



## Importance of Post-Harvest Processing of Fruits and Vegetables

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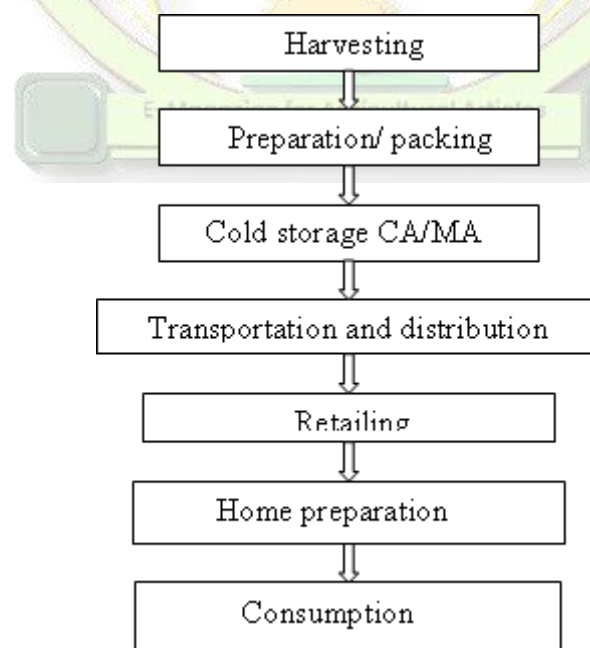
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India is the 2<sup>nd</sup> largest vegetable and 3<sup>rd</sup> largest fruit producer in the world. Major States - Maharashtra, Andhra Pradesh, Gujarat, Karnataka and Uttar Pradesh are the leading producers of fruits in India, having a combined share of around 50% in the total fruits production. For Vegetables, major producers include West Bengal, Uttar Pradesh, Bihar, Madhya Pradesh and Gujarat, together accounting for over 50% of the national production.

The word “harvest” triggers many sensations among people in countries that depend on agricultural production. It is the beginning of realizing the gain from all the hard work that has been put in right from the time of planting, watching the crop grow and bear fruit.

**Post harvest technology-** post harvest technology constitute an inter- disciplinary science and techniques applied to agricultural commodities after harvest for the purpose of preservation, conservation, quality control/ enhancement, processing, packaging, storage, distribution, marketing and utilization to meet the food and nutritional requirements of consumers in relation to their needs. Post- harvest technology may be defined as the branch of agriculture that deals with all the operation right from harvesting or even the pre- harvest stage till the commodity reach the consumer, either in fresh (grain, apple, mango, tomato fruits) or processed form (flour, juice, ketchup) and utilization of the wastes (pomace, peel, seed, skin) in a profitable manner (manufacture of fermented beverage, colour extraction, pectin extraction, etc).

### Flow Chart: - Typical post harvest operation



### Flow Chart: - Losses in Food Chain

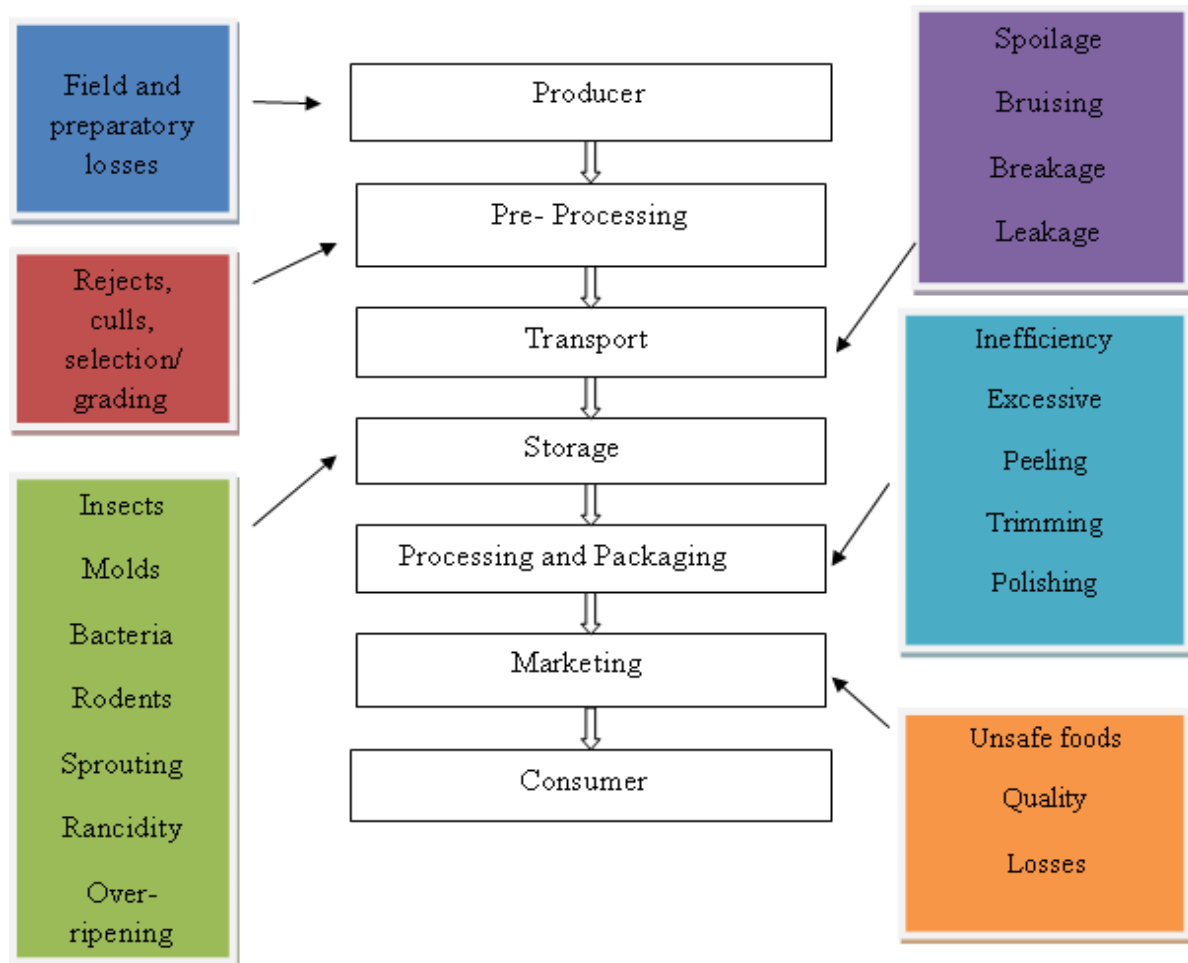


Fig.2:- Losses in Food Chain

### Fruits and vegetable processing

India is the world's second largest producer of fruits and vegetables. It has potential to grow all types of temperate, sub-tropical and tropical fruits and vegetables because of varied agro-climatic diversity. The total production of fruits and vegetable is over 45 million tonnes and 85 million tonnes respectively. The losses are estimated to the extent of 20-30 per cent due to lack of proper harvesting, processing and storage facilities, which is valued at Rs. 230 billion. The processed products from fruits and vegetables are beverages, jams, jellies, candies, preserves, canned fruits and vegetables, dehydrated fruits and vegetables, pickles, soup mixes, sauces and ketchups. Products that have growing demand, especially in the Middle East countries include pickles, chutneys, fruit pulps, canned fruits and vegetables, concentrated pulps and juices, dehydrated vegetables and frozen fruits and vegetables. People generally prefer fresh fruits and vegetables in India due to abundance of seasonal fruits throughout the year available at low price. The production of pickles and chutneys has traditionally been rural level cottage industrial activity. However, in the recent years, processed foods in the form of canned fruits such as pineapple, mango slices and pulps, grapes, apple, peaches etc have increased considerably. The uses of fruits in the form of concentrated juice, dry powder, jam and jelly have also increased. The percentage production of processed fruits and vegetables are fruit juice and fruit pulp - 27, jams and jellies - 10, pickles -12, ready to serve beverages -13, synthetic syrups - 8, squashes - 4, tomato products - 4, canned vegetables- 4 and others -18.

**Durables** Low moisture content, usually 10–15% or less; Small unit size, typically less than 1 g; Low-respiration rate, with very small rate of heat generation; Hard texture, not easily damaged; and Stable with natural shelf-life of several years. Losses mostly caused by external agents, e.g. agents such as molds, insects and rodents.

**Perishables** High moisture content, typically 50–90%; Large unit size, typically 5 g–5 kg, occasionally even larger; High to very high respiration rate, and rate of heat production; Soft texture, easily damaged, highly perishable, with natural shelf-life of a few days to at best few months; and Losses mainly caused by external rotting by bacteria and fungi and partly by endogenous factors, respiration, senescence and sprouting.

### **Importance of post-harvest processing of fruits and vegetables**

**1. Reduction of cost of production:** Post-harvest technology reduces the cost of production, packaging, storage for the consumer and increases the farmer income.

**2. Reduction in post-harvest losses:** Post-harvest technology ensures the reduction of losses in what has already been produced. So, reduction of post –harvest losses is an alternative way of increasing the production of agricultural and horticultural crops.

**3. Economic loss reduction:** Reduces economic losses at the grower level, during the marketing, and at the consumer's end.

**4. Reduction malnutrition:** Proper post harvest technology ensures the availability of sufficient food to all thus reducing malnutrition and ensuring healthy growth of the nation. It also extends the season of availability of a particular commodity.

**5. Employment generation:** The food processing industry ranks first in terms of employment generation with approximately 15 lakhs persons employed. Employment potential in the post-harvest and value addition sector is considered to be high.

**6. Export earning:** Export of fresh and processed horticultural commodities also attracts valuable foreign exchange.