

Packing House Operations for Fruits and Vegetables



Packing houses serve as a collection centre for fruits and vegetables prior to distribution and marketing. The houses can be simple packing sheds with a limited equipment and minimal operations or a large complex that is well equipped and with facilities for specialized operations. The types of operation carried out vary with different commodities and market requirements. Produce that are destined for export or supermarket outlets are often subjected to elaborate operations compared to local markets. Some of the operations are as follows:

Sorting and Trimming

Freshly harvested fruits and vegetables are sorted for uniformity in size, shape and varietal characteristics. Damaged, discoloured and decayed parts are removed to make the produce more attractive and prevent infection from the diseased parts.

Washing

Washing is necessary to remove extraneous materials from the field such as dirt, chemicals and latex. This is usually done before storage or immediate retailing of the produce. In order to reduce the incident of decay, chlorine is often added to the wash water.

Drying

Drying is done to remove excessive moisture from the surface of the produce. Excessive drying should be avoided to prevent wilting, shrinking and water loss.

Waxing

Waxing is done on certain types of fruits and vegetables such as ginger, tomato, citrus and melons to reduce water loss, thereby reducing shriveling. In addition to that, the application of edible wax will enhance the appearance of the produce.

Curing

Injured and bruised surfaces of root, rhizome and tuberous crops are allowed to heal by holding them at ambient temperatures for a few days. Curing initiates the formation of periderm layers at wound areas, thereby reducing moisture loss and microbial infection. Sufficiently cured vegetables can be stored for a longer period.

Chemical Treatments

Fungicides and growth regulators are commonly used to reduce decay and undesirable growth respectively. The use of chemicals should be closely supervised and within the recommended levels for human consumption.

Grading

Fresh fruits and vegetables are classified into groups according to a set of recognized criteria of quality and size, with each bearing an accepted name and size grouping.

Packaging

Produce are packed in suitable containers to provide protection against mechanical and biological damages during transportation and subsequent handling operations. Packaging materials should be of accepted standards with regard to strength, ruggedness and resistance to pressure. Packages should have adequate ventilation so that produce will not warm up as a result of heat arising from respiration. Excessive ventilation, however, may result in wilting.

Pre-cooling

Pre-cooling is an essential step prior to storage at low temperatures. It is the rapid removal of field heat from the produce to reduce the rate of respiration, microbial activity and refrigeration load. Pre-cooling can be done with chilled water, ice or cool air (forced air cooling), whereby the produce is cooled to the

half cooling temperature.

Storage

Storage at low temperatures has been an effective mean of extending the shelf-life of fresh fruits and vegetables. It also enables orderly marketing and distribution of produce in time of peak production. Temperature requirements for different produce may vary depending on variety, location, stage of maturity and other factors. It is important to note that cool storage is a tool used to maintain quality but not to improve it.

Transportation

Proper handling of the produce during transportation is essential to reduce losses to a minimum and to maintain their quality from the farm to the packing house and from packing house to market. The use of refrigerated trucks to transport highly perishable and high value produce will maintain their quality over an extended duration. In non ventilated vans, temperature of the fruits or vegetables rises quickly, increasing respiration and decay.



Packaging and storage facilities suitable for bulk handling of fruits and vegetables