

## **FST-204, Post-Harvest Technology 3(2-1)**

**Educational Objectives:** Review emerging postharvest technologies for horticultural products, especially perishables like fruit, vegetables, and flowers, for better harvesting, storage, transportation and marketing.

**Course outcomes:**

1. Understanding the post-harvest strategies
2. Application of post-harvest methods to reduce food losses
3. Identification of the fruit harvesting issues and methods to counter them

**Course contents:**

- Postharvest technology: introduction,
- production, trade, postharvest losses,
- causes and prevention.
- Stages in the life span of fruit & vegetable.
- Harvesting, handling and transportation methods.
- Deterioration: biological factors – respiration, climacteric and non-climacteric patterns, ethylene production,
- water loss, growth and development,
- pectic substances and environmental factors.
- Fruit ripening: changes during ripening,
- recommended conditions, commercial practices.
- Maturity assessment of different fruits and vegetables.
- Postharvest physiology of fruits and vegetables.
- Postharvest treatments: mineral, coating, curing,
- vapor heat treatment, hot water treatment,
- degreening and others. Storage: refrigerated,
- Controlled atmosphere, hypobaric,
- Modified atmosphere storage.
- Packaging: types, design,
- modified atmospheric packaging, recycling.
- Packing house operations.
- Marketing and transportation.
- Safety and quality of fruits and vegetables.
- Postharvest technology of tea and coffee.

- New developments in postharvest technology.
- Modified atmosphere packaging and minimal processing.

**Practical:**

- Maturity indices. Grading and sorting.
- Postharvest techniques.
- Effect of packaging materials on stored fruits and vegetables.
- Effect of different postharvest treatments during storage.
- Quality testing of fruits and vegetables.

**Recommended Books:**

1. Tanweer Alam, Packaging and storage of fruits and vegetables: Emerging Trends, 2021, Routledge, Taylor and Francis.
2. Bambang Kuswandi, Mohammad Wasim Siddiqui, 2022, Sensor based quality assessment of fruits and vegetables, Routledge, Taylor and Francis.
3. Singh Bijendra, 2018, Advances in Post-Harvest technologies of vegetable crops, Apple Academic Press
4. Wojciech Florkowski, Nigel Banks, Robert Shewfelt, Stanley Prussia, 2014, Post Harvest Handling- A Systems Approach, Elsevier
5. Chavan, U.D. 2012. Postharvest management and processing technology: cereals, pulses, oilseeds, fruits and vegetables. Daya Publishing House, India.
6. Rees, D., Farrell, G. and Orchard, J. 2012. Crop post-harvest: Science and technology: Perishables. Wiley-Blackwell, USA.
7. Vazquez, M. and Ramirez, J.A. 2013. Advances in post-harvest treatments and fruit quality and safety (Advances in food safety and food microbiology). Nova Science Publisher, USA.