

Strategic Change in Model of Fruit and Vegetables Supply Chain

1. Introduction

In today's highly competitive global market place, the pressure on organizations to find new ways to create and deliver value grows even stronger. Gradually, in emerging economies as well as mature markets, the power of the buyer has overtaken that of the customer. The rules are different in a buyer market. In particular, customer service becomes a key differentiator as the sophistication and the demands of customers continually increase. At the same time, market maturity combined with new sources of global competition has led to over capacity in many industries leading to an inevitable pressure in prices. Prices have always been a critical competitive variable in many markets and the signs are that, it becomes an issue to think upon as commoditization of markets continues.

Supply chain management plays an integral role in keeping business costs minimum and profitability as high as possible. There are many factors involved in supply chain management. Flow is the foremost element, the foundation for all aspects of the process. There are three main types of flow, such as the product flow, the information flow and the finances flow. The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The information flow involves transmitting orders and updating the status of delivery. The challenge for us in supply chain management is to maintain all three flows and all three unique in an efficient manner, resulting in optimal results for farmers, growers, wholesalers and customers.

2. Supply Chain Management

Supply Chain Management (SCM) is the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption. The term supply chain management was coined by a consultant Keith Oliver, of strategy consulting firm Booz Allen Hamilton in 1982. Supply Chain Management (SCM) is the oversight of materials, information,

and finances as they move in a process from supplier to wholesaler to retailer and to the consumer. Supply chain management involves coordinating and integrating these flows both within and among companies.

Hence, supply chain management is defined as the design and operation of physical, management information and financial systems needed to transfer goods and services from point of production to point of consumption in an efficient and effective manner. The entire supply chain management process is a value chain where bottlenecks, value adding factors and liability factors are identified and addressed, thus enabling the retail organization to have an efficient supply chain. The supply is the part of retail operations that ensures that the right product is in the right place, at the right time and at the right cost. The supply chain perspective can help the retailers identify superior suppliers and distributors and help them to improve productivity, which ultimately brings down customers costs.

3. Objective

About 30 percent of the fruits and vegetables grown in India gets wasted annually resulting in instability of prices, farmers not getting remunerative prices, rural impoverishment culminating in farmers' frustrations and suicides. Enough attention has been paid at the pre-harvest stages for bolstering the levels of production by innovative techniques like crop rotation, soil conservation, pest control, fertilizers, irrigation, etc., but, post harvest issues have not been addressed adequately. Despite having achieved national food security, the lives of over 200 million Indian farmers and farm workers and their well-being who have been the backbone of Indian agriculture continue to be a matter of grave concern. Agriculture and its allied industries sector employs 67 per cent of the country's population. By practicing improved supply chain management practices, there will be significant reduction in the wastages of fruits and vegetables which in turn will benefit both the farmers as well as the consumers by means of increased returns and decrease in prices respectively.

Important advantages of supply chain management are:

1. Reduction product losses in transportation and storage
2. Increasing of sales
3. Dissemination of technology, advanced techniques, capital and knowledge among chain partners
4. Better Information about the flow of products, markets and technologies
5. Tracking and tracing to the source
6. Better control of product safety and quality
7. Large investments and risks are shared among partners in the chain
8. Increasing efficiencies and increasing the volume of trade
9. Customer satisfaction

4. Indian Fresh Fruits and Vegetables Supply Chain

India's agricultural sector accounts for GDP and growth, however most of India's Population continues to depend on it. Despite rapid growth of the services and industries sector as globalization leads to assimilation of foreign technology and practices, agriculture continues to lives in medieval times. India's food supply chain leads to massive wastage and inefficiencies with 30% of India's vegetable and fruit produce being wasted. The inadequate supply chain leads to periodic shortages of food items used by Indian part of the daily diet. Onion prices have hit around Rs.70-80 per kg.

In Indian market, there is two different kind of supply chain exists in the fresh fruits and vegetables market. The main difference between the two supply chains is this that the number of intermediates in the traditional supply chain is high and thus the amount of wastage is high and transaction cost is also high in traditional supply chain.

5. Present Fruit and Vegetable Supply Chain Model in India

Fig. 1 shows the schematic diagram of fruit and vegetable supply chain in India shows the number of intermediates involved in the traditional supply chain of fruit and vegetables in India. In India the majority of the trade happens through traditional path. Generally the growers sale fruits and vegetables to the middleman who collect fruits from various adjacent areas and sales to the commission agent or traders. Commission agents are the middleman who find various buyers for the local middleman and take some commission against the sales made. They generally find out the bigger players or traders who buy fruits in large quantity. Then trader collects all small quantities and consolidates of large varieties and sale those to the wholesaler.

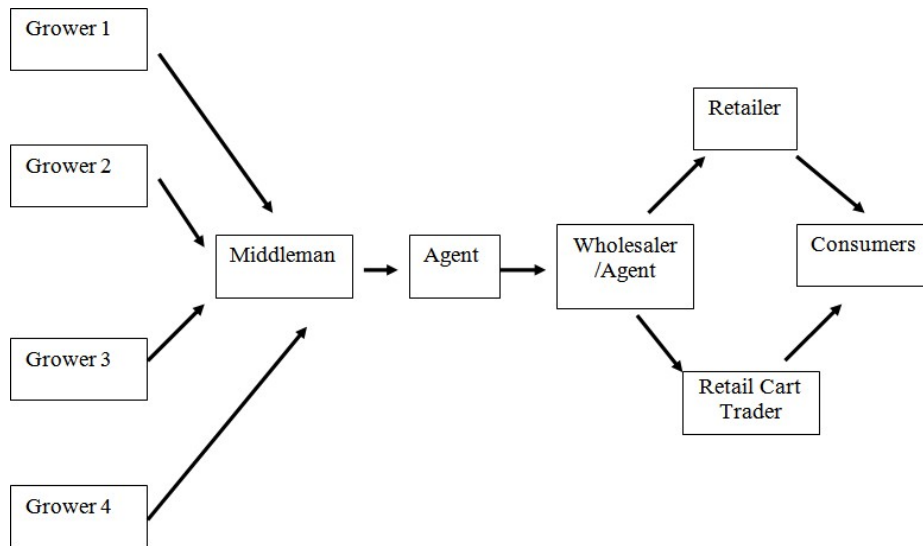


FIG. 1: Flow of supply chain of Oranges in local areas market.

The main problem in this supply chain is the transaction cost is too high due to more number of intermediaries in the value chain. Only 30-35% of the end price reaches to the fruit growers and other part goes to the different intermediaries. Since supply chain is long and scattered, wastage of fruit and vegetables is around 10-12% of the total quantity which increases the possibility of cost rise for the consumers.

6. Proposed Supply Chain Model

Fig. 2 shows the schematic diagram of fruit and vegetable supply chain in India shows the number of intermediates involved in the supply chain of fruit and vegetables is reduced. Farmers or growers transport fruits and vegetables from farming location to the buying centers. Modes of transport are mini truck, bullock cart, bicycle, tricycle, motorcycle and baskets etc. At the buying centers (APMC) auction for wholesalers to purchase from growers. Then organization should provide the facility with good infrastructure, equipment, and new technology for sorting, grading the fruits and vegetables. After proper sorting and grading fruits and vegetables will be packaged in crates and boxes. Then it is sold.

Thus by the improved supply chain model, transportation limits up to certain extent. And reduces inefficiencies in supply chain, proper handling, and minimize the rate of wastage, thus reducing the overheads of supply chain. Minimization of transportation and wastage during the supply chain of fruit and vegetables controls prices for end customer with proper food quality. So the end cost may reduce up to 20-30% and wastage can be reduced up to 10-15%.

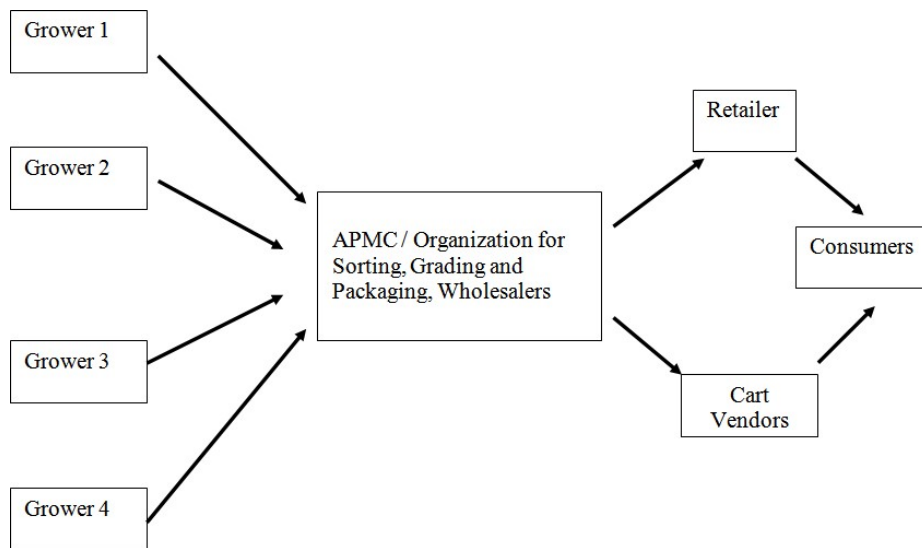


Fig. 2: Proposed supply chain model of fruit and vegetables.

7. Conclusion

Vegetables, fruits play a vital role for the existence of people and also a very influencing role in the economy of India. The traditional retailing of vegetables are not much organized, about 97% of the total market is extremely localized and highly fragmented with large number of intermediaries. The long transport process from the growers to the final consumer occurs the wastage of 10-12% of total in addition to the transportation cost. This increases the cost of fruit and vegetable for the final customer also hampers the quality. The food supply chain needs the attention of the academics, the industry and the Government. In the traditional business model; wholesalers are intermediaries and a predominant link in the retail vegetable logistical chain. In general, all the retailers are inevitably dependent on the local wholesales market. The major constraints are poor transport facilities, non availability of large scale cold storage, no clean policy guidelines from government and fragmented and small farmers.

The inefficiencies discussed in the above study have to be handles more carefully. The factors which affect the supply chain also have to be monitored and development to improve the supply chain efficiency has to be carried out in India. Working with suppliers on different issues not only generates significant environmental benefits, but also opportunities for cost containment and enhanced quality of product.