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**A STUDY ON MARKETING INFRASTRUCTURE FOR  
FRUITS AND VEGETABLES IN INDIA**

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## CONTENTS

Chapter – I	: Introduction	...	1
Chapter – II	: Review of Literature	...	6
Chapter – III	: Methodology	...	27
Chapter – IV	: Results and Discussion	...	33
Chapter – V	: Case Studies of Market Interventions	...	61
Chapter – VI	: Profile of Organisations Involved in the Marketing	...	72
Chapter – VII	: Study Findings and Recommendations	...	94
	References		
	Photographs		
	Annexures		

## CHAPTER I

# INTRODUCTION

### Background of the Study

There has been concern in recent years regarding the efficiency of marketing of fruits and vegetables, leading to high and fluctuating consumer price and only a small share of consumer rupee reaching to the farmer. Marketing of fruits and vegetables is complex because of perishability, seasonality and bulkiness. Low efficiency in the marketing channels and inadequate marketing infrastructure are believed to be the cause for fluctuating prices. Indian farmers depend heavily on middlemen in fruits and vegetable marketing.

In the recent past, several private companies entered the business of marketing of fruits and vegetables. Therefore, an in-depth study of their operations vis-à-vis the existing public/people/member based organisations like Agriculture Produce and Marketing Committee (APMC) and producers cooperatives, would help in designing suitable strategies for improving the efficiency of marketing of fruits and vegetables.

Fruits and vegetable crops assume a unique role in India's economy by improving the income of the rural households. Cultivation of fruits and vegetable crops is labour intensive and hence, generate lot of employment opportunities for the rural population. Fruits and vegetables are rich source of vitamins, minerals, proteins, carbohydrates etc. and hence, referred as protective foods and contribute to the nutritional security of the people. Thus, cultivation of fruits and vegetables plays a vital role in the prosperity of a nation and is directly linked with the health and happiness of the people.

Fruits and vegetables are not only used for domestic consumption and processing into various products (pickles, preserves, sauces, jam, jelly,

squashes, etc.) but also substantial quantities are exported in fresh and processed form, bringing much-needed foreign exchange for the country. These crops also provide ample scope for achieving bio-diversity and diversification to maintain ecological balance and to create sustainable agriculture and can make significant impact on the national economy in the years to come.

India with more than 73.52 million tonnes of fruits and 136.1 million tonnes of vegetables is the second largest producer of fruits and vegetables in the world next to China (National Horticulture Board). However, per capita consumption of fruits and vegetables in India is only around 74g and 207g against a minimum of about 120g and 300g, respectively recommended by Indian Council of Medical Research, New Delhi and National Institute of Nutrition, Hyderabad.

The recent emphasis on horticulture in our country, consequent to the recognition of the need for attaining nutritional security and for more profitable land use, has brought about a significant change in the outlook of the growers. The need for great utilisation of available wastelands against the background of dwindling water and energy resources has focused attention to dryland, to arid and semi-arid tracts and led to cultivation of horticultural crops which have lesser demands on water and other inputs besides being 3 to 4 times more remunerative than field crops.

### **Present Status of Fruits and Vegetables in India**

India produces a variety of fruits ranging from temperate apples to tropical mango. But most of the production of these fruits is highly seasonal and their availability is confined to a few months in a year. For example, the peak period of availability of mango (king of fruits) is confined to a two-month period i.e. May-June, oranges during November-January, papaya during February-March etc. This short period of availability in large quantities makes the marketing a challenging task with problems like storage, transport, wide price fluctuations etc. Besides, the huge post-harvest losses because of perishable nature results not only in less per capita availability but also increases the cost of transport etc. These factors lead to exploitation of

farmers by middlemen resulting in poor returns to cultivators, although consumers pay high prices. The marketing channels followed in case of fruits and vegetables crops in India are presented in Figure 1. The most popular channel used by the cultivators is as follows.

**Figure 1 : Marketing Channel Used by the Cultivators**

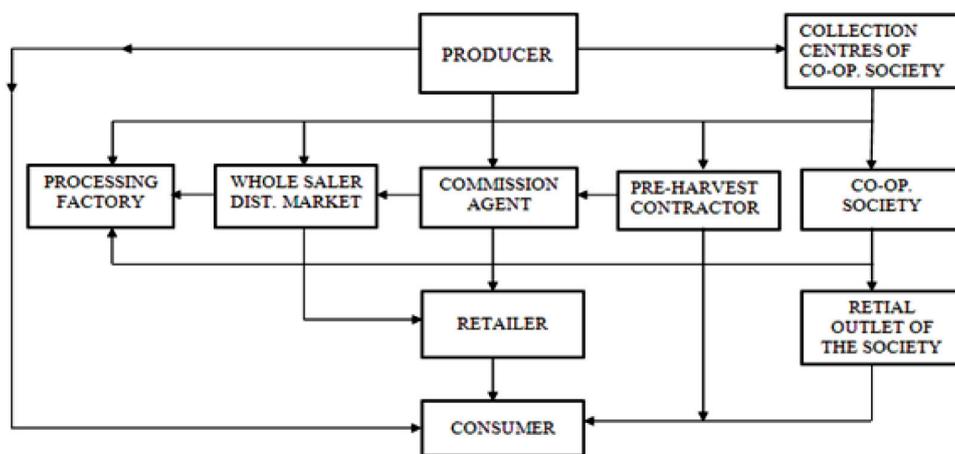
Producer—Pre-harvest contractor/Consolidator—Commission agent— —Wholesaler—Retailer —Consumer
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The popularity of this channel was brought out in many studies on different fruits and vegetables in different states over a period of time. The studies conducted on marketing of citrus fruits in 1973 in Punjab (Mehta and Balwinder Singh, 1973) has shown that nearly 84 per cent of the mandarin and 85 per cent of the orange fruits was marketed by the pre-harvest contractors (PHC). Similarly, in case of mango fruits (Balwinder Singh and Sidhu, 1976), 73 per cent of the cultivators in Punjab sold their produce to PHC. The studies conducted in three southern States viz. Karnataka, Andhra Pradesh and Tamil Nadu on important fruits in 1979-80 (Subrahmanyam, 1983) once again showed the dominance of PHC in fruit trade, though the extent of sale differed from state to state and fruit to fruit. The studies conducted on marketing of mango in Andhra Pradesh (Das and Ghosh, 1996) have shown that nearly 80 per cent of the produce is sold to PHC. Therefore, it is clear that over years, the dominance of pre-harvest contractors in fruit trade is still continuing, despite the fact that all the researchers described that it is not a desirable practice (Subrahmanyam, 1981b, 1986b). The analysis of costs and returns have clearly shown that by taking up self-marketing, the additional returns realised varied from 43 per cent to more than 85 per cent.

There are considerable opportunities for agri-business development in India with diverse agro-climatic conditions, offering a tremendous potential for growing wide range of commodities including fruits and vegetables round the year. India is the largest producer of milk (14.6 per cent - 97 million tonnes), second largest producer of fruits and vegetables (9.2 per cent - 205 million tonnes) and sixth largest producer of meat (2.3 per cent

- 6 million tonnes) in the world. India produces 40 per cent of world mangoes, 35 per cent of green peas, 29 per cent of cauliflower, 22 per cent of bananas and 20 per cent of cashewnuts. The present supply chain of fruits and vegetables is shown in Figure 2.

**Figure 2 : Fruits and Vegetable Supply Chain in India**



### Present Status of Marketing Infrastructure for Fruits and Vegetables in India

India is experiencing a phenomenal growth in infrastructure. The envisaged infrastructure expenditure in the Eleventh Plan has been ₹ 20 lakh crore which is 2 -3 times more than the expenditure recorded in the Tenth Plan. Similarly, investment in agricultural marketing infrastructure was estimated to the tune of ₹ 62043 crore for the Eleventh Plan. The current momentum in infrastructure spending is to be stepped up further to ensure India's vision to emerge as agricultural and horticultural advanced country. If Indian agriculture has to emerge globally competitive, more investment in infrastructure are needed that can promote efficiency by reducing transaction costs and market risks. The prevalence of high levy charges in regulated markets also contributed to the sale of products by farmers at lower prices. According to another estimate, the farm-gate prices for vegetables and fruits range between 20-30 per cent of the eventual

retail prices in India. In developed countries, such as the USA, the UK and Japan, the farm-gate prices for such products range between 40-55 per cent of retail prices (Mohan, 2002). In order to assess the adequacy of agricultural marketing infrastructure in the country, it is imperative to estimate the marketed surplus. Generally, there is a positive correlation between production and marketed surplus. In the past 30 years, while the production of foodgrains and non-foodgrains has approximately doubled, the production of vegetables, fruits, flowers and spices has risen even faster in response to the changing consumption pattern of the population. According to an estimate, the production of potatoes has multiplied by 12 times over the past three decades (Mohan, 2002). Hence there is an urgent need to develop rural periodic markets in a phased manner with necessary infrastructural amenities to have a strong grassroot level link in the marketing chain. The investment requirement for developing these market places was estimated at ₹ 2,146 crore (Gol, 2001a). There is also a strong need for developing specialised markets for fruits and vegetables, flowers, cattle, etc. It has been assessed that there are at least 241 such places in the country where fruits and vegetables markets could be developed. The investment requirement for these markets was estimated to be around ₹ 970 crore (Gol, 2001a). Besides, there is an urgent need to turn these markets into growth centres of farming community. Keeping these facts in view, an attempt has been made to examine the existing availability of different agricultural marketing infrastructure and its adequacy for marketing of fruits and vegetables in the study area.

## CHAPTER II

### REVIEW OF LITERATURE

Literature related to the present study has been reviewed from the available sources and presented in this section. Specific focus was given on marketing of fresh fruits and vegetables and retail business in agriculture sector.

#### **Characteristics of Fresh Fruits and Vegetables**

- \* *Perishability of Produce* : Involvement of many bio-physio-chemical processes make it highly vulnerable to damages at short intervals and thus contributes to limited shelf life of the produce.
- \* *Seasonality of Production* : The inconsistent supply due to the close involvement of many biotic and abiotic factors of production break the cycle of the availability of produce in the market throughout the year.
- \* *Bulkiness of Products* : The bulkiness of the fresh produce adds to the transportation, handling and package charges. Along with, it makes it prone to pre and post-harvest damages in the supply chain accounting to the extent of 20 – 40 per cent.
- \* *Quality Variation of Products* : Non-adherence to Good Agricultural Practices (GAP), Good Hygiene Practice (GHP) leads to variation in quality.
- \* *Irregular Supply of Products* : Seasonality, non-planning and inefficient production create gluts and shortages in the market.
- \* *Size of Small Holdings and Scattered Production and Processing* : As majority of Indian farmers fall in the category of small and marginal

farmers, organised production, procurement and processing is complex and challenging.

Agriculture has a vital place in the economic development of the country as it contributes about 22 per cent to the gross domestic product (GDP) and employs about 65 per cent of the rural workforce. In any design of economic development in the country, development of agriculture has to be an integral part. Marketing is as critical to better performance of agriculture as farming itself. Although considerable progress has been achieved in technological improvements in agriculture by the use of irrigation facilities, a high-yielding variety seed, chemical fertilisers and plant protection measures, the rate of growth in farming has not attained the expected levels. This has been largely attributed to the fact that not enough attention has been given to marketing facilities and services. Therefore, marketing reforms ought to be an integral part of the national policy for agricultural development. In this context, this study attempts to analyse the current state of existing agricultural marketing system and its efficiency, examine alternative marketing options and their suitability to suggest ways and means to promote an effective, efficient and integrated agricultural marketing system in India.

### **Agricultural Marketing Systems**

Agricultural marketing, essentially being a sub-set of the overall marketing system, refers to all the activities, agencies and policies involved in the procurement of farm inputs by the farmers and the movement of agricultural produce from the farms to the consumers/manufacturers/exporters. An efficient marketing system minimises costs and maximises benefits to all the stakeholders in the supply chain and all the sections of the society. It ought to provide remunerative prices to the farmer, food of the required quality at reasonable prices to the consumers and also adequate margins to the middlemen so that they are encouraged to remain in the trade.

In India, the importance of an efficient marketing system as a vital link between the farmer and the consumer was recognised way back in

1928 by the Royal Commission on Agriculture (Acharya, 1996). Since then, a good deal of progress has been made in organising agricultural marketing by adoption of various administrative and legislative measures from time to time. The establishment of the Directorate of Marketing and Inspection in 1935, the enactment of the Act for grading and marking of agricultural produce in 1937, the conduct of commodity market survey and the establishment of regulated markets in the States under the Agricultural Produce Marketing Regulations Acts are some of the measures which were taken up before Independence to improve the marketing situation.

After Independence, three major sets of inter-dependent policies and programmes were pursued for the development of agricultural marketing in India. These were; the creation of infrastructure (both physical and institutional), the implementation of price stabilisation policy and the approach to foreign trade in agricultural products. Intervention through creation of infrastructure facilitates the performance of various marketing functions. For example, the Warehousing Corporations Act, 1962 and the National Grid of Rural Godowns Scheme of 1979 enabled the Central and State Warehousing Corporations to construct warehouses for storage of agricultural produce. The Cold Storage Order, 1980 helped in expanding cold storage facility for preserving perishable agricultural commodities such as fruits and vegetables. Similarly, Forward Contracts (Regulation) Act, 1952; Prevention of Food Adulteration Act, 1954; Essential Commodities Act, 1955; Export (Quality Control & Inspection) Act, 1963; Standards of Weights and Measurers Act, 1976; Consumer Protection Act, 1986; and Bureau of Indian Standards Act, 1986 were enacted and a number of apex institutions and organisations such as Central Warehousing Corporation (CWC), Food Corporation of India (FCI), Agricultural Price Commission (later on renamed as Commission for Agricultural Costs and Prices), National Cooperative Development Corporation (NCDC), National Agricultural Cooperative Marketing Federation (NAFED), State Trading Corporation (STC), Agricultural and Processed Foods Export Development Authority (APEDA), Marine Products Export Development Authority (MPEDA), National Dairy Development Board (NDDB), National Horticulture Board (NHB), Spices Board, National Institute of Agricultural Marketing (NIAM), etc. were set up for facilitating various

marketing functions with multi-faceted activities. In pursuance of the price stabilisation policy, the Governments intervene directly in the market through various state agencies for the purpose of procurement and distribution. In respect of 22 items, the Government announces the Minimum Support Price (MSP) at which the State agencies would make purchases (GoI, 2005a). The Commission for Agricultural Costs and Prices (CACP), the Food Corporation of India (FCI), States' Civil Supply Departments and fair price shops play a pivotal role in implementing the Government's price stabilisation policy.

As far as the State's policy towards foreign trade in agriculture is concerned, two phases are clearly visible. Till recently, as a component of inward looking strategy, agricultural policies were largely driven by the objective of achieving self-sufficiency in production and stabilisation of domestic prices. More recently, the emphasis has been shifted on generation of surplus produce for exports in order to increase agricultural exports (GoI, 2005 a). The objective of the shift in policy stance is to increase farm income, reduce unemployment, earn foreign exchange and in general, to set the agricultural sector on a higher growth trajectory.

At present, the structure of Indian agricultural marketing system consists of the Agricultural Cooperative Marketing Societies, the Regulated Markets, the Public Trading and the Futures Trading. Besides, there is private trading, which takes place out of these segments. The agricultural cooperative marketing societies generally undertake marketing of agricultural produce on behalf of the members as also supply of agricultural inputs to them. Moreover, cooperatives have diversified their activities into other areas such as constructing warehouses, providing credit facilities, processing of agro-products, etc. The agricultural cooperative marketing is generally featured by a four-tiered structure: the primary marketing societies are at the base level, district/regional federations at the district level, State marketing federations at the State level and National federation at the apex level. The National Agricultural Cooperative Marketing Federation (NAFED) is the apex cooperative marketing organisation. The regulated markets have been organised in most of the States to facilitate trading in an orderly manner in specified commodities at specified places at the least margin.

For this purpose, comprehensive rules have been framed and market committees have been set up to enforce discipline among the participants under the respective State Agricultural Produce Marketing Regulations Act. The objective of State trading is stabilisation of prices at levels that are regarded as remunerative to producers and reasonable to consumers. Under the present practice, the Government purchases specified commodities at notified procurement prices directly from producers and distributes the purchased items among consumers through a network of fair price shops at notified issue prices.

Future trading has also been allowed to protect the market participants from the risk arising out of adverse price fluctuations. There is a three-tier regulatory structure for conduct of futures trading. At the base level, there are recognised/registered commodity associations/exchanges. At the middle level, there is Forward Market Commission (FMC), which regulates the functioning of commodity exchanges and approves their constitution and bye-laws. The Department of Consumer Affairs, Ministry of Consumer Affairs, Food and Public Distribution and Government of India is at the apex level to oversee the overall functioning of the forward and futures markets.

### **Marketing Networks**

In India, the formal marketing networks consist of agricultural co-operative marketing societies, regulated markets, State trading and futures trading as discussed in the earlier paragraphs. The produce marketed through agricultural cooperative marketing societies accounts for 8 to 10 per cent of the marketed surplus. The important commodities marketed by these societies are foodgrains, sugarcane, cotton, oilseeds, fruits, vegetables and plantation crops. The progress of cooperative marketing societies has varied from State to State and within each State from commodity to commodity. Maharashtra, Uttar Pradesh, Gujarat, Punjab, Haryana, Karnataka and Tamil Nadu together account for more than 80 per cent of the total agricultural produce marketed through cooperatives in the country. In Punjab, Maharashtra, Uttar Pradesh, Andhra Pradesh and Tamil Nadu, 75 per cent of the foodgrains are marketed by cooperative societies. In Maharashtra

and Uttar Pradesh, 75 per cent of sugarcane; in Maharashtra and Gujarat, 75 per cent of cotton; and in Karnataka 84 per cent of plantation crops are marketed through the cooperative societies (Rangarajan, 1997).

The progress of cooperative marketing societies has been far from satisfactory in most of the States because farmer members do not patronise these societies for the sale of their produce. Instead, they use the services of commission agents in the regulated markets for various reasons such as easy access to commission agents, facility of advance loan, hassle free transactions and personalised services rendered by commission agents. State intervention through its nominated officials (Secretaries) and politicisation of these societies had been reported to be responsible for their failure.

Though the establishment of regulated markets started during 1930s, the programme got its momentum only after Independence. The number of regulated markets has risen from 236 in April 1951 to 7,161 in March 2001. Nearly 98 per cent of the wholesale markets are now functioning under this scheme. The country has 27,294 rural periodical markets as on March 2001, about 15 per cent of which function under the ambit of regulated markets (Gol, 2001a). The progress of regulated markets is not uniform in all the States. There is appreciable growth in the number of regulated markets in the States of Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The growth of regulated markets is moderate in the States of Assam, Goa, Himachal Pradesh and Tripura. Market regulation has not been enforced in eight States (Arunachal Pradesh, Jammu and Kashmir, Kerala, Manipur, Meghalaya, Mizoram, Nagaland and Sikkim). The average area served by a regulated market varies from State to State. It varies from 1200 sq.km. in Odisha to 76 sq.km. in Punjab (Gol, 2003). The number of commodities under regulation also varies from State to State, but they include almost all the important commodities such as foodgrains, oilseeds, fibre crops, commercial crops, fruits and vegetables. There are also variations across States in the development of infrastructural facilities as well as market fees charged in the regulated markets.

The price stabilisation policy of the Government can be described as a well-conceived package, if we take the objectives, the instruments and terms of reference of the price-recommending expert body, i.e., Commission for Agricultural Costs and Prices (CACP) into consideration. The price components bear upon production (minimum support price), securing surpluses (procurement prices) and distribution or meeting the needs of consumers (issue prices). The procurement agencies, the fair price shops, buffer stock operations and imports, when necessary, back the implementation of the price stabilisation policy. Thus, seen as a whole, these seem to be a well-set design of the price stabilisation policy. However, as far as the achievement in terms of price stabilisation is concerned, the success has not been as expected. The short-term prices have been fluctuating because of random impact on supply. Generally, these are at the lowest at the time of harvest and the highest before the next crops harvested. In case of rice, jowar, bajra and groundnut, a major proportion (55 to 74 per cent) is sold within six months of the harvest. Quite a substantial part of this consists of distress sale. In the case of certain crops like wheat, there is, however, moderation of fluctuations, partly because the producers being rich have holding power and access to credit/storage facilities and partly because of the operations of the procurement agencies (Rangarajan, 1997). The increases in the minimum support price of wheat and rice have been pronounced, which led to increasing cultivation of wheat and rice and in turn contributed to the rise in the procurement of foodgrains. Annual procurement of rice and wheat had averaged 21.9 million tonnes during 1991-97 (Gol, 2002a). This has increased in every successive year since then from 25.4 million tonnes in 1997-98 to 35 million tonnes in 2000-01 and further to 42 million tonnes in 2001-02. The increasing procurement, coupled with declining off-take, had raised the level of food stocks to 65 million tonnes in 2001-02 as against the buffer stock norms of 16-24 million tonnes (Gol, 2003). The cost of operations of the procurement agencies has therefore, gone up substantially and the open-ended procurement by these agencies has become unsustainable.

Till 1991, futures trading were permitted in only six commodities. The process of reform was set in motion with the setting up of Kabra

Committee, which submitted its report in 1994. Since then, several measures have been initiated in a phased manner to promote futures markets in the country. But the pace of reforms has so far been slow and cautious. At present, a future trading is permitted in 42 commodities under the auspices of 19 commodity exchanges. In addition, 10 commodity exchanges have been granted in-principle approval. Further, two commodity exchanges viz. Online Commodity Exchange of India Ltd. (OCEIL), Ahmedabad and National Board of Trade (NBOT) have been identified as exchanges having “National Status”, implying that these exchanges would be automatically permitted to conduct futures trading in all approved commodities, subject to clearance of bye-laws and contract specifications by the Forward Market Commission (FMC). While OCEIL has been given final approval in this regard, NBOT has been accorded in-principle approval for setting up a nation-wide commodity exchange (GoI, 2003).

In general, the commodity exchanges are deficient in several aspects such as infrastructure, logistic, organisational structure, management, linkages with spot markets and financial markets, reliability and an efficient market information system. Of late, the number of active members and the volume of trade in most of the commodity exchanges had been shrinking. Setting up of screen-based online trading, warehouse receipt system, guarantee fund, electronic clearinghouse and settlement system, etc. has not found favour with most of the commodity exchanges so far. The resource crunch has, no doubt, been the major constraint facing most of the exchanges in undertaking these reforms. In a nutshell, the commodity futures markets in India continue to be underdeveloped and separated from spot markets.

With the rise in agricultural production and marketed surplus, impressive growth was recorded in the development of infrastructural facilities for marketing as well. The transport sector had expanded fast. The road length, in particular modern surface roads, had increased at a fast rate. Similarly, the total covered storage capacity of the Food Corporation of India, Central Warehousing Corporation and the State Warehousing Corporations rose from 3.6 lakh tonnes in 1960-61 to 26.4 million tonnes in 2001. In addition, the storage capacity of around 25.3 million tonnes is

available with public, private and cooperative sectors (GoI, 2001a). However, in the background of over 200 million tonnes of foodgrains production, the available storage capacity is quite inadequate. The cold storage capacity has multiplied by many times from 359 cold storage units with 3.1 lakh tonnes capacity in 1960 to 4,199 units with 153.85 lakh tonnes capacity beyond-March 2001, but it is also inadequate to meet the present requirements. It is sufficient only for about 10 per cent of the total production of fruits, vegetables and other perishable commodities (GoI, 2001a). Grading and marking of agricultural products also went up substantially. During the year 200-01, 163 agricultural commodities were graded and marked under AGMARK for export purposes. There are 23 laboratories and 43 offices spread across the country to keep check on the quality of certified products (GoI, 2002b). Processing, packaging, extension services, research and dissemination of market information have also registered impressive growth over the past few years. However, the infrastructural facilities developed so far are not adequate to meet the present marketing requirements. About half of the villages in the country are still not connected to the market place by all weather roads. The rail transport suffers from shortages of wagon capacity and congestion on trunk routes. The present storage capacity for foodgrains, non-foodgrains, fruits and vegetables is inadequate, resulting in lot of wastages every year. Processing of agricultural products especially perishable commodities forms only a small percentage of the total production. In case of fruits and vegetables, only one per cent of the production is processed in India as against 83, 78 and 70 per cent of the total production in countries like Malaysia, Philippines and Brazil, respectively (Rangarajan, 1997).

### **Marketing Efficiency**

Marketing efficiency is essentially the degree of market performance. Broadly, one may look at efficiency of a market structure as to whether it fulfills the objectives assigned to it at minimum possible cost or maximises the fulfilment of objectives with a given level of resources. Thus, the objectives assigned to the system are of critical importance in assessing the marketing efficiency. An ideal agricultural marketing system should ensure remunerative prices to the producers, uninterrupted supply of goods

at cheaper prices to the consumers and the accumulation of surplus for further development. An efficient market should, therefore, ensure 'operational efficiency' as well as 'distributive efficiency'. Operational efficiency ensures the availability of the product at all places at the same price subject to adjustment for transport costs, storage cost and quality differences. Distributive efficiency is obtained when all the producers get the same price subject to the quality of the produce.

Measurement of market efficiency at the national level is extremely difficult due to a variety of factors. To be meaningful, the concept has to be, in fact, crop-specific and location-specific. The available evidence suggests that the degree of efficiency of the Indian foodgrain markets varies from location to location within the country. In respect of perishables, oilseeds and pulses, no tangible benefit had occurred to both producers and consumers. In general, the unit marketing costs of these items have remained stable and, at any rate, have not shown any tendency to decline. On the contrary, according to certain studies in some locations, the share of the intermediaries had risen. In certain instances, the producers' share was lower at regulated markets as compared with that in unregulated markets. There could be several reasons to account for this phenomenon: i) The active participation of state agencies in the procurement was found to be often not timely and usually limited; ii) The farmers were under compulsion to sell the products quickly in the open markets where monopolistic conditions were often found to be strong; and iii) This is because of various restrictions that currently inhibit farmers from selling their products freely. The consequence of the existing controls is proliferation of intermediaries between the farmer and the consumer, which in turn, results in higher transportation, storage and distribution costs of agricultural products.

To ensure uninterrupted supply of goods at reasonable prices to consumers, there should be stability in prices. Stability in prices would require that variations in prices between seasons and regions are minimal. A study conducted by Food and Agriculture Organisation (FAO) on inter-seasonal variations in prices observed that during 1968 to 1985, the differences in the prices that prevailed during the peak harvesting seasons

and the lean months were very high in respect of both wheat and rice. The differences were so high that they could not be explained by carrying costs. However, when a range was taken by using mean prices during the peak and lean seasons, the percentage variation was found to be less than that warranted by the carrying costs. This variation tended to decline after 1974-75 due to the creation of buffer stock by the Food Corporation of India. With regard to the inter-regional price dispersion, it was found to decline for both wheat and rice after 1974-75, but the trend was characterised by large year-to-year fluctuations (Bhalla, 1996). In the recent past, the public procurement agencies procured about 15-20 per cent of total production of wheat and 12-15 per cent of rice under their open-ended procurement policy. These buffer stock operations had the desired impact on the stability of prices of rice and wheat.

To ensure marketing efficiency, it is necessary that the cost of marketing should be minimal. Studies on the cost of marketing reveal that there is a large variation in the cost per unit. The factors which affect marketing costs are: perishable nature of the product, extent of loss in storage and transportation, volume of the product handled, irregularity in the supply of the produce, extent of packaging, extent of adoption of grading, necessity of demand creation, bulkiness of the product, need for retailing, extent of price and demand risk, marketing facilities extended by the dealer to the consumers such as free home delivery, credit facility, etc. The cost of marketing of agricultural commodities is generally higher than that of manufactured products because of widely dispersed farms and small output per farm, bulkiness of agricultural products, difficulty in grading, irregular supply, greater need for storage and processing, long chain of middlemen, higher risk of price fluctuation, etc.

The marketing cost of foodgrains in India is lower than in developed countries. It is mainly because of two reasons : i) foodgrains are sold in a relatively unprocessed form in India, while in developed countries, consumers want them mostly in processed form; ii) human labour (a component of marketing cost) is relatively cheap in India than in the developed countries. However, over time, there has been an increase in the marketing cost in India too. Some of the factors which have been

responsible for this increase are: shift from subsistence to commercialised farming, technological advances in preservation and storage, change in the form of consumer demand, multiplicity of taxes, poor infrastructure which increases costs and puts barriers to entry and competition, etc.

Several studies conducted by different organisations viz., Food Corporation of India's (FCI) operations and its costs was made by Bureau of Industrial Costs and Prices (BICP) in 1991. More recently, in 2001, the Administrative Staff College of India (ASCI) carried out a study on costs of acquisition and distribution of the FCI, BICP study found that FCI costs of procurement and distribution increased more than the overall price level and much more than the purchase price of grains during 1980s. However, it also found that most of the excess cost increase was because of factors beyond FCI control, particularly statutory levies at the procurement stage and railway freight rates. Nonetheless, BICP identified several important areas in which controllable costs were excessive and could have been reduced. These were opening of procurement centres and staffing of these, excessive railway movement compared to purchase and final distribution, and storage practices which caused avoidable costs and storage losses. ASCI reports that though FCI's economic cost of wheat declined as percentage of minimum support price during 1990s and this remained roughly constant for rice, it is a failure of sort that FCI has not reduced costs further given improved communication and transport and also that FCI's economic cost in 2000 was higher than market prices. ASCI also identified areas for cost reduction, but almost all of these involve items beyond FCI control and require change in Government policy. The Committee on Long-Term Grain Policy evaluated the BICP and ASCI conclusions in conjunction with other estimates of FCI's cost relative to the private trade. There are some studies which show somewhat lower costs (5 to 20 per cent) of private trade than FCI in primary trade. This appears to be mainly on account of lower labour costs in private trade vis-a-vis FCI. However, a few studies available show higher storage losses in the private trade, which also incurs higher distribution costs, i.e., transport costs and higher trading margins at various levels (Gol, 2002a). In a nutshell, there is scope to reduce the cost of operations of FCI by transferring some of its functions to other Central/State agencies or the

private sector in which it is less efficient than these agencies. For example, storage cost of foodgrains is lesser in case of Central Warehousing Corporation and State Warehousing Corporations than FCI.

Thus the strategies followed so far have undoubtedly helped in achieving self-sufficiency in foodgrains, increasing the production of oilseeds and other cash crops, reducing intra-year price fluctuations, stabilising returns to the farmers, improving market efficiency in some crops and building up a broad-based institutional infrastructure for marketing of agricultural produce. Notwithstanding these quantitative and qualitative improvements, several weaknesses in the agricultural marketing system, as discussed above, still persist. The restrictions on trading, storage, processing, pricing and movement of agricultural commodities still continue to hamper directly or indirectly the orderly growth of agricultural marketing in India. The end result is the imperfections in the marketing system, unmanageable state trading operations, seasonal variations in prices and stagnation in agricultural growth rates.

### **Emerging Strategies**

The economic reforms that are currently underway in India encompass the agricultural marketing system as well. The essence of these measures is to improve the efficiency and productivity of all institutions whose working is far from satisfactory. Against this background, it is necessary to see the lacunae that have arisen in the agricultural marketing system and initiate measures to correct the same. As the production technology and the post-harvest technology change, there has to be a consequential change in the marketing technology as well. The production of fruits, vegetables and flowers will assume increasing importance in the production system. In case of fruits and vegetables because of their perishable nature, there will be a considerable loss unless the marketing technology is suitably modified. While in case of cereal, pulses and sugarcane, the loss by storage is estimated between 5-20 per cent, in the case of fruits and vegetables, it is estimated between 25-30 per cent (Rangarajan, 1997). Apart from the pricing policy, which has several macro economic implications, the evolving strategy for agricultural marketing must emphasise the following :

### **Integration of Domestic Markets with International Markets**

The domestic markets, particularly for foodgrains, should be integrated in the entire country. This calls for dismantling of restrictions on pricing, trading, distribution and movement of agricultural products within the country. A review of all laws which regulate participation in market such as registration/licensing, laws affecting market place, laws relating to access credit and capital, dispute resolution mechanism, etc. also needs to be undertaken in order to make them conducive for free play of market forces. The government of India has already reviewed the operation of the Essential Commodities Act, 1955, while the restrictive orders inhibiting storage, selling and movement of food and agricultural products are currently under review. To carry this process forward, States should also initiate appropriate measures to remove all restrictions on agricultural marketing on similar lines. Further, India, being a signatory to the World Trade Organisation (WTO) Agreement, should do away with physical barriers, both for imports and exports, on various agricultural commodities. Simultaneously, it should reduce tariff barriers within a time-frame. These steps could facilitate the integration of domestic markets with international markets in due course of time.

### **Strengthening Cooperative Marketing Societies**

The progress made by cooperative marketing societies so far, though noteworthy, is not wholly satisfactory. Cooperatives have yet to cover a substantial part of the total agricultural produce. It is, therefore, essential that these cooperatives develop at a faster speed and along right lines. Marketing societies need to be more closely intertwined with other societies dealing with farming inputs, credit, etc. The best way to do so is to establish multipurpose societies to look after all the aspects of agricultural marketing. These societies, apart from organising the sale of agricultural produce, should undertake construction of their own storage capacity, provide for their own transport, arrange for the processing of produce, grade their goods, organise exports, etc. This will reduce their dependence on other sources and provide a total view of marketing services to the members.

### **Strengthening Regulated Market Structure**

The management of regulated markets is entrusted to agricultural produce marketing committees (APMC) on which different interests are represented. There is an urgent need to make these market committees viable and managerially competent in keeping with liberalised trade atmosphere. The market committees should be headed either by professionals or the existing secretaries and they should be trained in professional management of markets. The functions of market committees and marketing boards may also have to be remodeled accordingly. Further, the present number of regulated markets is not enough to meet the growing requirements of the country. It has been estimated that the country needs 12,000 to 14,000 additional market yards. Further, development of infrastructure within spot markets and other places is a huge task involving an estimated investment of ₹ 6,026 crore (Gol, 2001a). Since the States are not in a position to mobilise resources of this order, the private sector investment backed up with suitable package of incentives needs to be encouraged. However, the public sector should continue playing its role in providing infrastructure in remote and difficult areas and overall market regulation.

### **Re-framing Price Stabilisation Policy**

With a view to providing remunerative price to the farmer, food at affordable price to the consumer and sustained growth of marketable surplus, all undesirable restrictions on agricultural trade have to be removed. Public procurement, storage and distribution of foodgrains need to be managed efficiently and on commercial lines. Once commodity futures markets become fully operational, the role and involvement of public procurement agencies should be minimised.

The current situation of open-ended procurement by Food Corporation of India at a high price and disposal at a heavily subsidised price is not sustainable. In this regard, the “Report on Long Term Grain Policy, 2002” recommends that India must continue to plan for cereals self-sufficiency. This is of strategic necessity since India accounts for 15 per cent of total

world consumption of cereals and since world production and trade is highly distorted by policies of rich countries. These countries are subsidising grain production heavily at present, but may push up prices if they acquire monopoly in world trade. However, it is necessary to supplement the MSP policy with other measures to make it sustainable, e.g., market-based insurance against price and income fluctuation and a system of negotiable warehouse receipts. Then there is considerable scope to improve FCI's performance to lower its costs of operations and most importantly to raise the quality of grains it supplies.

Further, the export and import policies for agricultural commodities need to be clear and should remain stable over a sufficiently long period of time. Barring exceptional cases such as coping with emergencies, it is advisable to move towards a system wherein exports and imports of agricultural produce are freely allowed and any well-defined interest to be safeguarded is achieved by an appropriate import or export duty. These measures could go a long way in stabilising prices of agricultural produce.

Organised retailing takes place under different formats. Globally, there are six retail chain formats, viz. hyper markets, super markets, super centres, warehouse clubs, discount stores, convenience stores and pop and mom stores (Chengappa et al., 2007). In India, 14 companies run departmental stores and several others are regularly entering the retail segment in different formats. It is reported that there are at least 24 hyper markets, 358 super markets, 240 convenience stores, and 464 discount stores. Organised sector players are also doing assembling, storage and sales to other retailers. Some Indian super markets are 'Food World', 'Nilgiris', 'Subhiksha', 'Fab Mall', 'Giant', etc. Super markets consider fruits and vegetables as destination category of goods to attract more customers. Some other agricultural retails chains are: 'E-Choupals' and 'E-Sagars' (ITC), 'Krishi Vihars' (M&M), 'Aadhaars' (Godrej Agro), 'Kisan Sansars' (Tata) and 'Reliance Fresh/Reliance Retail'.

'Food World' was the first super market started in Bangalore and it is now considered as the largest food chain in India. It reportedly has 34 stores in Chennai, 29 in Bangalore, 17 in Hyderabad and 7 in Pune, besides

stand alone stores in Coimbatore and Mysore. For each city, it follows a hub and spoke model and employs a large number of women to perform various operations in the supply chain. Super markets use various channels to manage supplies (Chengappa et al., 2007; Singh, 2007). Some of these are: Direct, uncontracted purchases from farmers at individual super markets; Purchases from wholesalers, who either work directly with farmers or through wholesale markets; Purchases through independent procurement companies (dedicated suppliers) who often work with farmers approved by super market chains; Purchases through government-sponsored distribution centres; Purchases through informal farmers' groups, farmers' association or cooperatives; Purchases through large individual farmers who often sub-contract part of the supply to smaller farmers; Leasing of space within the store on a commission basis to traders, farmers and cooperatives, and multiple channels.

Chengappa et al (2006) reported that in India food is the largest segment of retail industry. There are around 3.7 million food retail outlets with an estimated turnover of 7400 billion.

Singh (2007) observed that food retailing in India is by and large unorganised, highly fragmented and predominantly small, family owned business. About 78 per cent of these function with only family labour. Nearly 96 per cent of the food outlets are small with less than 500 sq.ft area. Unorganised food retail segment consists of kirana shops, selling dry food products, fruits and vegetable shops and hawkers (pushcartwalas) selling wet food products. As the unorganised retail outlets they are not able to cater to the consumer demand for value added services.

CENTAD (2007) observed that while global firms bring with them technology, capital and managerial skills, there are several other aspects that need to be kept in view while allowing Foreign Direct Investment (FDI) in retail sector. First, global firms by their very strategy maximise their profits by procuring or purchasing from globally cheapest markets/areas/countries and indulge in dumping, leading to pricing out of domestic producers and local small retailers. Second, global agriculture trade is highly

symmetric in the sense that there is a large number of producers, very few traders and large number of consumers. It has been reported that top 20 companies control on global trade is 84 per cent in agro-chemicals, 51 per cent in seeds, 24 per cent in food retail and more than 90 per cent in food-grain trade. Third, owing to the concentration of trading power among the companies, international decline in basic commodity prices has not resulted in cheaper food in importing countries. And fourth, global firms indulge in lobbying to influence the national and international policies in their favour. It is in this context that option of allowing entry of global firms and FDI in the retail sector needs to be carefully analysed. China has restricted FDI only up to 49 per cent in the retail sector. Philippines has imposed sourcing and reciprocity requirement on foreign retailer. India will also need to put in place adequate safeguards in this area.

Gandhi & Namboodiri (2002) reported that small holders though make a sizeable contribution to high value food production (fruits and vegetables), their access to market is constrained by scale. Their marketable surplus is small while local markets for high value commodities are thin and sale in distant urban markets rises transportation and marketing costs. Existing supply chains are long and are dominated by a number of intermediaries like assemblers, wholesalers, sub-wholesalers, commission agents and retailers. In case of fruits and vegetables, farmers receive one-third to one half of the final price. The authors also observed that the share of farmers' in the consumer rupee in Ahmedabad was 41.1 to 69.3 per cent for vegetables and 25.5 to 53.2 per cent for fruits. In case of Chennai the farmers' share was 40.4 to 61.4 per cent for vegetables and 40.7 to 67.6 per cent for fruits. In the small AUS market Chennai where farmers sell directly to the consumers, the share of farmers was as high as 85 to 95.4 per cent for vegetables. This indicates that if there are no middlemen, the farmers' share could be much high. In the Kolkata market the share of farmers ranged from 45.9 to 60.94 per cent for vegetables and 55.8 to 82.3 per cent for fruits. The high percentage of margin to farmer – consumer price difference is indicative of large inefficiencies and relatively poor marketing efficiency.

Surabhi Mittal (2007) observed that the increasing share of high value commodities in the consumption basket of households, higher incomes and urbanisation, changing lifestyles, market integration and trade liberalisation at global level have led to an increase in the demand for horticulture products in India.

Subrahmanyam and Mruthyunjaya (1978) observed that the marketing of fruits and vegetables is associated with a unique set of conditions which makes the task difficult and highly risky. Firstly, the nature of the produce handled itself, because of high perishability it is difficult to create time and space utilities. The second factor in marketing of fruits and vegetables is the prevailing imperfect competition i.e. there are only few traders in the business. These two factors have a lot of influence on the current marketing system of other agriculture commodities.

Jakhar (2001) reported that the current installed capacity can process only 3 to 4 per cent of total production of fruits and vegetables in the country. In the year 1993, there were 4100 to 4200 licensed processing units with an installed capacity of 12 lakh MT, against this the actual production of processed material was only 5.6 lakh MT implying a capacity utilisation of less than 50 per cent. Being seasonal in nature, the units operate for less than 150 days a year.

Singh (2007) observed that one of the important measures of marketing efficiency is the share of producer in the price paid by the ultimate consumer-buyer. The study revealed that the farmer-producer of tomato, cabbage, cauliflower and cucumber received less than 50 per cent price paid by the consumer-buyer, the range being 37.26 per cent (tomato) to 49.16 per cent (cauliflower). The share of producer includes the marketing cost which is very high. The decomposition of retail price into share of producer and market functionaries revealed that i) grower's share generally rises from low priced to high priced vegetables ii) with increased perishability of vegetables the grower's share declines iii) the share of retailer is very high, in few cases even higher than that of producer iv) the marketing cost of vegetables is very high in hill regions.

Subrahmanyam (2002) reported from the study in Andhra Pradesh the dominance of commission agents in vegetable trade as against pre-harvest contractors in case of fruits.

Subrahmanyam (2002) studied the farmers' share in consumer rupee for fruits in Punjab. They reported that most of the small and marginal farmers lease out their orchards to pre-harvest contractors. Producers' share in the consumer rupee varied from 25 per cent to about 40 per cent in most of the fruit growers. The pre-harvest contractors who did not make any fixed investment on the orchards also got more than the producer's share. There is no doubt they had to incur some expenses on the watch and ward of their orchards, picking, packing, transportation of the produce, etc. They also reported that in "Apni Mandi" scheme also the domination of the traditional fruit and vegetable retailers outnumber the farmers.

Subrahmanyam (1997) observed that despite increase in both number and capacity, the cooperative sector has not been able to help fruit and vegetable producers to the extent desired as it accounted for hardly 8 per cent of total capacity and about 90 per cent of total available capacity is still utilised for storing potato alone with less than 1 per cent capacity utilised for storing fruits and vegetables. A cost-effective transport is an important facility required in proper marketing of fruits and vegetables.

Jairath (2005) reported that the share of specialised markets like fruits and vegetables in total regulated market is low. Only few states have separate fruits and vegetable wholesale regulated markets. Their availability is not even one per thousand sq. km area. Even the horticultural states which account for nearly 20 per cent of fruits and vegetable production does not have regulated market per hundred sq.km. area. Various State Governments recently initiated a process of direct marketing by producers to consumers in the country by initiating the concept of Apni Mandi (Punjab, Haryana, Rajasthan), Rythu Bazaar (Andhra Pradesh), Uzahaver Shandies (Tamil Nadu), Shetkari Bazaars (Maharashtra), Krishik Bazaars (Odisha). But these markets have been promoted so far only at state headquarter and some district headquarters adjoining the State. These markets are dealing only in fruits and vegetables and other perishables.

Jain (2004) observed that the farm gate prices for vegetables and fruits range between 20-30 per cent of the eventual retail prices in India. In developed countries such as U.S.A., U.K. and Japan, the farm gate prices for such products range between 40-55 per cent of retail prices.

Realising the importance of the significant growth in the recent years in horticulture (fruits, vegetables, flowers etc.), exclusive horticultural and animal science universities have been opened in several states. They are expected to cater to the needs of the sector in terms of research, extension, and manpower requirements. Further, these universities are expected to also explore ways and means to evolve appropriate policy interventions for the sustainable growth of perishable agri-foods.

## CHAPTER III

# METHODOLOGY

### Statement of the Problem

Over the years, while the agricultural marketing and trade scenario have undergone tremendous changes, marketing infrastructure has not changed enough to meet the emerging demands for marketing services. Some of the marketing system limitations that have been documented are (Acharya, 1996). The market size is already large and is continuously expanding. The farmers' market linkages (both backward and forward) have also increased manifold, but the marketing system has not kept pace. Private trade, which handles around 80 per cent of the market surplus, did not invest in marketing infrastructure due to excessive regulatory framework and dominance of unorganised sector. Increased demand for value-added services and geographic expansion of markets require lengthening of the marketing channel, but this has been hampered by lack of rural infrastructure. Direct marketing by 'farmer to consumer' remains almost negligible. In 85 per cent of the 27,294 rural periodic markets, where small and marginal farmers come to sell their agricultural produce, facilities for efficient trade are still absent. To facilitating trade at the primary market level, 7161 market yards / sub-yards have been constructed, but they are inadequate, ill-equipped, and mismanaged. Food processing industry has a high multiplier effect and employment potential. But in India, the value addition to food production has been only around 7 per cent. Due to lack of proper handling (cleaning, sorting, grading and packaging) at the farm gate or at village level, about 7 per cent of grains, 30 per cent of fruits and vegetables, and 10 per cent of seed spices are lost before reaching the market. An estimated ₹ 50,000 crore is lost annually in the marketing chain due to inadequate marketing infrastructure and inefficient system of marketing activities. The State Agricultural Produce Markets Regulation (APMR) legislation has hampered the contract farming initiatives, which otherwise can be highly

beneficial to develop linkages of farmers with the markets. Farmer, shifting to higher-value crops, faces increased risks of fluctuations in yield, price and income.

The size of agribusiness can also be looked at from the angle of structure of agribusiness as discussed below : The primary producing units are around 121 million operational holdings, of which 63 per cent (76 million) are of less than one hectare in operating size, on an average, 0.4 ha of land. Assembling of farm products from such a large number of small production units is a huge task. There are around 5 million wholesale traders and 11.2 million retailers of agricultural commodities. Out of 11.2 million retail outlets, 3.7 million are estimated to be food retail outlets. Agro-industries include both organised and unorganised sector units. There are 17.0 million units in the unorganised sector, of which 13.91 million are agro-based. Out of 13.91 million agro-industrial units in the unorganised sector, 12.32 million are Own Account Manufacturing Establishments (OAME), 1.2 million are Non-Directory Manufacturing Establishments (NDME) and 0.39 million are Directory Manufacturing Establishments (DME). There are 5.11 million food processing units in the unorganised sector, of which 4.62 million are OAMEs, 0.36 million are NDMEs and 0.13 million are DMEs (Chadha and Gulati, 2007). The units in the organised sector are few in number but account for a bulk of the total gross value addition. There are 35,000 modern rice mills, 20,000 pulse mills, 5198 fruit and vegetable processing units, and 400 fish processing units. There are 426 sugar mills, and 3619 ginning and pressing units (Singh, 2007). Most of the food processing units are in the unorganised sector and Indian food market continues to be dominated by the fresh food segment. According to one estimate, Indian food market comprises 10 per cent processed segment, 15 per cent semi-processed segment and 75 per cent as fresh food segment. Processing is reported to be around 2 per cent in fruits and vegetables, 37 per cent in milk, 21 per cent in meat, 6 per cent in poultry and 11 per cent in marine fish. Fruit and vegetable processing is estimated to grow by 10 per cent by 2010, taking the food-processing segment to 32 per cent of the total food market. The overall value addition in food products, which is currently 8 per cent, is likely to increase to 35 per cent by 2025.

Indian retail sector is estimated to be worth US\$ 427 billion in 2010 ([http://en.wikipedia.org/wiki/Indian\\_rupee](http://en.wikipedia.org/wiki/Indian_rupee)). It is projected to increase to US\$ 637 billion by 2015. Given this rate of growth, it is increasingly attracting the attention of corporate, both domestic and foreign. At present, the organised retailing constitutes only 2 per cent of the total retail sales but is expected to go to 10 per cent.

In India, food is the largest segment of retail industry. There are around 3.7 million food retail outlets with an estimated turnover of 7400 billion (Chengappa et al., 2007). Food retailing in India is, by and large, unorganised, highly fragmented and predominantly small, family owned businesses (Singh, 2007). About 78 per cent of this function is carried out with family labour. Nearly 96 per cent of the food outlets are small with less than 500 sq. ft. area. Unorganised food retail segment consists of kirana shops, selling dry food products, and fruit / vegetable shops and hawkers (push cartwalas) selling fresh food products. As the unorganised retail outlets are under-capitalised, these are not able to cater to the consumer demand for value-added services, thus providing the edge to the organised retail sector. Organised food retailing, which still recently accounted for only around 2 per cent of the total food retail sales, is expected to reach around 20 per cent by the year 2013. Food retail sector is reported to employ about 21 million people.

Despite many programmes and policies to provide remunerative price to the producers of fruits and vegetables, the farmer's share in the consumer price continues to be very low. Indian farming is characterised by small and fragmented holding and dependent on rainfall. In the absence of assured irrigation, the farmer faces risk of getting good crop, besides market risks. Though APMC's have created market infrastructure, middlemen play a prominent role in marketing of fresh fruits and vegetables.

Recently, many private players entered the marketing of fresh fruits and vegetables, since several State Governments have amended their APMC Act. These private companies have their own retail chains and malls in metro cities and created infrastructure for cold storages and refrigerated transport. Some of them have contract farming wherein the companies provided backward and forward linkages for the farmers.

In view of this, the study was undertaken to know the infrastructure created by these private companies and public sector markets (APMC). The study has been aimed to know whether these companies and public sector markets could help the farmers get remunerative price while consumers got good quality produce at reasonable price.

### **Title of the Study**

“A Study on Marketing Infrastructure for Fruits and Vegetables”

### **Objectives**

- (i) To study the existing supply chain available for fruits and vegetables and to find the place of small and marginal farmers in the chain
- (ii) To study the adequacy of market infrastructure
- (iii) To study the minimum/maximum average prices for tomato and mango in selected APMC markets and to analyse the producers' share in the consumer rupee
- (iv) To study the personal profile of the consumers, their purchase behaviour, preferred purchase point and possible reasons for purchasing of fruits and vegetables.
- (v) Constraints faced by the farmers during the marketing of fruits/vegetables with reference to small and marginal farmers and to suggest solutions to overcome the constraints.

### **Methods and Techniques**

The study was conducted by using an *ex-post facto* research design. The purposively selected mango growers from Ratnagiri district (Maharashtra) and Ramanagara district (Karnataka) as well as tomato growers from Pune district (Maharashtra) and Kolar district (Karnataka) formed the universe for the study.

A total of 120 farmers constituted the total sample for the present study which includes 60 farmers from Maharashtra (mango 30 + tomato 30)

and 60 farmers from Karnataka (mango 30 + tomato 30) by considering the importance of the crops grown in Ratnagiri district (mango), Pune (tomato), Ramanagara (mango) and Kolar (tomato). A total of 80 consumers were also selected randomly to know the preferential points to purchase fruits and vegetables and to know the possible reasons for purchasing of fruits and vegetables from a particular point. The profile of some of the companies in the marketing channel such as Metro Cash & Carry, Namdhari Fresh in Karnataka, Reliance Fresh, More in Maharashtra were also studied. Opinions obtained from the intermediaries such as consolidators / pre-harvest contractors / commission agents, wholesalers and retailers were also included in this study. Finally data collected by using the structured questionnaire followed by personal interview and focused group discussions wherever necessary to supplement the information with the final target of the total respondents (120 mango & tomato growers + 80 consumers). However, keeping in view the completeness of the data filled in questionnaires the data were tabulated and used for analysis and report writing. The data were analysed by using simple statistical tools like frequency and percentages for the purpose of interpretation and drawing inferences in a logical and meaningful manner. The data analysis was limited to personal profile of farmers and consumers. The study also focused on marketing infrastructure, price spread based on the absolute value obtained by the farmers for their produce and the absolute purchase price of the consumer and the percentage share of the intermediaries were calculated. An attempt was made to know the constraints faced by the farmers during marketing of fruits and vegetables and to explore the possible solutions to overcome the constraints in this study.

### **Chapter Scheme**

The entire study is divided into the following heads:

1. Introduction
2. Review of Literature
3. Methodology

4. Results and Discussion
5. Case Studies
6. Profile of Organisations
7. Study Findings and Recommendations

#### **Plan of Data Analysis**

The data collected from respondent farmers and consumers were tabulated and analysed by using simple statistical tools and techniques such as frequency and percentages to get meaningful information and results were presented according to the study chapter scheme.

#### **Limitations of the Study**

The present study is limited to Ratnagiri (Maharashtra) and Ramanagara (Karnataka) districts with respect to mango growers while it is Kolar (Karnataka) and Pune (Maharashtra) districts with respect to tomato growers.

## CHAPTER IV

### RESULTS AND DISCUSSION

Data and information pertaining to the present study were collected from the respondents through structured interview schedule. Data were classified, tabulated and analysed in light of objectives of the study by using simple statistical tools such as frequency and percentages. The facts and findings derived after analysing the data and information are presented and discussed in this chapter.

#### **Personal And Socio-economic Characteristics of the Selected Mango and Tomato Growers from Maharashtra and Karnataka States**

The personal and socio-economic characteristics of the farmers viz. age, educational level, caste, landholding, area under mango, area under tomato, annual income, level of social participation etc. are presented in Table 1.

**Table 1 : Distribution of Personal and Socio-economic Characteristics of the Farmers**

#	Personal & socio-economic characteristics of the farmers	Frequency	Percentage
(1)	(2)	(3)	(4)
<b>I Age group</b>			
1	Young age group (<35 years)	38	31.70
2	Middle age group (36-50 years)	62	51.70
3	Old age group (>50 years)	20	19.70
<b>II Educational level</b>			
1	Illiterate (No formal education)	8	6.60
2	Primary education (Up to 7 <sup>th</sup> std.)	12	10.00

*(Contd.)*

**Table 1 : (Contd.)**

(1)	(2)	(3)	(4)
3	Secondary education (8 <sup>th</sup> to 12 <sup>th</sup> std.)	80	66.70
4	College education (above 12 <sup>th</sup> std.)	20	16.70
<b>III Social Category</b>			
1	SC	8	6.70
2	ST	2	1.70
3	OBC	32	26.70
4	General	108	90.00
<b>IV Occupation</b>			
1	Only farming	80	66.70
2	Farming plus other subsidiary business	32	26.70
3	Farming plus service (Govt. Servants)	8	6.70
<b>V Category of farmers</b>			
1	Marginal farmer (<2.5 Acres-<1ha)	13	10.80
2	Small farmer (2.5 - 5 Acres-1-2ha)	45	37.50
3	Medium farmer (5-10 Acres-2-4ha)	58	48.30
4	Large farmer (> 10 Acres>-4ha)	04	03.30
<b>VI Area under cultivation-mango (ha) N=60</b>			
	<2.5 Acres (<1ha)	07	11.70
	2.5 - 5 Acres (1-2ha)	22	36.70
	5-10 Acres (2-4ha)	29	48.30
	> 10 Acres(>4ha)	02	03.30
<b>VII Area under cultivation-tomato (ha) N=60</b>			
	<2.5 Acres-<1ha)	12	20.00
	2.5 - 5 Acres (1-2ha)	24	40.00
	5-10 Acres (2-4ha)	23	38.30
	> 10 Acres(>4ha)	01	01.70

(Contd.)

**Table 1 : (Contd.)**

(1)	(2)	(3)	(4)
<b>VIII Annual Income</b>			
1	Low income group (< ₹ 100,000)	22	18.30
2	Middle income group (₹ 100,000-1,50,000)	80	66.70
3	High income group (> ₹ 1,50,000 lakh)	18	15.00
<b>IX Level of social participation</b>			
1	Low (up to 1 score)	24	20.00
2	Medium (2-4 score)	38	31.70
3	High (5 and above score)	58	48.30

*Age* : Majority (51.70 per cent) of the farmers were from middle age group followed by young age group (31.70 per cent) and 19.70 per cent of the farmers belonged to old age group. Therefore, it can be inferred from the results that majority of the respondents are in productive age and also young to be aware of the hardships as the future farming needs continuous improvements in the farm operations and farm technologies.

*Education* : Better formal education helps the farmer in improving his/her ability to know science and modern technology and in utilising them for betterment of living. Education also helps in adopting better cultivation practices of the crops as well appropriate technologies. Keeping this point in view the respondents were categorised into five categories viz. illiterate, primary education, secondary education and college education as shown in Table 1. It reveals that 93.40 per cent of the farmers had received some level of education. The proportion of respondents who received secondary education was largest (66.70 per cent), while 16.70 per cent of the farmers had college education and 10 per cent of the farmers completed their primary education. The rest 6.60 per cent of the farmers were illiterates. It can be concluded that the sampled farmers are quite good at their educational levels which help them meet their technological needs in commercial cultivation of mango and tomato.

*Social Category* : Majority of the farmers (65 per cent) belonged to general category followed by 26.70 per cent OBC category, 6.70 per cent SC category and rest 1.70 per cent of the farmers represent ST category. The General caste and OBC category farmers constitute the dominating group among farmers cultivating fruits and vegetables (Table 1).

*Occupation* : Majority (66.70 per cent) of the farmers had farming as primary occupation and they are dependant totally on farming, whereas 26.70 per cent of the farmers had other business as their subsidiary occupation of agriculture. The rest 6.70 per cent of the farmers are Government servants who had agriculture as primary occupation.

*Landholding* : The amount of land owned by a person is an important parameter to assess the economic standing of the person in the society. Landholding is also an important factor which influences acquisition of additional skills and adoption of new technologies. The farmers categorised in this study are in four categories viz. marginal, small, medium and large farmer as shown in Table 1. It indicates that about half (48.30 per cent) of the farmers belonged to medium farmers category followed by small farmers (37.50 per cent), marginal farmers (10.80 per cent) and the rest 3.30 per cent farmers being large farmer category.

*Area Under Mango and Tomato* : Area under mango or tomato refers to the actual area (in acres) of the landholding put under mango and tomato crop by the farmers. In the area under mango and tomato crops the farmers were grouped into four categories as shown in Table 1.

The findings indicated that majority (48.30 per cent) of the mango growers are cultivating mango crop on 5-10 acres of their landholding. However, 36.70 and 11.70 per cent of the mango growers were cultivating mango crop to the extent of 2.5-5 acres and less than 2.5 acres of their landholding, respectively.

Regarding tomato cultivation, majority (40 per cent) of the farmers were cultivating on 2.5-5 acres on their landholding followed by 38.30 per cent of tomato growers cultivating in 5-10 acres of their landholding.

Farmers cultivating tomato in the area 5-10 acres are less as compared to those cultivating mango. It might be due to the very less maintenance in cultivation compared with perennial nature of mango crop as compared to tomato crop.

*Annual Income* : Income is the major indicator of the economic status of an individual. Every individual's living style influenced to great extent by his/her income. Expenditure on farming, allied occupations and household matters are decided by the income earned by an individual. The income level influences the degree of farmers' prestige in the society and their contacts with the outside world. A low level of annual income hinders acquisition of new skills, knowledge and also the assets. A better financial position enables farmers to be more enterprising in taking risks involved in trying new and advanced farming techniques and motivates farmers to adopt new technologies. Annual income was computed by opting the class interval technique and the farmers were categorised into three groups as low income group, middle income group and high income group (Table 1).

Data on the income levels of farmers reveals that majority of the farmers had medium level of income (66.70 per cent) followed by low income group (18.30) and high (15.00 per cent) income group category. These results are in tune with the findings of Satyanarayana (1997), Vijaykumar (2001) and Diware (2002). The probable reasons for this trend could be due to the fact that majority of the farmers were medium size landholders and they were cultivating mango and tomato on commercial scale for improving standard of living.

*Social Participation* : Social participation brings an individual in close relation or contact with other members of social organisations. This provides an opportunity to share views, ideas, information and experiences. The social participation in different organisations enhances the contact of the farmers and also enables them to obtain necessary information and supplies about the farming practices.

Data depicted in Table 1 indicate that majority (48.30 per cent) of the farmers had high level of social participation followed by medium level

of participation with 31.70 per cent and twenty per cent of the farmers had low level of participation. The low level of participation might be due to their low level of education. It can be inferred that the higher and medium level of social participation help the farmers to acquire the extra and recent knowledge for betterment of their farm practices and thereby livelihood.

*Marketing Channels Available / Utilised by the Farmers* : Table 2 indicates the marketing channels available for sale of their produce. It was observed that majority (68.30 per cent) of the mango growers sold their mangoes through the pre-harvest contractor, whereas majority (61.67 per cent) of the tomato growers sold their produce through the commission agents at APMC markets. It was quite interesting to note that very few farmers (16.70 per cent) were selling tomatoes directly in the market. Similar

**Table 2 : Marketing Channels Utilised by the Farmers**

#	Crop	Marketing Channel	Frequency	Percentage
1	Mango	Local market/direct sale	8	13.30
		APMC / Commission agent	5	08.30
		Consolidator at farm level	4	06.80
		Cooperative marketing Society	-	-
		Pre-harvest contractor	41	68.30
		Super market / retail chain	2	03.30
Total			60	100.00
2	Tomato	Marketing Channel	Frequency	Percentage
		Local market/direct sale	10	16.70
		APMC / Commission agent	37	61.67
		Consolidator at farm level	4	06.70
		Cooperative marketing society	4	06.70
		Pre-harvest contractor	2	3.33
		Super market/retail chain	3	05.00
Total			60	100.00

trend was observed in case of mango and it was only 13.30 per cent of farmers who sold their mangoes directly in the market.

It can be concluded from the above observations that no other marketing network other than pre-harvest contractor and APMC regulated markets for marketing of mango and tomato are available, respectively to these farmers. It is apparent that the network of HOPCOMS in Karnataka State failed to attract mango and tomato farmers to sell their produce through their network. HOPCOMS has very limited outlets. These outlets are managed by individuals who get the produce from the HOPCOMS central unit on daily basis. The central unit gets the indent of their requirement from the retail outlet owners one week in advance. Against this indent HOPCOMS will purchase fruits and vegetables on a limited scale from its members. Hence, HOPCOMS cannot purchase all the fruits and vegetables produced by the farmers. Further, with limited working capital, HOPCOMS cannot compete with the traders who have huge resources. Even SAFAL market intervention in Bangalore has not met the aspirations of the farmers. Hence, farmers mostly preferred to sell their tomatoes in the APMC regulated markets and to sell mango produce to the pre-harvest contractors. It might be due to the fact that majority of the farmers belonged to marginal, small and medium in nature and hence they want to avoid marketing hassle especially in case of mangoes. It was also that pre-harvest contractor is not preferred for the sale of tomato as very few farmers (3.33 per cent) opted for pre-harvest contractor. The role of cooperative marketing societies for sale of tomatoes is negligible (6.66 per cent) while it is completely absent in case of sale of mangoes. Therefore, it can be concluded that there is no network available in the form of cooperative societies for sale of agricultural produce in the sampled area under study.

#### **Adequacy of Infrastructural Facilities in Markets (APMC)**

The adequacy of the marketing facilities available at APMC regulated markets is depicted in Table 3.

**Table 3 : Opinion of the Farmers on Adequacy of Infrastructural Facilities at APMC**

N=120

#	Facilities	Fully adequate		Somewhat adequate		Not at all adequate		Not responded	
		F	%	F	%	F	%	F	%
		1	Display platform for open auction	79	65.83	21	17.50	10	8.33
2	Shed for storage	48	40.00	32	26.67	35	29.17	5	4.17
3	Cold storage	2	1.70	8	6.70	98	73.70	12	10.00
3	Stalls for merchants	73	60.83	17	14.17	18	15.00	12	10.00
4	Electricity	65	54.17	30	25.00	20	16.67	5	4.17
5	Generator	30	25.00	28	23.33	40	33.33	22	18.33
6	Weighing facilities	80	66.67	18	15.00	20	16.67	2	1.67
7	Telephone	70	58.33	33	27.50	09	7.50	8	6.67
8	Fax	44	36.67	48	40.00	18	15.00	10	8.33
9	Internet	38	31.67	44	36.67	14	11.67	24	20.00
10	Transport	55	45.83	37	30.83	10	8.33	18	15.00
11	Toilets	51	42.50	40	33.33	19	15.83	10	8.33
12	Cafeteria	32	26.67	52	43.33	26	21.67	10	8.33

There is no private firm available to provide the marketing infrastructure in the surveyed area. Therefore, facilities available in the public network APMC markets were studied. The facilities available at APMC markets were utilised by not only the mango or tomato growing farmers but these facilities were also utilised by several other number of farmers. The data on the adequacy of the infrastructural facilities available at the APMC regulated markets are presented in Table 3.

It could be seen that the facilities available at APMC regulated markets such as weighing facility, display platform for auction, stalls for merchants, telephone and electricity facilities were fully adequate as opined by the 66.67, 65.83, 60.83, 58.33 and 54.17 per cent of the farmers, respectively. However, regarding the facilities such as generator, cafeteria, internet, fax, shed for storage, toilets and transport majority of the respondents expressed their opinion that these facilities were inadequate/not fully adequate.

The cold storage facility is in the alarming situation in the APMC markets and 73.70 per cent of the farmers opined that the cold storage facility for fruits is not at all adequate. Surprisingly, 10 per cent of the respondents did not respond on this aspect of the facility. Hence, there is an immediate need to have sufficient cold storage facility to store the fruits for longer period to avoid price fluctuation maximise the benefits to farmers. It is also the responsibility of the respective State Governments to promote on-farm storage and build road network facility to avoid post-harvest losses at farm level and transport. State governments should also take necessary steps to improve facilities such as shed for storage, generator, fax, internet, transport, toilets and cafeteria on priority basis for the benefit of farming community.

### **Average Minimum/Maximum Prices for Mango and Tomato in Selected APMC Markets**

*Average Minimum and Maximum Price for Mango in Different APMC Markets* : The minimum and maximum average price for mango in Ramanagara and Ratnagiri APMC markets are indicated in Table 4.

Secondary data were obtained from APMC, Ramanagara, Karnataka and APMC, Ratnagiri, Maharashtra and data were converted into minimum and maximum prices of alphonso mango for both the markets. It was observed that minimum and maximum average price for alphonso mango is higher in APMC, Ratnagiri as compared to that of APMC, Ramanagara. It was also indicated that the minimum average price was ₹ 15.75/kg and maximum average price was ₹ 21.50/kg in Ramanagara market whereas the minimum

**Table 4 : The Average Minimum and Maximum Wholesale Price of Alphonso Mango in APMC Markets at Ramanagara and Ratnagiri**

S.No.	Year -2009 / Month	APMC, Ramanagara, Karnataka		APMC, Ratnagiri, Maharashtra	
		Minimum Price (₹/kg)	Maximum Price (₹/kg)	Minimum Price (₹/kg)	Maximum Price (₹/kg)
1	March	18.00	25.00	20.00	39.00
2	April	17.00	22.00	22.00	38.00
3	May	16.00	21.00	18.00	33.00
4	June	12.00	18.00	12.00	29.00
Average Price		15.75	21.50	17.25	34.75

average price for alphonso mango in Ratnagiri markets was ₹ 17.25/kg and maximum was ₹ 34.75/kg.

The minimum range of price was ₹ 12-18/kg and the maximum range of price was ₹ 18-25/kg in APMC Ramanagara whereas the minimum range was ₹ 12-22/kg and the maximum range for alphonso mango was ₹ 29-39/kg in case of APMC Ratnagiri, these ranges were higher than those of Ramanagara market in both the aspects of minimum and maximum range. Therefore, it can be inferred that mangoes were sold at better price in Ratnagiri market as compared to the Ramanagara market. It can also be concluded that the quality of alphonso mangoes is better in Ratnagiri market as compared to those of Ramanagara market. The better prices for quality in Ratnagiri market might be due to the location and the land fertility of that particular area of alphonso mango cultivation.

*Average Minimum and Maximum Prices for Tomato in Different APMC Markets :* The minimum and maximum average price for tomato in Kolar and Narayangaon APMC markets are indicated in Table 5.

The minimum and maximum average price of tomato were calculated based on the month-wise prices of tomato prices collected from the APMC,

**Table 5 : The average Minimum and Maximum Wholesale Price of Tomato in APMC Markets at Kolar and Narayangaon (Junnar)**

S.No.	Year/Month	APMC, Kolar, Karnataka*		APMC, Narayangaon, Maharashtra	
		Minimum Price (₹/kg)	Maximum Price (₹/kg)	Minimum Price (₹/kg)	Maximum Price (₹/kg)
1	January'09	2.00	16.00	5.00	7.50
2	February'09	1.00	9.33	4.50	7.00
3	March'09	1.33	8.00	7.50	10.00
4	April'09	6.66	11.33	5.00	7.50
5	May'09	2.00	18.67	5.00	6.00
6	June'09	3.33	21.33	10.00	15.00
7	July'09	2.66	13.33	10.00	12.50
8	August'09	2.00	12.66	7.50	10.00
9	September'09	1.66	8.00	2.50	6.00
10	October'09	1.33	11.33	1.00	4.00
11	November'09	2.66	23.33	5.00	7.50
12	December'09	4.00	24.00	12.50	15.00
Average Price		2.55	14.77	6.29	9.25

(Source : APMC, Kolar and APMC, Narayangaon, Pune district)

Kolar, Karnataka and APMC, Junner (Narayangaon), Maharashtra (Table 5). It was observed from the average prices calculated from the data that the minimum average price for tomato in APMC market in Kolar, Karnataka was ₹ 2.55/kg whereas the maximum average price was ₹ 14.77/kg. The minimum average price of tomato in APMC Junner market was ₹ 6.29/kg and maximum average price was ₹ 9.25/kg. It was also observed that the maximum average price was less than that of Kolar market to the extent of ₹ 5.52. Interestingly,

the minimum average price of tomato in APMC, Kolar was less by ₹ 3.74/kg as compared to that of Junner APMC market.

The reasons for wide variation in price range in Maharashtra and Karnataka can be attributed to a) the study is restricted to a limited period b) the price situation depends on local weather conditions, supply and demand situation.

*Producer's Share in the Consumer Rupee for Mango* : The actual share of the consumer rupee for intermediaries in sale of mango is indicated in Table 6.

Data were collected exactly from the markets in the form of percentage that the exact share which was earned by the intermediaries has been worked out and the results are presented in Table 6.

**Table 6 : Producer's Share in the Consumer Rupee for Mango (%)**

S.No.	Chain for marketing of mango	APMC, Ramanagara Karnataka		APMC, Ratnagiri, Maharashtra	
		Absolute Price (₹)	Share(%)	Absolute Price (₹)	Share(%)
1	Farmer	23.64	34.27	25.64	32.05
2	Pre-harvest contractor	5.33	7.73	9.33	11.66
3	Commission agent	5.78	8.38	6.78	8.47
4	Wholesaler	19.86	28.70	21.86	27.32
5	Retailer	14.38	20.84	16.38	20.50
	Consumer price	68.99	100.00	79.99	100.00

The actual purchase price by consumer for mango was ₹ 68.99/kg where the actual producer got ₹ 23.64/kg and the share of producer was mere 34.27 per cent in APMC market Ramanagara (Table 6). The actual share of consumer rupee to the extent of more than 65 per cent is distributed

among the other intermediaries' viz. wholesaler, retailer commission agent and pre-harvest contractor. On the other hand, mango purchased by the consumer was at the cost of around ₹ 80/kg whereas the farmer's share was only 32.05 per cent of consumer rupee in Ratnagiri APMC market.

The role of intermediaries in sale of mango was quite surprising from the study and it was observed that maximum benefit went to the wholesaler in both the markets followed by retailers. The pre-harvest contractor's share was less (7.33 per cent) in Ramanagara market as compared to that of Ratnagiri market (11.66 per cent). Therefore, it is the responsibility of the APMCs and policymakers to reduce the involvement of intermediaries in the sale of the agricultural produce to benefit the farming community as well as the ultimate consumers. The maximisation of benefit to the farmer and consumer can also be done by creating local marketing infrastructure, on-farm storage facilities, cold storage and high quality of inputs. This would lead the farming community to high quality produce.

*Producer's Share in the Consumer Rupee for Tomato* : The actual share of the consumer rupee for producers and intermediaries in sale of tomato is shown in Table 7.

**Table 7 : Share of Intermediaries in the Consumer Rupee for Tomato (%)**

S.No.	Chain for Marketing of Tomato	APMC, Kolar, Karnataka		APMC, Narayangaon, Maharashtra	
		Absolute Price (₹)	Share(%)	Absolute Price (₹)	Share(%)
1	Farmer	5.86	29.49	7.86	34.37
2	Pre-harvest contractor	2.57	12.93	2.57	11.24
3	Commission agent	4.34	21.84	5.34	23.35
4	Wholesaler	4.47	22.50	4.47	19.55
5	Retailer	2.63	13.24	2.63	11.50
	Consumer price	19.87	100.00	22.87	100.00

The consumer price of tomato was around ₹ 20/kg whereas the producer got only about ₹ 6/kg and the producer's share is 29.49 per cent in Kolar market of Karnataka (Table 7). Around 70 per cent of the consumer rupee share was distributed among the intermediaries and maximum share went to the wholesaler (22.50 per cent) followed by commission agent (21.81 per cent), retailer (13.24 per cent) and rest 12.93 per cent of the share went to pre-harvest contractor in Kolar APMC market. In case of Narayangaon APMC market, the farmer's share was bit higher (34.37 per cent) than in the Kolar market. More than 65 per cent of the consumer rupee share was distributed among the intermediaries in Narayangaon APMC market.

The share of these intermediaries was incurred for transport, loading & unloading, market fee, commission, weighing charges, grading, packing etc. The remaining in this share was the margin of pre-harvest contractor, wholesaler, commission agent and retailer at different stages in the supply chain.

Therefore, it can be inferred that the sale of tomatoes in Narayangao APMC market was more beneficial to farmers than in Kolar market. It was also interesting to note that the share of farmer into consumer rupee for tomatoes was more in Narayangao market whereas the share of mango farmers was more in Ratnagir market as compared to Ramanagara market.

### **Personal Profile of the Consumers and Their Purchase Behaviour**

*Age* : Data from Table 8 pertaining to consumers' profile reveals that majority (42.50 per cent) of the consumers belonged to the middle age group followed by old age (35.00 per cent) while 22.50 per cent of the consumers were in young age group. It appears that the middle and old age people were more passionate for shopping and age reflects their maturity for selecting the product in market.

**Table 8 : Distribution of Consumers Based on Their Age Group**

S.No.	Age group	Frequency	Percentage
1	Young age group (<35 years)	18	22.50
2	Middle age group (36-50 years)	34	42.50
3	Old age group (>50 years)	28	35.00
	Total	80	100.00

*Education* : The educational level of the consumers is shown in Table 9. Better educational level assists the consumer to know science and technology and its application and use sense while procuring things for his betterment. Keeping this point in view consumers were categorised into five categories and results presented in Table 9.

**Table 9 : Distribution of Consumers Based on Their Educational Level**

S.No.	Educational level	Frequency	Percentage
1	Illiterate (No formal education)	5	6.25
2	Primary education (Up to 7 <sup>th</sup> std.)	11	13.75
3	Secondary education (8 <sup>th</sup> to 12 <sup>th</sup> std.)	22	27.50
4	College education (above 12 <sup>th</sup> std.)	32	40.00
5	Graduates & Post-graduates	10	12.50
	Total	80	100.00

Table reveals that 93.75 per cent of consumers were educated at different levels. The proportion of the respondents with college education was largest (40.00 per cent), while 27.50 and 13.75 per cent of the consumers had secondary and primary education, respectively. Graduates and post-graduates were 12.50 per cent and rest were illiterates. It could be concluded that majority of consumers were educated and they know what is good for their livelihood and their educational level helps them in purchasing.

*Annual income* : Annual income of the consumers is indicated in Table 10. The major contributor to the economic status is income of an individual. The life style of every individual is decided to a great extent by his/her earnings. Income level influences the degree of an individual's prestige in the society. Annual income also motivates an individual to adopt right measures for betterment of his/her own living. Keeping these facts in view, data were tabulated and the consumers were categorised into four categories by opting the class interval technique and results are presented in Table 10.

**Table 4.10 : Distribution of Consumers  
Based on Their Annual Income**

S.No.	Annual income	Frequency	Percentage
1	Up to ₹ 50,000	14	17.50
2	₹ 50,001-100,000	28	35.00
3	₹ 100,001-1,50,000	23	28.75
4	More than ₹ 1,50,000	15	18.75
Total		80	100.00

It can be observed that majority of the consumers (35.00 per cent) had an annual income between ₹ 50,001 to ₹ 1,50,000. On the other hand, 28.75 per cent of the consumers and 18.75 per cent of the consumers had annual income between ₹ 100,000 to ₹ 1,50,000 and more than ₹ 1,50,000 respectively. The rest had annual income up to ₹ 50,000.

*Occupation* : The occupation of the consumers is shown in Table 11. Since data were obtained to know the consumers' behaviour, different sections of people were involved in the sample. Based on their actual occupation they were categorised into five different categories.

**Table 11 : Distribution of Consumers Based on Their Occupation**

S.No.	Occupation	Frequency	Percentage
1	Farmers	11	13.75
2	Businessmen	19	23.75
3	Private/public servants	16	20.00
4	Housewives	22	27.50
5	Kids or students	12	15.00
	Total	80	100.00

The Table shows that majority (27.35 per cent) of the consumers were housewives followed by 23.75, 20.00, 15.00 and 13.75 per cent of the consumers who were businessmen, private/public servants, kids or students and farmers, respectively.

Our observation of more involvement of housewives might be due to their nature of work. They are generally more involved in purchase of vegetables and fruits. It can be inferred that in every family, household work is mostly performed by housewives.

*Consumers' Preferable Point for Purchase of Fruits and Vegetables :* Efforts were made to know the most preferable point for purchase of fruits and vegetables by the consumers and the purchase points were listed in Table 12.

Majority (31.25 per cent) of the consumers preferred to purchase fruits and vegetables from the weekly/shandy markets followed by 22.25 per cent from wholesale markets, 18.75 per cent cart vendors, 16.25 per cent retail outlets and 11.25 per cent from super markets.

**Table 12 : Consumers' Opinion on Most Preferable Point for Purchase of Vegetables and Fruits**

S.No.	Purchase point	Frequency	Percentage
1	Weekly / Shandy markets	25	31.25
2	Cart vendors	15	18.75
3	Retail outlets	13	16.25
4	Wholesale markets	18	22.50
5	Super markets	9	11.25
	Total	80	100.00

*Reasons to Purchase Fruits and Vegetables from a Particular Point :*  
The choice of purchase point for fruits and vegetable and the reasons which motivated the consumers for purchasing are shown in Table 13.

**Table 13 : Reasons to Purchase Fruits and Vegetables from a Particular Point**

S.No.	Reasons to purchase	Purchase point*				
		Weekly/ shandy markets	Cart vendors	Retail outlets	Wholesale markets	Super markets
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Near to residence	10 (12.50)	15 (18.75)	6 (7.50)	12 (15.00)	4 (5.00)
2	Good display of produce	4 (5.00)	2 (2.50)	7 (8.70)	15 (18.75)	18 (22.50)
3	Accuracy in weights	-	8 (10.00)	11 (13.75)	2 (2.50)	9 (11.25)
4	Good quality of produce	7 (8.70)	3 (3.75)	7 (8.70)	6 (7.50)	19 (23.75)

(Contd.)

**Table 13 : (Contd.)**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
5	Affordable price	12 (15.00)	-	8 (10.00)	14 (17.50)	-
6	Wide range of fruits & vegetables	16 (20.00)	-	-	21 (26.25)	13 (16.25)
7	Provision of home delivery	- (15.00)	12	-	-	-

\* Multiple Responses.

Data indicate multiple responses of the consumers. It was observed that majority (18.75 per cent) of the consumers preferred to purchase fruits and vegetables from cart vendors because cart vendors were available to the consumers right at their doorstep. Attractive display of produce motivated the consumers to visit super markets followed by wholesale markets. Accuracy in weights influenced 13.75, 11.25 and 10.00 per cent of the consumers to visit retail outlets, super markets and cart vendors, respectively. Good quality produce influenced majority (23.75 per cent) of the consumers to visit super markets for purchase of fruits and vegetables. Regarding the affordable price, 17.50 per cent of the consumers preferred to visit wholesale markets followed by 15 per cent of consumers interested to purchase fruits and vegetables from weekly/shandy markets. To get a wide range of choices for fruits and vegetables, 26.25 per cent of the consumers preferred wholesale markets followed by 20.00 per cent of the consumers who like to visit the weekly/shandy markets. Home delivery did not influence the consumers as important reason since several points were available for purchase of fruits and vegetables.

### **Constraints Faced by the Farmers While Marketing Fruits and Vegetables**

*Constraints Faced by the Farmers* : Information was gathered on specific constraints faced by the farmers while marketing fruits and vegetables and results are depicted in Table 14.

**Table 14 : Constraints Faced by the Farmers  
While Marketing Fruits and Vegetables**

N=120

S.No.	Constraints	Frequency*	Percentage
1	Lack of credit facilities	78	65.00
2	Long marketing channel	82	6.30
3	Lack of processing infrastructure	15	12.50
4	High cost of transport charges	67	55.80
5	Efficiency of transportation	28	23.30
6	Heavy loading by the transporters	33	27.50
7	Lack of storage facilities	43	35.80
8	Lack of knowledge on good cultivation practices	22	18.30
9	Lack of technical know-how on grading	27	22.50
10	Lack of knowledge on packaging	36	30.00
11	Lack of market information	95	79.20

\* Multiple Responses.

Table 14 shows the constraints faced by farmers and the study revealed that 'lack of market information' was one of the major constraints as expressed by majority of (79.80 per cent) farmers followed by 65 per cent of the farmers who faced 'lack of credit facilities' as another constraint while marketing fruits and vegetables. 'High cost of transport charges' was considered by 55.80 per cent of farmers and 35.80 per cent of the farmers faced 'lack of storage facilities' as one of the constraints. The other problems faced by the farmers included 'heavy loading by the transporters', 'lack of technical know-how', 'efficiency of transportation', 'lack of technical know-how on grading', 'lack of knowledge on packaging', 'lack of processing infrastructure' and 'long chain of marketing channel', in the order of the dimension.

*Opinion of the Farmers to Overcome the Constraints* : An attempt was made to find out appropriate solutions to overcome the constraints faced by the farmers in marketing fruits and vegetables and presented in Table 15.

**Table 15 : Opinion of the Farmers to Overcome the Constraints Faced by the Farmers**

S.No.	Suggestions to overcome the constraints	Frequency*	Percentage
1	Credit facilities should be provided to the needy farmers	53	44.20
2	Long chain of Intermediaries should be reduced in the marketing channel	78	65.00
3	Processing industries should be developed	35	29.20
4	Minimal transport charges	58	48.30
5	Efficiency of transportation should be increased	22	18.30
6	To avoid heavy loads by the transporters	21	17.50
7	Creation of storage facilities at farm gate	41	34.20
8	Training on good cultivation practices, grading and packaging	20	16.70
9	Information sharing on market rates	80	66.70

\* Multiple Responses.

The farmers clearly spelt out possible solutions for constraints faced by them while marketing fruits and vegetables. It was observed that 66.70 per cent of the farmers expressed their opinion that they should be informed the market rates regularly. The reduction of long chain in the marketing channel has been considered as one of the important solution according to 65 per cent of the farmers to overcome constraints faced by them. Farmers also came out with other solutions like i) 'Credit facilities should be provided to the needy farmers', ii) 'Processing industries should be developed', iii)

'Minimal transport charges', iv) 'Efficiency of transportation should be increased', v) 'To avoid heavy loads by the transporters', vi) 'Creation of storage facilities at farm gate' and vii) 'Training on good cultivation practices' and 'grading and packaging', in the order of their preference.

Based on the above facts and figures it can be concluded that there is an urgent need to develop suitable strategy for providing credit facilities to the needy farmers. The farmers should be imparted with needful training on different aspects such as technical know-how, grading and packing etc., since majority of the farmers belonged to small and marginal category, they cannot afford to pay high cost of transportation and the heavy margins to the intermediaries. The present public system does not address these issues and hence there is a need for developing suitable strategy for credit facilities and training.

### **Study Observations**

#### *Factors Influencing the Prices of Fruits and Vegetables :*

1. Arrivals in the market for the day
2. Local and export demand
3. Festivals
4. Number of buyers and sellers
5. Market yard facilities
6. Unseasonal rains
7. Weather conditions
8. Variety
9. Processing facilities
10. Transport infrastructure
11. Heavy rains / droughts / cyclone
12. Good crop

*Who will Fix the Daily Price?* : In all the wholesale markets it was noticed that the wholesalers discuss the issues previous day based on the information available within the State and outside the State looking at the factors stated here above and accordingly present day prices are quoted. As most of the other intermediaries in the chain are under their patronage only, these wholesalers rule the market. If all states get good crop the rate collapses. In case two or three states do bad then the fourth state will get the benefit. These wholesalers even import the produce from the state where prices have collapsed and dictate the price. The intervention of the private players has not helped to have steady and remunerative price for the farmers. The traders who are in small number are well united and continue to dictate price and they also ensure that APMC laws are not enforced properly.

*Comparison of Public, Cooperative and Private Marketing Organisations:*

APMC (Public)	HOPCOMS (Cooperative)	Private Companies
(1)	(2)	(3)
Infrastructure creation is not based on viability	Infrastructure creation is not based on viability (Government support)	Each infrastructure creation (retail shop/ procurement centre) should become a profit centre
Any quality produce is accepted	Good quality produce is accepted	Only graded commodity is accepted
Less quality conscious	Quality conscious	More quality conscious
Customers of all strata of society	Customers of all strata of society	Customers of high income group
Procurement capacity is unlimited	Procurement capacity is limited	Procurement capacity is limited

*(Contd.)*

(Contd.)

(1)	(2)	(3)
Any volume from any number of farmers	Limited volume from members only	Bulk volume but from limited number of farmers
Large number of intermediaries operate	No intermediaries	Consolidator operates in this model
Weighment not proper	Weighment proper	Weighment proper
Farmers bring produce at their own cost	Provide transport on a limited scale	Provide transport on a limited scale
No training to farmers	Provide training to farmers	Training yet to start
Business is made through white slips. No proper record	Bills are issued and proper record	Proper record

The efficiency of the APMC can be improved provided :

- a) APMC laws are properly enforced
- b) farmers form commodity groups to bargain a better price.

#### **Tomato – Kolar APMC, Karnataka**

- 1) Here tomato is accounted through volume converted into weight. For instance, traders accept tomato only in standard size wooden boxes or plastic crates which is treated as 15 kg while in reality it weighs 2 – 3 kg more (17 – 18 kgs). The commission agents do not accept tomato in gunny bags but insist to take boxes / crates at the rate of ₹ 2 per box. This practice is going on since ages. No market laws are enforced to prohibit this malpractice so far.
- 2) Farmers are in large numbers while traders are small in number with well built network to increase their profit.

- 3) In Kolar there are around 100 nurseries which raise tomato seedlings funded by commission agents. Farmers get these seedlings against oral agreement with these traders. Since government nurseries cannot produce quality planting material, farmers are going to the doors of traders who supply at least genuine planting material.
- 4) The commission agents / wholesalers transact through white paper slips though this system is prohibited as per the market laws. Nobody is daring to write a complaint against this practice to APMC.
- 5) Whether it is HOPCOMS or SAFAL (a unit of NDDDB), their resources are limited. Here grades are fixed and rate is also fixed. They purchase from farmers based on their requirements which they obtain from their retail outlets / customers. Beyond the requirement of HOPCOMS / SAFAL farmer has to go to commission agents / wholesalers who take any quantity / any quality any time.
- 6) Kolar can be called as a fruit and vegetable district supplying to Bangalore and other metro cities. Kolar APMC mainly deals with tomato and hence called tomato market. The traders have monopolised the tomato market as they provide the farmers requirements like planting material, fertiliser and pesticides, even cash in advance. These traders provide money anytime while banks put so many conditions.
- 7) The traders also take care of the need of the farmers in respect of marriage, education and emergency medical care without any security / records. Just on oral agreement / trust this system is going since many years.
- 8) The traders not only in the State even outside State are well united and some families who are in the business over centuries, rule the market. They have vast resources to which HOPCOMS or any producers' cooperative societies cannot match.

### **Tomato – Narayanagaon, Junnar Taluk APMC, Pune, Maharashtra**

This is wholesale exclusive market for tomato. There are no commission agents in this market. Farmers bring directly to the market and through open auction wholesalers purchase tomato. Farmers have to bear only transport cost from their farm to the market. Buyers from Delhi, Punjab, Uttar Pradesh, Madhya Pradesh, Rajasthan, Odisha, Gujarat, Jammu & Kashmir, Tamil Nadu, even Wagha Border to Pakistan purchase tomato. Unlike Karnataka, this market uses 20 kg standard size crates, in which tomato is accepted with one or two kgs more than the declared weight of 20 kg. The wholesalers pay cash on the spot. It is learnt that due to this system the area under tomato has also increased to 20,000 acres now in 150 villages. Due to open market following advantages have been noticed.

- \* Area under tomato increased.
- \* Non-farm employment to over 2000 rural population increased.
- \* 350 New tempos of 8 tonne capacity are under use now.
- \* 246 New pick up vehicles of 6 tonnes capacity are operating in this taluk.
- \* 500 New transport rickshaws of 2 tonnes capacity.
- \* Hiring activity of plastic crates increased.
- \* Nearly 100 agri-input centres have been opened.

APMC provides temporary sheds and other amenities to the buyers. APMC has allotted around 80 temporary sheds and 52 permanent sheds to the buyers including one auction hall. The transaction will be executed only after mutually agreed price between the farmer and the buyer.

### **Mango – Ramanagar APMC in Karnataka**

Ramanagar is one of the mango growing districts of Karnataka with an area of 19369 ha and production of 193690 metric tonnes. However,

majority farmers, 70–90 per cent sell their mango fruits through pre-harvest contractors. Only 30 per cent farmers sell directly through commission agents. The APMC has around 62 commission agents who own shed on 20'x20' or 20'x40' size.

Mango harvesting takes place early morning, by 10.00 AM crop will be harvested. By 4.00 PM truck will come to the village and truck will reach APMC by 8.00 PM. Forty commission agents together fix mango price for the next day. These wholesalers are in the trade since many years. Here unlike Maharashtra, mango is sold by weight in kg. There is no open auction. Whatever commission agents fix, has to be accepted by the farmers.

#### **Mango – Ratnagiri APMC in Maharashtra**

1. Alphonso mango is sold in numbers, in terms of dozens instead of weight measures. This is not a good practice.
2. There are four channels for marketing of mango in Maharashtra.
  - i) Producer to consumer
  - ii) Producer to processor
  - iii) Producer – pre-harvest contractor – commission agent – wholesaler – retailer – consumer
  - iv) Producer to direct exports
3. Since 500 years the system is that the farmers give their orchards to pre-harvest contractors. Nearly 70 per cent orchards in Ratnagiri district are given to pre-harvest contractors due to following reasons:
  - i) Inadequate road transport facility
  - ii) Fragmented and small holding below 5 acres and yield is also low when compared to other varieties like Kesar, Totapari, Banganapalli, etc.

- iii) The unique feature of Konkan region is undulating, hilly terrain with laterite rocky soil. There is no soil. Farmers have to dig 1 x 1 x 1 mtr and bring the soil from outside to fill the pits.
- 4. Mango being a perennial crop and having a longer gestation period (6 to 8 years) and economic life of 100 years, pre-harvest contractors who have link in Mumbai and Pune are quite aware about the existing orchards and new orchards which are coming up every year.
- 5. Farmers need not take the risk of harvesting or pilferage. Sitting at home they will get advance. Contract period will range from one to ten years depending on mutual trust.
- 6. Whole economy of Ratnagiri district depends on mango but the producer does not want to become a seller.
- 7. Mumbai trader gives sweet box / dry fruits and some advance in October (Diwali) which will be used for spraying of mango orchard in November every year.
- 8. Alternate bearing habit for mango crop exists. But some crop will be there every year. But total loss of crop will not be there.

## CHAPTER V

### CASE STUDIES OF MARKET INTERVENTIONS

#### Case Study -1

##### **Market Intervention for Mango - An Initiative of Karnataka State Agriculture Marketing Board, Bangalore**

Mango (*Mangifera indica*) is one of the most popular fruits, native to India, with an annual production of 138 lakh MTs. India is the largest producer of mango in the world, (41 per cent) yet its exports is very much limited mainly due to poor market infrastructure. Karnataka is the third largest mango producing State in India, with a production of 11.67 lakh tonnes. The State produces some of the best varieties of mangoes like Alphonso (Badami), Raspuri (Pairi), Totapuri (Bangalore), Malgoa etc. Recently hybrid mango varieties like Mallika, Amrapali, Ratna and Sindhu are also becoming popular which can be grown under high density planting method.

Mangoes are a good source of Carotene (Precursor to Vitamin A), Vitamin C, fat-free and sodium-free. Its major nutrients are carbohydrates (17 gms per 100 gms) and sugar (14.80 gms per 100 gms). Major minerals contained in mangoes are potassium (156 mgs per 100 gms), phosphorus (100 mg per 100 gms) and magnesium (9 mg per 100 gms). Mango is consumed as a fresh fruit and also as a processed food in the form of jam, jelly, juice, syrup, concentrates, chutneys, pickles, chocolate bar etc.

Despite increase in the area and production of mango in recent decade, the problem of marketing in India presents a paradox of the grower being deprived of a good price for his produce during the peak marketing season while the consumer pays a higher price during lean season. The margin between farmer's price and consumer price is very high which is shared by a large number of intermediaries some of whom have the ability

to manipulate the supply of the produce to seek higher profits. One of the challenges for successful marketing of mangoes is their seasonality, bulkiness and limited shelf life (typically 14 to 28 days at the mature green stage and up to a week at the ripe stage).

The prevalent practice of marketing in mango is pre-harvest contracting to traders. Farmers never bothered to harvest the crop themselves and add value to the products in the form of scientific ripening, packaging, labeling or branding etc. to fetch a better price.

Mangoes normally take 5 to 6 days to ripen under tropical conditions in the age-old practice of placing them in paddy straw in a closed room. Nowadays traders in order to sell even immature fruits are following an unhygienic method of using calcium carbide for quick ripening, despite banned by Health Department. This chemical emits a harmful Acetylene gas that is absorbed by the fruits. The unsuspecting public are lured by the colour of the mangoes and upon consumption they get affected with throat itching, stomach disorder etc.

In this background, Karnataka State Agriculture Marketing Board (KSMB) conceived an idea of helping the mango growers to enable them to fetch a better price and also the consumers will get good quality mangoes which are ripened using the methods complying to food safety standards. Fortunately, they had an on-going three-year project under USAID-NIAM- (United State Agency for International Development – National Institute of Agriculture Marketing, Jaipur) to train mango farmers in the field of Good Agricultural Practices (GAP) and Good Marketing Practices (GMP).

The main objective of the project was to bring improvement in the practices of production and marketing of mangoes by training and extension programmes to farmers in GAP and GMP which included soil and water management in the orchards, food safety issues and food hazards, good manufacturing practices, pre-harvest and post-harvest technology, market information system, opportunities for mango exports etc. Workshops were also organised for mango farmers, retailers, and exporters to explore the possibility of establishing link between farmers and bulk purchasers.

The KSAMB officials went to villages and enlisted interested mango growers who would like to receive training on marketing of mango. Finally, 52 farmers came forward to receive training. The training curriculum included subjects like selection of variety, planting of grafted plants, scientific cultivation practices, harvesting practices, scientific method of ripening, good method of packing, storage, marketing and method of obtaining market information. Though Bangalore region is growing wide varieties of mangoes, the choice came for Alphonso variety for market support, an export quality mango. Alphonso constitute about 40 per cent of the mango production in the State. This variety is in higher demand in the world. The pulp is very tasty because of equal proportion of sugar and acid content. It has a good fragrance and attractive appearance. This mango can be stored up to 20-25 days after harvest. KSAMB laid the condition that the farmers will use the cardboard boxes designed and labeled with the logo of KSAMB and another condition was they should not use calcium carbide for ripening of mango, instead use 'ETHREL' a plant hormone for ripening process which is accepted as an organic practice. It releases ethylene gas on atmospheric exposure thereby hastening the ripening process. Ethrel (Ethephon 39%) can be purchased from any agricultural pesticide dealer. Raw mangoes are dipped for 3 to 5 minutes in 'Ethrel' 0.1 per cent solution i.e 1ml of ripening solution diluted in 1 litre of water and wiped dry and spread on a newspaper and neatly placed in such a way so that mangoes should not touch each other. Then the whole lot will be covered with a thin cotton cloth. Fruits will ripen in two days.

As a part of the training programme, mango farmers were also taken to Maharashtra State to study the functioning of marketing system and also for interaction with the mango growers who are adopting GAP and GMP keeping in view the exports. The scientists from the University of Agricultural Sciences, Bangalore and Indian Institute of Horticultural Research, Bangalore visited the orchards at regular intervals to guide them in adopting GAP and GMP.

When the project was nearing to end (2008), farmers were motivated to sell their mango directly to the consumers without the help of middlemen or Commission Agents. Hence, KSAMB intervened in marketing of mango

in the season (May) of 2009. Out of 52 farmers trained only 10 farmers came forward for direct marketing using the KSAMB logo carton. KSAMB ordered well designed attractive card board boxes with its logo and also with a slot to put their own label for the farmers. The costs of these boxes were borne by the farmers. KSAMB selected 10 locations in Bangalore Corporation area for direct marketing. They took permission from the Commissioner, Bangalore Corporation for selling packed mango boxes directly to the consumers. The selected mango growers pooled their produce in a common place for ethrel treatment. Farmers were also given improved mango harvesting tool kits by KSAMB.

KSAMB also gave an identity card as a Mango Trainee under USAID-NIAM project to ten farmers, containing their photograph, name, address and to enable them to have a trouble-free market environment. Even the KSAMB officials went along with the farmers to the market locations in Bangalore.

To everybody's surprise, the market intervention was a great success because the farmers who used to sell the mango orchard at blooming stage at ₹ 10,000 per acre got an income of ₹ 20,000 making 100 per cent increase in their income. Earlier, farmers neither cared for scientific cultivation of mango nor for adopting modern marketing techniques. But a significant change brought in by the training is that the farmers who used to sell their orchard at bloom stage now stopped pre-harvest contracting resulting in higher income.

This year KSAMB is providing plastic crates for mango growers which will facilitate them to sell their produce in Bangalore. The cost of each plastic crate comes to ₹ 350 to 400. Minimum of 10 crates and maximum of 100 crates are considered depending on the size of the orchard holding. The cost is shared by growers, KSAMB and as subsidy under National Horticulture Mission at the rate of 25, 25 and 50 per cent, respectively.

By imparting training to mango farmers KSAMB infused confidence and courage to sell mangoes directly and in 2010 season more farmers are coming forward to sell their produce directly. This innovative market intervention may encourage other states also for replication, in the years to come.

## **Case Study - 2**

### **Export of Alphonso Mango - An initiative of Maharashtra State Agriculture Marketing Board (MSAMB), Pune**

Mango (*Mangifera indica* L) is the most important fruit crop in India and considered as king of fruits owing to its luscious taste, captivating flavour and high nutritive quality. With globalisation of world trade, scope for export of fresh fruits has increased tremendously. There is great demand for Alphonso mango in foreign markets. Most significant development of this Asian King of fruits is spread in the non-traditional regions of Asia, West Africa, Australia, South America and Mexico. As a result of this, mango has become now an important fruit of international trade.

Mango is the fifth most widely produced fruit crop in the world after banana, citrus, grape and apple. India is the largest producer of mango accounting for about 40 per cent of the world production, followed by Mexico (8.5 per cent), Pakistan (6.7 per cent) and Indonesia (5.7 per cent). In India, mango accounts for about 48.3 per cent of area and 38.8 per cent of total production of fruits (Anon., 2002). Indian mangoes are emerging fast as an important foreign exchange earning fruit crop and enjoy a unique place in the international market. In brief mango is an important export commodity for India. Mango especially Alphonso is the choicest of all fruits, because it possesses attractive colour, highly acceptable taste and excellent flavour. It is considered as the “King of Fruits” and undoubtedly deserves to be the National Fruit of India. Mango is very rich source of beta-carotene, a precursor of vitamin - A and also rich source of vitamin B Complex.

Alphonso is mainly produced in the Konkan region of the State of Maharashtra. Due to implementation of an ambitious Employment Guarantee Scheme (EGS) linked Horticultural plantation programme, area under alphonso mango is increasing very fast. It is estimated that area under mango is 3,91,336 ha with productive area of about 1,81,150 ha. which produce near about 6,15,910 tonnes of mango of which Konkan region alone contribute 1,40,239 ha area under mango plantation. The productive area under mango is 79,362 ha with production of 2,93,639 M.T. The productivity of the mango in Konkan region is 3.7 M.t/ha.

### **Market Scenario for Marketing of Alphonso Mango**

Being seasonal fruit, Alphonso mango captures markets, streets, roadsides and homes in Konkan region during summer months of April-June. The fruit after harvest has to pass through several agencies before reaching the consumer. As producers do not generally undertake wholesale distribution, it is a common practice to lease out the orchards to pre-harvest contractors- who will take care of watch and ward of the crop till maturity and then dispose the produce as it suits them. There is a wide disparity in the prices of standing crop from place to place and even from year to year in the same area and from one orchard to another. It is mainly due to the irregular bearing habit of mango trees. Income from mango orchards therefore, is very uncertain. Usually contractors are financed by commission agents or wholesalers. Thus, the contractor is obliged to sell the produce through leading commission agents. Sometimes they dispose the produce directly to wholesalers or retailers. Commission agents, generally known as *aarhatiyas* or *dalals* also include forwarding agents who own the responsibility of proper packaging and transit. They are the most important link in the marketing of mango and about two-thirds of the total market is controlled by these agents. They are located in both the assembling (producing) and consumption centres. At some places, they not only sell fruits on commission basis but also transact wholesale business on their own account. In big cities like Mumbai, there are separate commission agents for imported fruits and for local produce. Exploitation of the mango market takes place by various intermediaries at the cost of the growers. Hence, there is an immediate need for corrective measures like cooperative marketing and processing of mangoes.

A very few cooperative societies exist in mango-producing areas. The mango sale societies at Vengurla, Malvan and Deogad in Ratnagiri district of Maharashtra are also functioning well. They collect the produce of their members and send it for sale to the commission agents at Mumbai. A fairly large proportion of profit is taken away by the intermediaries. To ensure better returns to the growers, and fruits at cheaper rates to the consumers, formation of fruit grower's cooperative sale societies deserves encouragement.

Mango prices vary a great deal from year to year, depending upon each year's total production and various other factors like prevailing prices, demand, transport and marketing facilities. Wholesale prices of mangoes also vary considerably, depending upon the supply and demand of particular varieties, periods of availability, weather conditions, transport facilities, variety, quality, etc. Daily arrivals have also a direct bearing on the prices. Thus, fluctuations in prices are consistently irregular in pattern. Ordinarily, however, prices are higher at the commencement of the season, declining gradually as the supplies increase. Later on, when the arrivals decrease, they tend to recover and reach a high level again before the close of the season.

### **Role of MSAMB in Marketing of Alphonso Mango**

Maharashtra State Agricultural Marketing Board (MSAMB) is established on 23 March 1984. The Board is entrusted with activities such as keeping necessary coordination in the working of Market Committees, to advise them to make improvements in their functioning, planning the development of Market Committees, to maintain Market Development Fund, Preparation of Plans and Estimates of Civil Works undertaken by Market Committees, organising seminars, workshops, exhibitions and training programmes in subjects related to agricultural marketing, export of agricultural products, establishment of agricultural export zones, horticulture training centre, grading-packing facility etc.

Alphonso mango is one of the highest price mangoes in International market because of its quality. Keeping in mind the growing demand for Alphonso mango in the international markets, the Government of Maharashtra has rightly announced their intention to set up an Agri Export Zone (AEZ) for Alphonso mangoes in the State. The State named the Maharashtra State Agricultural Marketing Board (MSAMB) the nodal agency for implementing the project. The MSAMB prepared a Detailed Project Report (DPR) of AEZ for Alphonso mangoes, a systematic and an integrated development plan for the State aimed at increasing exports from the State over the next five years and longer.

The Agri Export Zone concept proposes integrated development exports of agricultural produce including the setting up of required infrastructure in production, post-harvest and marketing activities. Presently the recommendation of the Government of Maharashtra to set up AEZ has been approved for mango. Under the Mango AEZ a number of infrastructure facilities and interventions have been proposed to facilitate export quality production, post-harvest management, value addition and export promotion activities.

In this context, the Government of Maharashtra has appointed Maharashtra State Repetition Agricultural Marketing Board as the nodal agency for the Agri Export Zone in alphonso mango crop. The MSAMB has recently made DPR for Alphonso mango AEZ and submitted to Government of India which has sanction from Government and the work of Alphonso mango AEZ by MSAMB is in progress. Ratnagiri, Raigad, Thane and Sindhudurg are the four districts selected for Alphonso mango Agri Export Zone (AEZ).

### **1. Training Programme under AEZ (Agri Export Zone)**

For production of export quality agricultural produce farmers are trained by conducting training classes. It is planned to conduct one training programme per week in each AEZ and as per schedule training programmes already started. Till today 4705 farmers from Alphonso mango are trained with the help of experts from agricultural universities, agriculture department and MSAMB. Training programmes covered commercial production of Alphonso mango, post-harvest management and export of agri produce. Training manual is provided to trainers through MSAMB, various media like c.d., videos, cassettes, overhead projector etc. are used to demonstrate to the farmers.

MSAMB, Michigan State University, USA & USAID are implementing Mango & Mango Pulp Market Development Project. Under this project Alphonso and Kesar mango growers are trained about the export quality production, pulp production, GAP Certification of mango etc. MSAMB and FICCI is implementing the programme of GAP certification for the farmers.

MSAMB provided 50 per cent subsidy and guidance to 125 Alphonso mango growers.

## **2. Infrastructure Creation**

MSAMB also established export facility centres with the help of APEDA for mangoes, onions, pomegranate and banana. For Alphonso mango export facility centres are established in year 2004 at Nachne, Ratnagiri and Jamsande, Taluka Deogad, District Sindhudurg. Both these pack houses have been approved by APEDA for exporting Alphonso mangoes to USA. Export facility centre has following facilities :

- 1) Mechanical Handling system includes Desapping, Hot water treatment Fungicide dip, Brushing line, Airdrying and weight size grading etc. (1.5.M.Tonnes Capacity)
- 2) Pack house (6000 sq.ft.)
- 3) Ripening chamber (5.M.Tonnes Capacity)
- 4) Pre-cooling (5.M.Tonnes Capacity)
- 5) Cold storage (25.M.Tonnes Capacity).

### **Export Promotional Schemes**

- 1) *Help in Getting Import-Export Code (IEC) and APEDA Registration :* MSAMB, Pune provides help in getting import-export Code (IEC), APEDA registration etc. For the same the concerned society must provide all relevant documents.
- 2) *Providing List of Importers (Country-wise and Product-wise) :* MSAMB provides the list of Importers with their name, address, email, and fax/phone numbers.
- 3) *Providing Exportable Agricultural Produce to Private Exporters :* MSAMB provides exportable agricultural produce to private exporters from co-op. societies and/or from farmers on some terms and conditions.

- 4) *Quality Checking, Grading, Packing of Agri. Produce and Exporting of that Agricultural Produce* : To promote co-op. societies to undertake export, MSAMB helps these societies in direct exports on some terms and conditions.
- 5) *Providing Orders to Private Exporters/Societies, which was Received by the MSAMB* : On certain terms and conditions, the MSAMB passes on orders received from importers to private exporters/ societies.
- 6) *To make Proposals for Subsidies from State/Central for the Agricultural Export* : MSAMB helps and guides in making proposals for getting subsidies from State Government, Central Governemnt, APEDA, NCDC, NHB etc. to provide information about quality standards, packing standards, Import duties etc. of various countries : MSAMB provides information about quality standards, packing standards, Import duties etc. of various countries on certain terms and conditions.

The regions which are considered potential export markets for Indian mangoes are Middle East, Far East, Australia, New Zealand, United Kingdom and other European countries.

There is huge potential for export of Alphonso mango. With the globalisation of world trade and availability of infrastructure facilities, the scope for export of Alphonso mango has increased tremendously. There was a ban on exporting Indian mangoes to major importing countries of US and Japan due to pesticide residues and fruit fly presence and very recently been allowed to enter. Now that the ban has been lifted, there are approximately 20 types of “commercially viable” mango varieties that are exported from India to the US and demand for them is considerably high. The prominent mango importing countries include UAE, Saudi Arabia, Malaysia, USA, UK, Netherlands, United Kingdom, France, Germany and Japan with the creation of VHT and irradiation facilities, the export of mangoes to Japan and the US has become a reality. Mango is the leading exportable fruit from India. Adoption of improved practices will ensure production and export of high quality mangoes acceptable to foreign markets

in addition to identifying new potential markets. Simultaneously due to rapid urbanisation, changing life style, increasing income and population and growing export demand potential has raised demand for Alphonso mango in domestic markets.

### **Lessons Learnt**

The case studies reveal that any intervention in a limited area for a short term will not solve the problem. Further, it also indicates that private sector makes business and they do not want to reveal the secrets of their success. The lesson we learn here is that the marketing laws should be farmer-friendly and should encourage formation of commodity groups by the farmers which in turn leave to a professionally managed producer company, provided they withstand different negative forces in the marketing intervention. The policy should support formation of commodity groups in different types of fruits and vegetables.

**CHAPTER VI**  
**PROFILE OF ORGANISATIONS**  
**INVOLVED IN THE MARKETING**

**Profile I**

**HOPCOMS, Bangalore**

**Background of the Organisation**

Horticultural Producer's Co-op Marketing and Processing Society Ltd.(HOPCOMS), Dr. Marigowda Road, Lalbagh, was (established) registered by the Registrar of Cooperative Society (RCS) vide registration No. 1827 dated 10 September 1959. The registered office is located at Lalbagh, Bangalore.

In January 2009, Government has declared HOPCOMS as the unit of Horticulture department. The area of operation of HOPCOMS is Bangalore urban, Bangalore rural, Kolar, Chikkaballapura, Ramanagar districts.

As per Government order 2007, HOPCOMS has handed over its branches at Mysore, Mandya, Mangalore, Hassan, Chikkamagalur districts to the respective district Horticultural societies.

**Management**

HOPCOMS, Lalbagh, Bangalore is being run as an unit of Department of Horticulture. The Board consists of 20 members in which 11 members are elected from among the producers, and a few are the Government nominees. Among the elected members president and vice-president are selected. Managing Director is an officer of the Horticulture Department on deputation.

Board :	Elected from farmers	-	11
	Govt. nominees	-	05
	Govt. officers	-	04

### **Aims and Objectives**

The main objective of this institution is to promote and encourage development of horticultural produces : By training and providing technical advice literature on Horticultural crop; By providing inputs, implements, plants and grafts etc., providing marketing facilities and organising proper studies to members of HOPCOMS; Supply of horticultural produces to all major factories, hostels, hospitals, clubs, social functions, providing internal commodities exchange facilities to Co-op. societies and branches.

### **Membership**

Total share capital of HOPCOMS as on 31.03.2010 is ₹ 265.01 lakh. Details are shown below. The membership of the society consists of three categories.

“A” class membership (250 per share) (Individual Farmers)	16221	₹ 30.02 Lakh
“B” class membership (1010 per share) (Cooperative Societies & Other institutions)	619	₹ 6.09 Lakh
“C” class membership (96 per share) (State Government)	State Govt.	₹ 228.09 Lakh

### **Area of Operations**

At present area of operation is extended to Bangalore urban, Bangalore rural, Kolar, Chikkaballapur, Channapatna and Ramanagar.

### **Facilities to Farmers**

HOPCOMS is offering a number of facilities to the farmers : HOPCOMS purchase the Horticulture produces directly from farmers at remunerative prices; and Provide transport facilities from collection centres. Provide weightment and immediate cash payment; Arrange input supply at reasonable prices; Arrange subsidised supply of plastic crates to its farmer members to handholding fruits and vegetables; Supply of seeds under

subsidised rates; Conducting farmers' tours and technical guidance; Training on production and processing of Horticultural crops; Accommodation for night stay; Canteen and Banking facilities, minimum support price during distress sales under Government schemes (MIS) and assistance for preliminary processing activities.

### **Facilities to Consumers**

Quality of fruits and vegetables at reasonable prices; correct weight; retail outlets in expansion; mobile sales; supply of fruits and vegetables to marriages and social functions (free transportation); capital (bulk) supplies to institutions, organisations, hostels, hospitals and factories, etc.; seasonal fruit drinks at reasonable prices (grapes, orange, mango – 200 ml.); conducting seasonal fruits fare at discount rates (Grapes mela, mango mela, and festival mela).

### **Activities**

At present HOPCOMS is handling about 90 – 100 M.T of fruits and vegetables daily. Nearly 200 farmers are bringing daily their produces directly to the institution, soon the produces received from the farmers are graded, weighed and cash payment up to ₹ 5000 is made immediately. Above ₹ 5000 will be paid by cheques. The procured fruits and vegetables are issued (distributed) about 80 per cent through retail outlets, 15 per cent to the institutions, remaining 5 per cent are the other supplies.

### **Daily Handling of Fruits and Vegetables**

The daily handling of quantity details are as below :

1.	Bangalore	85 tonnes
2.	Kolar	05 tonnes
	Total	90 tonnes

### **Marketing Infrastructure**

The marketing of fruits and vegetables, HOPCOMS consists of the following infrastructure :

S.No.	Particulars	Units	Details
1.	Retail Outlets	276	Bangalore urban – 237 Bangalore rural – 15 Kolar – 24
2.	Sales Depots of chemicals & fertilisers	10	Bangalore District – 5 Kolar District – 5
3.	Cold storages	01	Bangalore Hudson circle
4.	Vehicles	30	Bangalore – 28 Kolar – 02
5.	Processing units	01	Bangalore Hudson circle
6.	Walk- Cooler	02	Bangalore – 1 Kolar – 1
7.	Grading unit	01	Bangalore
8.	Procurement centres	07	Sarjapur, Hoskote, Channapatna, Kanakapura, Mallur, D.B.Pura, Neelamangala
9.	Weigh Bridge	01	Bangalore
10.	Storage centres (Central godowns)	18	Vegetables – 10 Fruits – 07 Dry fruit - 01

### **Institution Supply (Credit Supply)**

Apart from the supplies through retail outlets, major institutions, hostels, clubs, it also undertakes bulk supplies to marriage and social functions. Supply details are as below :

S.No.	Name of the district	Stall	Hospitals	Factories	Host., Clubs, Insti.	Total
2	Bangalore urban and rural	252	17	25	33	327
3	Kolar	24	-	01	03	28
	Total	276	17	26	36	355

### **Processing Unit (Juice and Ice-creams)**

The HOPCOMS is preparing fresh fruit juice out of fruits like grapes, mango, orange, etc, and selling the same to the public at ₹ 8 per 200 ml. Ice-cream is also sold at the same point. During the year 2009-10 juice and ice-cream turnover was ₹ 72.48 lakh.

### **Chemicals and Fertilisers**

HOPCOMS is also supplying inputs such as manures, fertilisers, plant protection chemicals, etc., through its 10 outlets opened at Bangalore, Sarjapur, Channapatna, Chandapura, Vijyapura, Kolar, Siddlghatta, Chikkaballur and Kunigal. During the year 2009 – 10 the turnover of fertilisers & P.P. chemicals is ₹ 791.52 lakh.

### **Financial Assistance**

For the development of HOPCOMS, Zilla panchayat provided financial assistance of ₹ 11.97 lakh. N.H.B. provided ₹ 28.18 lakh as grants and ₹ 1.08 lakh as loan for construction of each stall, procurement centres and vehicles. The amount has been utilised for the purpose and loan was also fully repaid.

Considering the facilities rendered by HOPCOMS during 1990-91 the State Government, NCDC, sanctioned ₹ 448 lakh projects, under this project the HOPCOMS constructed 6 central godowns, 21 procurement centres, 165 stalls and purchased 24 vehicles and installed 1 processing unit. The entire loan amount of ₹ .215 lakh with interest of ₹ 225.54 lakh has been fully repaid by the HOPCOMS. APMC provided financial assistance of ₹ 10 lakh to construction of Raitha Bhavan and Stalls.

**Assets : 31.03.2009**

S.No.	Particulars	Assets Value (₹ lakh)
1.	Buildings	458.84
2.	Furnitures	117.42
3.	Vehicles & Machineries	192.94
4.	Investments and Fixed Deposits	446.96
5.	EMD, Rent, Telephones etc., Deposits	17.21
	Total	1233.37

**HOPCOMS Staff Details (2009-10)**

At present HOPCOMS has 916 staff of different grades. Details are as follows :

S.No.	Particulars	No. of staff
1.	Govt. Officials (on Deputation)	04 MD, GM, P&M, Manager (Adm)
2.	Asst. Executive Engineer	1
3.	Managers	5
4.	Asst. Managers	5
5.	Superintendent	1
6.	FDA	27
7.	SDA	167
8.	Steno	1
9.	Senior Typist	7
10.	Assistants	679
11.	Drivers	18
12.	Security	01
13.	Total	912

**Handling of fruits and vegetables details (Qty, Value & Turnover)**

Year-wise fruits & vegetables quantity and value, turnover as follows:

Qty. in MT & Value in ₹ (Lakh)

S.No.	Years	Fruits		Vegetables		Total Handled		Total turnover
		Qty.	Value	Qty.	Value	Qty.	Value	
1.	1999	15921	1795	14444	1011	30365	2806	3754
2.	2000	15732	1962	16872	1122	32605	3083	4204
3.	2001	16384	2041	16659	1244	33043	3284	4517
4.	2002	16099	2131	15964	1179	32063	3311	4523
5.	2003	14648	1959	14198	1242	28845	3200	4368
6.	2004	12565	1681	12903	1103	25468	2484	3834
7.	2005	11095	1572	13137	1343	24232	2915	4068
8.	2006	10910	1719	14802	1468	25713	3187	4613
9.	2007	9869	1757	14274	1659	24144	3416	9462
10.	2008	10106	2099	12906	1592	23012	3691	5648
11.	2009	10243	2523	12547	1768	22790	4291	6550

The HOPCOMS accounts are audited up to 2005-06 and tentative as follows :

**Future Programme**

To benefit all grower members and consumers arrangement will be made for marketing the produce; Providing technical advice to promote and encourage development of fruits and vegetables; Transportation cold chain, cold storages, infrastructures will be created; Export of Horticulture crops; For strengthening of HOPCOMS, proposal of ₹ 5 crore has been sanctioned under R.K.V.Y scheme; Construction of super market, modernised godowns

and stalls, computerisation of all units, banana ripening chambers, etc. have been proposed under this scheme.

Profit and Loss account		₹ in (Lakh)		
S.No.	Year	Turnover	Profit	Loss
1	2003-04	4366.63	-	-21.36
2	2004-05	3769.18	66.40	-
3	2005-06	3906.05	57.90	-
4	2006-07 (Tentative)	4551.31	80.42	-
5	2007-08 (Tentative)	4850.22	104.11	-
6	2008-09 (Tentative)	5102.78	207.15	-

## **Profile II**

### **Namdhari Fresh, Bangalore**

Namdhari Fresh is a part of the Namdhari Seeds, who are the market leader in the Indian vegetable seed industry and are gradually moving towards becoming market leader in organised retailing of fresh fruits and vegetables also. Namdhari Fresh fruits and vegetables cultivated through contract farming, on their own land and green houses and handle more than thousand tonnes of fresh vegetables and fruits per day at domestic and international markets. Availability of sufficient infrastructure, technical manpower and the applications of advanced technology in production, processing, quality controlling, grading, packaging, storing, transportation, communication and dedicated skilled labourers enable them to meet international standards.

This unit of Namdhari Seeds was started in the year 2000 with a view to exporting of fresh vegetables and fruits and later, the vision was enhanced to provide a premium quality produce to domestic customers also. Presently, Fresh is at various production centres across the country (Namdhari Fresh Website). European standards of good agriculture practices (EUREPGAP) are strictly followed at the production level. Their agri-products are mainly destined to Europe, Australia and the Middle East. Namdhari Fresh is also involved in natural farming to produce and supply 'organic' vegetables and fruits in the international market. To ensure quality, an effective extension team monitors the farms and advises the growers. Namdhari Fresh also performs shelf-life test of the produce under different temperature conditions, and these results will be used to improve the self-life of the produce. The packaging section is geared up to hygienic handling of the produce so that the consumers receive a clean and hygienic product. The presence of international airport in Bangalore facilitates them to deliver a quality produce to the international clients in time.

### **Backward and Forward Linkages**

Namdhari Fresh follows the model of oral contract farming through a strong network of farmers along with own captive farms in different parts

of the country. The procurement of produce from farms in different regions enables them to get a continuous supply of various fruits and vegetables round the year. An unit of Namdhari Fresh is located in a village called Bidadi on the highway connecting Bangalore and Mysore. It enters into an un-written contract with the farmers for cultivation of fruits and vegetables for it. These farmers were earlier engaged in production of rice mainly for self-consumption, and pulses and some oilseeds for marketing and earning income. Merely 5-10 per cent of the total land was being allocated to horticultural produce earlier, but with the contracts with Namdhari, a significant portion of the land is being diversified towards production of fruits and vegetables, with some area for production of staple foods for self-consumption. The members of the farmer's family, especially women also get employment at the Namdhari procurement house for carrying out activities like sorting, grading and packaging. The educated youth who were earlier migrating to urban cities in search of jobs, now get employment at the Namdhari Fresh, as per their ability. Besides providing employment, Namdhari extends some social benefits also to the farmers and their families like transportation facilities to children for going to school, heavily subsidised mid-day meals, loans at low interest rate for marriages, etc. Seeds, fertilisers, pesticides and other necessary inputs are also provided by Namdhari at wholesale rates. In the case of crop failure, farmers are given financial assistance at very low rate of interest. The long-term association of farmers with Namdharis enabled them to earn sustainable high income and protects them from market fluctuations and risk. Also, diversification to horticulture has empowered them to encash the gains that this sector is getting in the economy at present. The improving socio-economic condition of the farmers is encouraging them to work more efficiently and productively.

Namdhari produces several vegetables like okra, bottle gourd, bitter gourd, brinjal (different varieties), bird-eye chillies, and capsicum (of different colours); fruits such as pineapples, custard apples, Chinese and Australian pears, kiwi fruit, watermelons, Japanese melons, muskmelons, cantaloupes, grapes and Californian plums. Some exotic vegetables are also grown on its farm in Bidadi, these include baby corn, asparagus, zucchini, broccoli, cherry tomatoes, sugar peas, lettuce, etc. If a farmer under the verbal contract

betrays and sells his produce to someone outside, then he is debarred and never allowed to deal with Namdharis.

To ensure freshness of the horticultural produce till it reaches the consumer, the company has a strong cold chain network right from the farm gate. The transportation of produce in refrigerated trucks helps in the removal of field heat before transferring it to the pre-cooling room. The grading and packing of produce are done under cool conditions. The packed fruits and vegetables are stored in the cold rooms before being airlifted to the destinations, largely to United Kingdom, Netherlands, France, Italy, Germany, EEC as well as Far-East and South East Asia. Thus, an uninterrupted cold chain network makes Namdhari Fresh to deliver the quality vegetables with optimum freshness. The whole process is supervised and checked by trained agricultural graduates. The retail outlets of Namdhari Fresh cater to the demand of organic and non-organic horticultural produce by the domestic consumers. In the retail outlets also, the temperature is maintained at 10°C in the racks where produce is displayed for sale.

### **Benefits and Constraints**

Namdhari Fresh provides a good example of a successful case, depicting improvement in the socio-economic conditions of the farmers through their sustainable development, rising income levels and more job opportunities on a limited scale. Since Namdhari Fresh does not have any legal contract it cannot be called as a contract farming company. Further, it is also observed that Namdhari takes only graded good quality produce and the farmers have to go to middlemen to sell their rest of the produce. However, it reduces their market risks, and enhances supply chain efficiencies by providing both knowledge and material inputs. Farmers associated with Namdhari for a long time have full faith on the system. The products of Namdhari Fresh in the domestic market are often rated as over-priced by the consumers, but Namdharis claim it to be best premium price for the quality of the produce they supply. Namdhari Fresh model operates on a very small scale, and is able to meet the administrative and infrastructural constraints to turn out to be a successful model. If this model is expanded, under

contract farming, then the viability of this project would largely depend on the managerial capabilities and development of infrastructural facilities.

Those farmers who have built good relations over 3-4 years are only given seedlings, fertilisers, chemicals, and even cash. Here, company's vehicle goes to the farmers' field for procuring the vegetables but the price is given based on market price. The farmer gets savings in crates, commission and cess etc. Technical Supervisors of the company visit the farms and provide technical guidance. Payment is made once in a fortnight as the farmers also prefer this system. The company provided limited information on their activities related to marketing of fresh fruits and vegetables.

### **Profile III**

#### **Metro Cash & Carry International, Bangalore**

The Metro Cash & Carry success story began in 1964 with the opening of the first wholesale outlet in Germany. Today the company is represented in 30 countries with Metro and Makro Cash & Carry stores at more than 600 locations - and offers its commercial customers up to 18000 different food and non-food items under one roof, spread over 1,00,000 sq. ft. area.

Metro Cash & Carry is an international leading player in self-service wholesale. The product range and services are tailored exactly to the needs of professional customers. hoteliers, restaurateurs, caterers and small-scale food retailers find everything they need to guarantee their business success. Their trademarks are top quality, huge choice and excellent value for money. Metro Cash & Carry has an international identity – and a true international corporate culture to support it. This clearly distinguishes them from others and is a key for their swift international expansion in Eastern Europe and Asia. Metro Cash & Carry International GmbH in Duesseldorf, Germany, is the Management Holding Company steering the global business. The Metro Group was created in 1996 through the merger of leading trading companies. The corporate group is composed of high-performance, operationally independent companies and businesses. Metro Group today, is the third largest trading and retailing group in the world. The company employs over 2,50,000 staff in 30 countries. In the year 2005 Metro Group had generated sales of over •55.7 billion; 53 per cent of total sales came from outside Germany.

#### **Mission Statement**

“Metro is a Cash & Carry Distributor for businesses and professionals. Metro provides quality products and business solutions at the lowest possible prices”.

**Metro Locations Around the World (status 26.02.2007)**

Country	Number of outlets	Market entry
(1)	(2)	(3)
Austria	12	1971
Belgium	9	1970
Bulgaria	8	1999
China	34	1996
Croatia	6	2001
Czech Republic	12	1997
Denmark	4	1971
France	86	1971
Germany	120	1964
Great Britain	30	1971
Greece	7	1992
Hungary	13	1994
India	5	2003
Italy	47	1972
Japan	3	2002
Moldavia	3	2004
Morocco	6	1991
Netherlands	16	1968
Pakistan	2	2007
Poland	25	1994
Portugal	10	1990

*(Contd.)*

(Contd.)

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(1)	(2)	(3)
Romania	23	1996
Russia	31	2001
Serbia	5	2005
Slovakia	5	2000
Spain	34	1972
Turkey	10	1990
Ukraine	13	2003
United Kingdom	33	1971
Vietnam	7	2002

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#### **Advantages the Metro Offers to Customers**

The Metro mall has extended business hours and they are open 7 days a week from 6 a.m to 10 p.m. Strict quality checks and modern storage technology including cold storage ensures that the customers get guaranteed quality. The outlet has hassle free parking space for around 450 two wheelers & 270 four wheelers. Customers also receive every two weeks their catalogue, Metro Mail with over 300 offers for business at the best wholesale prices. Also receive instant alerts through e-mail and SMS.

Bangalore has two centres within 15 minutes of driving distance from any business district, serving over 1,50,000 businesses across the city.

1. Yeshwantpur: Address: No.26/3, Industrial Area, Suburbs 'A' Block,Subramanyanagar, Ward No.9,Bangalore-560 055
2. Kanakapur Road: Address: No.181/1, 18/2, Konanakunte Village,Uttarahalli Hobli, Bangalore South Taluk,Bangalore-560 062

The concept of Metro's Cash and Carry business model is based on a Business to Business (B2B) concept and focuses on meeting all the needs

and requirements of business customers. It is a modern format of wholesale trading, catering only to business customers.

“Cash & Carry” means that the customers pick the goods themselves, pay in cash and transport their goods with their own vehicles. The advantage as compared with conventional wholesale lies in more competitive price, scope of the food and non-food assortment, immediate availability of the merchandise and customer-oriented working hours.

The Company says that the price benefit that they offer at Metro is large as they eliminate distribution costs by buying directly from the manufacturers, farmers and other producers. Sourcing large quantities also provides them a price benefit that they are able to pass on to customers.

Metro also takes the initiative to train producers on international quality standards. Through maintaining a cold chain and stringent quality checks their quality department ensures that customers get quality products at all times.

Being Cash & Carry customers pick up their articles and pay in cash. This enables them to minimise the costs and pass on the benefit to customers.

**Metro also maintains HACCP quality standards for all its products:**

The “Hazard Analysis and Critical Control Point” concept (HACCP concept) was developed in the USA in 1959, when an American food-processing company was instructed by the NASA space agency to produce food that was 100%-safe for consumption in space.

This preventive concept was then further developed in collaboration with NASA and was published and documented as the HACCP in the USA in 1971.

It was only in 1985 that its implementation was recommended to all food business operators by the US National Academy of Science (NAS). Since then, the system has been tested and further developed worldwide.

HACCP involves the implementation of a self-checking system by companies to ensure food safety and prevent health hazards.

**To whom is this hygiene platform directed?**

- H Hazard      Analysis of all conceivable hazards based on the product description, production process and operational conditions.
- A Analysis
- C Critical      Assessment of the likelihood of health hazards occurring and the identification of guiding points.
- C Control
- P Point

Foreign Direct Investment (FDI) in multi-brand retail is not allowed at present but multinationals can invest up to 51 per cent in single brand retail and 100 per cent in Cash & Carry Stores which are back-end outlets permitted to sell only to registered retailers.

The company did not respond to the request of the researcher to provide information on their activities in India. They are not ready to divulge any information.

## **Profile IV**

### **Reliance Fresh, Pune**

Reliance Fresh is the convenience store format which forms the part of retail business of Reliance Industries of India. The company has 560 air conditioned Reliance Fresh outlets across the country. These stores sell fresh fruits and vegetables, staples, groceries, fresh juice bars and dairy products. Typical Reliance Fresh Store is approximately 3000 – 4000 sq.ft and caters to a catchment area of 2-3 kms. In recent years Reliance Fresh emerged as a super market focusing on categories like food, fast moving consumer goods (FMCG), home, consumer durables, IT and wellness with food accounting for the bulk of the business.

Though Reliance Fresh is not existing in the fruit and vegetable business altogether, it has decided not to compete with local street vendors, who control 95 per cent of the country's overall retail business, partly due to political reasons and partly due to its inability to create a robust supply chain, contrary to the objective of what the firm had originally planned. The company claimed earlier that store's main focus would be fresh produce like fruits and vegetables at a much lower price 'farm to fork' theory. The idea was to source from the farmers and sell directly to the consumer removing the middlemen out of the way. Reliance Fresh also sells kitchen equipments and other edibles.

According to Madhu Kishwar, Senior Fellow at the Centre for the Studies of Developing Societies, Delhi, India has an estimated 12 million street vendors in its cities, the 2004 National Policy for Urban Street Vendors pegs it at 10 million and roughly 2.5 per cent of each city's population is engaged in vending on streets. About one-fourth of these vendors sell fruits and vegetables.

Fresh fruits and vegetables (FFV) are a small part of this retail juggernaut. Even if retail chains do very well they will capture only 10 per cent, says Dr. P. Chengappa, Professor of Agricultural Marketing at the University of Agricultural Sciences, Bangalore. Retail chains do well in

non-perishable items but fail to capture the market of perishables. Besides, Indian market is too large, with too many commodities and far too many small players. Bangalore alone consumes about 10,000 tonnes of FFV every day. Nobody would have the money to come up with cold storage chains and backward integration of the supply chain to control such a market.

Reliance Fresh has not come up with deal like contract farming. Instead, it has an ambitious marketing network for purchase and storage with oral direct contact with the farmers. The company did not reveal any figures pertaining to their business activities.

However, following information was gathered by the researcher. The company is in operation since last five years. Backward integration is set up in the form of collection centres, adding reefer vans and forward linkage in the form of distribution centres and retail outlets, etc. There is no tie-up with farmers. But pre-determined price just within one or two days before, is offered to limited number of farmers for their requirement. To the question why contract farming is not done, it was revealed that the company required wide range of fruits and vegetables to which a single farmer cannot provide. Further, the company meets its present requirement from any market where lower price prevails even from outside the State.

It was also learnt during the study in Pune that several companies like Subhiksha, ITC, Vishal Mart have closed some of their outlets or reduced their number since they found dealing with perishable with high overheads is very tough when compared to non-perishable items.

## **Profile V**

### **MORE, Pune**

Aditya Birla Retail Limited (ABRL) acquired nearly 170 Trinethra, the chain of stores across four South Indian States which included the retail brand Fabmall also based in South India and launched its own brand of stores called "MORE". Till 2009, the company had set up 640 super markets as "More" and five hypermarkets called as "More Megastore". More super markets are neighbourhood stores with the core proposition of offering value, convenience and trust to the customers and averaging 2500 sq.ft. area. The hyper markets are self-service super stores offering value and range in food and non-food products and services at a single location. Hyper markets are located in large catchment areas and encourage mass consumption with discount prices and substantial depth of assortment with an average store size of 55,000 sq.ft. shopping area. More stores offer a wide range of products categories including fruits and vegetables staples, personal care, home care, household general merchandise and dairy products.

The More chain of super market is spread over convenient locations and with layouts that allow ease of navigation. The project display is well organised and facilitates ease of choice. The stores have been designed by Fitch, the leading international retail design firm. It is estimated that within the organised retail sector food and groceries account for around 14 per cent of total market with potential to garner an even bigger share in the market.

It may be mentioned here that many unprofitable 'MORE' stores have been closed in Gujarat. When MORE entered business, the company had set a target of opening 1000 stores in three years. But economic slowdown in 2008 hit the organised retail business, forced the company to go slow on expansion; company wants every stores in the network should be profitable.

It is also understood that MORE sources 25 per cent of its fresh food products directly from farmers, the rest from local mandis and has eight farmer-linked collection centres across India for vegetables. Some of

the 'MORE' stores incurred losses due to high rental cost, exorbitant staff costs, high AC bill cost and a disorganised supply chain.

According to one report in 2008 in Ahmedabad Subhiksha had to wind up 50 stores, Reliance Retail also scaled down, Vishal Super Market also had to close and also Development status mall was also closed.

The concept of 'MORE Super Market' is conveniently located in the neighbourhoods, caters to the daily, weekly and monthly shopping needs of the consumers. "MORE Hypermarket", "MORE Mega Store" is a one-stop shopping destination for entire family. Besides a large range of products across fruits and vegetables, groceries, FMCG products, "MORE Mega Store" also has a strong emphasis on general merchandise, apparels and CDIT.

Here also the company did not disclose their business figures and the researcher found there is no contract farming. They have some collection and grading centres where some sort of value addition is made in terms of packing and labeling. Further, it is understood that the volume of fresh fruits and vegetables in any retail outlet is hardly 3 to 4 per cent while grocery items, processed foods, cosmetics and household requirements take a major share.

Strengths and Weaknesses of the Profiles:

### **Strengths**

- \* Quality products to elite consumers
- \* Value addition is being done
- \* Modern technology for post-harvest handling
- \* Good packaging and displaying techniques
- \* Cold storage facility at collection centre and sales counters
- \* Introduction of new varieties of fruits and vegetables.

**Weaknesses**

- \* Clientele is very limited
- \* They have replaced the wholesalers
- \* They are not contributing for the price stability
- \* Area of population is very limited

## CHAPTER VII

### STUDY FINDINGS AND RECOMMENDATIONS

#### Study Findings

The present study was conducted by using *ex-post facto* research design in the year 2009-10. It purposively selected Ratnagiri and Ramanagara districts from Maharashtra and Karnataka States, respectively as these districts are known for Alphonso mango cultivation. Pune district from Maharashtra and Kolar district from Karnataka were selected for their higher production of tomato and its marketing. Further, it could be observed that majority (98.30 per cent) of the farmers were male, 51.70 per cent of the farmers were in middle age group, 66.70 per cent of the farmers had secondary level of education. Regarding caste, 90 per cent of the respondents belonged to upper caste and 66.70 per cent of the farmers had farming as primary occupation whereas 85.80 per cent of the farmers belonged to medium and small farmers' category. Majority (48.30 per cent) of the farmers had 5-10 acres land under mango cultivation and 40 per cent of the farmers had 2.5 to 5 acres of land under tomato cultivation. Regarding income categories, majority (66.70 per cent) of the farmers had income between ₹ 100,001 to 1,50,000. Social participation is high for 48.30 per cent of the farmers and majority (68.30 per cent) of the mango growers opted to sell mango produce through pre-harvest contractor in the marketing channel. Regarding sale of tomatoes, 61.67 per cent of the farmers sold tomatoes in the APMC markets through commission agents.

The minimum and maximum average price in the regulated markets of the sampled area for mangoes range from ₹ 15.75 to 21.50/kg in Kolar (Karnataka) APMC market whereas ₹ 17.25/kg to 34.75 is the minimum and maximum price range in Ratnagiri market for mangoes. These are the official figures obtained from the particular markets.

The maximum and minimum prices for tomato ranged from ₹ 2.55 to 14.77/kg and 6.29 to 9.25/kg in Narayangaon (Junner APMC Market, Pune District of Maharashtra State) and Kolar district of Karnataka, respectively.

The major findings of the study reveal that at Kolar APMC, the absolute price received by the tomato growers per kg is ₹ 5.86/kg and consumers' price is ₹ 19.87/kg accounting to farmer's share of 29.49 per cent showing that the rest 70.51 per cent of the consumer rupee is distributed among the intermediaries in the marketing channel. In case of Junner APMC market, the farmers' absolute price for tomato is ₹ 7.86 and consumer price is ₹ 22.87/kg. Runtime in the farmers' share in the consumer rupee of 34.37 per cent and rest 65.63 per cent of the consumer rupee share is distributed among the consolidator, commission agent, wholesaler and retailer.

Regarding marketing of mangoes at the APMC, Ramanagar, Karnataka, the farmers' absolute price is ₹ 23.64/kg and the consumers' price is ₹ 68.99/kg indicating the farmers' share of 34.27 per cent in consumer rupee and rest 65.73 is distributed among the intermediaries in the marketing channel. At the APMC, Ratnagiri the share of farmers in consumer rupee is less (32.05 per cent) compared to that of Ramanagara market. At Ratnagiri, APMC the absolute price for mango is ₹ 25.64/kg and the price of the consumer is ₹ 79.99/kg. The rest 67.95 per cent of the consumer rupee is distributed among the intermediaries like pre-harvest contractor, commission agents, wholesalers and retailers in the marketing channel at Ratnagiri market.

It can be concluded from the study that the maximum share of consumer rupee is distributed among the wholesalers and the commission agents in both the commodities at the sampled markets.

**Suggestions to improve the marketing efficiency and to overcome the constraints in the marketing of fruits and vegetables**

- \* There is an urgent need to train the farmers on scientific post-harvest management techniques such as good cultural practices,

harvesting at maturity, grading, pre-cooling, packaging and storage practices.

- \* Small and marginal fruit and vegetable growers need to form co-operative societies for their welfare to reap the remunerative prices in the market.
- \* Financial assistance for small / marginal farmers must be available from various private/public sector institutions without much delay and at nominal charges of interest.
- \* Community type pre-cooling and cold storage facilities need to be created at district and block level in the respective State.
- \* Set up processing units at rural areas to avoid post-harvest losses.
- \* Price forecasting information systems should be available at village levels so that farmers can directly contact the concerned in the market regarding the price.
- \* Local mandis or regulated markets should be updated and upgraded with modern information systems as well as residential facilities.
- \* Number of intermediaries and their commission should be reduced in the marketing channel.

### **Facilities Needed for Agricultural Marketing**

In order to derive the best possible advantage in marketing of agricultural produce, the farmer should be provided with certain basic facilities. These include proper facilities for storage, holding capacity, in the sense, that farmer should be able to wait for times when he could get better prices for his produce and not dispose of his stocks immediately after the harvest when the prices are very low. Adequate and low cost (cheap) transport facilities which could enable the farmer to take his surplus produce to the mandi rather than dispose it of in the village itself to the village money-lender-cum-merchant at low prices. Farmer should have information regarding the market conditions as well as about the ruling

prices, otherwise would be cheated. The number of intermediaries should be as small as possible, so that the middleman's profits are reduced, which in turn increases the returns to the farmers.

### **Inadequacies of Present Indian Marketing System**

Indian system of agricultural marketing suffers from a number of defects. As a consequence, Indian farmer is deprived of a fair price for his produce. The main defects of the agricultural marketing system are improper warehouses, lack of grading and standardisation, inadequate transport facilities, presence of a large number of middlemen, malpractices in unregulated markets, inadequate market information and inadequate credit facilities.

Thus it is not possible to view the present agricultural marketing in India in isolation of (and separated from) land relations. The regulation of markets, broadcasting of prices by All India Radio (AIR), improvements in transport system, etc., have undoubtedly benefited the large farmers, and hence they are now in a better position to obtain favourable prices for their "market produce". But these changes have not benefited the small and marginal farmers to any great extent.

Therefore, it is the responsibility of policymakers to reduce the middlemen share in the marketing channel and to provide better facilities to the farmers to reap remunerative prices which will be helpful to both farming community as well to the consumers.

### **Recommendations**

The profit margins of commission agents, wholesalers and retailers account for quite a large proportion of the price paid by the consumers, which indicates existence of inefficiency in fruits and vegetable marketing system. Provision of post-harvest infrastructural facilities like storage, processing, grading etc., will increase the marketing efficiency and should be strengthened. Effective measures are needed to increase the grower's share in consumer's price by strict implementation of marketing rules and regulation and by minimising the number of middlemen and distribution

channels. All the costs right from the point of production to the point of consumption are shared by the primary producer, consumer and middlemen. To strengthen the marketing system and to provide adequate incentive to the farmers, a lot of infrastructural developments are required including transportation, processing, storage, market yard and extension education. To be competitive in the international market, these developments are essential and be given top priority.

1. Plastic crates are being provided at subsidised rate to the growers of fruits and vegetables. Weighment should be by weight but not either volume or number.
2. Crop planning is necessary to reduce the incidence of glut in the market.
3. Markets should come under strict regulations under the supervision of well represented market committee. Now, it is observed that the commission agents / wholesalers are themselves farmers and same persons come as members of APMC and influence the weak enforcement of rules in the market.
4. Storage facility should be created in the farm or village itself because decay starts soon after the harvest of the produce.
5. Regulation of marketing of fruits and vegetables with proper dialogue with all the concerned people in trade and fixing of reasonable percentage of commission so that the commission is not too low as suggested in the Act or too high as at present say, around 4 to 6 per cent, 50 per cent of which would be borne by the seller and the rest by the buyer and under strict supervision. Open auction should be enforced transparently.
6. Creation of marketing organisation with assembling centres located at growing areas, arrangements for loans / advances and supply of inputs and arrangement of transport for picking the produce etc. particularly for vegetables are recommended.

7. Creation of commodity marketing boards for individual or group of fruits which can take care of both marketing and supply of inputs etc. and promotion of contract farming system if necessary in the given location.
8. Establishment of a number of retail outlets for protecting the interest of consumers by fruits and vegetable marketing organisations as well as consumer cooperative societies.
9. Increasing / improving transport facility for small growers by the state transport / corporation buses, by the marketing organisation so that produce can be collected at the assembling centres.
10. Providing cold storage facilities, after proper assessment of the demand and ascertaining the technical feasibility of storing the other fresh vegetables as some vegetables like okra may not stand cold storage, educating and integrating the services of cold storage facilities. Better road link should be provided to the villages, which will improve the market efficiency.
11. Extending credit through the marketing organisation / commodity boards.
12. Market intelligence by broadcasting the prevailing wholesale prices of fruits and vegetables by Internet connections and electronic media from various centres just as in the case of other commodities.

The organisational structure and their efforts should be suitably modified for integrating the production and marketing. The State Department of Horticulture can be closely associated with the organisation and some responsibility of collection centres can also be entrusted to their field staff.

### **Policy Implications**

- \* Though the share of producer in consumer rupee has risen overtime, very effective measures are yet to be taken for proper implementation of the Act.

- \* Being highly perishable, a large part of fruits and vegetables is wasted at the farm level. Some processing industries should be established in the nearby areas to prevent post-harvest losses and also to ensure better returns to growers.
- \* Since small and marginal farmers cannot afford high transportation cost and thus are unable to get the benefit of prevailing high price in distant markets, cheap and efficient system of transportation should be developed in the area.
- \* Farmers should be trained by extension agencies for adopting improved technology of production to ensure greater production and productivity on one hand and an improved marketing technology on the other hand.
- \* Good quality and reasonably priced inputs like seeds in case of vegetables, good quality grafted or budded nursery plants in case of fruits, fertilisers and agro-chemicals should be provided to growers at the right time to overcome constraints in production process.
- \* Resource crunch is the major constraint faced by cooperatives to expand their activities on a sustainable basis as compared to existing wholesalers in the market.
- \* About half of the villages in the country are not still connected to market with all weather roads and hence rural road infrastructure should be strengthened.
- \* The unit marketing cost has not changed over the years.
- \* Public investment in infrastructure owned by PPP model or Producer Companies under sec-25 federated by SHG may be encouraged to get the benefit of volume and group marketing.
- \* The existing system with low level of efficiency where small farmers are not getting opportunity to sell their perishables of small quantity as per their choice, it is difficult to replace by new private players.

The super markets which are designed on the lines of developed world find it difficult to operate in India on similar scale because abroad these companies are getting big volumes from a few farms owning hundreds of acres, whereas in India they have to get from thousands of heterogeneous small farmers having different variety, volume, grades. While the farmers claim whatever they produce is good, companies find it difficult to put them in one category and make a proper distribution channel. The economy of scale is not available to them as their overheads are also high.

- \* Till the Indian Consumer Market is mature enough to accept only good quality graded produce, it is difficult to change the present system.
- \* Since, quality consciousness among the consumers and the importance of grading among the farmers have been created through the intervention of private players, these private companies should be encouraged to set up their parallel market as an alternate market channel to the present system. Contract farming with legal binding should be insisted for private companies while providing strong backward and forward linkage to the farmers.

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## FIELD VISIT PHOTOGRAPHS



**Tomato crates ready for inter-state transport**



**Researcher in Kolar APMC tomato market (second from left)**



**HOPCOMS Retail outlet in Kolar**



**Period of distress sale-tomato being fed to cattle**



**Open auction in Kolar tomato market**



**Namdhari Fresh Farm near  
Bangalore**



**Organic Alphonso Mango**



**Harvester on the top of  
Alphonso mango tree**



**Fruit bearing young  
Alphonso mango tree**



**Topography of Alphonso mango growing  
area in Ratnagiri district**



**Organic Alphonso mango**



**Cloth-covered hand auction  
in Alphonso mango**



**Items sold in the Reliance Mart**



**Ramanagar APMC Mango Market**



**Open auction in Narayanagaon  
Tomato Market**



**Traditional vegetable retail shop in Kolar**



**Vegetable display in the Reliance Mart, Pune**



**Reliance Mart in Pune**



**More Super Market in Pune**

**Annexure – I**

**Names of Officials / Farmers / Stakeholders  
Contacted During the Research Study**

**Karnataka**

1. Shri Nagaraj  
Additional Director Administration  
Department of Marketing  
Government of Karnataka  
Bangalore – 560 001
2. Dr. K.V. Mahabalagiri Bhat  
General Manager  
Karnataka State Agricultural Marketing Board  
Bangalore Divisional Office  
No. 16, 2<sup>nd</sup> Floor, Rajbhavan Road  
Bangalore – 560 001
3. Shri Doreswamy  
Asst. Secretary  
Wholesale Vegetable Market  
New Kalasipalyam Market  
Gate No. 1, APMC Office  
Bangalore – 560 002
4. Dr. B. Krishna  
Managing Director  
Horticultural Producers Cooperative Marketing &  
Processing Society Limited (HOPCOMS)  
(A Unit of Dept. of Horticulture, Government of Karnataka)  
Dr. M.H. Marigowda Road, Lalbagh  
Bangalore – 560 004
5. Shri H.M. Krishnappa  
Sr. Assistant Director of Horticulture  
General Manager, HOPCOMS  
Dr. M.H. Marigowda Road, Lalbagh, Bangalore – 560 004

6. Shri M.N. Chamaraju  
Joint Director of Agent Marketing  
Secretary, Spl. APMC for Fruits & Vegetables  
Binny Mills Compound  
Bangalore – 560 010
7. Dr. T.M. Gajanana  
Sr. Scientist (Agri. Eco)  
Division of Economics & Statistics  
Indian Institute of Horticultural Research, Hesaraghatta  
Bangalore – 560 089
8. Shri Bache Gowda  
Asst. General Manager  
Karnataka State Agricultural Marketing Board  
No. 16, 2<sup>nd</sup> Floor, Rajbhavan Road, Bangalore – 560 001
9. Shri S. Ramesh  
Secretary, APMC  
Kolar – 563 101
10. Shri Kiran  
Assistant Secretary, APMC  
Kolar-563 101
11. Dr. V.N. Shivanandam  
Prof. of Horticulture  
Chintamani Agriculture College  
Kolar District, Karnataka
12. Shri R. Sudhakar Gowda  
KRS Fruits & Vegetable Wholesale Merchants  
No. 38, APMC, Market Yard  
Kolar – 563 101
13. Shri Gangarajiah  
Secretary, APMC  
Ramanagar – 571 511

14. Shri Shivaramaiah  
Sr. Marketing Superintendent  
Ramanagar APMC, Ramanagar – 571 511
15. Shri R. Chikkabairegowda  
President  
District Mango & Horticultural Producers  
Cooperative Marketing Society Limited,  
Ramanagar – 571 511.
16. Shri Alhaj Hqulla Shariff  
Shariff Traders  
Mango Merchant & Commission Agent  
APMC Yard, B.M. Road, Ramanagar – 571 511
17. Dr. V. Somasundar Rao  
Director – Coordination & QC  
Namdhari Malik Seeds Pvt. Ltd., Head Office  
Bidadi – 562 109, Bangalore
18. Shri Sunil Awari  
General Manager  
Namdhari Farm Fresh Pvt. Ltd.  
H.O. Bidadi – 562 109
19. Ch. V. Narasimha Rao  
Sr. Manager – Taxation  
Metro Cash & Carry India Pvt. Ltd.  
Sy. No. 26/3, 'A' Block, Ward No.9, Industrial Suburbs  
Subramanyanagar, Bangalore – 560 055
20. Shri Rajesh K. Prasad  
Sr. Manager – Buying & Merchandising Fresh Food  
Metro Cash & Carry India Pvt. Ltd.  
Sy. No. 26/3, Industrial Suburbs  
Subramanyanagar, Bangalore – 560 055
21. Shri Anand Nanjappanavar  
Namdhari Farm Fresh Pvt. Ltd.  
H.O. Bidadi – 562 109, Bangalore

22. Shri M. Jogaiah  
President  
Mango Growers & Marketing Co-op. Society Ltd.  
# 4179, Opp. City Municipal Council  
Ramanagaram – 571 511

**Maharashtra**

1. Shri S.P. Sangle  
Director, Agricultural Marketing  
Government of Maharashtra & Managing Director  
Maharashtra State Agricultural Marketing Board (MSAMB)  
R-7, Market Yard, Gultekadi, Pune – 411 037
2. Dr. K.Z. Toshniwal  
General Manager  
Maharashtra State Agricultural Marketing Board (MSAMB)  
R-7, Market Yard, Gultekadi, Pune – 411 037
3. Shri Santosh Patil  
Deputy General Manager  
Maharashtra State Agricultural Marketing Board (MSAMB)  
R-7, Market Yard, Gultekadi, Pune – 411 037
4. Shri A.J. Virkar  
Marketing Officer  
Maharashtra State Agricultural Marketing Board (MSAMB)  
R-7, Market Yard, Gultekadi, Pune – 411 037
5. Shri Suhas Kale  
Marketing Officer  
Maharashtra State Agricultural Marketing Board (MSAMB)  
R-7, Market Yard, Gultekadi, Pune – 411 037
6. Dr. D.G. Bakwad  
Director of Horticulture, Government of Maharashtra  
Shivajinagar, Pune – 411 005

7. Shri Sunil Borkar  
Deputy Director (Irri)  
Commissionerate of Agriculture  
Shivajinagar, Pune – 411 005
8. Shri Sunil Borade  
General Manager  
Reliance Retail Limited, 4<sup>th</sup> Floor, North Block  
Sacred World, Jagtap Chowk, Wanwori, Pune – 411 040
9. Shri Milind Joshi  
Divisional Manager  
Maharashtra State Agricultural Marketing Board (MSAMB)  
Divisional Office, Ratnagiri, Alphonso Mango Export Facility Centre  
APMC Campus, Shantinagar, Nachane, Ratnagiri
10. Dr. Vivek Bhide  
Alphonso Mango Exporter  
At & Post : Malgud, Tal & Dist. Ratnagiri – 415 615
11. Shri Ajit Desai  
Chairman  
Desai Fruits & Vegetable Pvt. Ltd.  
At & PO: Pawas, Dist. Ratnagiri – 415 616
12. Shri Amar Desai  
CEO  
Desai Products (Manufacturer & Exporters)  
At & PO: Pawas, Dist. Ratnagiri – 415 616
13. Shri Nathasaheb P. Khaire  
Parasharam Laxman Khaire & Sons  
Mango & Fruit Commission Agent  
Market Yard, Pune – 411 037
14. Shri Ganesh Ashok Ranade  
Krishi Paryatan  
Ganesh Amarai, Rajapur, Ratnagiri

15. Shri Vivek Dhoble  
Sr. Officer, Buying & Merchandising  
Aditya Birla Retail Ltd.  
Nataraj Residency, Survey No. 11/1A  
Padmavati, Chauhan Nagar  
Pune – 411 009, Ph. No.: 020 – 40551200
16. Shri Kamble  
Asst. Director of Marketing  
Pune – 411 010.
17. Shri Balasaheb Shankar Maskare  
Secretary  
APMC Junnar / Sub-Market Yard  
Narayanagaon, Pune District
18. Shri Shriram Gadwe  
Shivaneri Krishi Gram Vikas Pratisthan  
President, All India Vegetable Growers Association  
Narayanagaon – 410 504, Junnar Taluk, Pune District

**Annexure – II**  
**Wholesale Prices of Tomato in Karnataka and Maharashtra**

Months	Karnataka			Maharashtra		
	Minimum	Maximum	Model	Minimum	Maximum	Model
January	200.00	1600.00	779.00	100.00	150.00	375.00
February	100.00	933.00	356.00	90.00	140.00	575.00
March	133.00	800.00	331.00	150.00	200.00	875.00
April	66.00	1133.00	352.00	100.00	150.00	375.00
May	200.00	1867.00	875.00	100.00	120.00	550.00
June	333.00	2133.00	875.00	200.00	300.00	1250.00
July	266.00	1333.00	727.00	200.00	250.00	1125.00
August	200.00	1266.00	652.00	150.00	200.00	875.00
September	166.00	800.00	390.00	50.00	120.00	425.00
October	133.00	1133.00	456.00	20.00	80.00	250.00
November	266.00	2333.00	889.00	100.00	150.00	375.00
December	400.00	2400.00	1120.00	250.00	300.00	1375.00

**Annexure – III**

**Production of Major Fruits and Vegetables in India (2009-10)**

S.No.	Fruits / Vegetables	Production (000 MT)
<b>Fruits</b>		
1.	Apple	1,795.2
2.	Banana	26,996.6
3.	Citrus	9,452.1
4.	Grape	925.2
5.	Guava	3,224.7
6.	Litchi	491.9
7.	Mango	13,557.1
8.	Papaya	3,911.6
9.	Pineapple	1,420.4
10.	Pomegranate	828.9
11.	Sapota	1,357.7
12.	Others	9,564.1
	<b>Total Fruits</b>	<b>73,526.5</b>
<b>Vegetables</b>		
1.	Brinjal	10,069.8
2.	Cabbage	6,356.8
3.	Cauliflower	5,988.5
4.	Okra (Bhendi)	4,541.2
5.	Peas	3,311.1
6.	Tomato	11,979.7
7.	Onion	12,167.2
8.	Potato	35,888.7
9.	Sweet Potato	1,170.1
10.	Tapioca	9,955.4
11.	Others	34,761.0
	<b>Total Vegetables</b>	<b>1,36,189.5</b>

(Source : National Horticulture Board)

**Annexure – IV**

The Private Retail Traders who have been permitted to buy fruits and vegetables in wholesale market yards in Maharashtra.

**List of Direct Marketing License Holders**

No.	Name & Address of the Licencce holder	Commodity	Area of Operation	License No. & Date
(1)	(2)	(3)	(4)	(5)
1	Aditya Birla Retail Limited, Aditya Birla Retail Centre, Siroya Centre, Next to Le Meridian Hotel, Sahara Airport Road, Mumbai 400 099	Regulated Agricultural Produce	Whole State	DML-01/07 Dt.04/10/2007
2	M/S. Tinna Oils & Chemicals Ltd.G-75-86 MIDC Industrial Area, Latur Tal.Latur,Dist-Latur	Oilseeds & Pulses	Latur Division	DML-02/07 Dt.04/10/2007
3	Pantaloon Retail (India) Ltd. Registred Office-Knowledge House, Shyam Nagar, Off.Jogeshwari Vikroli Link Road Jogeshwari East. Mumbai	All Agricultural Produce	Whole State	DML-12/07 Dt.15/11/2007
4	Quadrangle Trading Services Pvt. Ltd.48/51, Indian Corporation, Opp.Gajanan Petrol Pump, Mankoli Naka, Bhiwandi, Dist.Thane	All Agricultural Produce	Whole State	DML-14/07 Dt.14/12/2007
5	M/S.Puneet Enterprizes, Gut No.423, Dongargaon Road Sillod, Dist-Aurangabad	Raw Cotton	Latur Division	DML-18/08 Dt.17/01/2008

(Contd.)

**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
6	M/S.Mann Cott.Pvt.Ltd. Phule-Pimpalgaon, Majalgaon Tal-Majalgaon, Dist-Beed	Raw Cotton	Aurangabad Division	DML-19/08 Dt.18/01/2008
7	Maharashtra State Cooperative Consumer Federation, Ltd. 87-A, Raj Chambers, 5th Floor, Devaji Ratansi Marg, Danabandar Mumbai-400009	Raw Cotton, Soyabin, Corn, Toor & Sunflower	Latur Division	DML-20/08 Dt.18/01/2008
8	M/S.Manjeet Cotton Pvt.Ltd. Gut.No.196,Pathari Road, Selu,Dist-Parbhani	All Agricultural Produce	Whole State	DML-21/08 Dt.18/01/2008
9	M/S.Satnam Trading Company, Nagade, Tal-Yewala Dist.Nashik	Raw Cotton	Whole State	DML-22/08 Dt.18/01/2008
10	M/S.B.R.Cott.Silsara Road Kodgaon Huda, Tal.Parali, Dist.Beed	Raw Cotton, Soyabin, Corn, Toor & Sunflower.	Whole State	DML-23/08 Dt.24/01/2008
11	M/S.Ansh Cotex Gut No.54 Paithan Shahagad Road Gourigandhari, Tal-Ambad, Dist-Jalana	Raw Cotton, Soyabin, Corn	Whole State	DML-24/08 Dt.24/01/2008
12	M/S.Manjeet Ginning Factory, Bagpimpalgaon, Tal- Georai, Dist-Beed	Raw Cotton, Soyabin, Corn, Toor & Sunflower.	Aurangabad Division	DML-25/08 Dt.24/01/2008
13	M/S.Keshav Ginning & Pressing Factory Survy No.235 & 231, Ambejogai Road, Keij, Dist-Beed	Raw Cotton, Soyabin, Corn, Toor & Sunflower	Latur Division	DML-26/08 Dt.24/01/2008

(Contd.)

**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
14	M/S.Komal Trading Company, Nava Mondha, Tal-Majalgaon Dist.Beed	Raw Cotton, Soyabin, Corn, Toor & Sunflower	Latur Division	DML-27/08 Dt.24/01/2008
15	M/S. Tejas Trading Company C/O Radhika Ginning Factory, Jintur, Dist-Parbhani	Raw Cotton, Soyabin, Corn	Latur Division	DML-28/08 Dt.24/01/2008
16	Indo Distillation Company Pvt.Ltd.Plot No.3, Additional MIDC Area, Dist- Latur	Raw Cotton, Soyabin, Corn	Aurangabad Division	DML-29/08 Dt.24/01/2008
17	Suguna Poultry Farm Ltd. Plot No.6-A, 1st Floor, Modern Society, Chhatrapati Nagar, Ring Road, Nagpur-440015	Jawar, Maize, Broken Rice Bajra	Whole State	DML-30/08 Dt.05/02/2008
18	Home Care Retail Marts (P) Ltd. (Magnet) New Era Mill Compound, Mogul Lane, Matunga (West) Mumbai-400016	Soyabin, Maize, Wheat	Whole State	DML-31/08 Dt.21/02/2008
19	Metro Cash & Carry India Pvt. Ltd. CTS 372 & 372/1 to 372/65 Village-Kanjur, Tal-Kurla Mumbai, Suburban, Dist- LBS Marg, Bhandup (West) Mumbai-400078	All Agricultural Produce	Whole State	DML-35/08 Dt.29/02/2008
20	Pradeep Fibers Pvt. Ltd. Ginning & Pressing Factory Aurangabad-431003	Raw Cotton & Maize	Whole State	DML-36/08 Dt.04/03/2008

(Contd.)

**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
21	Indira Gandhi Mahila Sahakari Soot Girani Ltd., Ichalkaranji, Shivnakwadi, Kolhapur	Raw Cotton	Amrawati Division	DML-38/08 Dt.12/03/2008
22	Wadhawan Food Retail (p) Ltd. Bandra (East) Mumbai-400051	All Fruits & Veg.	Whole State	DML-39/08 Dt.12/03/2008
23	Khet-Se Agriproduce India Private Limited,C-1/9, First Floor, Corporation Bank Building, Sector 31, Noida-201301	All Agricultural Produce	Nashik,Pune, Nagpur, Jalgaon, Ratnagiri Latur & Sangali Dist.	DML-40/08 Dt.31/03/2008 DML-41/08
24	Mahindra Subhlaabh Services Ltd.Mahindra Towers,3 <sup>rd</sup> Floor, P.K.Kurne houk, Warali, Mumbai	All Agricultural Produce	Whole State	Dt.05/04/2008
25	Prasad Fibers Pvt. Ltd., Market Yard, Georai, Dist- Beed	Raw Cotton	Aurangabad Division	DML-46/08 Dt.21/06/2008
26	Deepak Fertilisers & Petro Chemicals Corporations Ltd., Opp. Golf Course, Shastri Nagar, Yerawada, Pune-6	All Agricultural Produce	Whole State	DML-47/08 Dt.27/06/2008
27	Gimatex Industries Pvt. Ltd. Ram Mandir Ward, Hingangaon Dist-Wardha-442301	Raw Cotton	Whole State	DML-49/08 Dt.14/07/2008
28	Deege Cotsum Pvt. Ltd. Ralies Road, Dist-Amrawati-444601	Raw Cotton	Whole State	DML-50/08 Dt.19/07/2008

(Contd.)

**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
29	Hypercity Retail (India) Ltd., 1 <sup>st</sup> Floor, Paradigm, A, Mind Space, Off Link Road, Malad {w} Mumbai-400064	All Agricultural Produce	Whole State	DML-51/08 Dt.24/07/2008
30	Adani Agrifresh Ltd, Adani House, Plot No.83, Institutional Area, Sector-32, Gurgaon, Haryana-122001	All Agricultural Produce	Whole State	DML-52/08 Dt.05/08/2008
31	Rasoya Proteins Ltd. Village Wanjari, Tal-Vani, Dist-Yevatmal-445304	All Agricultural Produce	Whole State	DML-53/08 Dt.26/08/2008
32	Anil Ginning and Pressing Factory, Gat No.145/2, N.H. No. 6, Paldhi, Tal-Dharangaon, Dist-Jalgaon	Raw Cotton	Nasik Division	DML-58/08 Dt.28/08/2008
33	Rohit Ginning and Pressing Factory, Gat No.153, Vanjari (Khurd) Amalner Road, Parola, Dist-Jalgaon	Raw Cotton	Nasik Division	DML-59/08 Dt.28/08/2008
34	Kesharanad Ginning and Pressing Factory Pvt. Ltd., At Post- Daul, Tal-Sindhkhed, Dist-Dhule	Raw Cotton & other Agri. Produce	Whole State	DML-60/08 Dt.29/08/2008
35	Pantaloon Food Product {India} Ltd. M-27, A.P.M.C. Market-II Dana Bandar, Vashi, Navi Mumbai-400703	All Agricultural Produce	Whole State	DML-61/08 Dt.16/09/2008

(Contd.)

**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
36	Murli Industries Ltd. 239, East Wardhaman Nagar Nagpur-440008	All Agricultural Produce	Whole State	DML-62/08 Dt.03/10/2008
37	Shri Swami Samrath Shetkari wa Vinkari Sahakari Soot Girni N-Valsang Tal.Solapur Dist.Solapur	Raw Cotton	Whole State	DML-67/08 Dt.28/11/2008
38	Narmada Solvex Pvt.Ltd. (Regd.Off.) Kirana Bazar Akola-444001 (Factory) Gat No.85 & 89 Hingoli Road, Tal. & Dist. Akola	All Agricultural Produce	Whole State	DML-68/08 Dt.26/12/2008
39	Shri Paldewar Laxmi Oil Extraction, Pvt.Ltd. A-2,1 & 2, M.I.D.C. Nanded	All Agricultural Produce	Whole State	DML-69/08 Dt.26/12/2008
40	Ghodawat Food International Pvt.Ltd. Plot No.431/430, At.Post Chipri, Vai Jaysingpur Tal. Shirol Dist. Kolhapur	All Agricultural Produce	Whole State	DML-70/09 Dt.06/01/2009
41	Dayal Energy & Proteins Ltd. Dayal House, Opp.Govt.Medical College, New Radhakisan Polts, Akola (Factory) At.Babhulgaon, Tal. & Dist. Akola	All Agricultural Produce	Whole State	DML-71/09 Dt.09/02/2009
42	M/s Vichi Agro Product Pvt. Ltd. A355 TTC, MIDC, Mahape-410210 Navi Mumbai	All Agricultural Produce	Whole State	DML-73/09 Dt.25/03/2009
43	Deegee Orchards Pvt. Ltd. Village Dabha Tal. Hinganghat Dist.Amravati	Soyabean	Whole State	DML-74/09 Dt.12/05/2009

(Contd.)

**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
44	Align Retail Traders Private Ltd. C-40, TTC Industrial Area, Near Village Pawane, Thane Belapur Road, Navi Mumbai	All Agricultural Produce	Whole State	DML-75/09 Dt.16/06/2009
45	Booker India Pvt.Ltd. 03, Madhuli, 2 <sup>nd</sup> Floor Beasmat Road, Worali Mumbai	All Agricultural Produce	Whole State	DML-76/09 Dt.24/08/2009
46	Mother Dairy Fruit & Vegetable Pvt. Ltd. NDDDB, Campur, Near Mahanand Dairy (E) Highway, Goregaon, Mumbai	All Agricultural Produce	Whole State	DML-77/09 Dt.10/09/2009
47	The Saswad Mali Sugar Factory Ltd. A/P Malinagar Tal.Malshiras Dist. Solapur	All Agricultural Produce	Whole State	DML-78/09 Dt.01/10/2009
48	J.S.Cotton Industries, Mangrulpri Road, Near Railway Station Tal.Barshitali Dist.Akola	Raw Cotton	Amravati Division	DML-79/09 Dt.04/01/2010
49	Gopala Agro Industries, Sendurni, Jamner, Jalgaon	Raw Cotton	Nashik Div.	DML -80/10 Dt. 20/01/2010
50	Dayal Cotspin Ltd. Cotton Ginning & Pressing Factory Vanjari Tal.Vani Dist.Yavtmal	Raw Cotton, Gram, Tur, Sunflower, Soyabean	Amrawati Division	DML-81/010 Dt.01/2/2010
51	Panasian Inpex pri Ltd. Gut No.49/2, N.H No.6 By pass Malkapur 443101 Dist.Buldana	Raw Cotton Division	Amrawati	DML-82/010 Dt.04/2/2010

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**Annexure – IV : (Contd.)**

(1)	(2)	(3)	(4)	(5)
52	Poonam Seeds Company Nagradas Tal.Malegaon Dist. Vashim	All Agricultural Produce	Amrawati Division	DML-83/010 Dt.20/4/2010
53	M/s. S.K. & R.K. Company, Rajeshkumar Jaiswal, Shop No.2, Bldg. No.118, Sunmitra CHS, Gorai, Boriwali West, Mumbai	All Agricultural Produce	Nashik Division	DML-84/010 Dt.24/5/2010
54	Shetkari Bhajipala Puravata Sah. Sanstha Ltd., 2/3 Bhimashankar Varkari CHS, Pipeline, Dhobi Ghat, Sakinaka, Mumbai	All Agricultural Produce	Whole State Dt.25/6/2010	DML-85/010
55	Reliance Fresh Ltd, Wanawari, Pune	All Agricultural Produce	Whole State	DML-87/10 Dt.22/7/2010
56	Field Fresh Foods Pvt Ltd, Pune	All Agricultural Produce	Whole State	DML-88/10 Dt.2/8/2010

**Annexure – V**

The Private Retail Traders who have been permitted to buy fruits and vegetables in wholesale market yards in Karnataka.

S.No.	Name of the company
1.	Reliance Agri Products & Distribution Ltd.(Reliance Fresh with 45 outlets)
2.	Metro Cash & Carry India (Pvt.) Ltd.(Metro Cash & Carry with 2 outlets)
3.	Namdhari Fresh Ltd.(Namdhari Fresh with 14 outlets)
4.	Pantaloons Retails Ltd.(Big Bazar with 12 outlets)
5.	Heritage Food India Ltd.(Heritage Food with 11 outlets)
6.	Food World (30 outlets)
7.	Max Hyper Market (India) Ltd. (With 2 outlets).

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