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For Peaches, Nectarines

Oxygen-Carbon Dioxide Storage

CONTROLLED ATMOSPHERES nearly doubled the normal storage life of fresh peaches and nectarines in tests at Beltsville, Md.

After 9 weeks in storage atmospheres of 1 percent oxygen and 5 percent carbon dioxide, peaches and nectarines were juicier, had better flesh color and flavor, and softened more like freshly harvested fruit than similar fruit from air storage.

In the Beltsville study, research horticulturists R. E. Anderson and C. S. Parsons and plant pathologist W. L. Smith studied Redhaven, Sunhigh, and Loring peaches and Late LeGrand nectarines for three seasons.

Additional studies of year-to-year fruit variations and tests of other fruit varieties are necessary, however, before recommendations can be made. The best harvesting times must also be determined.

Anderson tested six different atmospheres at 32° F. Oxygen levels of 0.25 and 1 percent as well as 21 percent, the oxygen level in air, were used, with and without the addition of 5 percent carbon dioxide. Fruit quality was evaluated after 3, 6, and 9 weeks and again after holding in air at 60° to 65° F. for ripening.

The external appearance remained good with all storage atmospheres, and internal flesh appeared normal when fruit was removed from storage. When fruit was ripened in air, however, small differences showed up after 3 weeks and became pronounced after 6 and 9 weeks.

Dr. R. E. Anderson checks the gas flow rate in storage atmosphere tests with Loring peaches at the Beltsville laboratory.

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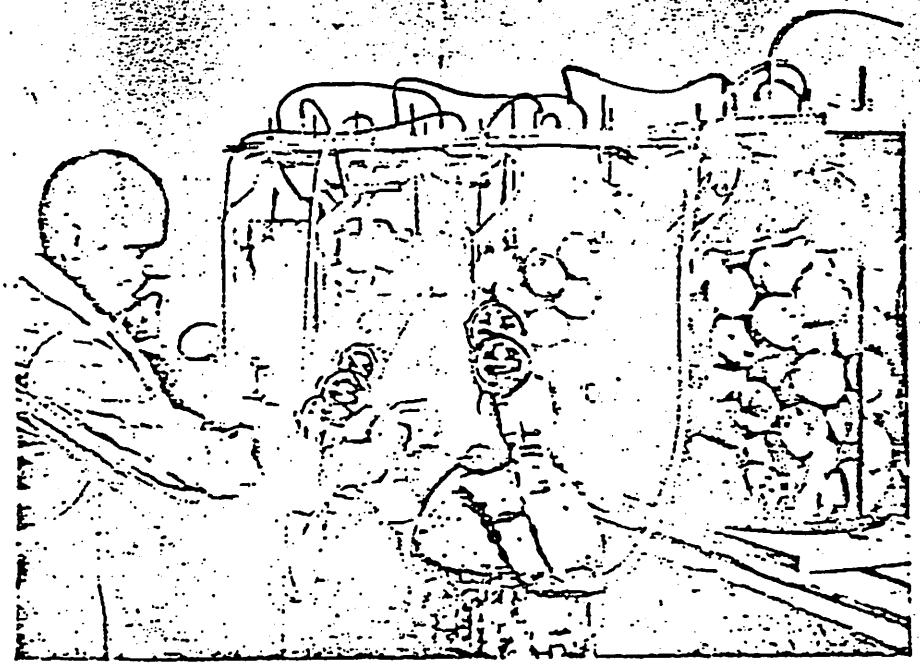

Ripened fruit from all oxygen and carbon dioxide atmospheres tested was juicy with good, yellow flesh color and little or no flesh breakdown. Some fruit from the 0.25-percent oxygen atmosphere developed off-flavors, however.

Fruit from the 1- and 21-percent oxygen atmospheres without carbon dioxide did not ripen satisfactorily and was unmarketable after 6 weeks. It became dry and grainy in texture and watery around the pit. Much of the fruit also had badly discolored flesh.

Fruit from carbon dioxide atmospheres was firmer at removal from storage than fruit without carbon dioxide. The fruit also softened at about the same rate as freshly harvested fruit while fruit from storage without carbon dioxide did not soften as readily.

In addition, the respiration rate of fruit in the carbon dioxide atmospheres was slower, indicating a slower deterioration rate and, therefore, a longer storage life.

Flavor also received considerable attention. Over 400 individual taste evaluations were made on fruit ripened in air after each treatment.

The taste panel selected fruit from the 1-percent oxygen and 5-percent carbon dioxide atmospheres over all the others. The decline in flavor was greatest in fruit from atmospheres without carbon dioxide.

Acidity decreased with more time in storage but decreased less in dioxide atmospheres. This acidity may be related to taste—some taste panelists noted a bland flavor in fruit from atmospheres without carbon dioxide.