

Postharvest Sample Questions

Sample Questions - Specific Commodities & Putting It All Together

Commodity Specific Information.

Know the following information to answer general handling requirements of different commodities:

- Know which fruits, vegetables and cut flowers are climacteric and non-climacteric.
- Know the general respiration and ethylene production rates (e.g. very low, low, moderate, high or very high) of the different fruits, vegetables and cut flowers.
- Which of the commodities covered are chilling sensitive?
- Keep in mind the general surface to volume ratios of the commodities (e.g. low, medium, high) and how they relate to water loss and gas diffusion in and out of the commodity.
- Know each commodity's general susceptibility to mechanical injury.
- Know the general types of physiological disorders that the different commodities are susceptible to.
- What are the main problem decay organisms for the different commodities?
- Know what commodities might not be compatible with each other during storage and transportation and why (e.g. optimum storage temperatures, relative humidity, ethylene production and susceptibility, odors, etc.).

Sample questions related to the above:

What is the major cause of deterioration in vegetables? How does it reduce quality and how can postharvest handling procedures be modified to minimize it?

Give four reasons why potatoes are easier to store than lettuce.

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How does curing of onions differ from curing of potatoes, sweetpotatoes and yams?

A supermarket produce manager is reviewing the shipment that came in late yesterday. He notices that the strawberries have decay. What should he do?

Which postharvest practices would you recommend to achieve the following goals:

- a. Store fresh apples for 9 months with minimal losses in quality.
- b. Minimize internal breakdown incidence and symptom severity in peaches.
- c. Control decay of table grapes and strawberries.
- d. Avoid oil spotting on citrus fruits.
- e. Control anthracnose on mangoes and papayas.
- f. Minimize loss of sugar in sweet corn.
- g. Protect cut carnation flowers from the effects of exposure to ethylene.
- h. Prevent greening of potato tubers.

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Indicate whether the following statements are true or false and tell why.

- a. All kinds of citrus fruit are equally sensitive to chilling injury.
- b. Bartlett pears and Macintosh apples should not be stored together.
- c. Avocado fruit can be "stored" on the tree.
- d. Ethylene treatment is used to artificially ripen climacteric fruits.
- e. Papayas shipped from Hawaii to the mainland U.S. require special treatment for insect control.
- f. Cabbage and table grapes can be held together in long-term storage.
- g. Citrus fruit should not be harvested early in the morning.
- h. Kiwifruits and apples can be stored together.

Give an example of a vegetable in which the edible portion is produced from the following parts of a plant.

- a. apical bud
- b. flower bud
- c. petiole
- d. leaf blade
- e. stem
- f. root

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You should be able to predict the postharvest behavior of the following crops based on your knowledge of the general groups to which they belong. For each crop, address perishability, respiration rate, water loss, mechanical damage, and optimum storage temperature.

a) Surinam cherry (nonclimacteric tropical fruit)

b) Okra (immature fruit-type vegetable)

c) Daffodil (temperate-zone cut flower)

d) French prune (stone fruit)

e) Guava (tropical fruit)

f) Jicama (tropical root crop)

g) Quince (pome fruit)

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You just bought a dozen roses for your sweetheart. How can you help assure that the flowers open completely and that the bloom lasts as long as possible?

A researcher from Indonesia comes to your laboratory to carry out studies on a flower native to his country that he thinks has great potential as a commercial cut flower. The flower is a tall spike and, when fully open, is covered in large fragrant florets. What important factors are likely to affect its postharvest life and quality?

Explain how to handle cut flowers so that water loss (wilting) does not become a problem during the postharvest period.

What barriers can block water movement up the stem of cut flowers?

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Make your best recommendation for harvesting and handling a tropical storage organ like taro in an area where chemical fungicides and refrigerated storage facilities are not available.

What are the three main causes of losses of berries and how are they related?

Why are berries always hand-harvested and field-packed?

What is ‘curing’, what kinds of crops are cured, what are the benefits of curing?

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Synthesis Questions

Temperature control has been mentioned throughout the course as the number one tool that the postharvest horticulturist has at his disposal to maintain the quality of fresh flowers, fruits and vegetables. Briefly describe how temperature management relates to the following.

a. Postharvest pathogens:

b. Physiological disorders:

c. Water loss:

d. Respiration:

List the important steps and considerations in your research program intended to develop a practical maturity index for a new orange-fleshed muskmelon variety.

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You are asked to determine the optimum requirements for maintaining quality of a tropical fruit crop for which little information is available. What tests will you carry out to provide the answer?

We have studied many quality parameters such as color, texture, size, firmness, shape, maturity, soluble solids, and organic acid level. The grower, the packinghouse operator, the wholesaler, the retailer, or the consumer may have different ideas about what standards a crop should meet.

Choose two of the above persons and explain how and why they might disagree concerning the relative importance of these parameters for a particular crop.

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Design a postharvest handling system (harvest to sale at destination markets) for a hypothetical perishable horticultural commodity.

E.g., develop a handling system for thing-a-ma-bobs (TAMBS). These are small, round climacteric fruits with a good balance of sugars and acids. They have a thin cuticle, tiny hairs, and a high rate of respiration. Discuss such things as harvest maturities, method of harvest, transportation to packinghouse vs. field packing, cooling, postharvest treatments, likely optimum storage and shipping conditions (temperature and relative humidity), compatibility with other commodities, means of transport, etc.

What additional information might you need to further optimize recommended handling practices of TAMBS?