Advanced Packaging Technology: A Boon for Fruit Marketing

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Abstract
India has great potential to produce high quality fruits of different kinds and to export them to other countries but its marketability is still limited to local market. This is due to the delicate nature of fruits, poor handling practices and inadequate storage facilities. The storage life and quality of fruits after harvesting depend on packaging material and storage environment of fruits. Use of proper packaging and cushioning materials help a great extent to enhance shelf life of fruits. In nowadays competitive environment the role of package has changed due to increasing self-service and changing consumer’s lifestyle. Firm’s interest in package as a tool of sales promotion is growing increasingly. Package becomes an ultimate selling proposition stimulating impulsive buying behaviour, increasing market share and reducing promotional costs. Package attracts consumer’s attention to particular brand, enhances its image, and influences consumer’s perceptions about product.

Introduction
The use of properly designed containers for transporting and marketing of fruits and vegetables can significantly reduce their losses and maintain their freshness succulence and quality for longer period. Packaging also provides protection from mechanical damage and undesirable physiological changes and pathological deterioration during storage, transportation and marketing. Protection against bruising and physical injury. A good packing provides protection against microbial contamination and deterioration it also provide ventilation for respiration and exchange of gases. Protect against moisture / weight loss. Slow down respiration rate, delay ripening and increase storage life. Control ethylene concentrations in the package. These are the some advantages of advanced packing technology.

Types of Packaging
(Stage of distribution)

Consumer packaging
The package in which consumer receives the produce is called consumer packaging. Types of consumer packages are Bags, Tray packs, Sleeve packs

Transport packaging
Transport packages are designed for long distance transportation in capacities ranging from 4 – 5 kg to 20 – 25 kg. These packs must withstand impacts, compression and vibration during transport. Transport packages are viz., Wooden boxes, Corrugated fibreboard boxes, Sacks, Plastic Crates.

New Technology in Fresh Fruit Packaging
The modified atmosphere concept for packaged goods consists of modifying the atmosphere surrounding a food product by vacuum, gas flushing or controlled permeability of the pack thus controlling the biochemical, enzymatic and microbial actions so as to avoid or decrease the main degradations that might occur.

**Vacuum Packaging**

Vacuum packaging is removing air from the product pouch and hermetically sealing it. The single most important reason for creating a vacuum in food packaging is to remove oxygen from around the thing that we are going to store. Meena *et al.* 2017

**Shrink Wrap Packaging**

Shrink-wrap packaging is a new technique in which heat shrinkable poly film is used to wrap the individual fruit and over wrapping of trays.

**Active Packaging**

A packaging system actively changing the condition of the package to improve food safety, extend shelf life, enhance sensory properties, and maintain the quality of the products. (By Ethylene Scavenging, Oxygen scavenging, Humidity control, Carbon dioxide release)

**Intelligent Packaging**

A packaging system that is capable of carrying out intelligent functions like detecting, sensing, recording, tracing, communicating, applying scientific logic, improve quality, provide information and warn about possible problems. Intelligent packaging system has the ability to Track the product, Sense the environment inside or outside the package, Inform the manufacturer, retailer and consumer.

**Biodegradable Packaging**

Biodegradable means that it can be broken down by the earth. A biodegradable product is disposed of to the earth. The microorganisms in the earth (bacteria, fungi or other simple organisms), break the object down by natural processes, into more basic components. The end of the process results in Carbon Dioxide (CO₂) and Water (H₂O). A 100% biodegradable product will be completely broken down, with no remain trace.

**Conclusion**

All the marketing units should pay attention for good packaging. The poor packaging is one of the causes of product failure in the market. The shelf-life of fresh fruits and vegetables can be extended to 4-6 days by MAP treatments. Fruit appearance was maintained. Shrink-wrapping adversely affected the taste and flavour during extended storage. Present packaging, needs to match the international standards in acceptable cost. Package could be treated as one of most valuable tool in today’s marketing communications.

**References**

