

Study of Select Issues in Fresh Produce Supply Chain Management

Extended Abstract

In the current scenario, there is a huge rise in prices of the fresh produce (fruits, flowers and vegetables), because of shortage in supply. The problem of increasing prices has become a topic of national concern and is being discussed in various forums. To deal with the current situation, we may look at the available options. One option is to increase the land under fresh produce cultivation, which may affect the land under food-grain cultivation. But, many researchers and policy makers are against this trend as they believe that food grains are still very important for national food security. The other option is use of high yielding genetically modified seeds. This option has attracted a huge criticism and opposition from various segments of the nation on the debate of BT-brinjal. Hence, we propose to minimize the post-harvest waste, which will increase the availability of fresh produce. It is found that the effort and time in reducing the post-harvest waste is much lesser than producing the same amount of fresh produce. The problem of post-harvest waste reduction can be dealt with introducing tax incentives and other similar policies by the government. It can also be dealt with improving the infrastructure policies. But, both of these decisions are time consuming and needs a lots of stake holders to agree at one time. Therefore, we propose to reduce the post-harvest waste by improving the farming and management practices in the fresh produce supply chains.

The objective of this research is therefore to identify the major reasons for post-harvest waste and to provide effective solutions to deal with those reasons. For this purpose, an extensive review of the supply chain management literature addressing fresh produce is done. This gives a complete picture of the current state of the domain. The literature addressing the fresh produce is considered leaving other agriculture produce such as milk, poultry, and food grains. We also conducted semi-structured interviews with various stake-holders (farmers, commission agents, cold storages owners, transporters and customers) to find out the real reasons for post-harvest waste. The major findings are (i) lack of demand visibility at a disaggregate level, (ii) lack of demand supply synchronization, (iii) lack of proper inventory management, and (iv) lack of effective transportation.

Therefore the research questions to be addressed are

- How to forecast the daily demand of fresh produce?
- How to decide the harvesting schedule for the fresh produce?
- How to manage the inventory of fresh produce?
- How to minimize the transportation losses of fresh produce?

The overall research approach to be followed

Step 1:Comprehensive literature review for identifying the major causes of waste in different stages of fresh produce supply chains

Step 2:The gaps in the literature will be identified

Step 3:Models will be proposed to address the identified reasons for waste.

Step 4:The models will be tested on simulated problem instances

Step 5:Solution techniques will be applied to solve the simulated problems.

Step 6:The models will be validated on another datasets or by sensitivity analysis.

Step 7:The applicability and future scope of the approach will be analyzed.