


Problem Diagnosis/Quiz

Postharvest Problems

- Know the product
- What are common causes of quality loss
- Develop a photo library of problems of known origin



Now a quiz for us all.....

Suggestions to help in problem diagnosis

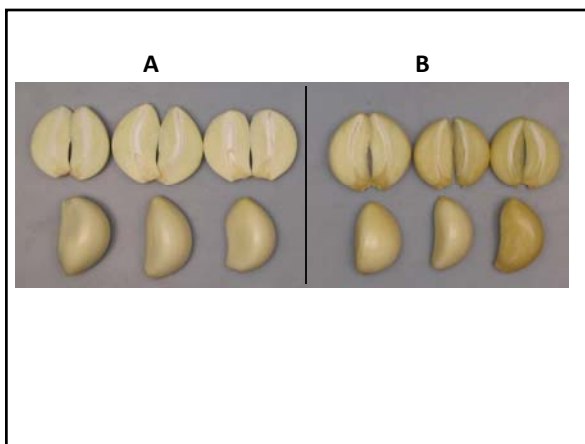
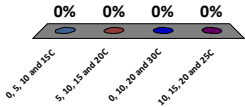
- Document with good photos-when & where taken
- When and where harvested, variety, maturity, etc.
- Summary of handling procedures—details,details
- Storage, shipping, distribution conditions
- Was it handled or shipped differently from usual procedures?
- How long have you had the product?
- DETAILS DO MAKE A DIFFERENCE!

Now a quiz for us all.....



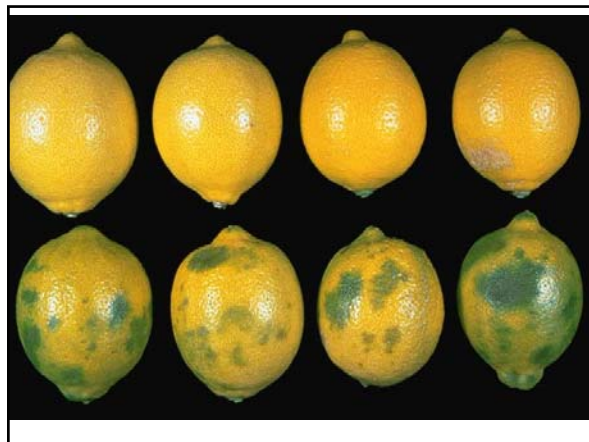
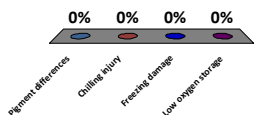
These strawberry clamshells were held for 7 days at which temperatures?

- A. 0, 5, 10 and 15C
- B. 5, 10, 15 and 20C
- C. 0, 10, 20 and 30C
- D. 10, 15, 20 and 25C



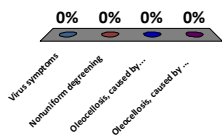
The difference between Garlic A and Garlic B is due to:

- A. Pigment differences
- B. Chilling injury
- C. Freezing damage
- D. Low oxygen storage



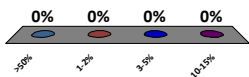
The bottom row of lemons are suffering from

- A. Virus symptoms
- B. Nonuniform degreening
- C. Oleocellosis, caused by damage at harvest
- D. Oleocellosis, caused by low preharvest humidity



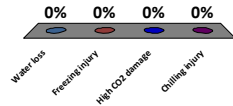
The fruit in the previous slide likely had which range of water loss

- A. >50%
- B. 1-2%
- C. 3-5%
- D. 10-15%



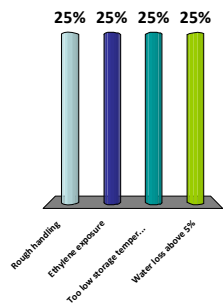
These bananas show classic symptoms of:

- A. Water loss
- B. Freezing injury
- C. High CO2 damage
- D. Chilling injury



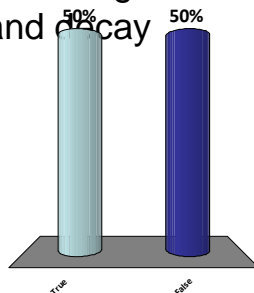
The most likely cause of leaf separation is:

- A. Rough handling
- B. Ethylene exposure
- C. Too low storage temperature
- D. Water loss above 5%



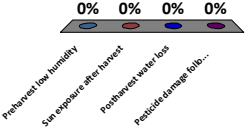

This apple is suffering from bitter pit and decay

- A. True
- B. False



These red onions and green peppers show damage caused by

- A. Preharvest low humidity
- B. Sun exposure after harvest
- C. Postharvest water loss
- D. Pesticide damage followed by cell death

..The photo shows the discoloring that we are seeing. These were in the cooler for 7 days and then held at ambient for 5 days. Discoloring was visible when taken from the cooler on day 7.

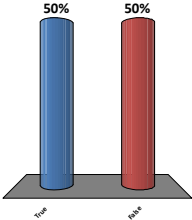
I have taken melons directly from the field without cooling and this surface discoloration does not develop even after 5-6 days at ambient temperature.

These photos look very much like chilling injury....

This is a new melon variety....

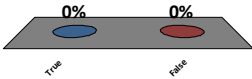
The most likely problem is scuffing and water loss; time is too short to get significant chilling injury.

- A. True
- B. False



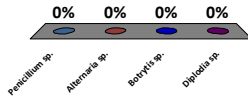

This asparagus shows damage due to freezing and thawing

- A. True
- B. False



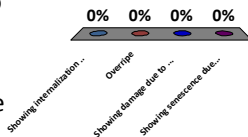

These products all show decay caused by:

- A. *Penicillium* sp.
- B. *Alternaria* sp.
- C. *Botrytis* sp.
- D. *Diplodia* sp.



The honeydew melon on the right is:

- A. Showing internalization of mechanical damage
- B. Overripe
- C. Showing damage due to high CO₂
- D. Showing senescence due to extended storage



Arugula (Wild Rocket)



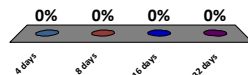
0C (32F)

5C (41F)

10C (50F)

These arugula samples probably had been stored for:

- A. 4 days
- B. 8 days
- C. 16 days
- D. 32 days



Check all factors that could have contributed to these poor quality Belgian Endives.

A. Poor temperature control
 B. Poor sanitation
 C. Low oxygen damage
 D. Storage time
 E. High CO2 damage

| Factor | Contribution |
|--------------------------|--------------|
| Poor temperature control | 20% |
| Poor sanitation | 20% |
| Low oxygen damage | 20% |
| Storage time | 20% |
| High CO2 damage | 20% |

Management of ethylene is the most important consideration when planning postharvest logistics/handling of fresh horticultural crops.

A. True
 B. False

| Response | Percentage |
|----------|------------|
| True | 50% |
| False | 50% |

Possible Causes

- Heat damage
- Chilling injury
- High carbon dioxide injury
- Low oxygen injury
- Physical injury
- Anthracnose

From Adel Kader, UC Davis

PRELIMINARY INVESTIGATION-1

- Bill of lading
- Invoice description of the load
- Dates of arrival and inspection
- Make and model of refrigeration unit
- Container identification
- Airflow delivery system (top or bottom)
- Obvious damage, if any, to the container on arrival.
- Documentation that the generator and refrigeration unit were operational
- Recorded temperature data

From Adel Kader, UC Davis

PRELIMINARY INVESTIGATION-2

- Indication that the thermostat and CA equipment, if used, were set at the prescribed levels
- Detailed description of the box stowage pattern
- Severity of the damage or problem in various locations within the load
- Indications, if any, that the severity differs between lots in the load
- Measurements of produce temperature in various parts of the load during unloading
- Observations of the general outside appearance of the boxes and pallet units

From Adel Kader, UC Davis