

RIPENING HASS AVOCADOS IN HIGH AND LOW HUMIDITIES

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From the moment avocados are harvested until they are consumed, they undergo a continuous loss in weight, which is largely a loss of water. Because a period of several days at room temperature is normally required for ripening (1), and because the time required for ripening is known to be related to maturity (2), it is desirable to know how relative humidity influences the quality of the ripened fruit.

METHODS

Mature Hass avocados were picked on July 17 and placed in a room at 18°C, either in large jars aerated with humidified air or on an open shelf. The relative humidity of the air in the jars was in excess of 90 percent, while that in the open room averaged approximately 60 percent.

At intervals during the storage period 10-fruit lots were pressure tested (1) and analyzed for oil (3). Weighings of all fruit were made at each sampling.

RESULTS

Loss of weight from fruit in the jars, where the relative humidity was above 90 percent, was between one half and one third the rate that it was from fruit on the open shelf at about 60 percent relative humidity (fig. 1). The loss was essentially a straight line function of time during the entire storage period.

Pressure tests of the fruit under the two conditions of humidity provided information for the average softening trends during ripening (fig. 2). The fruit in the lower humidity tended to soften a few days sooner than that in the higher humidity. While this difference may have been related to altered metabolic behavior initiated by lower moisture content of the cells, it could also have been in response to a probable trace of ethylene in the air in the room. The compressed air used to ventilate the jars, on the other hand, was from an outside source.

Under the condition of high humidity, there was about 4 percent loss in weight by the time the fruits were ripe on the 18th day, as compared with 9.5 percent loss from the fruits at the lower humidity when they were ripe on the 15th day. The fruits in the jars under conditions of high humidity were noticeably more turgid than those exposed to the lower humidity. Aside from the improved appearance of the fruit held at a high humidity,

less loss in weight would be an advantage when selling the fruit on a weight basis.

Oil contents determined during the storage period showed no consistent difference between the fruits under the two humidities (fig. 3). However, on the basis of loss in weight, it might have been expected that the oil would have become correspondingly more concentrated during storage and would have reflected the trends in weights. Instead, there appeared to be a slight decrease in oil during ripening and an increase during storage following ripening.

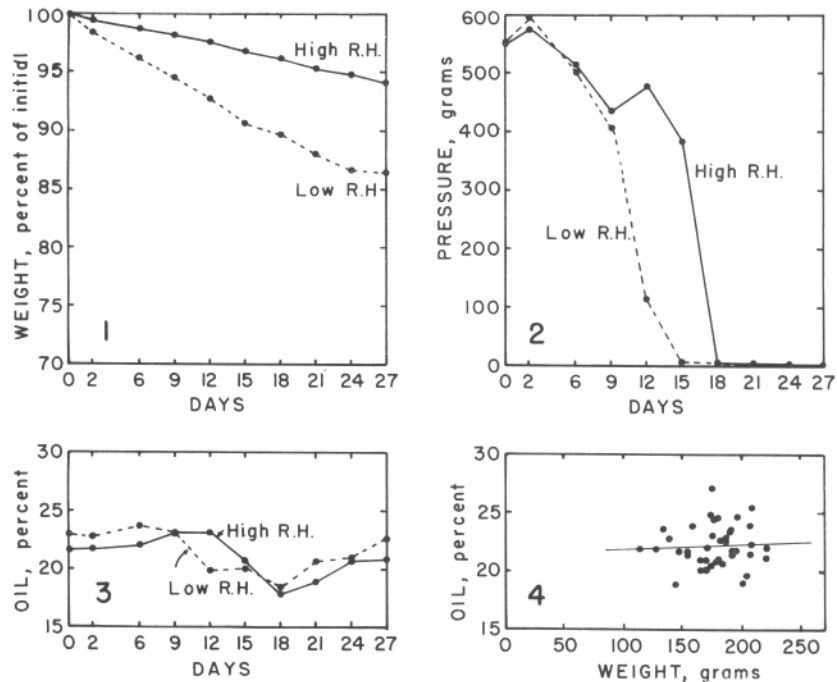


Figure 1. Loss in weight of Hass avocados when stored in high relative humidity (above 90 percent) and in low relative humidity (about 60 percent).
 Figure 2. Reduction in pressure of Hass avocados during ripening.
 Figure 3. Changes in oil content of Hass avocados during ripening.
 Figure 4. Correlation between oil content and weight of Hass avocados. ($r = 0.062$, $n = 40$, $E = 0.0044X + 21.4$)

The initial samples and those after two days of storage were used to provide information about the relationship of oil to a size of fruit (fig. 4). A statistical treatment showed a very low correlation coefficient ($r = 0.062$, $n = 40$). From this it would appear that at least after the fruit is well matured, the larger fruit does not have a higher oil content than the smaller fruit.

SUMMARY

Hass avocados that ripened in a relative humidity above 90 percent retained a better appearance than ones ripened in a relative humidity of about 60 percent. Although ripening appeared to be slightly more rapid in the lower relative humidity, this was perhaps not a direct response to relative humidity. Loss of weight by the avocados in the higher relative humidity was reduced by more than one half.

LITERATURE CITED

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