

Control of Vapors in Storage Essential for Prolonging Life of Avocados

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Improved keeping quality and longer storage life were the aims of extensive studies conducted during the past seven years on storage problems of avocado and citrus fruits.

It was found that respiration measurements afforded an objective criterion for determining the effects of various treatments. These measurements consisted of finding out by suitable chemical methods the amount of oxygen absorbed and carbon dioxide given off by the fruit.

Respiration and Ripening

The relationship between respiration and ripening is most striking in the case of the avocado.

When a sample of fruit is placed at a constant temperature and under a constant rate of ventilation, the rate of carbon dioxide evolution first drops to a minimum, then increases sharply to a maximum, followed by a marked decrease in respiratory activity.

Fruit softening was found to be closely associated with this trend in respiration. It never occurred prior to the peak but always following it. From the nature of the carbon dioxide curve, predictions could be made as to the date when avocados would be most suitable for consumption.

To prolong storage life, different treatments were employed which would delay the rise in respiratory activity. Reductions in the oxygen content of the atmosphere and increase in carbon dioxide concentration resulted in doubling and tripling the storage life of Fuerte avocados.

One of the factors which plays an important role in avocado storage is the accumulation of an active emanation recently identified in this laboratory as ethylene gas.

The production of this gas is closely associated with the trend in respiration. By exposing several samples of avocados to temperatures varying from 41° F. to 77° F., it was found that the rise in respiration started at different dates.

No evolution of active emanation was observed prior to these dates, as evidenced from the use of pea seedlings, which are very sensitive to ethylene gas. The maximum

suppression in growth of these seedlings coincided with the peak in carbon dioxide production.