Plant Biology 172

POSTHARVEST PHYSIOLOGY AND HANDLING OF HORTICULTURAL COMMODITIES

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POSTHARVEST PHYSIOLOGY AND HANDLING OF HORTICULTURAL COMMODITIES (3) **PLANT BIOLOGY 172 FALL QUARTER**

COURSE GOALS:

1. To study factors related to quantitative and qualitative losses of horticultural commodities after harvest, including physiological considerations as well as compositional and physical changes occurring during maturation and deterioration.

2. To study commercial procedures of harvesting, handling, storage, and marketing horticultural perishables in relation to commodity requirements and responses.

TEXT USED:

None required. A detailed outline including relevant references for each lecture will be distributed during the class.

ENTRY LEVEL:

Designed for upper division undergraduate and graduate students in the plant and food sciences but open to other interested students. Some background in plant physiology would be beneficial. The accompanying laboratory, PLB 172L, is recommended but not required.

FORMAT:

Three lectures per week. Optional discussion periods if desired. Grade based on one midterm plus final examination. Problem sets may also be used.

TOPICAL OUTLINE:

A. General Biological Considerations (14 lectures)

1. Respiration: measurement, comparative rates, significance, and affecting factors.
2. Role of plant hormones, especially ethylene in senescence.
3. Composition, quality, and safety.
4. Fruit maturation, ripening, and senescence.
5. Transpiration: characterization, significance, and affecting factors.
6. Physiological disorders.
7. Pathology: host-pathogen relationships, disease control methods.

B. Commercial Practices (7 lectures)

1. Standardization and inspection: maturity, quality, condition, etc.
2. Harvesting and handling systems; preharvest factors influencing quality.
3. Preparation for market: sorting, sizing, washing, waxing, packaging, etc.
4. Temperature and relative humidity control, cooling methods, storage methods.
5. Modified and controlled atmosphere storage; transportation and distribution.
6. Marketing fresh produce.

C. Commodity Considerations (8 lectures)

1. Fruits, temperate, subtropical, tropical.
2. Vegetables: fruit, leaf, stem, root, tuber, bulb, fresh herbs.
3. Fresh cut (lightly-processed) fruits and vegetables.
4. Ornamentals: cut flowers, potted plants, nursery materials, propagules.
5. Tree nuts and dried fruits and vegetables.

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