce for overall development of the sector and has taken a number of initiatives from time to time to overcome these problems and to strengthen and upgrade the agricultural marketing system in the country. One such intervention has been the imposition of public control over entire marketing system through establishment of regulated markets which began during 1950s and 1960s. Based on a Model Act circulated by the central government, almost all major states (27) enacted APMR legislation. This legislation covers 7161 markets, which includes more than 98 percent of the identified wholesale markets in the country (Acharya, 2006).

The regulation was introduced to overcome the problems faced in traditional marketing system by ensuring mechanism for proper sale of produce, weighing, grading and standardization, market information, market charges in proportion to the services provided, prompt payment without any un-authorized deduction like *Karda*, *Dhalta*, *Muddat* and *darmada*. The country at present is having a network of more than 7000 regulated markets.

The market regulation brought its impact in terms of providing higher prices, better returns, reduction of market charges and providing amenities at the time of sale of the product to the farmer in the vicinity of more than 7000 regulated markets established in the country (Acharya and Agarwal, 2011). However, a study of the agricultural marketing system during the last fifty years (Acharya, 2004) identifies several problems associated with regulated markets like prohibiting direct sale outside the market yard, lesser number of markets leading to considerable higher area to be served by each market, long distance to be covered by farmers to take their produce to the market, poor availability of infrastructure in the markets, no regular election of the members of the agricultural produce market committees and inefficient disposal of farmers produce. The deployment of resources more on collection of market fees and construction work rather than market development and a considerable part of the amount collected as fee for providing various services is not plowed back. The cartelization by market functionaries like traders, commission agents and labour and complete control of government on establishment, development and supply of market services, have made these markets some sort of government-sponsored monopolies. In addition, several malpractices envisaged to be removed by regulation are still prevailing like late payment, deduction for spot payment, and non-issue of sale slips, etc. Thus, relevance of regulated markets, once conceived as panacea of all ill for the farmers in the marketing of their produce, have declined due to existence of various malpractices. Certain traits associated with the regulated markets like public control on establishment and

development of markets, their monopoly in supply of services and facilities, presence of unfair trade practices and absence of liberalization of licenses to traders and market functionaries due to presence of strong market functionaries association; many times does not allow markets to perform their basic functions.

The market has to take care of a number of functions like making product available, provide information on various aspects of the product like price, its characteristics, etc, facilitate in transaction and settlement of payments, institutional framework covering laws, rules, regulation that govern market transactions and provide mechanism for their enforcement. An important function of market in an economic system is price discovery i.e. the process of determining the prices at which demand and supply clear and trade occurs. Market can employ a number of mechanisms for discovery of price (Bakos, 1998). The method prescribed for sale of agricultural produce in regulated markets is either by open auction or by the close tender method (Acharya and Agarwal, 2011). The prevailing cumbersome process of manual tender and open auction systems in the regulated markets provide ample scope for manipulation of price formulation process (Chengappa, 2012).

In order to escalate agricultural marketing system in the country to the next level of development by bringing transparency in price discovery and an element of competition in the system, it was felt necessary to introduce reforms in agricultural marketing in the country on the recommendation of the Expert Committee (2001) and Inter- ministerial Task Force (2002) set up by the Ministry of Agriculture. In order to bring about the requisite reforms in the sector, the

Ministry of Agriculture, Government of India prepared and circulated a Model Act called Agricultural Produce Marketing (Regulation & Development) Act, 2003 to all states/ UTs. Reforms envisage amendments in the APMR Act with provisions mainly for direct marketing, contract farming and markets in private and cooperative sectors. Such initiatives provide scope for alternative marketing systems with efficient movement of agricultural commodities bringing more transparency in the price discovery mechanism.

The recent reforms in agricultural marketing give scope for alternative marketing systems. Hence, the focus of Government is on strengthening and development of agricultural marketing system so as to ensure remunerative prices to the farmers and bring more transparency in the price discovery mechanism. In this direction, efforts have been made by various state governments to bring transparency in trading by introducing information technology into agricultural marketing. One such initiative is being taken up by Government of Karnataka by introducing e-Tendering/ Auction System in different APMCs across the state. This is a pivotal service extended towards farmers and traders. The new system envisages bringing transparency in the tendering process and eliminating various malpractices prevailing in the marketing of agricultural produce. The conventional method of tendering at APMCs was a time-consuming process, and there were chances of hidden losses to farmers who brought their commodities to the market yard.

The e-tender system was first introduced in 2006-07 on pilot basis for paddy in the Mysore regulated market; it was further extended to 11 commodities

in 2010. It is now operational in 42 regulated markets in the state. The new system aims at increasing marketing efficiency by enhancing transparency in the bidding process and reducing the time required for finalizing the tender quotes. This apart, the system is expected to increase competitiveness in agricultural marketing, reduce collusion among traders, facilitate quick payment settlement and reduce market fee evasion.

In the light of the above, it is proposed to study the impact of various aspects related to e-tendering of agricultural commodities mainly with following specific objectives.

1. To study the impact of e-tendering of agricultural commodities on various aspects of agricultural marketing as perceived by different market functionaries participating in the system;
2. To study the impact of e-tendering system on the discovery of price of the leading commodities in the selected markets;
3. To analyze the impact of e-tendering on various trade aspects like prices, arrivals and transaction cost involved in the trading of agricultural commodities;
4. To study the improvement in the functioning of APMC with the introduction of electronic tender system and
5. To suggest appropriate policy suggestions for enhancing the efficiency of the system and its replication across country

CHAPTER 2. AGRICULTURAL MARKETING IN KARNATAKA

The state of Karnataka has highly diversified cropping pattern varying from high value export oriented spices to completely home market focused foodgrains. Agricultural produce at the primary level in the state is routed mainly through four channels i.e. direct to consumers; through private wholesalers and retailers; through public agencies and through processors. Marketing structure of the agricultural produce and the share of different channels in total marketed surplus vary from commodity to commodity and across regions. However, regulated markets are an important link in the movement of agricultural produce as a large quantity of produce is transacted through them mainly the foodgrains.

The institutional arrangement in place for marketing of various commodities consists mainly of different commodity specific boards and market cooperatives. These Boards usually covered plantation crops like coffee, tea, cardamom, spices, etc. Other commercial crops like cotton and tobacco are also controlled by commodity boards. The functioning of the boards involves procuring, marketing, price fixation, export, dissemination of technical knowledge and other support to the farmers. The other important institutional arrangement is the network of regulated markets spread throughout the state. A total of 152 principle market yards with 352 sub-yards were operational in the state during 2010-11 (Table-2.1). In addition, there are 730 rural primary markets to facilitate the movement of agricultural commodities from farm gate to the consumer.

Table-2.1. Status of Regulated Markets in Karnataka

Year	Main Markets	Sub Markets	Total Markets
2000-01	141	343	484
2001-02	141	342	483
2002-03	144	343	487
2003-04	145	350	495
2004-05	145	347	492
2005-06	145	350	495
2006-07	146	352	498
2007-08	146	352	498
2009-10	146	355	501
2010-11	152	352	504

The agricultural marketing in the state is practiced under the Karnataka Agricultural Produce Marketing (Regulation) Act 1966. The Act has been enacted to provide a uniform law relating to the better regulation of buying and selling of Agricultural Produce and the establishment of Markets for Agricultural Produce throughout the State. The Act has been enacted & given effect to from 1st May 1968 by repealing and replacing the following Acts which were in force in the several areas in the state.

1. The Bombay Agricultural Produce Markets Act, 1939 (Bombay Act, 22 of 1939 as in force in Bombay area)
2. The Madras Commercial Crops Markets Act, 1933 (Madras Act, 20 of 1933) as in force in the Madras area and as in force in Bellary District
3. The Coorg Agricultural Produce Markets Act, 1956 (Coorg Act, 7 of 1956) as in force in Coorg District

4. The Hyderabad Agricultural Produce Markets Act, 1339 F(Hyderabad Act, 2 of 1339 F) as in force in Hyderabad area
5. The Mysore Agricultural Produce Markets Act, 1939 (Mysore Act, 16 of 1939) as in force in Mysore area
6. A Market at Bailahongal was established under the Bombay Agricultural Produce Markets Act, during 1936 and at Tiptur under The Mysore Agricultural Produce Marketing Act, during 1948 in the State. Department of Agricultural Marketing which was earlier a unit of the Co-operation Department started functioning as an independent department during the year 1972.

Agricultural marketing structure in the state is a two pronged integrated vertical administrative organization consisting of Department of Agricultural Marketing and Karnataka State Agricultural Marketing Board (KSAMB). The main task of the Department of Agricultural Marketing is the establishment of Market Yards, submarket yards, developing and maintaining the market yards and sub market yards through Agricultural Produce Market Committees (APMCs). Enforcing the regulatory measures in respect of sale and purchase of agricultural produce brought by the agriculturist to the market yards, providing a platform to ensure competitive prices, correct weighment, payment and creating an exploitation free atmosphere by preventing illegal activities in the marketing of agricultural produce. In addition, the Department has also to regulate the activities of warehouses by enforcing the licensing conditions and establishment and

maintenance of laboratories for the purpose of grading of agricultural produce in the State.

The Karnataka State Agricultural Marketing Board (KSAMB) takes care of the development aspects of the agricultural marketing in the state. The Board, established on 1st September 1972 as per section 100 of the Karnataka Agricultural Produce Marketing (Regulation and Development) Act, 1966 and Rules 1968, acts as a link between the Market Committees and the Government of Karnataka for all round development of agricultural marketing in the State. The Board is the policy and decision making body. The executive Head of the Board is the Managing Director. There are four divisional offices at Bangalore, Mysore, Belgaum and Gulbarga. In addition, there are the Karnataka Institute of Agricultural Marketing at Mysore and Agricultural Marketing Training College at Hubli.

The Karnataka State Agricultural Marketing Board (KSAMB) has implemented numerous welfare schemes such as pledge loan scheme, revolving fund scheme/floor price scheme, Raitha Sanjeevini Scheme, Janashree Vima Yojana for Weighmen, Hamals and Cartmen, etc. for the benefits of farmers and other market functionaries.

Pledge loan scheme

The State of Karnataka has implemented the pledge loan scheme under which the loan is distributed to the farmers through market committees against the pledge of agricultural commodities. This scheme was initiated on 01-04-1994 and commenced its operation on 15-08-1995. During the time of fall in price,

agriculturists can store their produce in the APMC godowns or warehouses and avail short-term loan upto 60 percent of the value of the agricultural produce to a maximum of Rs 50,000/-, whichever is lower against the pledge of their agricultural produce for a period of 90 days. No interest is being charged for the first 30 days, interest at the rate of 8 per cent and 12.5 per cent is being charged for the next two successive 30 days period, respectively. The market committee is empowered to dispose off the produce after 90 days in case the farmer fails to repay the loan.

Revolving fund scheme/floor price scheme

In order to ensure price stability in the agriculture sector, it is necessary to ensure remunerative prices for the farmers' produce. It is, with this objective that floor price scheme for agricultural commodities in Karnataka has been implemented and it was later known as revolving fund scheme. The aim is to protect the interests of the farmers against severe price fall of agricultural commodities by assuring a floor price. The scheme shall be applicable to all the notified agricultural and horticultural commodities grown in the entire state. The scheme has come into effect from November 1999. A Revolving Fund of Rs.100 crores has been mobilized by equal contributions from the state government and market committees. The money available in the Revolving Fund is not only utilized to supplement the Minimum Support Price (MSP) operations of the Government of India but also to procure commodities that are not covered under the MSP Scheme. Under this scheme, floor price for onion was fixed and purchases were made at a cost of Rs. 1.06 crores during 1999-2000. Government extended the

scheme for other commodities such as maize, jowar etc., as well by increasing the quantum of revolving fund from time to time. The state Government enhanced the Revolving Fund to about Rs.400 crores during the year 2003-04. In this connection the rate of market fee of one per cent was enhanced to 1.5 per cent. This additional market fee helped in mobilizing addition collection to the tune of 50 crores annually which is exclusively ear marked for the Revolving Fund. It would ensure that no farmer in the state is forced to make distress sale. Each market committee contributes 5 per cent of its income by way of market fee to Karnataka State Agricultural Marketing Board (KSAMB). By May 2012, the total funds available under the scheme were Rs. 674.61 crores with Rs. 94.98 crores coming from state government and Rs. 579.63 crores contributed by the market committees.

Raitha Sanjeevini Scheme

This is an accident benefit scheme implemented by KSAMB since 1996. All the farmers and their family members in the state in the age group of 18 to 75 are eligible for the benefits available under the scheme. Under the scheme, there is provision for a compensation of Rs 25,000/-, if a farmer dies due to the accident while performing any agricultural production or marketing operation. The incentive ranges from Rs.1,500 to Rs.15, 000 for other kinds of disability. The beneficiaries may apply to the APMCs and the KSAMB, Bangalore will sanction the money. There is an annual budget of Rs. 50 lakhs for this scheme. The Board has so far settled 5,967 claims with a budget of Rs.14.76 crores.

Janashree Vima Yojana for Weighmen, Hamals and Cartmen

The Board has implemented an insurance scheme with the help of LIC for the benefit of 16,000 licensed Weighmen, Hamals and Cartmen working in different APMCs of State. The benefit available under the scheme is Rs 30,000/- in case of natural death and Rs 75,000 in case of accidental death. The total amount released as compensation since 1996 is Rs.3.55 crores benefiting 1,338 persons.

The introduction of regulated markets and creation of infrastructure in the state have lead to favorable changes in the marketing of agricultural produce in the state as suggested by increase in the proportion of total production reaching markets and control on unscrupulous activities. Better dissemination of market information, facilities like storage and standardization of charges to be paid by the farmers and introduction of innovative initiatives like e-tendering of agricultural commodities to make the prices discovery mechanism more complete and transparent are some of the desired changes. The system has also introduced the facility of grading in some selected commodities and markets. The government has adopted, through on selected basis, ICT use in agricultural marketing, e-tendering in agri-trade and grading facility with the vision to integrate the various markets with in the state. These efforts by the state government have helped the state in being one of the progressive states in terms of agricultural marketing development (Figure-2.1 and Table-2.2).

Figure-2.1. Status of Karnataka in terms of Number of Regulated Marketing Operating in the State

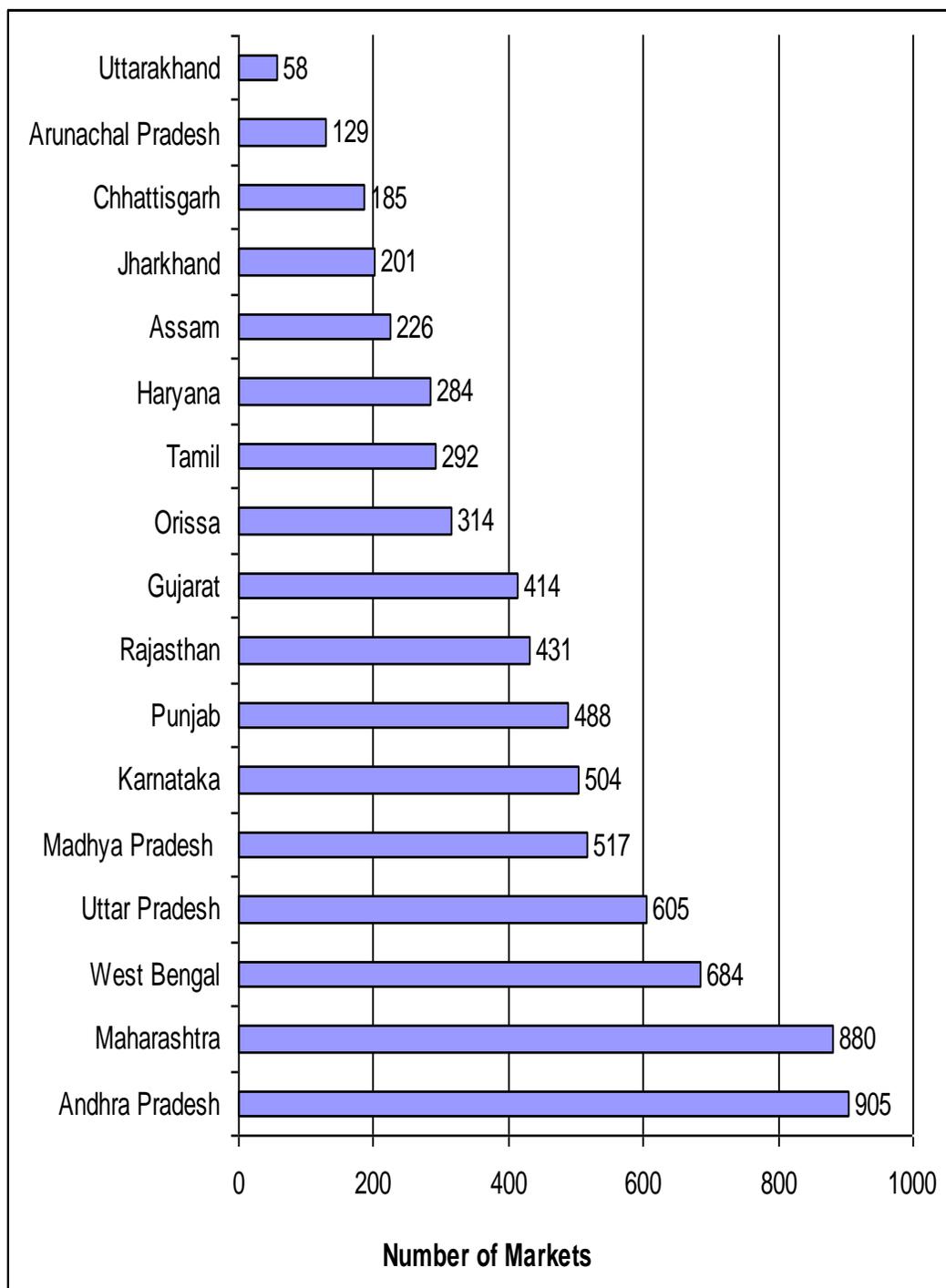


Table-2.2. Status of Karnataka in Agricultural Marketing

As on 31.03.2011

States	Regulated Markets	Area Served by Each Market (SqKm)	Population Served by Each Market
Andhra Pradesh	905 (1)	304 (4)	84210 (4)
Maharashtra	880 (2)	350 (6)	110089 (6)
West Bengal	684 (3)	130 (2)	117282 (10)
Uttar Pradesh	605 (4)	398 (9)	274707 (17)
Madhya Pradesh	517 (5)	596 (13)	116799 (8)
Karnataka	504 (6)	381 (7)	104862 (5)
Punjab	488 (7)	103 (1)	49916 (2)
Rajasthan	431 (8)	794 (16)	131107 (13)
Gujarat	414 (9)	473 (11)	122394 (12)
Orissa	314 (10)	496 (12)	117212 (9)
Tamil Nadu	292 (11)	445 (10)	213718 (16)
Haryana	284 (12)	156 (3)	74453 (3)
Assam	226 (13)	347 (5)	117945 (11)
Jharkhand	201 (14)	397 (8)	134059 (14)
Chhattisgarh	185 15	731 (15)	112615 (7)
Arunachal Pr.	129 16	649 (14)	8511 (1)
Uttarakhand	58 17	963 (17)	146368 (15)

Note: Figures in parenthesis are the Ranks

Karnataka is one of the early states in recognizing the importance of reforms in agricultural marketing for strengthening and development of agricultural marketing system in the state. Accordingly, the state has amended its APMR Act on the lines suggested in Model Act circulated by the Government. The amended act have introduced provisions mainly for direct marketing; contract farming and development of markets in private/ cooperative sectors. The Act also speaks in favour of setting up of special markets and special commodity market, public private partnership (PPP) in market extension activities of market committee, single point levy of market fee, promoting e-trading of agricultural commodities to bring efficiency and transparency in price discovery (Annexure I & II).

CHAPTER 3. ELECTRONIC TENDERING SYSTEM IN KARNATAKA

Better price realization for the agricultural commodities is an incentive for the farmers to produce more. Various steps are taken up by the Government for ensuring remunerative prices to the farmers. One such measure is encouraging competitive price for the farmers' produce in the regulated markets through Agricultural Produce Market Committees (APMCs). The APMCs are established in Karnataka under the Karnataka Agricultural Produce Marketing (Regulation and Development) Act, 1966. The main objective of the APMCs is to promote better agricultural marketing practices by ensuring accurate weighment of produce, timely payment of sale proceeds to farmers, to provide basic infrastructure facilities for agricultural trade and competitive price for the farmers' produce.

In order to ensure remunerative prices to the farmers through competitive price discovery mechanism, the manual tender system of sale was introduced in the regulated markets. Though, the tender system is a better mean of price discovery but many times during the season, the arrivals may be so huge that it may take too long to complete the entire process of trade. There is also possibility of manipulation and mistakes in entering the prices in tender slip. The system is also not time effective, as the farmers sometimes, especially during heavy arrival seasons, have to wait the entire day or to stay in the market place for the night because of delay in completion of trade transactions. Considering these limitations of the manual tender system and taking into view

the future scope of an ICT based platform for tendering, the Electronic Tender System of sale was introduced in the state.

The electronic Tender System of sale is a unique and innovative project in the country involving adoption of ICT at the primary wholesale markets level aimed at ensuring competitive price for the farmers' produce and encourage the fair marketing practices in the state. After the success of the pilot project in Mysore, the project was taken up in 18 APMCs in the first stage (2008-09) and 24 APMCs in the second stage (2009-10).

During the year 2008-09, the project was implemented in 19 APMCs at a cost of Rs.777.00 lakhs in which RKVY assistance was Rs. 400 lakhs and the balance of 377.00 lakhs was contributed by the concerned APMCs. The names of the APMCs where the project has been implemented are Bagalkot, Bellary, Bijapur, Byadagim, Chitradurga, Gangavathi (Kanakagiri), Gulbarga, Haveri, Hubli, Kottur, Kumta, Ranebennur, Sagar, Sedam, Shimoga, Sirsi, Tumkur and Yadgir. During the year 2009-10, 24 APMCs have implemented the project at a total cost of Rs. 883 lakhs in which the RKVY assistance was Rs. 700 lakhs and the balance of Rs.183 lakhs was contributed by the concerned APMCs. The markets covered during the second phase of the project are Annigeri, Arasikere Bhadravathi, Bhimasamudra in Chitradurga, Bidar, Bailhongal, Challakere, Channagiri, Dharwar, Gadag, Hosadurga, Jevargi in Gulbarga, Koppal, Lakshmeshwar, Mandya, Ramadurga, Saundatti, Shahapur, Siddapur, Sindhnoor, Sulya, Surpur, Tiptur and Yallapur.

The electronic tender system was introduced in the selected APMCs of the state mainly with following objectives:

1. To ensure competitive price for the farmers' produce.
2. To bring in transparency in the sale transaction.
3. To complete the process of sale in a shorter possible time
4. To reduce the marketing cost and increase efficiency in the operation of sale procedures.
5. To help quick generation of market reports and timely dissemination of market information.

Method of Operation of the e-Tender System of Sale

The project is implemented with KEONICS, the State Government organization, responsible for developing the necessary software required for the system to operate. Recently the software developed by NCDEX has been introduced in some of the selected markets. NCDEX plan to cover around 50 markets by the end of financial year 2012-13. The e-tendering of agricultural commodities is a multi-stage operation involving different market functionaries. The first stage involves the farmers bringing their commodity for sale to the market yards through different means like trucks, carts, tractors etc. An electronic gate pass is generated at the market entry gate with different relevant details about the farmer and the commodity. The details include, name and address of the farmer, the name of the commodity with approximate weight, the name of the commission agent or trader's shop where the commodity will be displayed for the sale, nature

of expected transaction like direct sale, e-tendering, mutual agreement, etc. The entry pass also carry a lot number to facilitate local trade and a unique ID number to facilitate inter-market trade in future. The farmer takes the commodity to the assigned commission agent or traders shop.

The commodities displayed through the assigned commission agent will be inspected by the interested traders or their representatives for physical examination for its various trait like variety, grade, lot size, etc. Since, trade in most of the traditional markets is not taking place on the basis of grades and standards, physical examination of the commodity is vital in taking trades decisions mainly about the price. Through, some markets like Gulbarga in case of Tur have started grading the produce. Such information is provided against the lot number on e-platform to facilitate the traders in taking trade decision. On the basis of physical examination, the interested traders may quote their prices through the computer system available with them in the shops or through the kiosks/ computers available in the market yard. Since, the facility is internet based, the quotation by the registered traders may be made from any where by accessing their account using internet with in the time prescribed for e-quotation by the APMC for that particular commodity. In this way the rates quoted by different traders for different commodities will be collected. Considering the importance of time in the e-trending procedure particularly in the peak period when the arrivals are huge, the software has provided traders with the facility of saving their quotes in the software before final submission. The quotes at the saving stage may be increased or decreased but once the quotes are finally

submitted they can only be increased and if successful, the traders will have to honour his quotes though such binding is not there with the farmers.

At the prescribed time the software will display the successful quotations i.e. highest prices quoted for different lots of commodities will appear on the monitor. The print out of this information is taken and circulated among all the farmers and traders and also displayed on the notice board. The information can also be accessed from any where with the help of internet by the registered user.

After knowing the price the farmers will decide whether to sell his commodity or not and if he agrees, the trade procedure will move further. The actual weight of the commodity will be recorded and entered into the system. On receiving the final weight the primary sale bill will be generated. The farmers can get his sale proceeds immediately and go back to his home. The trader who purchases the commodity takes delivery of the commodity. The APMC realizes the market fee either from the trader or the commission agent, which is always paid by the purchaser of the commodity.

The traders and commission agents in the beginning did not receive the system with enthusiasm and were quite hesitant about the initiative. Later, after several rounds of discussions and meetings and after taking into confidence different stakeholders, the innovative system of sale received acceptance amongst the stakeholders. It was taken up as a pilot project in Mysore APMC under the technical assistance of the National Informatics Centre, Bangalore. Several problems both administrative and technical were encountered with

initially which were subsequently resolved and the system was placed in right perspective. Now it has been extended under the RKVY to many more APMCs.

Initially the project was implemented with the help of software developed by KEONICS, now it is being gradually shifted to the software developed by NCDEX. The recently introduced software by NCDEX has provisions for various fields like Goods In, Goods Out, Settlement, Lot Operations, Factory Operations, e-Tendering and Auctions. The items like gate entry, information of farmer, information of commodity, purpose, etc are provided under Goods In, Goods Out deals with gate exit (un-traded), bilateral trade, permits etc. The settlement covers items like generation of primary sale bill, purchase bills, settlement vouchers, etc and finally it is option e-Tendering that takes care of the electronic quotations of the agricultural commodity and price discovery. The software seems to be quite comprehensive and may facilitate in trade of agricultural commodities on the basis of grades and integration of markets at state level.

CHAPTER 4. METHODOLOGY

The present chapter deals with methodology adopted to fulfill the various requirements of the present study on investigating the impact of e-tendering of agricultural commodity on various trade related aspects and market functionaries in the selected APMCs.

Nature of information

The study mainly focuses on assessing the impact of e-tendering of agricultural commodity on trade primarily arrival and prices and functioning of different stakeholders namely traders, commission agents, farmers and Mandi officials. In order to fulfill the objective, an attempt has been made to capture both the perception of different stakeholders involved in the e-tendering of agricultural commodities and analysis of secondary information on prices and arrival. Therefore study has utilized both primary and secondary information. Secondary data is used to find out the trend in prices and arrival in the pre and post e-tendering period to find out its impact on trade, if any. The secondary information was collected from <http://krishimaratavahini.kar.nic.in> and various publication of the Karnataka State Agricultural Marketing Board (KSAMB) and selected APMCs.

The primary data has been collected from all the stockholders participating in e-tendering of agricultural commodities to find out their perception on this initiative of the state government. The primary information was collected by interviewing different stakeholders like farmers, commission agents, traders and market committee members participating in e-tendering in the selected market.

The primary information was collected using a pre-tested structured questionnaire.

Selection of Market Functionaries

The e-tendering is a multi stage process. At level one, farmers bring the produce to the market and an electronic receipt is issued to the farmers with certain basic information like commodity, quantity, commission agents, etc. As trade does not take place on the basis of grades in most of the markets, the arrivals are heaped in different lots by the assigned commission agents for physical examination by the interested traders or their representatives. This completes the second stage. At next level, produce are physically examined by the traders for their various characteristics like variety, quality, etc. for deciding the price. Once the price has been decided by the traders for different heaps, the same will be entered electronically with the help of software developed for the purpose. This will complete the quotation stage of e-tendering. The quotation can be made with the help of systems available in the markets or from anywhere using internet within the time as prescribed by the committee. Once the results of the quotations are out, the heaps of commodities are assigned to the highest bidder subject to the acceptability of the price by the farmers. Once the price is accepted by the farmers, the final weight of the produce is recorded and entered in the system. This will help in generation of primary bill. Finally, the trader settles the transactions and takes away the produce. Thus, there are mainly four players i.e. farmers, traders, commission agents and market officials involved in the trade process performed on e-platform. Accordingly, all the leading players involved in

the e-tendering of agricultural commodities have been interviewed as per details given in Table-4.1 for recoding their perception about the system. The information provided by the commission agents and traders have been clubbed, as many of the commission agents are operating as traders as well.

Table-4.1. Details of the Market Functionaries Interviewed for the Study

Sr No	Market Place	APMC	Commission Agents/ Traders	Farmers	Total
1	Tiptur	1	20	20	41
2	Mysore	1	15	25	41
3	Hubli	1	20	25	46
4	Gulbarga	1	10	25	36
5	Total	4	65	95	164

Selection of Study Area and Markets

In present time, application of ICT is seen as an option that can help in enhancing the efficiency of agricultural marketing by overcoming a number of malpractices prevailing in the regulated markets like underreporting of arrival, influencing the price discovery through cartelization, etc. The use of ICT has the potential to strengthen the position of producers by making them competitive with rest of players by providing timely, accurate, reliable and demand driven information in a user friendly manner on various aspects of production and marketing of agricultural produce. Various studies have suggested the impact of ICT initiatives on agriculture in terms of increase in the crop yield, profit, access

to information, and decrease in the use of pesticides, fertilizers, input cost, and consumer price (Ramaraju *et. al.* 2011 and Jensen, 2007). ICT may also help in bringing transparency in price discovery, smooth operation of market functions and reducing the influence of traders on price discovery. The importance of ICT mainly in e-trading of agricultural commodities has been identified by Karnataka State Government and was successfully implemented in some of the leading markets.

Karnataka for being a leading states in terms of development of agricultural marketing in the country and implementing the ambitious initiative, the e-tendering of agricultural commodities successfully in some of its leading markets, was selected for the present study. There are four divisions in the state i.e. Bangalore, Mysore, Belgaum and Gulbarga. Based on the discussion with the board officials, one representative market from each division i.e. a total of four markets were selected to study various aspects of the e-tendering, as per the details given in Table-4.2.

Table-4.2. Details of Market Selected for the Study

Sr No	Division	Market
1	Bangalore	Tiptur
2	Mysore	Mysore
3	Belgaum	Hubli
4	Gulbarga	Gulbarga

General Characteristics of Selected Markets

The general characteristics of the regulated markets selected for the present study are presented in Table-4.3.

Table-4.3. General Characteristics of Selected Regulated Markets

Characteristics	Sample Markets			
	Tiptur	Mysore	Hubli	Gulbarga
Establishment	1948	1950	1943	1940
Number of villages served	231	144	--	502
Nearest railway station	Tiptur	Mysore	Hubli	Gulbarga
Distance from station (km)	1	12	12	6
Nearest highway	NH 206	Mysore-Ooty Road	NH 4	13-A
Notified area	Tiptur Taluk	Mysore Taluk	434.04 Acres	Gulbarga & Afjalpur
Number of Sub-yard	Three	One	Three	One
Farthest place in the Hinterland	Gubbi	Siddaramai-ahnahundi	--	Sedam
Nearest place in the Hinterland	Tiptur	Bandipalya		Jewargi
Number of available Cold Storages	--	--	1	2
Capacity of cold storages (MT)	--	--	7500	1000
Traders	202	1486	724	1140
Commission agents	280	798	--	570
Weighmen	99	218	88	3
Importers	158	1363	556	1069
Exporters	196	1253	639	1063
Stockist	195	1225	568	462
Hamals	657	1540	681	0
Commission	2	2	2	2
Market fee	1.5	1.5	1.5	1.5

Selection of Crops

The information on prices and arrivals collected from secondary sources in respect of identified markets has been analyzed only for selected crops. The crops are selected based on arrival proportion in the market, regional importance, availability of consistent information and discussion with the market officials. The details of selected crops are given in Table-4.4.

Table-4.4. Details of the Sample Crops

Division	APMC	Crops	Remark
Bangalore	Tlptur	Copra	Single Commodity Market
Belgaon	Hubli	Groundnut and Cotton	Groundnut and cotton are the two leading crops after vegetables like onion and potato in terms of arrival in the market. These two crops together contribute 14 percent of the total arrivals in the market
Mysore	Mysore	Maize	Paddy is also a leading crop but could not be considered for analysis due to availability of inconsistent information on arrivals over years. Multi-commodity nature of market made the task of commodity selection difficult. Nearly 74 different commodities with varying quantity of arrivals have reached the market during last three year
Gulbarga	Gulbarga	Tur and Bengalgram	Tur and Bengalgram are the major crops in the market. These two crops together contribute nearly 80 percent of the total arrivals in the market

The seasonality of arrivals and prices of selected crops in the identified markets is presented in Table-4.5.

Table-4.5. Seasonality in Arrival and Prices in Selected Crops in Identified Markets

Market	Crops	Items	High	Low
Tiptur	Copra	Arrival	July – Oct	Feb – April
		Prices	Jan – March	Oct – Dec
Mysore	Maize	Arrival	Oct - Dec	May - July
		Prices	April – June	Sept – Oct
Hubli	Cotton	Arrival	Nov – Dec	June – Oct
		Prices	Nov – Feb	May – June
	Groundnut	Arrival	Oct – Dec	Feb – April, July - Aug
		Prices	Oct – Dec	Feb – April
Gulbarga	Tur	Arrival	Dec – Feb	Aug – Oct
		Prices	Jan - Feb	Nov - Dec
	Bengalgram	Arrival	Jan – March	Oct - Dec
		Prices	Sept – Nov	Feb – April

Statistical Tools Used

In order to achieve the different objectives of the study, simple descriptive statistical techniques like averages, percentages, graphical analysis, etc have been used to describe the basic features of the primary information collected and to present the perception of different market functionaries i.e. traders, commission agents, farmers and market officials on e-tendering of agricultural commodities.

Descriptive statistics has also been utilized to analyze the secondary information on prices and arrivals. In addition, an index has also been worked out to assess the impact, if any, of the e-tendering on prices in the pre and post initiative period. The index measures the degree of closeness of the prevailing modal price from the maximum price. The modal price being closed to the maximum price is assumed to be a favorable situation. This is reflected by a low value of index. The index as defined below, measures the distance of modal price from maximum price wrt the total variation in the prices i.e. difference between maximum and minimum price.

$$\textit{IndexValue} = \frac{\textit{Price}_{\textit{Maximum}} - \textit{Price}_{\textit{Modal}}}{\textit{Price}_{\textit{Maximum}} - \textit{Price}_{\textit{Minimum}}}$$

CHAPER 5. RESULT AND DISCUSSION

The results based on the analysis of the information collected for achieving different objectives of the study are presented in the current chapter. The study mainly deals with the assessment of impact of e-tendering on prices and arrivals and on various other aspects related to agricultural marketing. The objectives of the study have been fulfilled by utilizing both the primary and secondary information. Secondary information in respect of selected crops from the sample markets, one representative market from each division, has been analyzed to examine the impact of e-tendering on prices and arrivals. Since, different players like farmers, traders, commission agents and market officials are influenced by varying degree with the introduction of e-tendering of agricultural commodities, it is vital to understand the perception of these stakeholders on various aspects of agricultural marketing. Accordingly, the presentation of results is broadly divided into two sections based on the results derived from primary and secondary information, respectively.

Characteristics of the selected markets

The general characteristics of the selected markets, one representative market from each division, have been presented in the Table-5.1. The table reveals that all the markets are old APMCs established at the time of independence. The electronic tender system in the Mysore APMC was introduced on pilot basis during 2006. The system was introduced during 2009 in Hubli and Gulbarga and in Tiptur during 2010. The system was implemented with the help of KEIONICS which has now been shifted to the software developed and managed by NCDEX.

The markets other than Tiptur, which is basically a copra market, are multi commodity markets. The same has been reflected by the large number of market functionaries operating in Mysore, Hubli and Gulbarga market.

Table-5.1. General Characteristics of the Markets Selected under the Study

Name of Market	Tiptur	Mysore	Hubli	Gulbarga
Division	Bangalore	Mysore	Belgaum	Gulbarga
Area of Market (Acres)	61	159	434	62
Sub-yards	2	1	3	3
Number of commodities traded during last 3 years	1	74	25	15
Year of Establishment	1948	1950	1943	1940
No. of Traders	222	1451	888	588
No. of Commission Agents	292	760	844	688
APMC Staff	13	53	40	--
Commencement of e-Tendering	Oct. 2010	Aug. 2006	Aug. 2009	Nov. 2009
Service Provider (Earlier)	KEIONICS	KEIONICS	KEIONICS	KEIONICS
Service Provider (Current)	NCDEX	NCDEX	NCDEX	NCDEX
Arrival (Tonnes)	558374	496674	356245*	160300 [#]
Market Fee (Rs)	76406455	51320027	62967301	122840468

*Cotton, Groundnut and Dry Chilly only

[#]Tur only

The APMC Tiptur under Bangalore division deals mainly with copra (Table-5.2). The Mysore APMC deals in a large number of commodities mainly foodgrains and oilseeds. Since, the electronic tender system was introduced in Mysore for the first time back in year 2006; the trades of a large number of commodities have been taking place on e-platform. Cotton and groundnut are the

leading commodities in Hubli market after vegetables like onion and potato. Gulbarga again is a multi commodity market with tur and bengalgram together contributing for more than three-fourth of the arrival in the market.

Table-5.2. Trade Important Commodities of the Selected Markets

Market	Major Notified Commodities	Commodities traded through e-Tendering
Tiptur	Copra	Copra
Mysore	Foodgrains and Oilseeds	Paddy, Ragi, Jowar, Maize, Dry Chilly, Hong Seed, Neem Seed, Nigher Seed, Caster Seed, Tamarind Seeds, Greengram, Horsegram, Bengalgram, Redgram, Groundnut, Sunflower, and Safflower
Hubli	Jowar, Maize, Bengal Gram, Green Gram, Soybean, Safflower, Chilly, Cotton, Onion, Potato and other F&V	Cotton, Groundnut, Foodgrains and Chilly
Gulbarga	Sesame, Green Gram, Wheat, Bengalgram, Jowar, Tur, Sunflower, Jaggery, Sajje and Black Gram	Tur and Bengalgram

Basic characteristics of sample functionaries

The basic characteristics of the farmers selected from the identified markets to analyze their perception on various aspect associated with the e-tendering of agricultural commodities have been presented in Table-5.3. The table reveals that the age of majority of the farmers was in the range of 50 years. The qualification of the farmers assessed in terms of number of years spent in schooling, reveals that farmers from Mysore, Hubli and Gulbarga have only been to post-primary education while in case of Tiptur farmers have been to post

secondary level. The education level of the farmer's families was reported to be generally higher, as reflected by the highest education in the family. The family size of the selected farmers varied from 5 to 8 members. A lot of variation was observed in the average land holding size of farmers of different markets with average land holding size being 8 acres. The average distance covered by farmers to reach market ranged from 10 – 37 kilometers. Profile of the farmers shows the age of the farmers on a bit negative side for innovative initiatives like e-tendering but considering their limited participation in the entire process, and relatively higher level of education of the family, such initiatives may be pushed for wider acceptance by the farmers, utilization for better price realization and enhancing the efficiency of agricultural marketing system in the state.

Table-5.3. General Profile of the Sample Farmers Selected under the Study

Market	Unit	Gulbarga	Hubli	Mysore	Tiptur	Over All
Age	Years	49	48	50	51	50
Qualification	Years in School	6.8	9.0	5.9	13.3	8.7
Family Size	Acre	5.8	7.7	6.0	4.9	6.1
Highest Education	Years in School	12.0	10.8	11.4	12.5	11.6
Distance from Market	Kilometers	37.1	25.2	18.8	9.9	23.1
Annual Income	Rupees	146522	64825	49429	98100	91268
Area	Acre	5.6	13.2	2.8	10.9	8.0

The general characteristics of the traders/ commission agents considered under the study to examine their perception on various aspect associated with the e-tendering of agricultural commodities have been depicted in Table-5.4. The

table shows that age of majority of the functionaries was in the range of 46 years. The qualification of the functionaries in terms of number of years spent in schooling reveals that traders operating in the selected market have been to post secondary level. The exposure to information technology (IT) as reflected by the table has also been good except for multi-commodity markets like Mysore and Hubli. This limitation may effectively be compensated by the education level of the families which is reported to be generally high. The family size has been in the range of 5 – 7 members and experience in agricultural trade has been reported in the range of 11 – 22 years.

Table-5.4. General Profile of the Traders/ Commission Agents Considered under the Study

Row Labels	Unit	Gulbarga	Hubli	Mysore	Tiptur	Over All
Age	Years	42.33	47.05	48.77	44.42	46.07
Qualification	Years	12.33	13.06	13.25	14.65	13.59
IT Exposure	Percent	66.67	33.33	25.00	100.00	51.06
Ag. Trade Experience	Years	11.40	18.78	22.17	17.58	18.50
Family Size	Number	6.67	6.94	4.62	4.72	5.61
Highest Education	Years	15.80	17.00	14.18	16.00	15.35

Awareness and perception of different market functionaries about the Electronic Tender System

The farmers, though having limited involvement, are an important participant in the modified system of electronic tender of agricultural commodities. The state

government has taken various steps from time to time to safeguard their interest in the process of marketing of agricultural commodities by ensuring means for transparent and fair discovery of prices in the markets. Manual tender was introduced under regulated market regime but with a limited success as this system was having scope for manipulation of price discovery mechanism through cartelization by traders, under reporting of arrivals, etc. Electronic tendering of agricultural commodities introduced to ensure transparent discovery of prices may play a pivotal role in safeguarding the interest of farmers. Considering this, it was found imperative to examine the level of awareness amongst farmers about the initiative and their perception on various aspect or benefit from the e-tendering for farmers in particular and agricultural marketing system in general. Considering the limited practical involvement in the system, a higher proportion of farmers about three-fourth were aware about the system (Table-5.5). The lowest level of awareness was reported among Hubli farmers, while highest was amongst Tiptur farmers. It may be due to the fact that Hubli is a multi commodity markets with many commodities still being traded on manual platform while Tiptur is a practically single commodity market. Electronic recording of the entry of commodities at the entry gate is crucial to know the actual arrivals in the market. About two-third of the farmers were aware about this arrangement and about half of the farmers reported that entry is made regularly. Again, the highest number of farmers from Mysore (62 percent) reported that computerized gate entry is made while the lowest figures were reported in case of Hubli. In spite of being a multi-commodity market with a number of commodities being traded on

manual platform the figures in Mysore were higher may be for the reason that electronic tender system was first introduced in Mysore and gradually the APMC has devised a system to implement is properly.

Table-5.5. Awareness Level of Farmers about the initiative and its component

Market/ Component	Gulbarga	Hubli	Mysore	Tiptur	Over All
Implementation of e-Tendering System	75	68	76	82	75
Computerized entry at the Mandi Gate	67	53	71	76	67
Computerized entry at the Gate is mandatory	61	38	62	60	55

The perception of farmers on various aspects/ benefits from e-tendering system has been presented in Table-5.6. The table shows that eighty percent of the farmers feel that the introduction of electronic tender system has made the operations of the market more transparent helping in better price realization (83 percent). In addition to transparency in operations and price discovery, quick completion of trade proceeds and payment settlement is very important for farmers. Three-fourth of farmers feels that the system has helped in faster completion of tender process and the trade transaction leading to faster payment settlement. The introduction of system has made the price discovery and overall

trade activities more competitive leading to better standing of farmers in the entire process (89 percent). Though, the level of awareness about electronic tender system was observed to be high amongst sample farmers and majority of farmers were found to be satisfied with the training provided on electronic tendering, still emphasis should be given on creating awareness so that farmer may participate better and realize maximum benefit from the system. An attempt was also made to study the impact of e-tendering, if any, on marketing cost, margin and price spread in leading crops by analyzing the movement of same commodity under two channels i.e. manual and electronic tender system. Though, sufficient observations of desired type could not be obtained but based on the limited information collected and interaction with different stakeholder, it was observed that electronic tender system at present is not having much visible impact on marketing cost and margin may be due to fewer year of implementation of e-tendering system. This may get visible in future when the effective implementation of the system will bring down per unit transaction cost.

Table-5.6. Impact of e-Tendering on various aspects as Reported by the Farmers

Market/ Items	Gulbarga	Hubli	Mysore	Tiptur	Over All
More transparency in operation	77	76	90	73	80
Better price realization	89	88	76	77	83
Less time required for completing the transaction	95	65	76	64	76
Faster payment of sale proceeds	89	88	86	93	89
More competition	78	70	76	73	75
Better standing of farmers	62	71	57	67	64
Sufficient Awareness Programme	78	74	72	87	77

The level of awareness of traders/ commission agents and their level of participation in e-tendering is depicted in Table 5.7. The table reports high degree of awareness about the initiative amongst the functionaries under consideration. However, they were not found to be fully aware about the complete procedure and its implications for the trader. This shows great scope for vigorous training of traders and commission agents on the subject. Same has also been reported by the number of training received (1.16 trainings) by the functionaries on the e-tendering. Traders of Tiptur, a single commodity market i.e. copra being traded on electronic platform, have reported 100 percent participation in the system. While in rest of the sample markets, the participation is reported to be in the range of 80 percent. Nearly two-third of the traders are themselves participating in the process to quote prices with nearly one-third relying on assistants for the purpose. Agricultural trade is a multi activities time consuming process, one of the major area of benefit envisaged under the e-initiatives was saving of time by quick completion of the trade transaction and settlement of payments. Nearly two-third of the traders have reported electronic tender system to be a time saving platform and have roughly quantified the saving of time to the tune of 24 percent in comparison to the traditional system.

Table-5.7. Awareness Level and Status of Participation of Traders/ Commission Agents in Electronic Tender of Agricultural commodities

Row Labels	Gulbarga	Hubli	Mysore	Tiptur	Over All
Awareness	100	100	100	100	100
Knowledge about e-Tendering	83	75	73	93	81
Training on e-Tendering	0.75	1.18	0.38	1.67	1.16
Level of Participation	83	81	82	100	87
Mean of Participation					
Self	67	67	55	64	63
Assistance	33	22	36	29	29
Other arrangements	0	11	9	7	8
Time Saving Platform	75	76	25	71	65
Quantity of Time saved (%)	25	21	20	27	24

It is assumed and also reflected by various studies that traders and commission agents are responsible for various malpractices prevailing in the present system of agricultural marketing including lack of transparency in operations and price discovery. Also, it is very difficult to pursue these players for introducing any progressive change in the marketing of agricultural commodities. Based on this, it was considered important to record their opinion on the new system of electronic tendering of commodities. Same is presented in Table-5.8. The table reveals that more than two-third of the traders have shown their acceptance for the system, about 20 percent are indifferent and lowly proportion (9 percent) have expressed their unhappiness about the system. This is in compliance with the level of IT exposure of the functionaries. The acceptance by

the participants may be increased through better training on the subject and ICT. The traders may be educated about the benefits of the system by involving their family members as the education level of family is generally high.

Table-5.8. Status of Acceptance of e-Tendering System by Traders/CA

District	Accept	Reject	Indifferent
Gulbarga	67	0	33
Hubli	61	11	28
Mysore	55	27	18
Tiptur	89	0	11
Over ALL	70	9	20

The perception of traders/ commission agents on various benefits of e-tendering system has been shown in Table-5.9. The table reveals that majority of the players feel the system to be time efficient in comparison to the previous manual system time. However, most of the farmers feel that there is immense scope for improving the system as the system is ineffective in reducing the work load. The introduction of electronic tender system has made the operations of the market more transparent and has helped in enhancing the competition. Most of the traders have found the initiative a trade facilitator though more efforts may be required to utilize it to check manipulation in arrival and prices. Most the traders opined that the system is ineffective in bringing the transaction cost down as they have to rely on others for feeding quotation but see at it as a facilitator in

maintaining records, filing Mandi returns, IT returns, etc. Time required to feed the quotation has been reported to be sufficient with some scope of improvement in peak arrival days.

Table-5.9. Impact of e-Tendering on various aspects of agricultural trade as reported by the traders/ commission agents considered under the study

Row Labels	Gulbarga	Hubli	Mysore	Tiptur	Over All
Time saving in comparison to traditional system	75	83	73	85	81
Reduction in work load	40	50	36	26	38
The present system need up-gradation	75	61	73	80	72
Transparency in the operation	83	94	78	85	87
More competition	83	89	92	80	86
Facilitate trade	60	78	75	70	73
Reduce price manipulation	50	33	50	45	42
Time is sufficient to quote price (Slack Period)	80	83	73	75	78
Time is sufficient to quote price (Peak Period)	75	67	64	70	68
Transaction cost has come down	40	22	50	16	26
The system is helpful in maintaining records, filing Mandi returns, IT returns, etc	80	72	73	90	80

Opinion of Market Officials

The market officials also expressed their opinion on various aspects of the e-tendering system. The officials of all the markets considered under the study have expressed their satisfaction in achieving most of the benefits envisaged under the system. The implementation of system has helped in enhancing the efficiency of market in terms of effective utilization of time, better and transparent price realization, competitiveness and reduction in price manipulation. However, some officials (as well as the traders) have expressed the inability of the system to resolve the errors that occurs while feeding quotations. On occasions, the traders may feed higher prices erroneously. Technical binding on traders to purchase the commodity on successful quoted prices in such a situation may lead to an unhealthy and discouraging situation for him. Efforts need to be made to check this kind of quotations by having provisions in the software. For example, the software may issue alarm if quotations are beyond a certain range which may be fixed on the basis of prices recorded in the past. The efforts also need to be made to utilize the system more effectively so as to bring the transaction cost down, as many of the officials were of the opinion that the system may help on bringing the transaction cost down by utilizing the system to its full potential. The platform has been seen by the market officials as well as the traders as trade facilitator. The system was also observed by the market officials as facilitator in effective monitoring and smooth operation of various market activities.

This section of the chapter is based on the findings of the analysis of secondary information mainly on prices and arrivals in respect of six major commodities identified from the four selected markets, one from each division. The section deals with the results obtained from multi dimensional analysis of secondary information to examine the impact of e-tendering on prices and arrivals of selected agricultural commodities. The dimensions covered are arrival and prices information over years; comparison of the month-wise average arrivals and prices in the pre vis-à-vis post e-tendering period, month-wise total variation in the prices expressed as percentage of minimum price of the crops considered. An Index Value representing the volume of total transactions taking place closer to the maximum price has also been worked out to examine the quality of the prevailing prices as many times more variation in prices may be recorded but the most of the transactions are taking place closed to the maximum price.

Tiptur APMC (Copra)

The Tiptur market was selected from the Bangalore division. Tiptur is basically a single commodity market dealing in copra. The year-wise arrivals and prices of copra in Tiptur market are presented in Table-5.10 and Figure-5.1 & 5.2. The table (and figures) reveals that the arrival of copra in Tiptur market has been quite inconsistent upto 2008. In year 2009, the arrival recorded a hundred percent increase over previous year. Since than, the arrivals in the market have been consistently on the rise. The prices of copra have hovered in the same range except for some upward movement during the early to mid of the previous

decade. Though, the prices have again shown some sign of recovery and rise after the trade of copra got shifted to electronic platform in year 2010.

Table-5.10. Year-wise Arrival and Prices of Copra in Tiptur Market

Arrival in Quintals & Prices in Rs/Qt

Years	Arrival	Prices
2003	216626	2762
2004	123601	4883
2005	48612	6906
2006	144100	4672
2007	156430	3745
2008	161379	4240
2009	338108	4394
2010	446633	4652
2011	550750	6507
2012	572716	5369

The e-tendering of copra in Tiptur market was introduced during October 2010. In order to analysis the impact of this initiative mainly on arrival and prices of copra, multi dimensional analysis of secondary information have been made covering comparison in the monthly average arrival and prices in the pre (three years i.e. 2007-09) and post (two year i.e. 2011-12) periods. Quality of prices have been analyzed by examining the variation in prices as percent of minimum price and by working out an index value representing the number of transactions taking place closer to maximum price by taking total variation in the prices as the measuring road. The results are presented in Table-5.11 to Table-5.14 and Figure-5.3 to Figures-5.6.

The analysis indicates that average monthly arrivals and prices have improved over all the month after introduction of electronic tendering of agricultural commodities in the market. The increase in prices may have been due to more transparent agricultural marketing operations and better discovery of prices. The increase in the arrivals may be on account of restriction on under reporting due to computerized gate entry and efficient marketing encouraging more number of farmers to bring their produce to the market. In addition, there may be other factors related to production which needs to be analyzed. Theoretically, more transparent and competitive system will have better placed farmers leading to their better participation in the agricultural marketing system. It will also benefit the buyers by lowering its cost for obtaining information about the price and product, cost of logistics, reduced inventories, etc (Bakos, 1998). The quality of prices have also shown some improvement in the major arrival months except for October and November as has been reflected by the total variation in the prices and index value showing more volume of transactions taking place towards maximum prices. A more detailed analysis of the index values during the pre and post introduction period are presented in the Table-5.14. The table reveals that the average index value in the post initiative period has improved to 0.53 from 0.65 in the previous manual tender system period. A lower value indicates that more transactions are taking place closer to the maximum price. The analysis revealed that, in terms of variation in prices and better index value, the quality of prices have shown sign of improvement after implementation of the electronic tendering in agricultural commodities.

Figure-5.1. Arrival of Copra over Years in Tiptur Market (in Quintals)

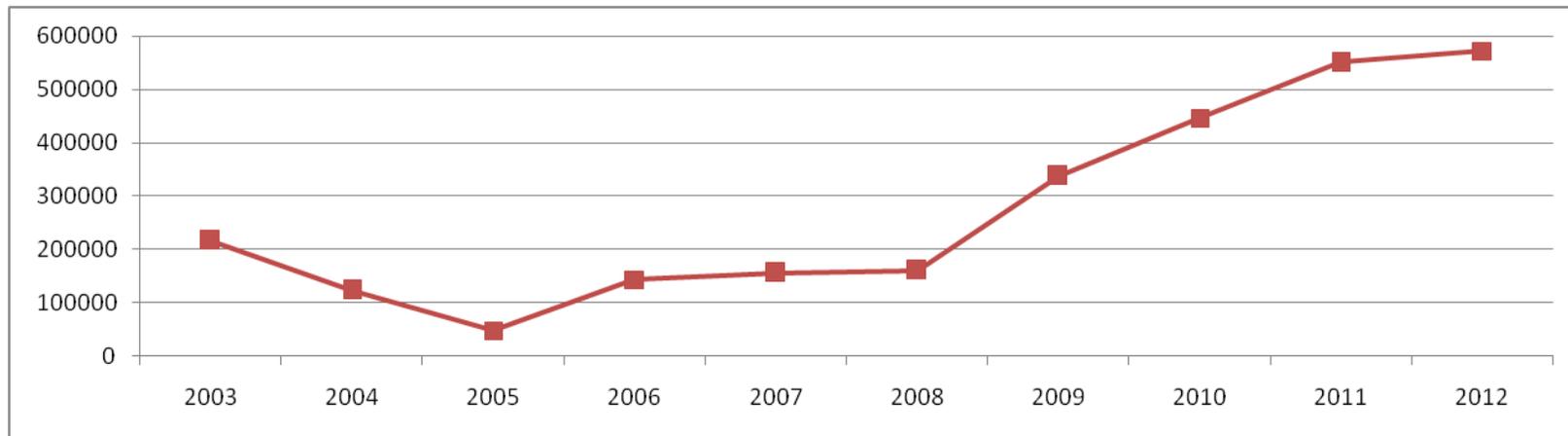


Figure-5. 2. Prices of Copra over Years in Tiptur Market (in Rupees/ Quintal)

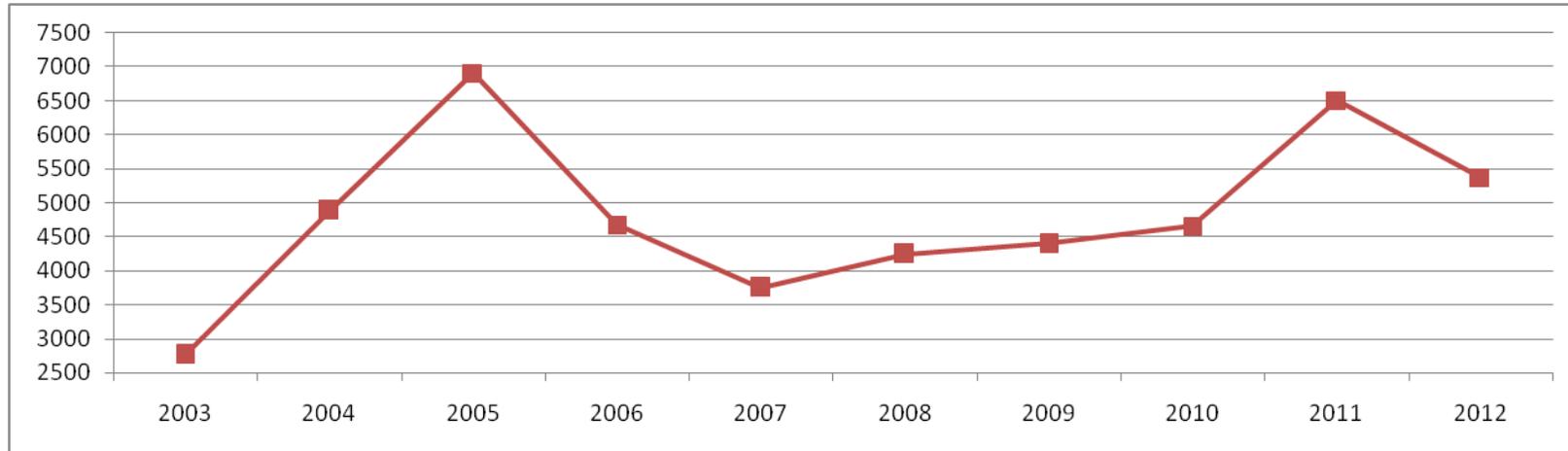


Table-5.11. Comparison of Arrival and Prices in Pre and Post e-Tendering Period in Tiptur Market

Arrivals in Quintals

Prices in Rupees/ Quintal

Months	Pre e-tendering Period 2007-09				Post e-tendering Period 2011-12				Total Period			
	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal
Jan	29423	3800	4304	3915	46211	5900	6951	6431	75634	4640	5363	4921
Feb	5999	3750	4266	3945	42318	5828	6683	6208	48317	4581	5233	4850
March	5354	3863	4181	3885	30480	5714	6176	5729	35833	4788	4979	4623
April	11063	3800	4211	3842	29854	5600	6048	5840	40917	4520	4946	4641
May	11868	3950	4198	3965	30972	5153	6354	5963	42839	4431	5060	4764
June	18728	3867	4485	3984	40904	5628	6244	5943	59632	4571	5189	4767
July	24160	4100	4719	4330	59817	5676	6316	5964	83976	4730	5358	4983
Aug	20214	4267	4818	4453	53348	5713	6128	5927	73562	4845	5342	5043
Sept	27949	4333	4849	4495	55472	5651	6079	5922	83421	4860	5341	5066
Oct	30138	4167	4658	4321	77606	5593	6273	5867	107744	4737	5304	4939
Nov	14296	3990	4503	4167	49619	5636	6125	5798	63915	4648	5152	4819
Dec	19448	3983	5102	4213	45134	5475	5926	5662	64581	4580	5431	4793

Figure-5.3. Comparison of Arrival in Pre and Post e-Tendering Period in Tiptur Market (in Quintals)

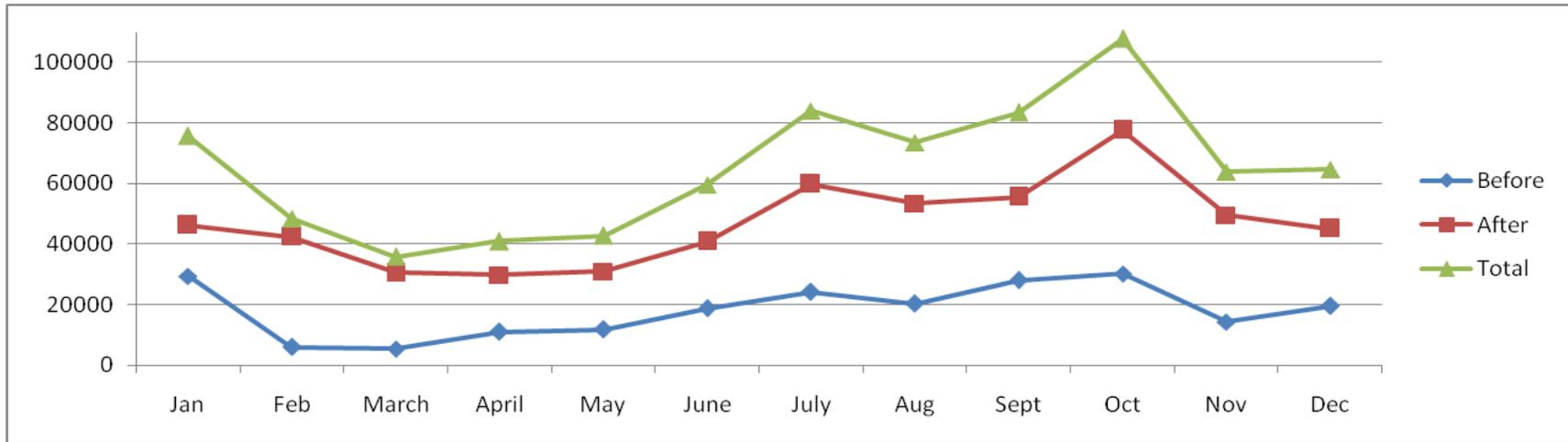


Figure-5.4. Comparison of Prices in Pre and Post e-Tendering Period in Tiptur Market (in Rupees/ Quintal)

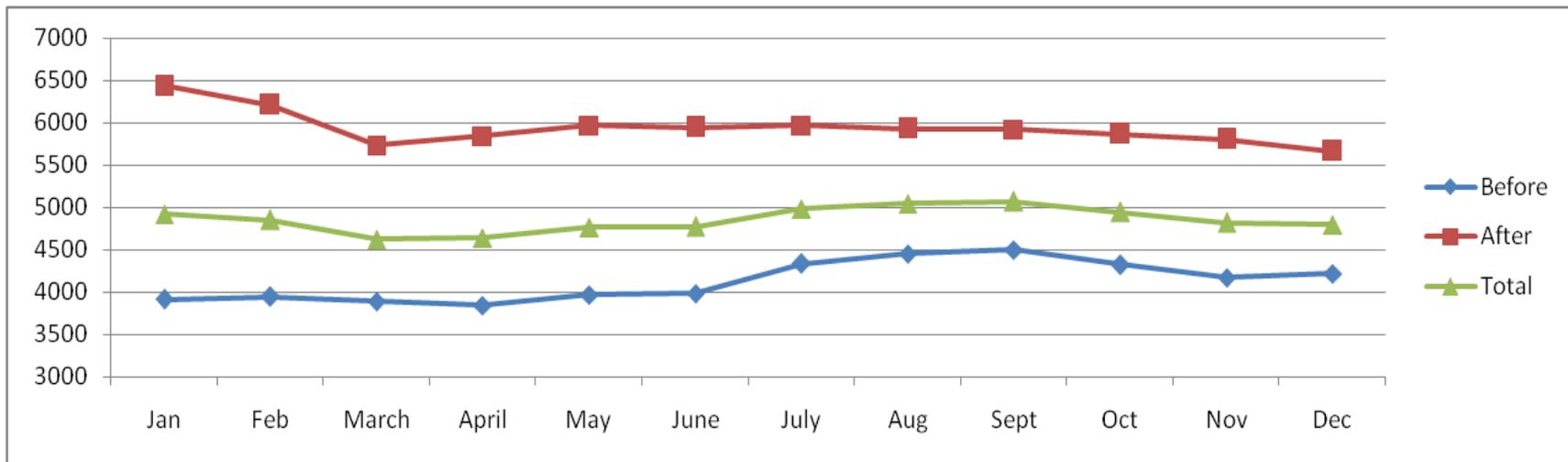


Table-5.12. Percent Difference in Prices of Copra (Maximum and Minimum) wrt Minimum Prices in Tiptur Market

Months	Before	After
January	13.26	17.81
February	13.76	14.68
March	8.24	8.08
April	10.82	7.99
May	6.27	23.30
June	16.00	10.95
July	15.10	11.28
August	12.91	7.26
September	11.89	7.57
October	11.79	12.15
November	12.86	8.69
December	28.08	8.23

Table-5.13. The Index Value Representing the Distance of Modal Price of Copra from its Maximum Price in Tiptur Market

Months	Before	After
January	0.77	0.50
February	0.62	0.56
March	0.93	0.97
April	0.90	0.46
May	0.94	0.33
June	0.81	0.49
July	0.63	0.55
August	0.66	0.48
September	0.69	0.37
October	0.69	0.60
November	0.65	0.67
December	0.79	0.58

Figure-5.5. Percent Difference in Prices of Copra (Maximum and Minimum) wrt Minimum Prices in Tiptur Market

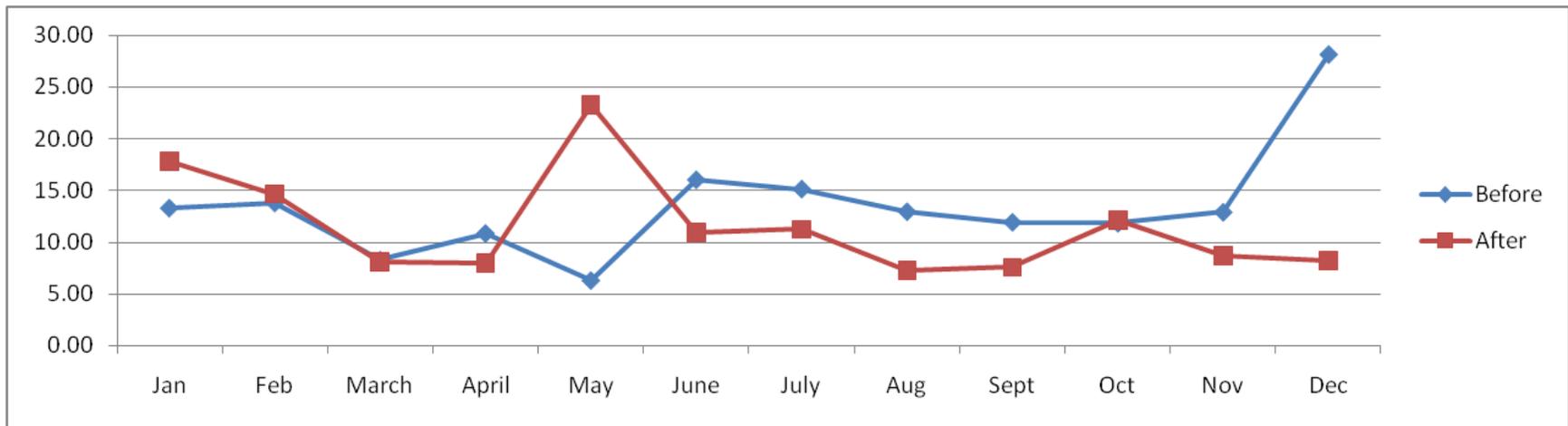


Figure-5.6. Index Value Showing the Distance of Modal Price of Copra from its Maximum Price in Tiptur Market

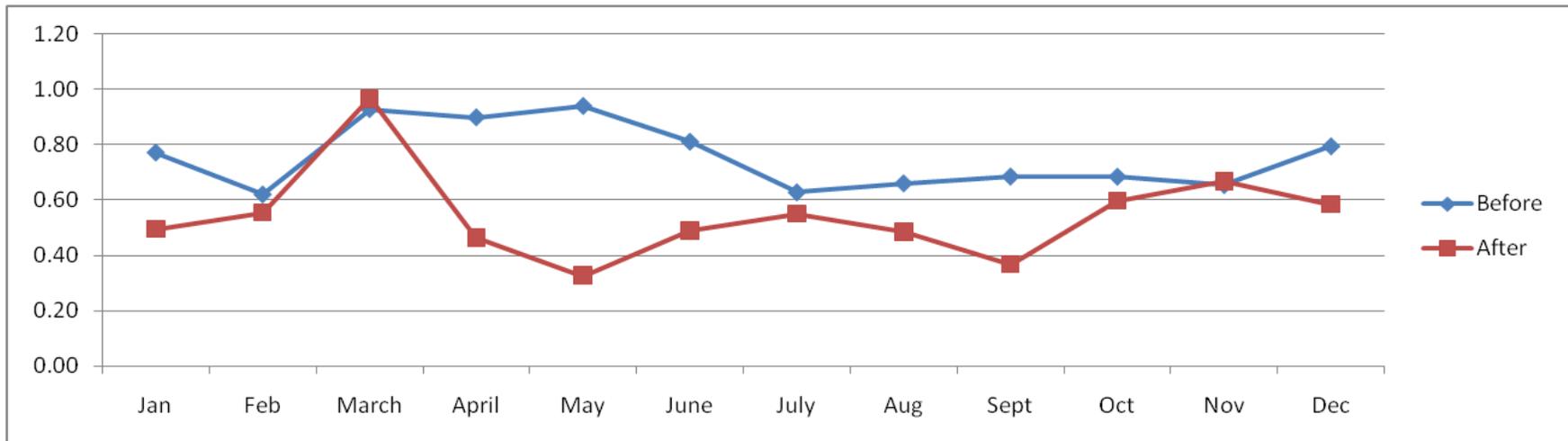


Table-5.14. Analysis of Index Value Representing the Positioning of Modal Price during Pre and Post e-Tendering Period

Particulars	Before	After
Mean	0.65	0.53
Standard Deviation	0.09	0.12
Sample Variance	0.01	0.01
Range	0.38	0.58
Minimum	0.45	0.26
Maximum	0.84	0.84
Sum	21.31	14.22
Count	33	27
Period	Jan. 2008 – Sept. 2010	Oct. 2010 – Dec.

Mysore APMC (Maize)

The APMC Mysore was the first market to experience electronic tendering of agricultural commodities when the system was introduced on pilot basis during August 2006. Mysore is a leading market with multi commodity arrivals. In-spite of this, getting a suitable commodity for analysis was observed to be difficult due to change in arrival pattern in many of the leading commodities over year. An attempt has been made with maize crop with focus more on prices as its arrival has also declined sharply in the recent year. The analysis of secondary information covers comparison in the monthly average arrival and prices in the pre (three years i.e. 2003-05) and post (two year i.e. 2007-09) periods and some price quality parameters like variation in prices and index value representing the number of transactions taking place near to maximum prices. The results are presented in Table-5.14 to Table-5.19 and Figure-5.7 to Figures-5.12.

The analysis indicates that the monthly average arrivals have improved over all the month except February and September after the introduction of e-tendering of maize in year 2006. The monthly prices of maize have also registered improvement in the post e-tendering period. The parameters analyzed to examine the quality of prices have shown mixed results in case of maize in Mysore. The more variation in the monthly price has been observed after the introduction of e-tendering but the index value has shown that during major part of the year more numbers of transactions have been completed towards maximum price. Elaborated analysis of the index values during the pre and post period presented in the Table-5.19 shows that the average index value during the manual tender period was 0.50, which has improved after introduction of the e-tendering system to 0.35.

Table-5.15. Year-wise Arrival and Prices of Maize in Mysore Market

Arrival in Quintals & Prices in Rs/Qt

Year	Arrival	Prices
2003	43099	542
2004	64520	518
2005	47179	500
2006	65921	558
2007	51738	646
2008	51024	759
2009	144951	747
2010	54853	804
2011	14251	931
2012	8618	1090

Figure-5.7. Arrival of Maize over Years in Mysore Market (in Quintals)

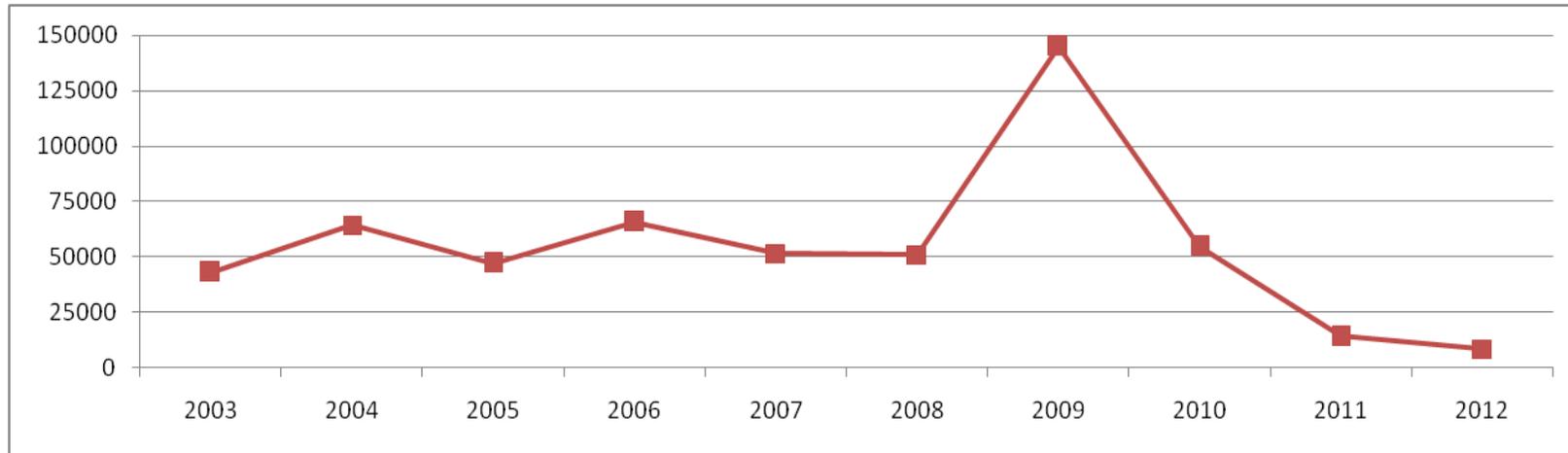


Figure-5.8. Prices of Maize over Years in Mysore Market (in Rupees/ Quintal)

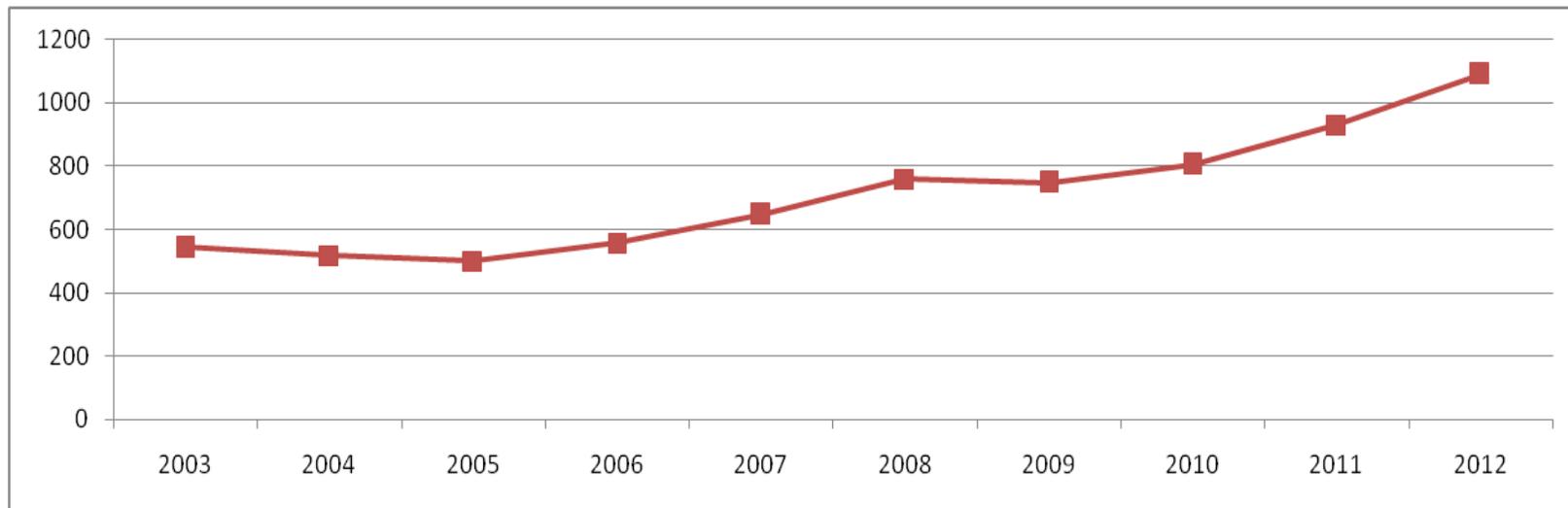


Table-5.16. Comparison of Arrival and Prices of Maize in Pre and Post e-Tendering Period in Mysore Market

Arrivals in Quintals

Prices in Rupees/ Quintal

Months	Pre e-tendering Period 2003-05				Post e-tendering Period 2007-09				Total Period			
	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal
Jan	3138	450	673	495	3653	484	754	672	6791	467	714	584
Feb	2283	456	526	492	2088	567	769	713	4371	512	647	602
March	1939	499	527	511	3842	592	765	723	5781	545	646	617
April	697	516	592	558	957	617	2978	741	1654	566	1785	649
May	143	480	674	576	236	573	814	746	379	527	744	661
June	115	536	568	554	549	657	875	804	663	597	721	679
July	435	460	591	535	632	523	898	736	1067	491	744	636
Aug	929	391	626	534	1029	409	912	710	1958	400	769	622
Sept	9755	388	599	513	9120	316	930	647	18875	352	765	580
Oct	11627	417	2193	493	16972	279	842	693	28599	348	1517	593
Nov	12615	407	566	491	24575	430	852	711	37189	419	709	601
Dec	7922	422	702	490	18920	476	812	716	26842	449	757	603

Figure-5.9. Comparison of Arrival in Pre and Post e-Tendering Period in Mysore Market (in Quintals)

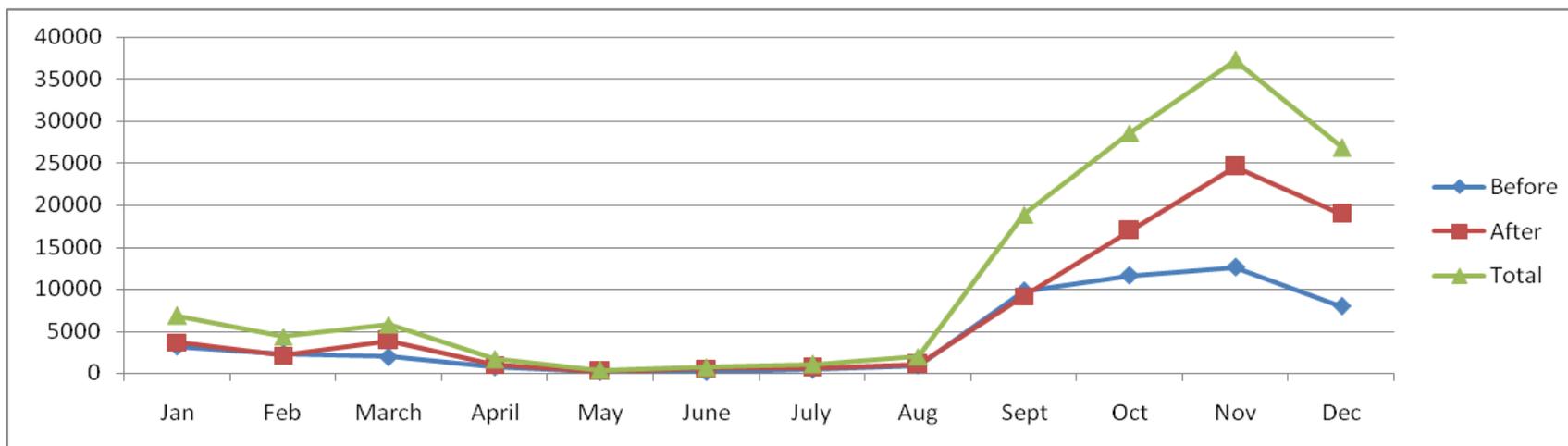


Figure-5.10. Comparison of Prices in Pre and Post e-Tendering Period in Mysore Market (in Rupees/ Quintal)

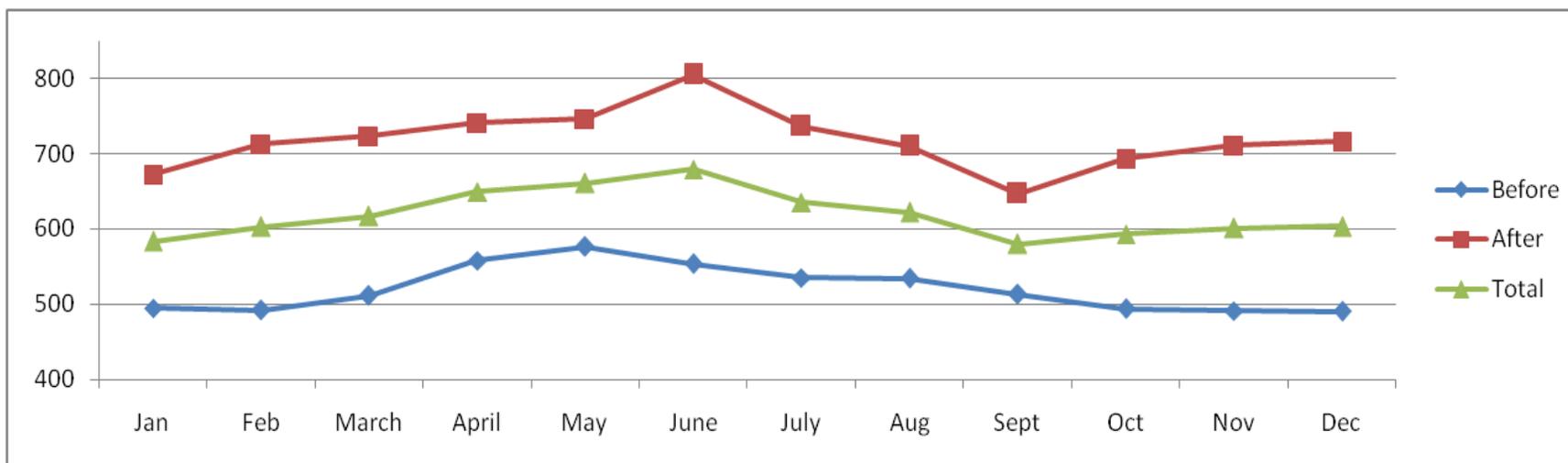


Table5.17. Percent Difference in Prices of Maize (Maximum and Minimum) wrt Minimum Prices in Mysore Market

Months	Before	After
January	49.56	55.89
February	15.27	35.49
March	5.53	29.28
April	14.66	382.86
May	40.22	42.14
June	5.90	33.06
July	28.49	71.59
August	60.00	122.98
September	54.33	194.61
October	426.24	202.15
November	39.07	98.06
December	66.35	70.52

Table-5.18. The Index Value Representing the Distance of Modal Price of Maize from its Maximum Price in Mysore Market

Months	Before	After
January	0.80	0.30
February	0.48	0.28
March	0.56	0.24
April	0.44	0.95
May	0.50	0.28
June	0.45	0.32
July	0.43	0.43
August	0.39	0.40
September	0.41	0.46
October	0.96	0.26
November	0.47	0.33
December	0.76	0.29

Figure-5.11. Percent Difference in Prices of Maize (Maximum and Minimum) wrt Minimum Prices in Mysore Market

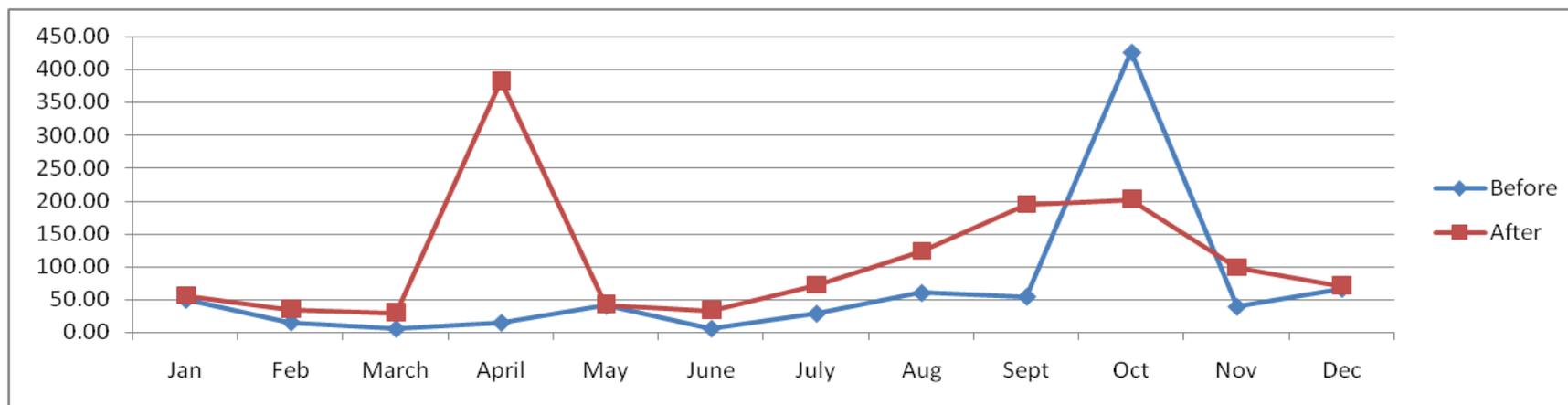


Figure-5.12. Index Value Showing the Distance of Modal Price of Maize from its Maximum Price in Mysore Market

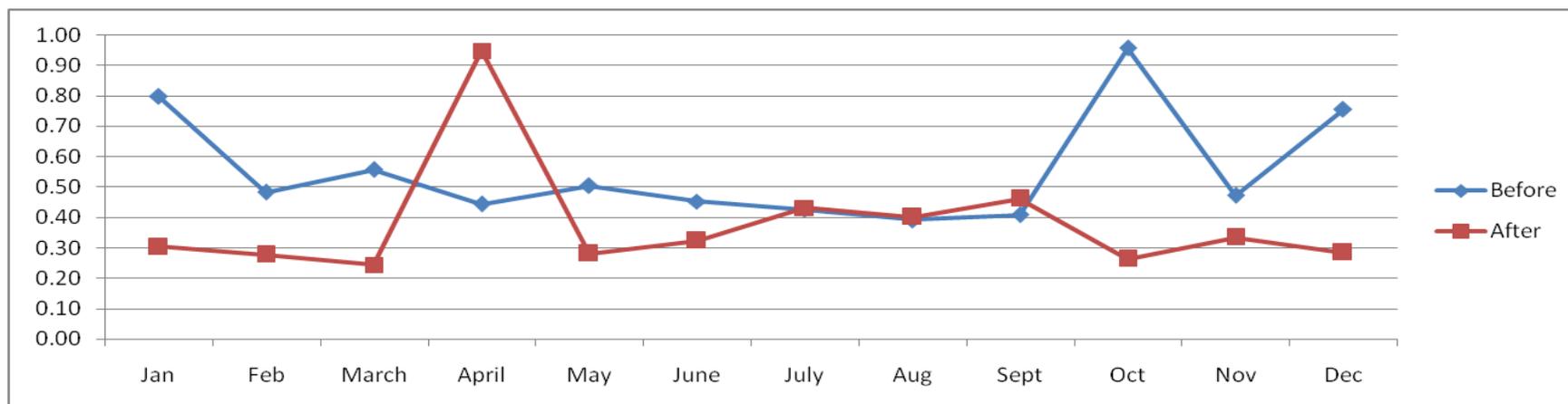


Table-5.19. Analysis of Index Value Representing the Positioning of Modal Price during Pre and Post e-Tendering Period

Particulars	Before	After
Mean	0.50	0.35
Standard Deviation	0.24	0.15
Sample Variance	0.06	0.02
Range	1.15	0.85
Minimum	0.14	0.13
Maximum	1.29	0.99
Sum	22.02	25.91
Count	44	74
Period	Jan. 2003 – Aug. 2006	Sept. 2006 – Dec. 2012

Hubli APMC (Cotton)

The electronic tender system in APMC Hubli was introduced in August 2009. The Table-5.20 to Table-5.24 and Figure-5.13 to Figures-5.18 presents the results of the analysis of secondary information covering comparison in the monthly average arrival and prices in the pre (three years i.e. 2007-09) and post (two year i.e. 2010-12) periods and some price quality parameters like variation in prices, index value indicating the volume of transactions taking place closer to maximum prices. Since the arrival of cotton crop during the month of July – September is negligible, these three month have not been considered in the analysis.

The tables and figures reveal that the annual arrivals have shown sharp increase in year 2010 immediately after the implementation of the system in year 2009. The same could not be maintained in the recent years. Same kind of trend was observed in case of monthly prices. The prices registered sharp

increase in year 2010 and 2011. In year 2012 the prices were ruling high though at a level lower than previous year. The comparison of monthly arrivals and prices reveals that the monthly arrivals have increased in all the leading months after the introduction of e-tendering system. Same is the case with prices. The quality of prices has improved after the introduction of electronic tendering system as reflected by the lower variation in prices and favorable index value. The variation has marginally increased in the month of December while unfavorable index value have been observed only for two leading month namely March and April. The Table-5.24 depicts the detailed analysis of the index values for the period considered under the study. The table shows that the average index value during the pre e-tender period was 0.38, which has come down to 0.30 after introduction of the electronic tendering system in cotton.

Table-5.20. Year-wise Arrival and Prices of Cotton in Hubli Market

Arrival in Quintals & Prices in Rs/Qt

Year	Arrival	Prices
2003	97434	1722
2004	96465	1504
2005	181075	1230
2006	84092	1409
2007	74015	1639
2008	62994	2089
2009	66407	2048
2010	135328	2704
2011	87129	3979
2012	55396	2990

Figure-5.13. Arrival of Cotton over Years in Hubli Market (in Quintals)

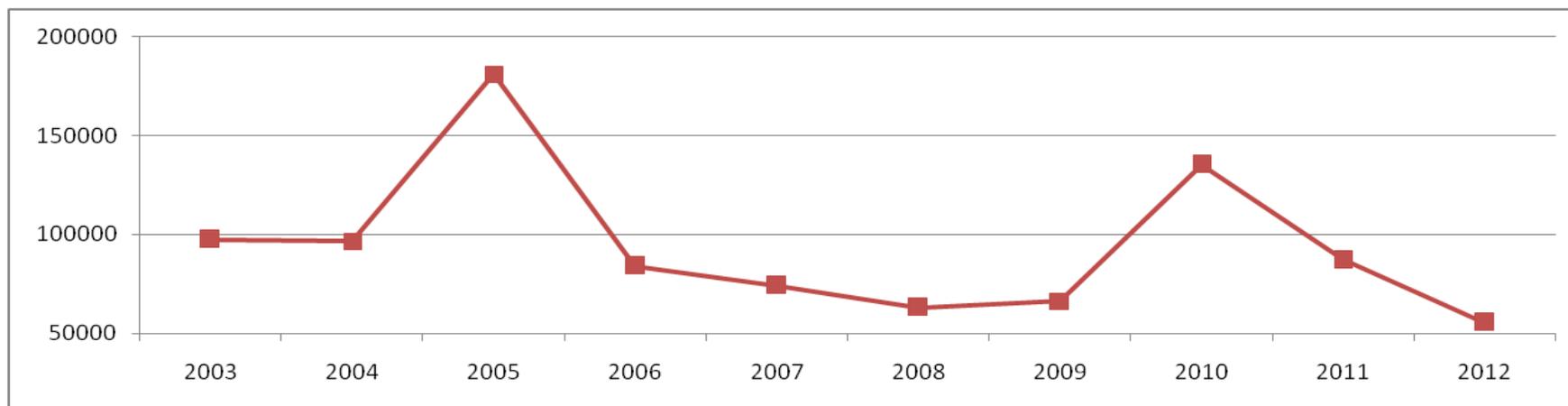


Figure-5.14. Prices of Cotton over Years in Hubli Market (in Rupees/ Quintal)

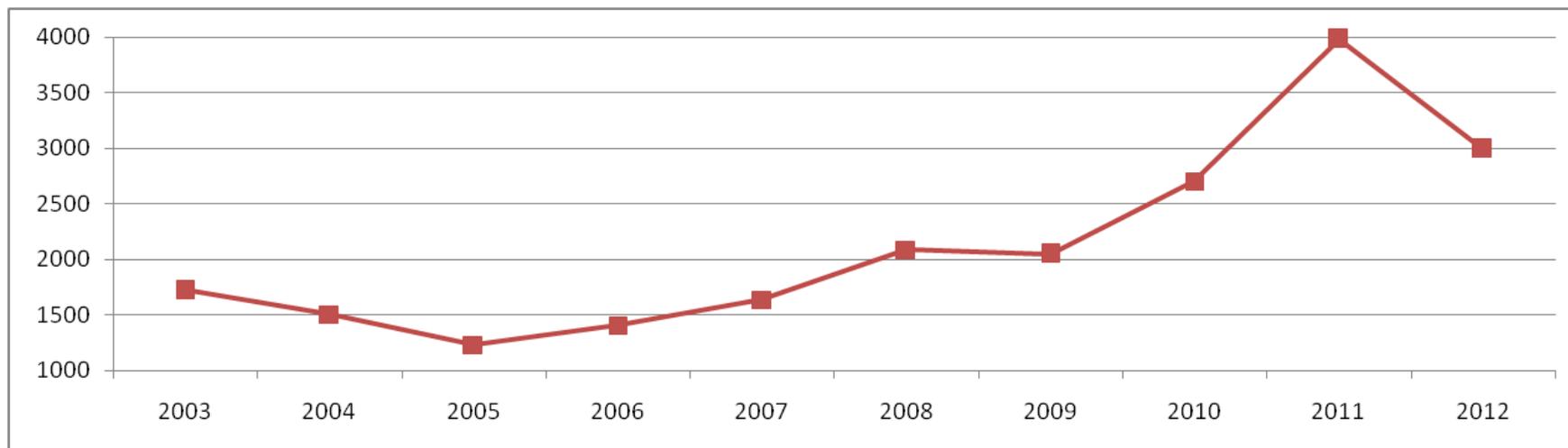


Table-5.21. Comparison of Arrival and Prices in Pre and Post e-Tendering Period in Hubli Market

Arrivals in Quintals

Prices in Rupees/ Quintal

Months	Pre e-tendering Period 2007-09				Post e-tendering Period 2010-12				Total Period			
	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal
Jan	8697	1540	3120	2398	14777	3146	5114	4532	23475	2343	4117	3465
Feb	2558	1356	2567	2221	7915	3114	4849	4463	10473	2235	3708	3342
March	5886	2133	2579	2355	9810	3828	4620	4202	15696	2981	3599	3278
April	8933	1030	2574	2360	9435	2126	4623	3977	18368	1578	3598	3168
May	3029	2175	2586	2395	2199	3104	3530	3393	5228	2640	3058	2894
June	626	1264	2700	2189	374	1941	3842	2953	1000	1602	3271	2571
July	44	792	864	836	30	716	892	831	74	754	878	833
Aug	--	--	--	--	14	1095	1095	1095	14	548	548	548
Sept	--	--	--	--	--	--	--	--	--	--	--	--
Oct	887	1847	2988	2594	1091	3974	4457	4325	1978	2911	3723	3460
Nov	15101	2053	3467	2879	22857	3383	4914	4519	37958	2718	4191	3699
Dec	22045	1939	3367	2881	24114	2728	4785	4404	46159	2334	4076	3642

Figure-5.15. Comparison of Arrival in Pre and Post e-Tendering Period in Hubli Market (in Quintals)

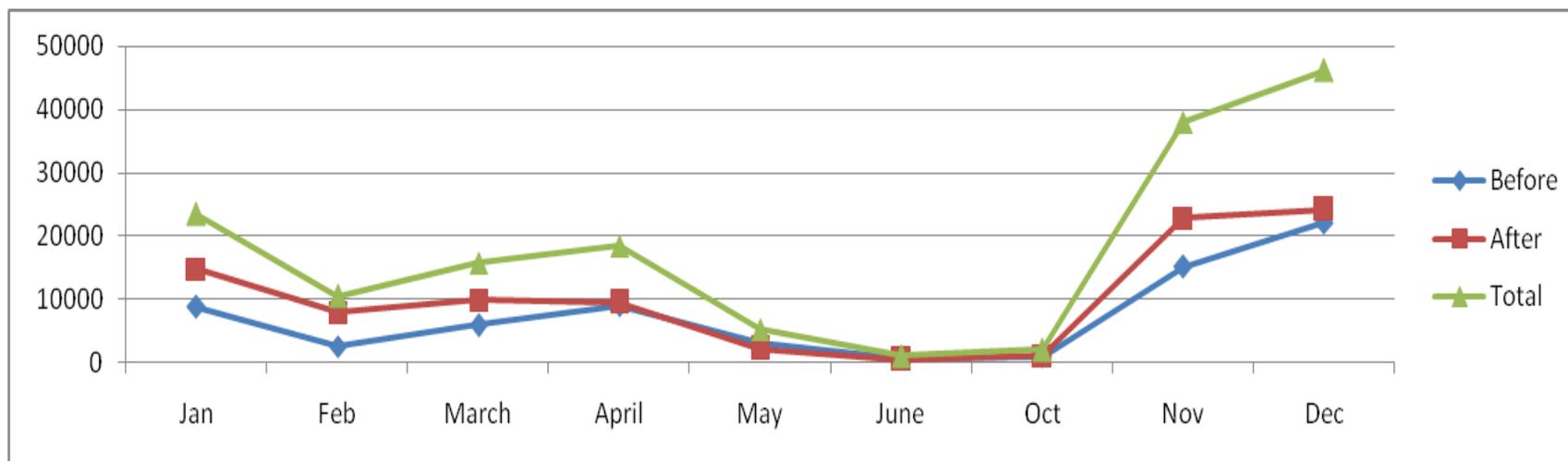


Figure-5.16. Comparison of Prices in Pre and Post e-Tendering Period in Hubli Market (in Rupees/ Quintal)

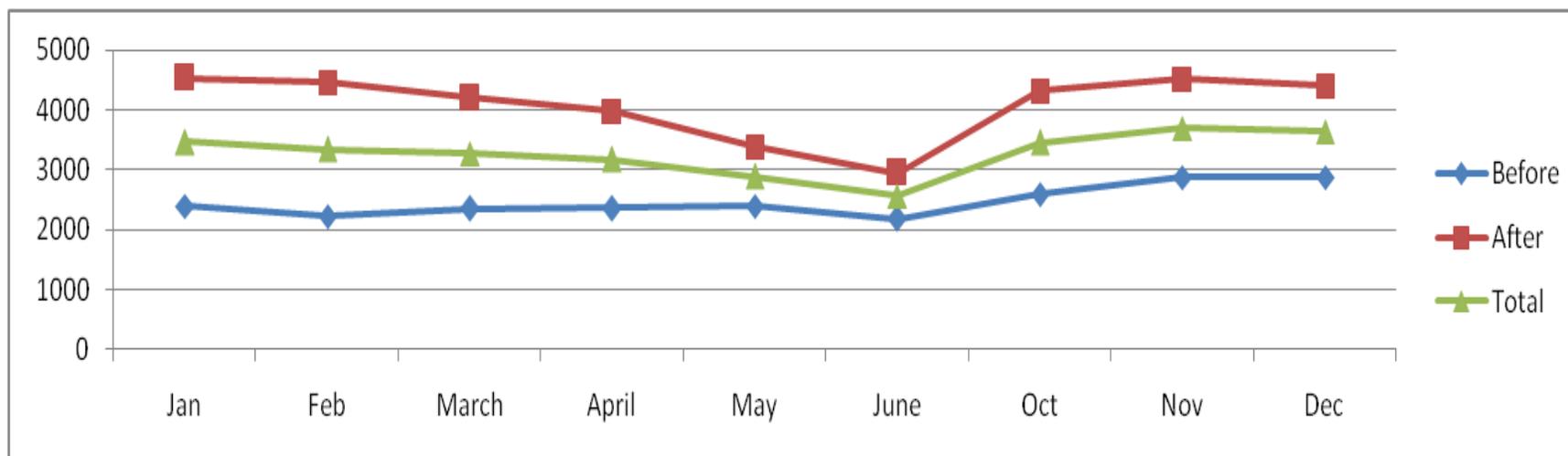


Table-5.22. Percent Difference in Prices of Cotton (Maximum and Minimum) wrt Minimum Prices in Hubli Market

Months	Before	After
January	102.62	62.58
February	89.31	55.74
March	20.89	20.67
April	149.78	117.40
May	18.87	13.72
June	113.64	97.96
October	61.75	12.16
November	68.89	45.25
December	73.61	75.38

Table-5.23. The Index Value Representing the Distance of Modal Price of Cotton from its Maximum Price in Hubli Market

Months	Before	After
January	0.46	0.30
February	0.29	0.22
March	0.50	0.53
April	0.14	0.26
May	0.47	0.32
June	0.36	0.47
October	0.35	0.27
November	0.42	0.26
December	0.34	0.19

Figure-5.17. Percent Difference in Prices of Cotton (Maximum and Minimum) wrt Minimum Prices in Hubli Market

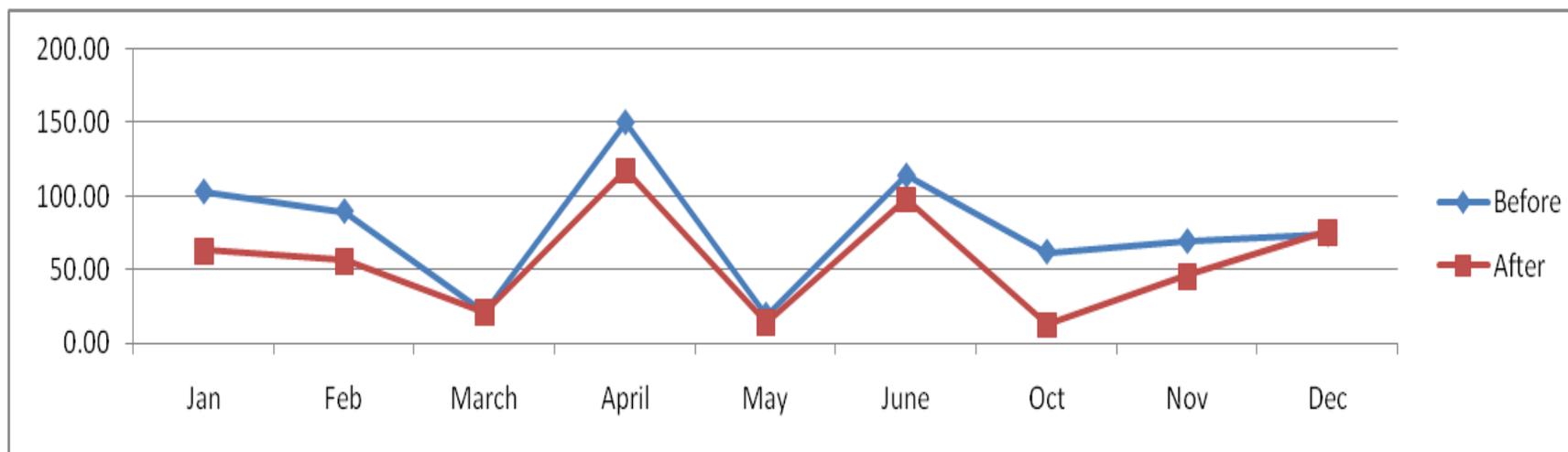


Figure-5.18. Index Value Showing the Distance of Modal Price of Cotton from its Maximum Price in Hubli Market

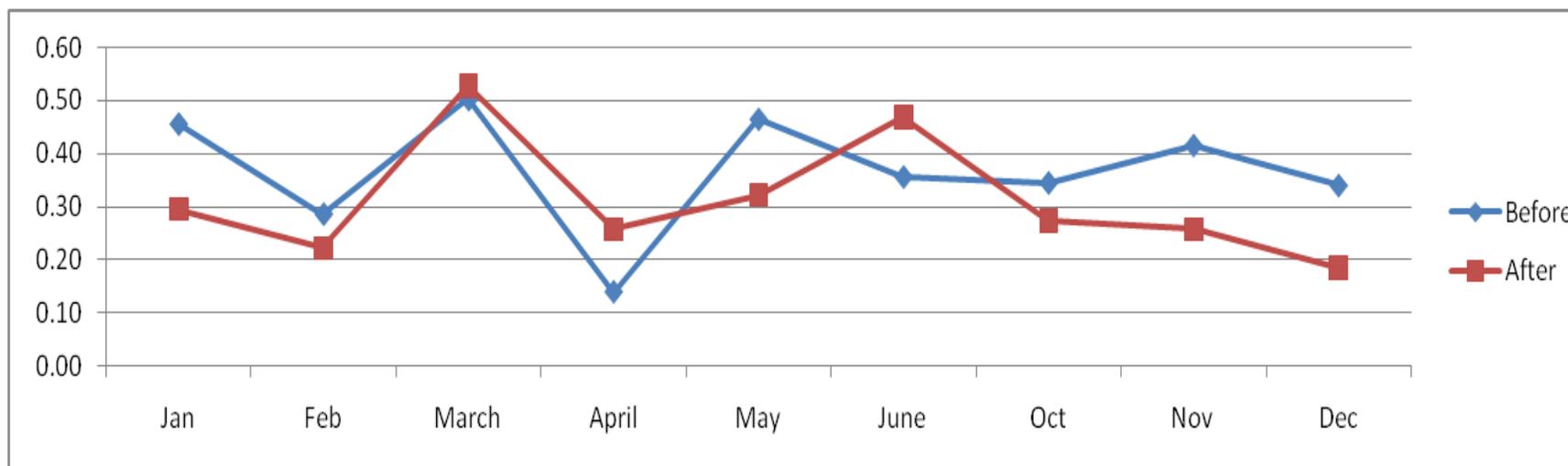


Table-5.24. Analysis of Index Value Representing the Positioning of Modal Price during Pre and Post e-Tendering Period

Particulars	Before	After
Mean	0.38	0.30
Standard Deviation	0.14	0.17
Sample Variance	0.02	0.03
Range	0.53	0.61
Minimum	0.12	0.00
Maximum	0.65	0.61
Sum	10.31	9.00
Count	27	30
Period	Jan. 2007 – Nov. 2009	Dec. 2009 – Dec. 2012

Hubli APMC (Groundnut)

The trading of groundnut on electronic platform in Hubli markets commenced in August 2009. The results of the analysis of secondary information have been presented in Table-5.25 to Table-5.29 and Figure-5.19 to Figures-5.24. The analysis covers the comparison in the monthly average arrival and prices in the pre (three years i.e. 2006-08) and post (two year i.e. 2010-12) periods and some price quality parameters like variation in prices, index value indicating the volume of transactions taking place closer to maximum prices.

The result of the analysis revealed that the annual arrivals have shown sign of improvement in the year of introduction itself. The arrival sharply increased by about 100 percent in year 2009 over year 2008. The same trend was reported for next two year though arrivals declined sharply in year 2012. The prices registered increasing trend since the introduction of the system. The

comparison of monthly arrivals and prices reveals that the monthly arrivals have increased during the entire year except for the months from June – August. Same is the case with prices. The parameters considered for quality for prices have shown mixed results. The variation in prices during major part of the year including all leading months (except September) was reported to be on higher side. Though, results are favorable in terms of index value representing the number of transactions taking place near maximum price. More than 90 percent of the groundnut is arriving in the market during four months i.e. September to December. The index value for these four months was observed be lower in comparison to the traditional system period. The Table-5.29 depicting the details of index value analysis reveals that the transactions taking place near to maximum price have marginally improved after introduction of the system.

Table-5.25. Year-wise Arrival and Prices of Groundnut in Hubli Market

Arrival in Quintals & Prices in Rs/Qt

Year	Arrival	Prices
2003	32972	1699
2004	123353	1570
2005	121638	1234
2006	111765	1587
2007	112680	2090
2008	84610	2196
2009	166905	2234
2010	167420	2673
2011	222999	3140
2012	91151	3915

Figure-5.19. Arrival of Groundnut over Years in Hubli Market (in Quintals)

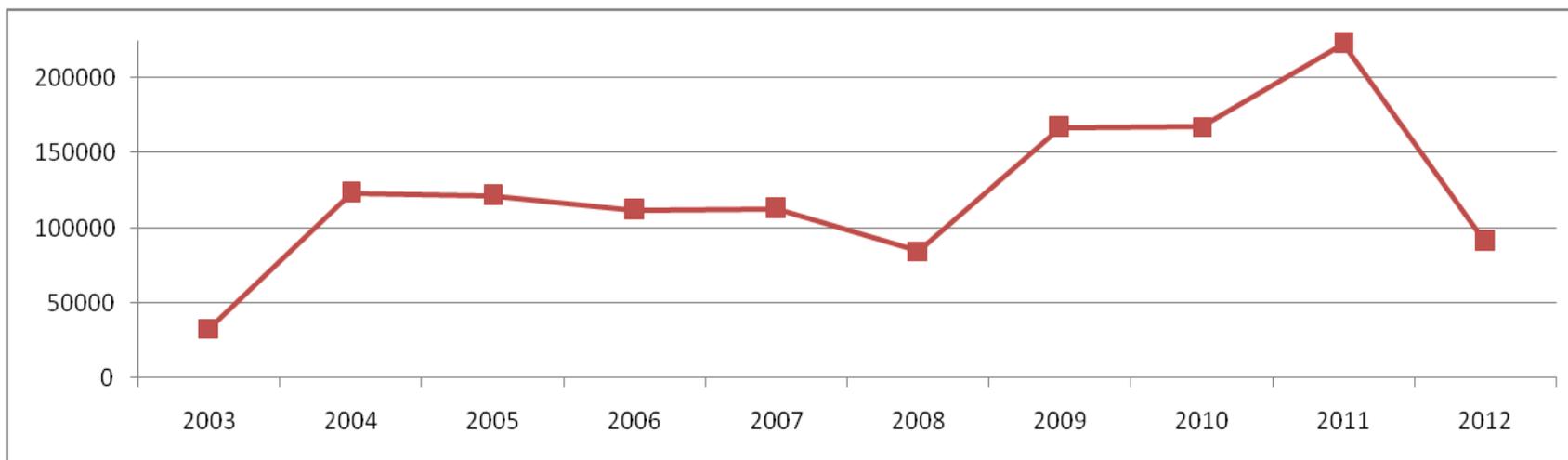


Figure-5.20. Prices of Groundnut over Years in Hubli Market (in Rupees/ Quintal)

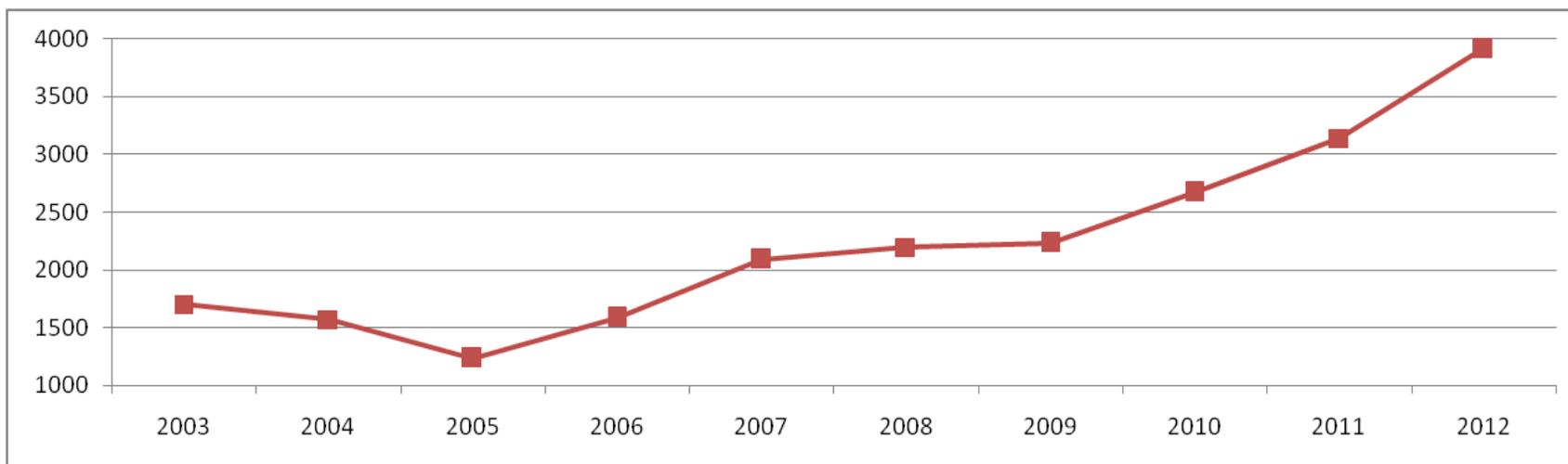


Table-5.26. Comparison of Arrival and Prices in Pre and Post e-Tendering Period in Hubli Market

Arrivals in Quintals

Prices in Rupees/ Quintal

Months	Pre e-tendering Period 2006-08				Post e-tendering Period 2010-12				Total Period			
	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal
Jan	2333	1189	2126	1913	3089	1260	3569	2918	5422	1224	2847	2416
Feb	416	1238	2127	1919	919	1749	3082	2564	1335	1493	2605	2242
March	196	1223	2082	1907	243	1746	3084	2824	439	1485	2583	2366
April	176	1069	2159	1714	385	1742	3473	2888	560	1406	2816	2301
May	4677	1249	2930	1999	4679	1509	3689	3345	9356	1353	3234	2672
June	3143	906	2388	1995	2646	1099	3841	3180	5789	1003	3114	2588
July	456	937	2322	2089	247	1652	4000	3157	703	1295	3161	2623
Aug	81	1098	2132	1818	45	2370	3758	3208	126	1734	2945	2513
Sept	10776	959	2582	1764	12165	1920	4046	3257	22941	1439	3314	2510
Oct	50837	826	3064	2099	70482	1009	4998	3800	121319	918	4031	2950
Nov	23762	875	2986	2140	53260	873	5249	3941	77022	874	4118	3041
Dec	6166	1099	2711	2133	12363	1176	5033	3831	18529	1138	3872	2982

Figure-5.21. Comparison of Arrival in Pre and Post e-Tendering Period in Hubli Market (in Quintals)

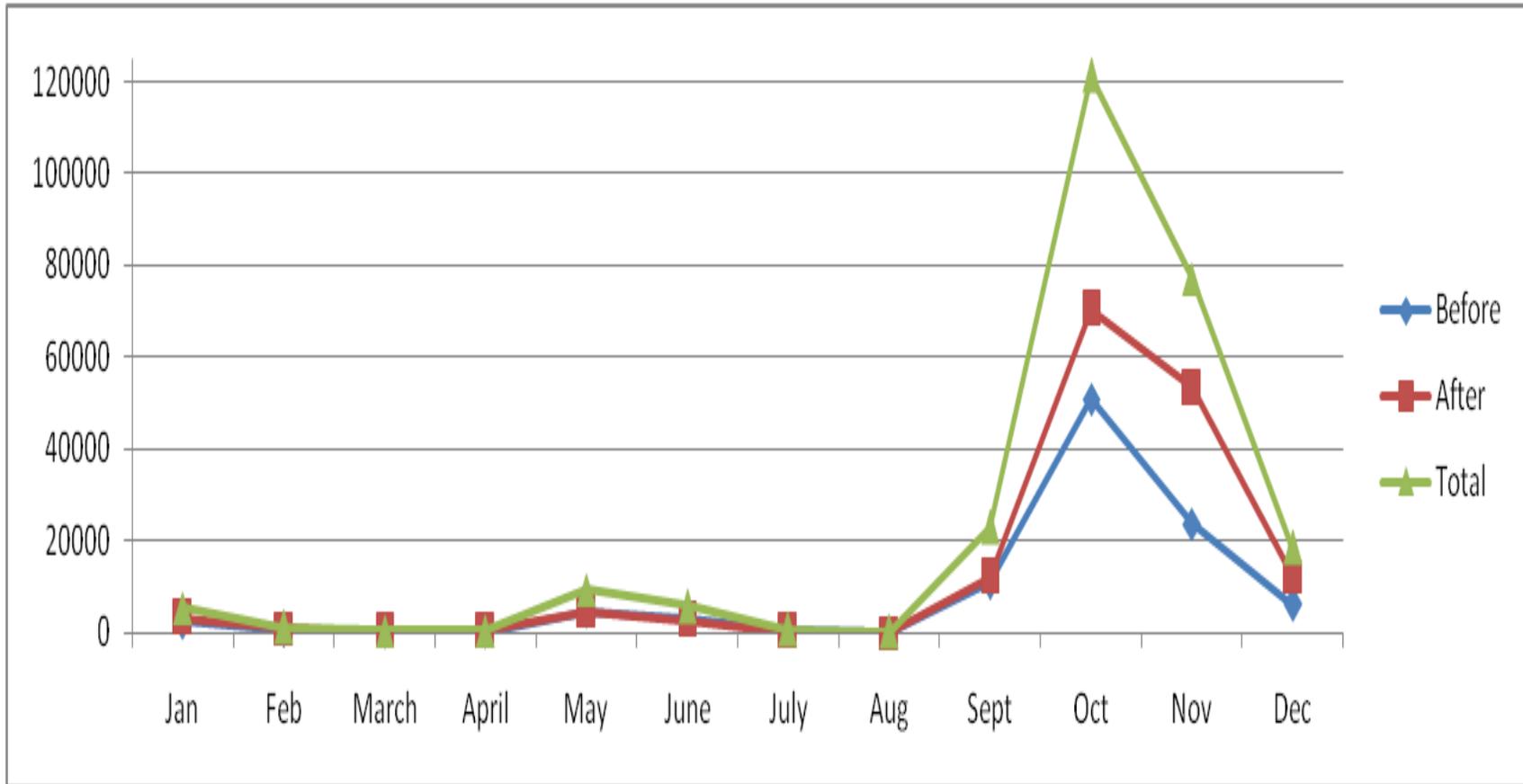


Figure-5.22. Comparison of Prices in Pre and Post e-Tendering Period in Hubli Market (in Rupees/ Quintal)

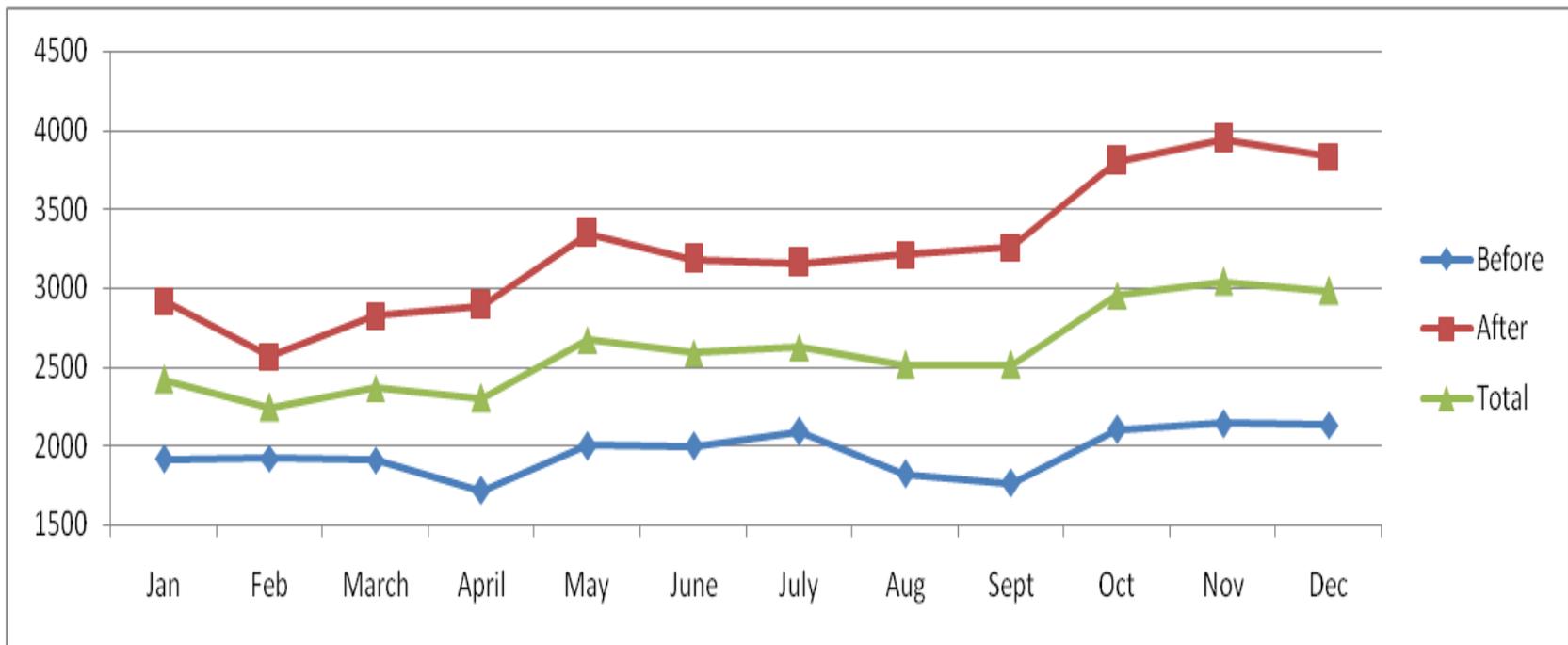


Table-5.27. Percent Difference in Prices of Groundnut (Maximum and Minimum) wrt Minimum Prices in Hubli Market

Months	Before	After
January	78.78	183.33
February	71.83	76.23
March	70.22	76.67
April	102.03	99.31
May	134.55	144.47
June	163.44	249.50
July	147.94	142.06
August	94.08	58.57
September	169.37	110.73
October	270.75	395.31
November	241.30	501.53
December	146.63	328.07

Table-5.28. The Index Value Representing the Distance of Modal Price of Groundnut from its Maximum Price in Hubli Market

Months	Before	After
January	0.23	0.28
February	0.23	0.39
March	0.20	0.19
April	0.41	0.34
May	0.55	0.16
June	0.26	0.24
July	0.17	0.36
August	0.30	0.40
September	0.50	0.37
October	0.43	0.30
November	0.40	0.30
December	0.36	0.31

Figure-5.23. Percent Difference in Prices of Groundnut (Maximum and Minimum) wrt Minimum Prices in Hubli Market

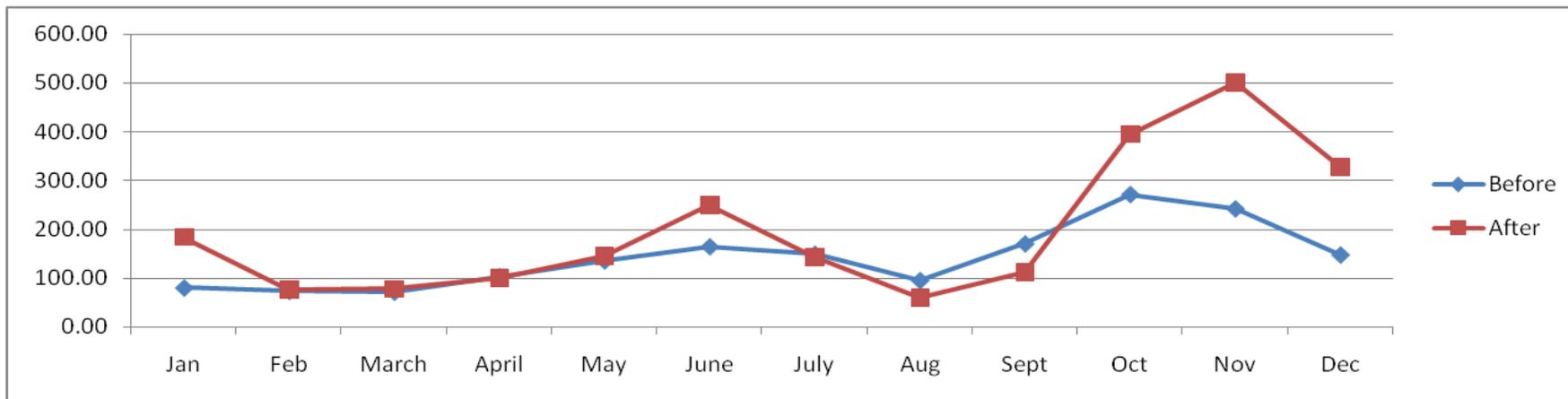


Figure-5.24. Index Value Showing the Distance of Modal Price of Groundnut from its Maximum Price in Hubli Market

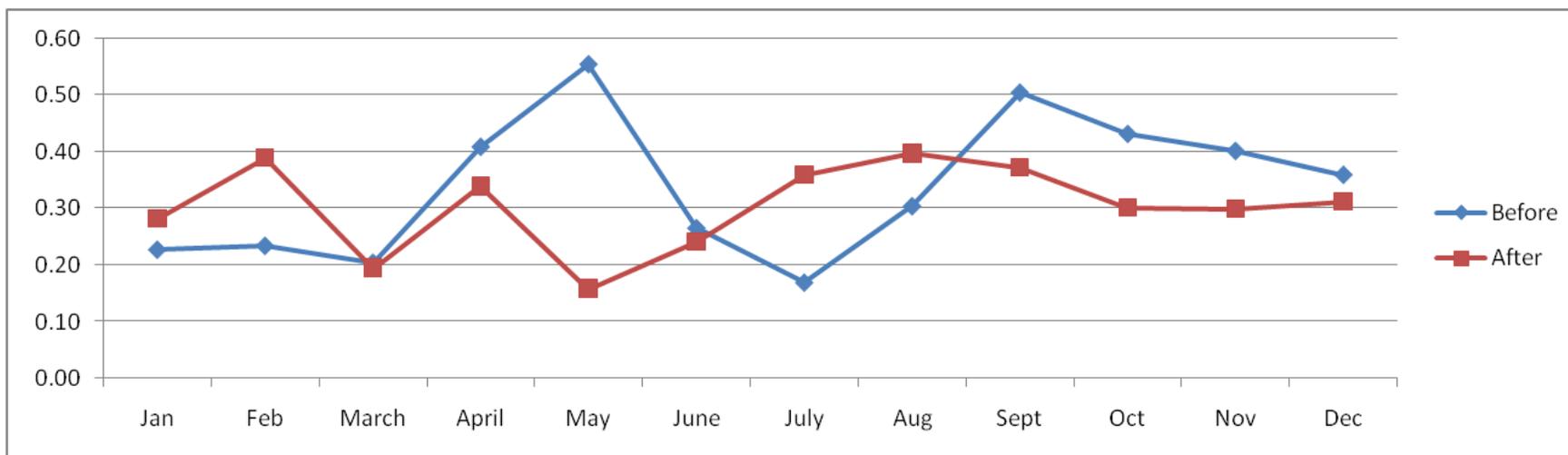


Table-5.29. Analysis of Index Value Representing the Positioning of Modal Price during Pre and Post e-Tendering Period

Particulars	Before	After
Mean	0.33	0.32
Standard Deviation	0.14	0.11
Sample Variance	0.02	0.01
Range	0.69	0.58
Minimum	0.05	0.00
Maximum	0.74	0.58
Sum	14.77	12.66
Count	45	39
Period	Jan. 2006 – Sept. 2009	Oct. 2009 – Dec. 2012

Gulbarga APMC (Tur)

The electronic tender system in tur in APMC Gulbarga was introduced in November 2009. The results of the analysis of secondary information have been depicted in Table-5.30 to Table-5.34 and Figure-5.25 to Figures-5.30. The analysis covers the comparison in the monthly average arrival and prices in the pre (three years i.e. 2007-09) and post (two year i.e. 2010-12) periods and some price quality parameters like variation in prices, index value indicating the volume of transactions taking place closer to maximum prices.

The tables and figures reveal that the arrivals have sharply increased in years 2010 and 2011 immediately after the implementation of the system in year 2009. The prices have also ruled on higher level after the introduction of the system though highest prices were observed in year 2009 in recent past. This may be due to poor arrival in the market. The comparison of monthly arrivals and

prices reveals that the monthly arrivals have increased after the introduction of e-tendering system in all the months except for March, where a marginal dip was observed. Same is the case with prices. However, a reduction was observed in two non-leading month namely October and November. The quality of prices has have shown mixed results after the introduction of electronic tendering system as reflected by the variation in prices and index value. The variation has increased for the entire year except for three months i.e. August, September and October. These three months are also least important in-terms of arrival of the crop. However, the index value has shown favorable results for the entire year. The detailed analysis of the index values depicted in Table-5.34 shows improvement in the quality of prices represented in terms of quantity of transactions taking place near to maximum price.

Table-5.30. Year-wise Arrival and Prices of Tur in Gulbarga Market

Arrival in Quintals & Prices in Rs/Qt

Year	Arrival	Prices
2003	278121	1780
2004	174272	1885
2005	335995	1734
2006	711909	1826
2007	1142982	2303
2008	1111345	2782
2009	889655	4366
2010	1400904	3723
2011	1821861	3442
2012	1155336	3942

Figure-5.25. Arrival of Tur over Years in Gulbarga Market (in Quintals)

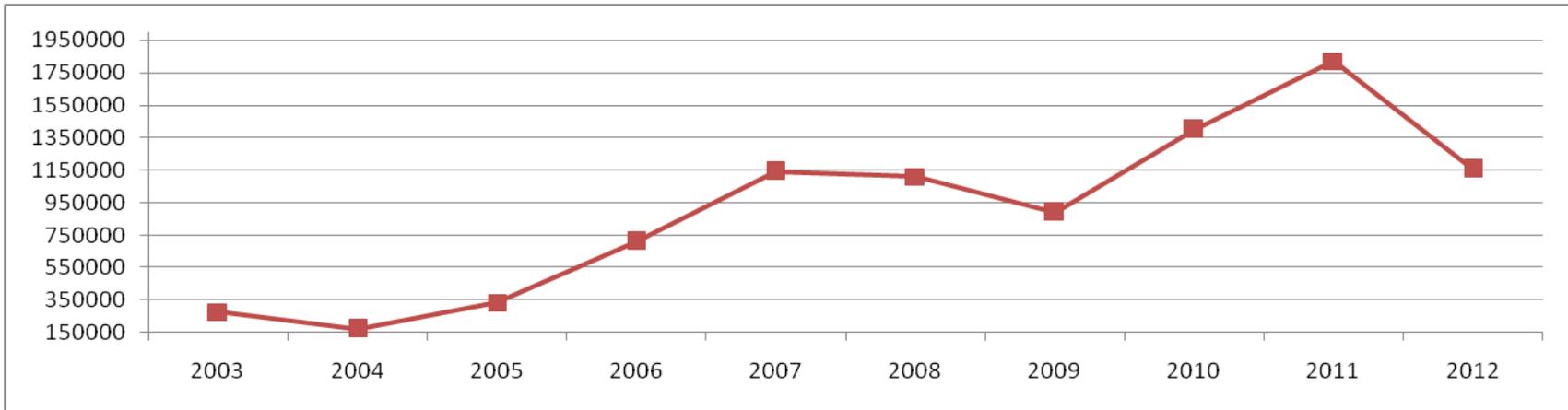


Figure-5.26. Prices of Tur over Years in Gulbarga Market (in Rupees/ Quintal)

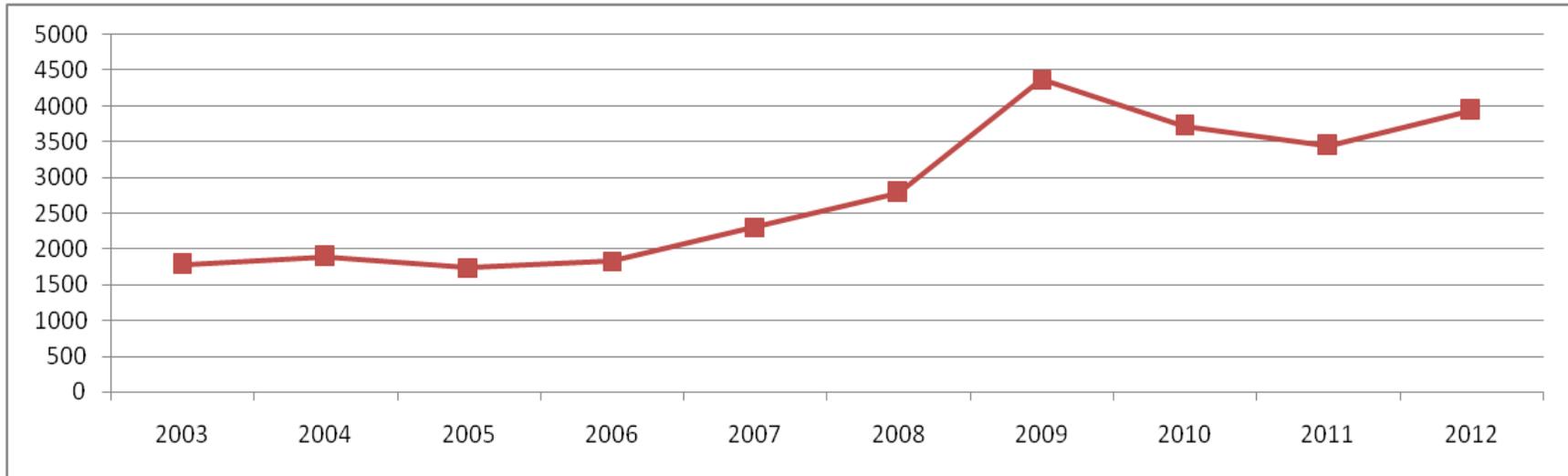


Table-5.31. Comparison of Arrival and Prices of Tur in Pre and Post e-Tendering Period in Gulbarga Market

Arrivals in Quintals

Prices in Rupees/ Quintal

Months	Pre e-tendering Period 2007-09				Post e-tendering Period 2010-12				Total Period			
	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal
Jan	200124	1967	2775	2458	227228	2488	4776	3885	427352	2227	3775	3171
Feb	171951	2084	3006	2634	188339	2636	4239	3765	360290	2360	3623	3200
March	127010	2101	2959	2671	126496	2606	4126	3702	253506	2353	3543	3187
April	72450	2117	2988	2734	155208	2557	4187	3715	227658	2337	3588	3224
May	84158	2281	3036	2784	115354	2335	4048	3686	199512	2308	3542	3235
June	85017	2183	3490	2919	99379	2429	4105	3654	184396	2306	3798	3287
July	78511	2652	4191	3605	94657	2616	4269	3766	173167	2634	4230	3685
Aug	32891	2438	3997	3524	74438	2632	4190	3783	107328	2535	4093	3654
Sept	19541	2696	3938	3517	67948	2908	4218	3817	87489	2802	4078	3667
Oct	24583	2739	4249	3845	57868	2603	4036	3643	82452	2671	4142	3744
Nov	11198	2717	4235	3657	91940	2501	4060	3551	103138	2609	4147	3604
Dec	140560	2550	3958	3453	160513	2370	3923	3464	301073	2460	3941	3459

Figure-5.27. Comparison of Arrival in Pre and Post e-Tendering Period in Gulbarga Market (in Quintals)

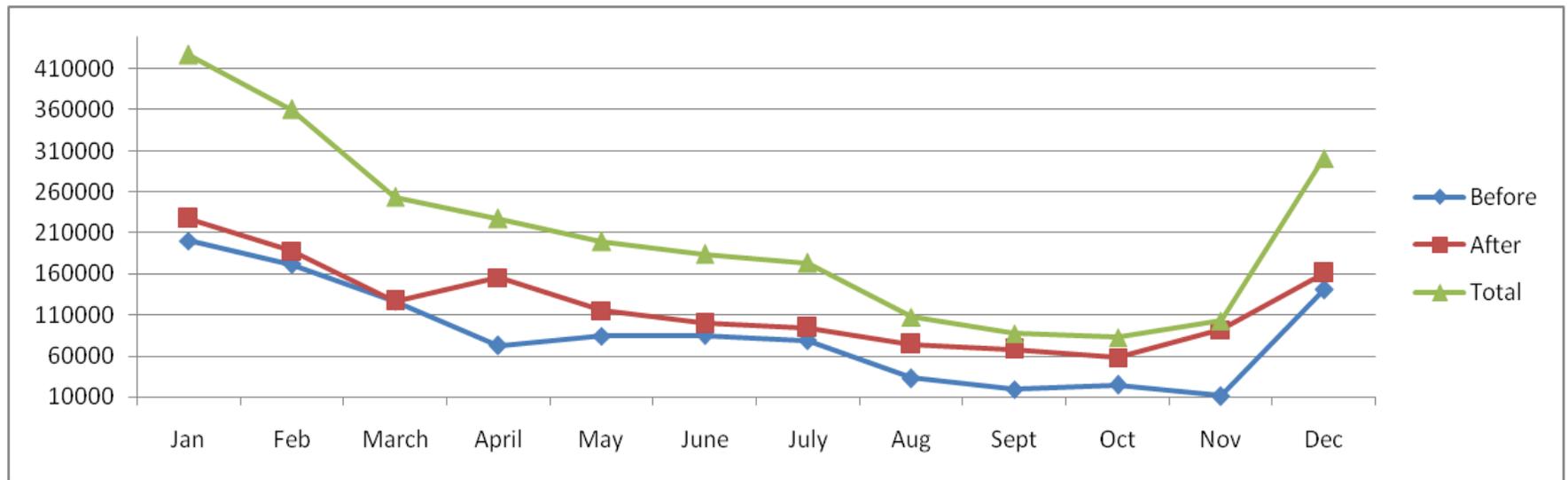


Figure-5.28. Comparison of Prices in Pre and Post e-Tendering Period in Gulbarga Market (in Rupees/ Quintal)

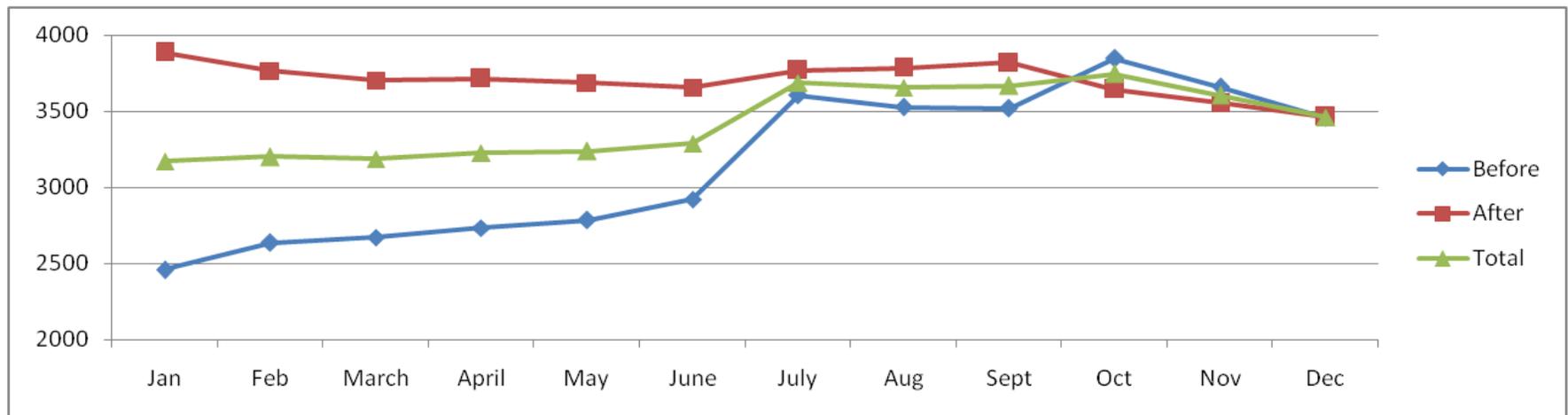


Table-5.32. Percent Difference in Prices of Tur (Maximum and Minimum) wrt Minimum Prices in Gulbarga Market

Months	Before	After
January	41.07	91.97
February	44.26	60.82
March	40.88	58.37
April	41.13	63.77
May	33.13	73.34
June	59.86	69.03
July	58.06	63.15
August	63.91	59.17
September	46.08	45.03
October	55.12	55.05
November	55.86	62.32
December	55.18	65.51

Table-5.33. The Index Value Representing the Distance of Modal Price of Tur from its Maximum Price in Gulbarga Market

Months	Before	After
January	0.39	0.39
February	0.40	0.30
March	0.34	0.28
April	0.29	0.29
May	0.33	0.21
June	0.44	0.27
July	0.38	0.30
August	0.30	0.26
September	0.34	0.31
October	0.27	0.27
November	0.38	0.33
December	0.36	0.30

Figure-5.29. Percent Difference in Prices of Tur (Maximum and Minimum) wrt Minimum Prices in Gulbarga Market

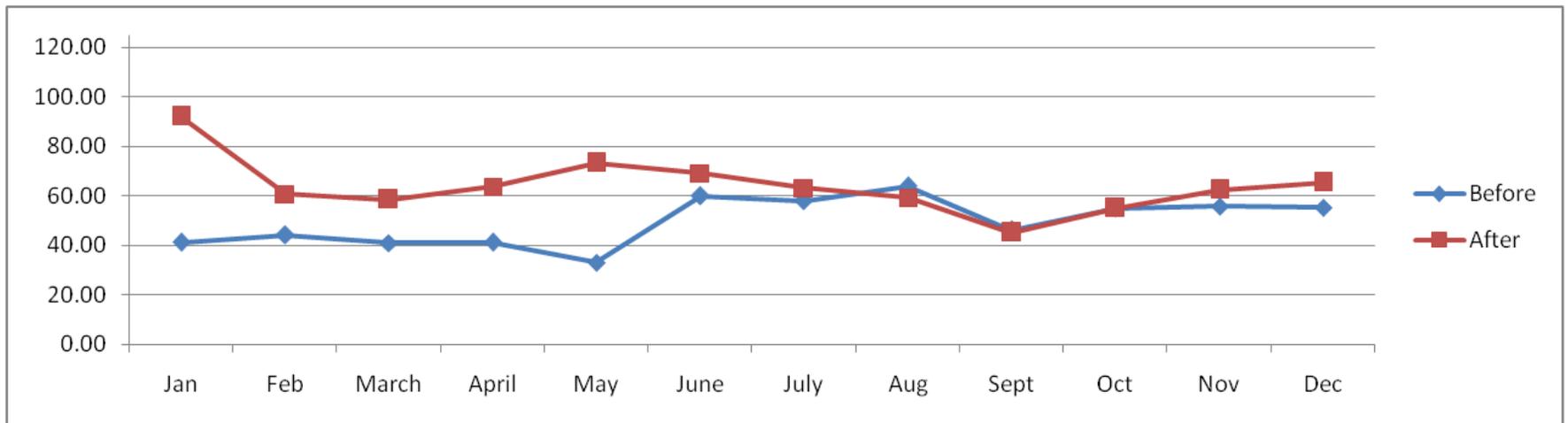


Figure-5.30. Index Value Showing the Distance of Modal Price of Tur from its Maximum Price in Gulbarga Market

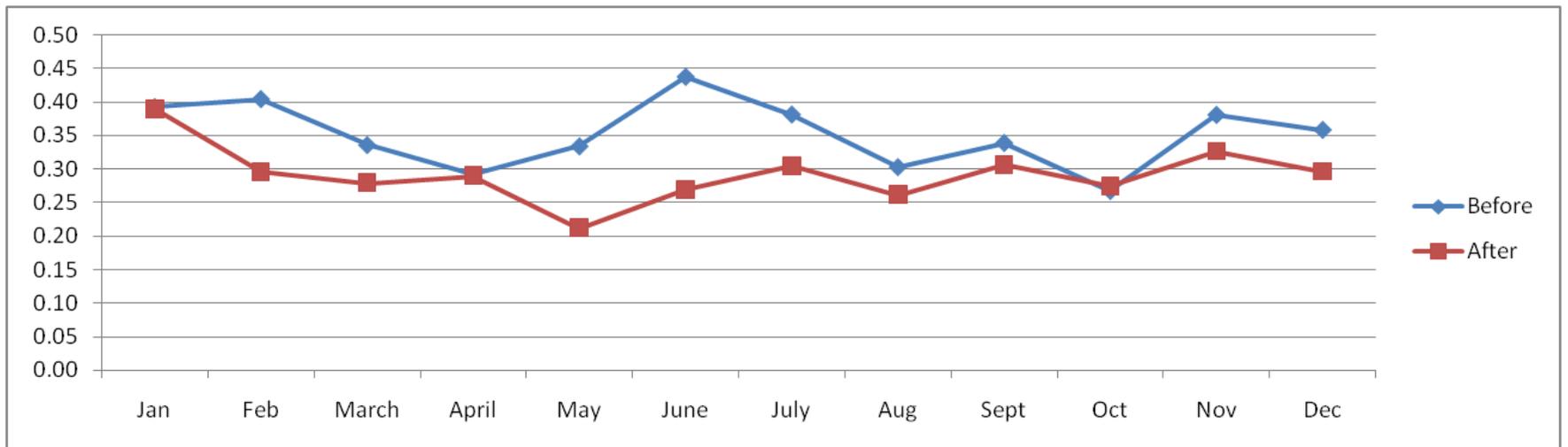


Table-5.34. Analysis of Index Value Representing the Positioning of Modal Price during Pre and Post e-Tendering Period

Particulars	Before	After
Mean	0.35	0.29
Standard Deviation	0.13	0.09
Sample Variance	0.02	0.01
Range	0.46	0.38
Minimum	0.16	0.16
Maximum	0.62	0.55
Sum	12.15	10.85
Count	35	37
Period	Jan. 2007 – Nov. 2009	Dec. 2009 – Dec. 2012

Gulbarga APMC (Bengalgram)

The electronic tender system in Bengalgram in APMC Gulbarga was introduced in November 2009. The Table-5.35 to Table-5.39 and Figure-5.31 to Figures-5.36 present the result of the analysis of secondary information. The analysis covers the comparison in the monthly average arrival and prices in the pre (three years i.e. 2007-09) and post (two year i.e. 2010-12) periods and some price quality parameters like variation in prices, index value indicating the volume of transactions taking place closer to maximum prices.

The result of the analysis revealed that the arrivals have shown sign of improvement in the year of introduction itself. The arrival sharply increased by more than double in year 2009 over previous year arrival. The same trend was reported for next two year though arrivals declined to 1.66 lakhs quintals in 2012, it still was higher than the highest figure achieved in the pre e-tendering period.

The prices though hovered in the same range even after shifting to e-platform. The comparison of monthly arrivals and prices reveals that the monthly arrivals have increased for all the months. Same is the case with prices. The parameters considered for quality of prices have shown mixed results. The variation in prices during major part of the year except for the months of July, August and September was reported to be on higher side. Though, results are favorable in terms of index value representing the number of transactions taking place near maximum price. The index value for all the months is reported to have come down after introduction of e-tendering system. The details analysis of the index value during the two periods presented in Table-5.39 have shown that the transactions taking place near to maximum price have improved after introduction of the system.

Table-5.35. Year-wise Arrival and Prices of Bengalgram in Gulbarga Market

Arrival in Quintals & Prices in Rs/Qt

Year	Arrival	Prices
2003	19866	1936
2004	45903	1496
2005	113499	2949
2006	126010	2188
2007	44018	2213
2008	162793	2227
2009	344627	2203
2010	436104	2144
2011	297695	2830
2012	166168	4414

Figure-5.31. Arrival of Bengalgram over Years in Gulbarga Market (in Quintals)

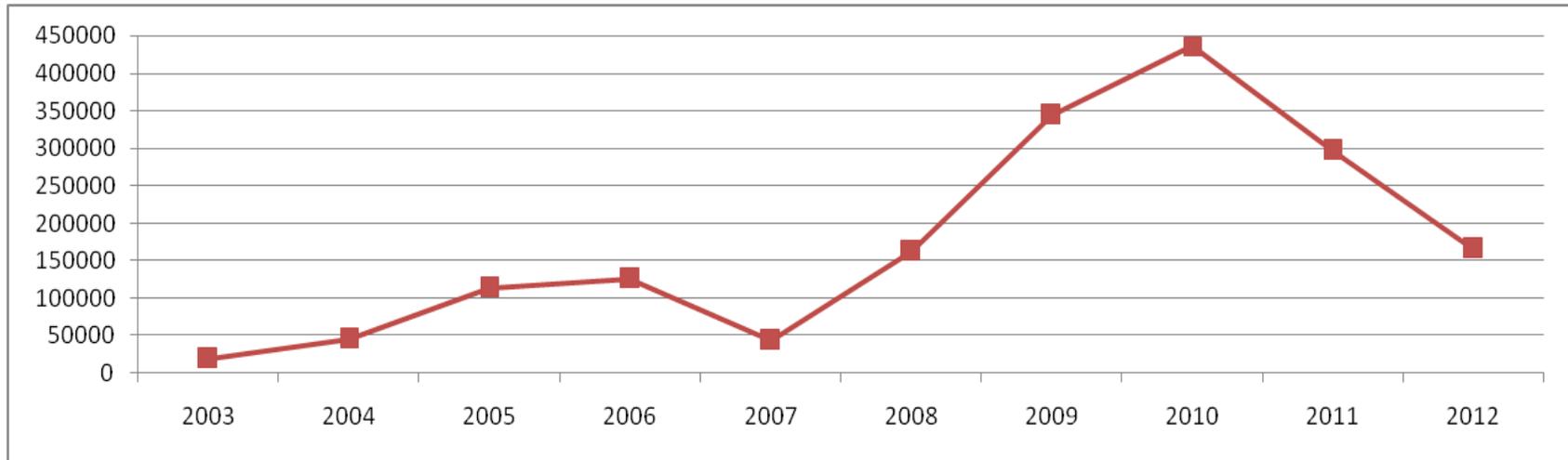


Figure-5.32. Prices of Bengalgram over Years in Gulbarga Market (in Rupees/ Quintal)

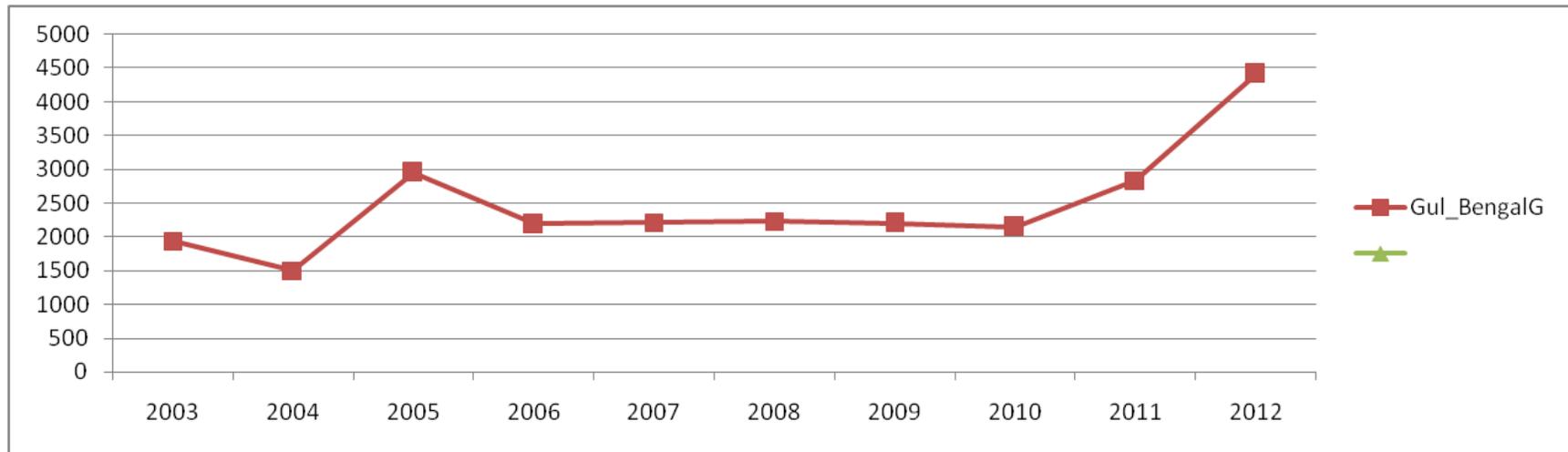


Table-5.36. Comparison of Arrival and Prices of Bengalgram in Pre and Post e-Tendering Period in Gulbarga Market

Arrivals in Quintals
Prices in Rupees/ Quintal

Months	Pre e-tendering Period 2007-09				Post e-tendering Period 2010-12				Total Period			
	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal	Arrival	Min	Max	Modal
Jan	24343	2033	2575	2263	47786	1804	3447	2769	72129	1919	3011	2516
Feb	45294	2033	2593	2292	69464	1967	3052	2662	114758	2000	2823	2477
March	24872	2058	2417	2270	35120	1979	3029	2644	59992	2019	2723	2457
April	16250	2083	2397	2234	32841	1992	3007	2690	49091	2038	2702	2462
May	10323	2016	2304	2189	16663	2751	3175	3046	26987	2384	2739	2618
June	11089	1783	2360	2054	13938	2200	3308	2929	25027	1992	2834	2491
July	9600	1347	2992	2333	14716	2583	3704	3378	24316	1965	3348	2856
Aug	5066	1934	2676	2308	14554	2633	3631	3381	19620	2284	3153	2845
Sept	9131	1744	2452	2150	15828	2834	3925	3535	24959	2289	3189	2842
Oct	9619	1770	2617	2118	14367	2371	3893	3574	23986	2071	3255	2846
Nov	10393	1637	2342	2066	12893	2350	4033	3590	23286	1994	3188	2828
Dec	7832	1667	2842	2293	11819	2150	3852	3352	19652	1909	3347	2823

Figure-5.33. Comparison of Arrival of Bengalgram in Pre and Post e-Tendering Period in Gulbarga Market (in Quintals)

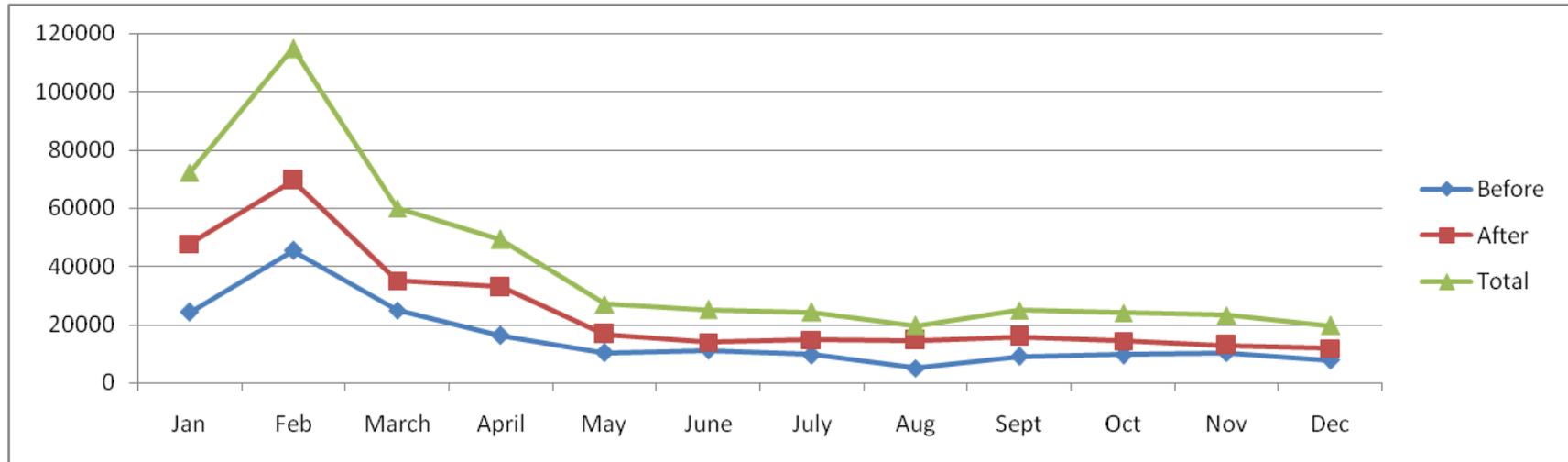


Figure-5.34. Comparison of Prices of Bengalgram in Pre and Post e-Tendering Period in Gulbarga Market (in Rupees/ Quintal)

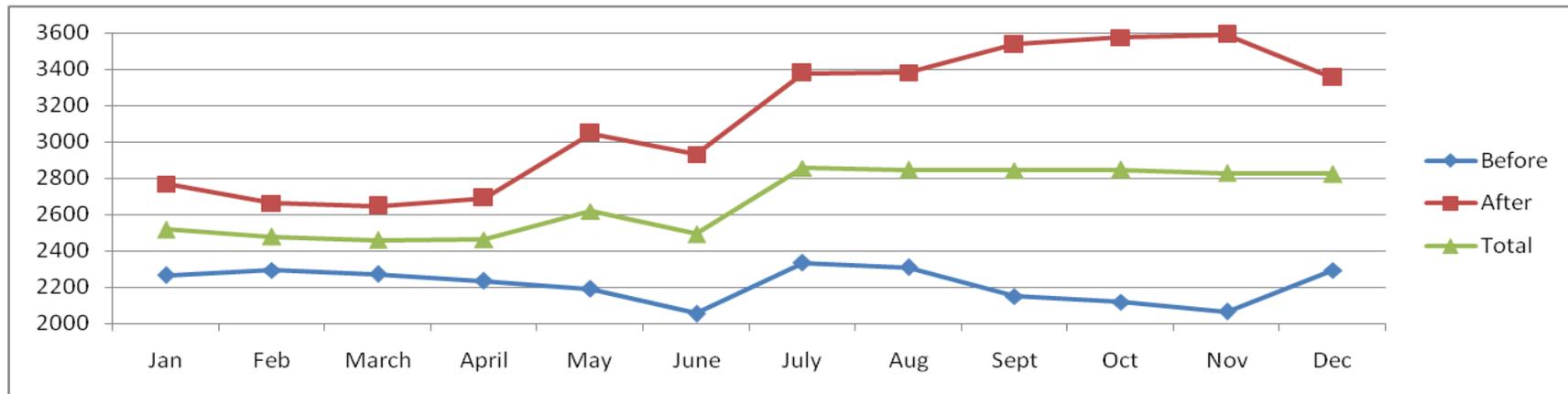


Table-5.37. Percent Difference in Prices of Bengalgram (Maximum and Minimum) wrt Minimum Prices in Gulbarga Market

Months	Before	After
January	26.64	91.06
February	27.54	55.19
March	17.43	53.03
April	15.06	50.96
May	14.25	15.43
June	32.36	50.36
July	122.12	43.37
August	38.39	37.87
September	40.62	38.52
October	47.83	64.23
November	43.09	71.62
December	70.52	79.15

Table-5.38. The Index Value Representing the Distance of Modal Price of Bengalgram from its Maximum Price in Gulbarga Market

Months	Before	After
January	0.58	0.41
February	0.54	0.36
March	0.41	0.37
April	0.52	0.31
May	0.40	0.30
June	0.53	0.34
July	0.40	0.29
August	0.50	0.25
September	0.43	0.36
October	0.59	0.21
November	0.39	0.26
December	0.47	0.29

Figure-5.35. Percent Difference in Prices of Bengalgram (Maximum and Minimum) wrt Minimum Prices in Gulbarga Market

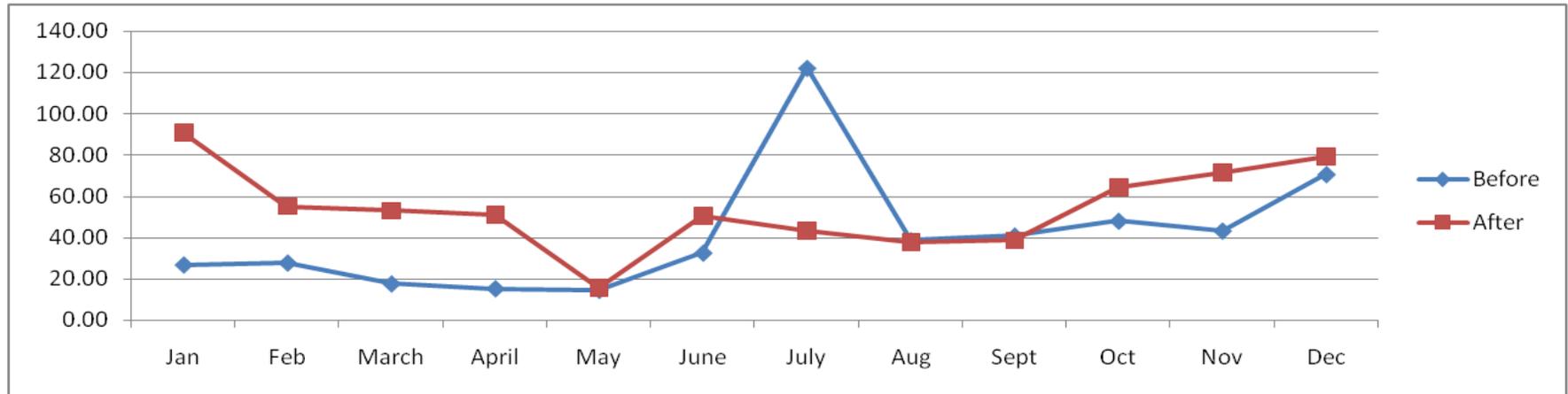


Figure-5.36. The Index Value Showing the Distance of Modal Price of Bengalgram from its Maximum Price in Gulbarga Market

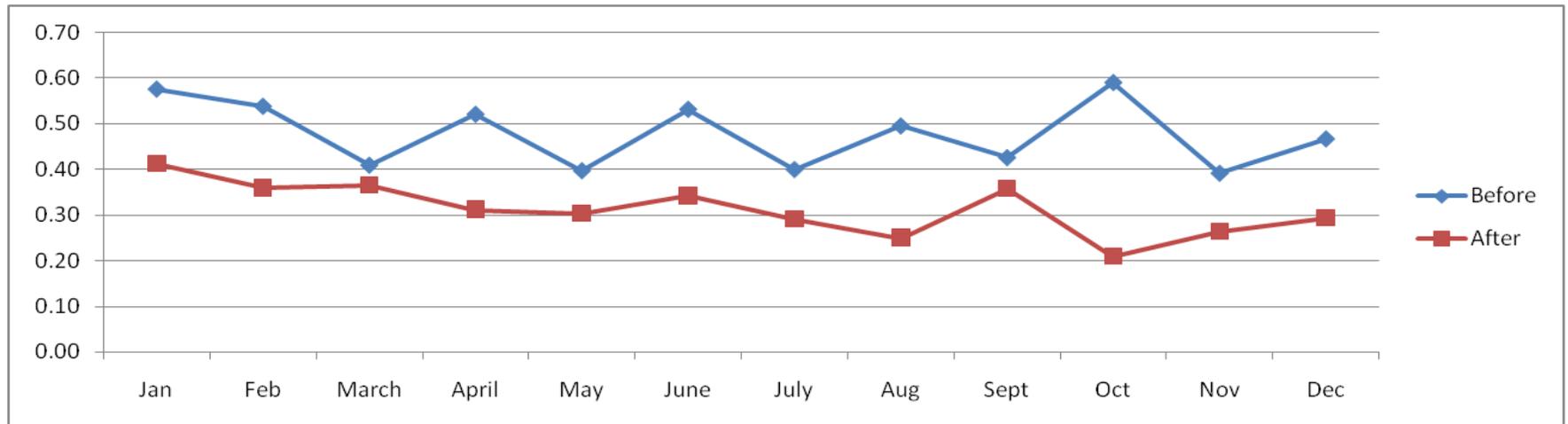


Table-5.39. Analysis of Index Value Representing the Positioning of Modal Price during Pre and Post e-Tendering Period

Particulars	Before	After
Mean	0.49	0.34
Sample Variance	0.01	0.01
Range	0.52	0.55
Minimum	0.20	0.12
Maximum	0.72	0.68
Sum	17.13	12.64
Count	35	37
Period	Jan. 2007 – Nov. 2009	Dec. 2009 – Dec. 2012

CHAPTER 6. CONCLUSION AND SUGGESTIONS

Ensuring a fair and transparent price discovery and providing an orderly marketing environment is an important aspect of any regulated market. Any measure taken to ensure remunerative prices to the farmers will help in addressing various unscrupulous activities prevailing in Indian agricultural markets like under reporting of arrivals, cartelization by traders in price determination, delayed payments, unauthorized deductions, etc. The open auction and tender system was introduced under regulation regime to ensure efficient price discovery mechanism. The system achieved limited success with ample scope for manipulation in the price formulation process. Realizing the importance of price discovery mechanism in agricultural marketing mainly to safeguard the interest of farmers and effectiveness of ICT means in bringing transparency in marketing operations, reduction in transaction cost, improving the productivity of per unit resource, etc; the tendering of agricultural commodity was shifted from manual to electronic platform in the state of Karnataka. Since the system was envisaged to take care of various problems associated with the agricultural marketing activities, mainly the price discovery, it was felt imperative to study the impact of e-tendering on various aspects of agricultural trade mainly arrivals and prices and different market functionaries operating in the market. The findings of the study are based on the analysis of primary information collected by field survey on the perception of different market functionaries like farmers, traders, commission agents and market officials covering various aspects/ benefits of e-tendering. Following are the

suggestions based on the outcome of the study for effective utilization of the e-tendering platform and over all development of the agricultural marketing system.

- 1) About 25 percent of the farmers are not aware about the system. There is need for creating awareness about the system and its benefits to farming community by organizing farmer awareness programmes.
- 2) Though, a large number of farmers are aware about the electronic tender system but computerized gate entry is being practiced regularly by only about half of the farmers. Entry of arrivals at the market gate is an important activity to bring competitiveness in trade and to avoid under reporting and price manipulation. Therefore, in addition to creation of awareness amongst farmers about the system, it is equally important to educate them about various aspects like price discovery mechanism prevailing in the market, e-tendering of agricultural commodities and its benefits to the farmers. Considering the limited participation of the farmers in the process of e-tendering their low level of education which is only upto post primary education except for Tiptur should not create any hindrance in educating them about the mechanism and benefits of e-tendering system. Also members of the farmer-family with higher qualification may be involved in the process of educating them about the system as qualification of the highest educated member in the family is upto post intermediate level. This will help in achieving wider acceptance and effective utilization of system by farmers for better price realization.

- 3) The farmers have opined positively about various benefits from the system. Better understanding of the benefits from the system in terms of transparency, better price discovery, quick settlement of sale proceeds and generation of accurate and timely market information may encourage more and more number of farmers to bring their produce to the market. This will help in enhancing the efficiency of the market and position of farmers in the entire supply chain. The availability of market information enhances market performance by improving the knowledge of market players. Balance of knowledge provides a more equal distribution of gains from efficient market price formation (Mwakaje, 2010). Application of ICT in tendering of agricultural commodities may be effectively used as a tool to enhance the market access by farmers. Hence, the same may be extended to other markets.
- 4) Electronic entry of the arrivals is made at the entry gate. In order to make system more automated, time efficient and bring in more transparency, competition, avoiding under reporting and manipulation, the provision of electronic weightment at the entry and exit gate should be introduced.
- 5) The system need to be integrated with innovative concepts like warehousing so as to consolidate the positioning of farmers in the supply chain and avoid distress sale.

- 6) The electronic tender system is a multi-objective system operating at different levels with the involvement of different players of varying degree. The entry of arrivals at the gate is an important activity under the system for participation in the system mainly by farmers and monitoring of various activities by the market officials. The gate entry of the arrivals at present is being carried out by only about half of the farmers visiting the market. Proper mechanism needs to be developed for increasing the rate of gate entry of the arrival to improve the effectiveness of e-tendering system and enhancing the overall efficiency of the market.
- 7) The market functionaries like traders and commission agents having strong hold on the system through associations and cartelization are least likely to accept any change in the existing agricultural marketing system. It is vital to educate such players about the various aspects of the electronic system to make them understand the actual objectives and benefits of the system. The government has provided trainings to the traders/ commission agents but more efforts need to be made for wider acceptance of the system as still about one-fourth of the traders are not convinced with the system.
- 8) The level of participation has been more in single commodity market like Tiptur. This may be due to efficient deployment of resource and effective execution in single commodity markets. In order to reap better results from the electronic tender system, the markets and crop may be

extended to other important commodities and markets and an optimal balance of resources mainly human resource should be maintained.

- 9) The electronic quotations by two-third of traders are observed to be made by traders themselves. Considering the time limitations in peak arrival days, utilization of means other than computer like SMS on mobile phone should be explored. System may also be developed for using handhold devices. Handhold devices may be utilized for off-line saving of quotations immediately after the physical examination which may be uploaded on the system and submitted later on.
- 10) Traders have opined that time provided for quotation of prices is sufficient during the lean period but more time should be provided during heavy arrivals. More infrastructures may be created by installing more number of kiosks so that traders may get more time for quoting prices. The traders may also be encouraged to create their own infrastructure to participate in the e-tending.
- 11) The system is reported by traders to be time saving in completing the transaction but efforts should be made to make the system more effective in reducing the work load of the traders. This may be achieved by integrating the system with other service provides like automatic clearance of payments through arrangement with banks. This will also be required for integration of markets in the state which is envisaged under the initiatives in long-run. The software at present is APMC centric

in approach; it may have provisions for facilitating traders in completing their forward transactions leading to low cost of logistics, prompt delivery and reduced inventories. There is need for more comprehensive integrated software taking care of needs of different stakeholders including traders.

12) Traders have in general accepted the system. But there is great scope for improving the system as has been opined by the traders for various factors of their interest like reduction in transaction cost. As one-third of the traders are relying on assistants for feeding e-quotations which incur extra financial burden on the traders, the system should have provisions that bring down the per unit transaction cost for financial viability and wider acceptance of the system.

13) Better price discovery, besides other factors, depends on competitiveness. In addition to shifting trade to e-platform, following efforts need to be made to make agricultural marketing more competitive and efficient –

- Issue license to more traders
- Encourage participation of producers directly or in groups
- Integrate markets to increase the effective number of players

14) The electronic tender system, in general, has had positive impact on arrivals, prices and has helped in scientific discovery of prices. Considering this, the scheme should be extended to other markets

operating in the state. The biggest advantage of e-tendering system is the information being generated automatically. This should be disseminated vigorously as marketing information can help in predict, strategize, plan and act expediently, rationally and efficiently (Mundy and Sultan, 2001).

15) System may be utilized more effectively and efficiently by introduction of grading. This will facilitate time-efficient and cost-effective trade and integration of markets. Since, trade on larger scale in the state is being carried out on physical examination basis; the system may be introduced in selected commodities and markets with wider coverage in long-run.

16) The system may be utilized optimally by integrating the system with concepts like warehousing, grading, electronic payment, electronic weighment, packaging, branding, pledge financing, etc. The comprehensive coverage and effective implementation of the system may help in realizing the goal of having a Single State Market for Agricultural Commodities.

Annexure - I

Progress of Market Reforms as per major areas identified in Model APMC ACT as on 30/09/2012

Sl. No.	Area of Reforms	States adopted the suggested area of market reforms
1.	Initiative for setting up of new market by any person, local authority or grower	Chhattisgarh, Goa, M.P. Mizoram, Nagaland, Sikkim, Tripura and Jharkhand
2.	Setting up of Special Markets and Special Commodity Market	Andhra Pradesh, Gujarat, Maharashtra, Mizoram, Karnataka, Nagaland, Sikkim, Tamil Nadu, Tripura, Jharkhand and Uttarakhand
3.	PPP in Market Extension activities of Market Committee	Andhra Pradesh, Himachal Pradesh, Karnataka, Mizoram, Nagaland and Sikkim
4.	To promote and encourage e-trading, Market Committee may establish regulatory system, create infrastructure and undertake other activities and steps needed thereto	Gujarat, H.P., Karnataka, Nagaland, Sikkim, Goa Mizoram and Maharashtra (under Rule 5 license granted to Commodity Exchanges registered under FMC), Uttarakhand and Rajasthan.
5.	Secretary to be Chief Executive Officer of Market Committee. CEO shall be appointed by the Market Committee from the panel maintained by the Director/Board which may include professionals from open market.	Nagaland, Sikkim, Mizoram and Maharashtra (under Rules)
6.	Contract Farming Sponsor shall register himself with the Marketing Committee or with a prescribed officer in such a manner as may be prescribed.	Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Himachal Pradesh, Karnataka, Haryana, Maharashtra, Madhya Pradesh, Mizoram, Nagaland, Orissa, Rajasthan, Chhattisgarh, Sikkim, Tripura, Jharkhand*and Uttarakhand.
7.	The contract Farming Sponsor shall get the contract farming agreement recorded with the prescribed officer.	Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Gujarat, Goa, Karnataka, Haryana, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Jharkhand*and Uttarakhand.
8.	No title, rights, ownership or possession shall be transferred or alienated or vest in the contract farming sponsor or his successor or his agent as a consequence arising out of contract farming agreement.	Arunachal Pradesh, Assam, Goa, Haryana, Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Jharkhand*, Andhra Pradesh, Karnataka and Uttarakhand.
9.	Dispute settlement mechanism	Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Gujarat, Goa, Karnataka, Haryana, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Jharkhand*, Himachal Pradesh and Uttarakhand

10.	Exemption of Market Fee on the sales to the contract farming sponsors taking place outside the market yard under the contract farming agreement	Arunachal Pradesh, Goa, Karnataka (Reduced by 30%), Maharashtra, Mizoram, Nagaland, Orissa, Rajasthan, Sikkim, Uttarakhand, Tripura and Punjab (exempted under the Rules).
11.	Specification of model agreement for contract farming	Chhattisgarh, Gujarat, Goa (As may be prescribed), Karnataka (As may be prescribed), Maharashtra (Rules), Mizoram, Nagaland, Rajasthan, Sikkim, Tripura and Jharkhand*
12.	Single point levy of market fee	Chhattisgarh, Gujarat, Goa, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra (only within the market area) Mizoram, Nagaland, Sikkim, UT of Chandigarh, Punjab, Rajasthan and Jharkhand
13.	Registration (not licensing) of market functionaries and single registration for trade / transaction in more than one market	Assam, Goa, Himachal Pradesh, Maharashtra, Mizoram, Nagaland, Sikkim, and Jharkhand
14.	No commission agent shall act on behalf of agriculturist seller and no deduction to be made towards commission	Madhya Pradesh, Mizoram, Chhattisgarh, Nagaland and Sikkim
15.	Establishment of private market yard and direct purchase from farmers	Andhra Pradesh, Arunachal Pradesh, Assam, Gujarat, Goa, Himachal Pradesh, Karnataka, Madhya Pradesh (can be done under the by-laws), Maharashtra, Mizoram, Nagaland, Orissa (excluding for paddy / rice), Rajasthan, Sikkim, Tripura, Punjab (not for direct purchase), UT of Chandigarh (not for direct purchase) and Jharkhand
16.	Establishment of consumer / farmer market	Arunachal Pradesh, Assam, Gujarat, Goa, Himachal Pradesh, Karnataka, Madhya Pradesh (can be done under the by-laws), Maharashtra, Mizoram, Nagaland, Rajasthan, Sikkim, Tripura, Punjab (only enabling provision), UT of Chandigarh (only enabling provision) and Jharkhand
17.	Power to grant exemption from market fee by the State Government	Andhra Pradesh, Chhattisgarh, Gujarat, Goa, Madhya Pradesh, Maharashtra, Mizoram, Nagaland and Sikkim, Himachal Pradesh
18.	Setting up of separate Market Extension Cell in the Board, establishment of State Agricultural Produce Marketing Standard Bureau	Mizoram, Nagaland, Sikkim and Karnataka

*Changed the nomenclature as market oriented farming agreement.

Source: DMI, Faridabad

ANNEXURE-II

Progress of Reforms in Agricultural Markets (APMC Act) as on 30.09.2012

S.No.	Stage of Reforms	Name of States/ Union Territories
1.	States/ UTs where reforms to APMC Act has been done for Direct Marketing; Contract Farming and Markets in Private/ Coop Sectors	Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Maharashtra, Mizoram, Nagaland, Odisha, Rajasthan, Sikkim, Uttrakhand and Tripura.
2.	States/ UTs where reforms to APMC Act has been done partially	a) <u>Direct Marketing</u> : NCT of Delhi, Madhya Pradesh and Chhattisgarh b) <u>Contract Farming</u> : Chhattisgarh, Madhya Pradesh, Haryana, Punjab and Chandigarh
3.	States/ UTs where there is no APMC Act and hence not requiring reforms	Bihar*, Kerala, Manipur, Andaman & Nicobar Islands, Dadra & Nagar Haveli, Daman & Diu, and Lakshadweep.
4.	States/ UTs where APMC Act already provides for the reforms	Tamil Nadu
5.	States/ UTs where administrative action is yet to be initiated for the reforms	Meghalaya, Haryana, J&K, West Bengal, Puducherry, NCT of Delhi and Uttar Pradesh.

* APMC Act is repealed w.e.f. 1.9.2006.

Source: DMI, Faridabad

Status of APMC Rules

Only the State of Andhra Pradesh, Rajasthan, Maharashtra, Orissa, Himachal Pradesh, Karnataka, Madhya Pradesh (only for special license for more than one market) Mizoram (only for single point levy of market fee) and Haryana (only for contract farming) have notified such amended Rules so far.

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