turning more than 9 days after harvest would have poorer color values when ripened but in 2 preliminary tests, fruits which turned 13 or 14 days after harvest did not show this tendency.

The higher color values for the fruits turning color 3 to 7 days after the first harvest suggest that a precursor of lycopene accumulated during the period and that lycopene synthesis could proceed at a more rapid rate during the 6-day ripening period. If this were the case, then the lower values for 7 and 9 days, compared to 5 days, could be explained by a reduced rate of precursor synthesis. The lower color values for the second harvest could then be a result of a very low rate of precursor synthesis.

The reduction in titratable acidity of the locular portion with a decrease in maturity could be due to one of several factors. The less mature fruits may have had a lower acid content when harvested. The acidity may have decreased at a faster rate in the less mature fruits during the 6-day ripening period. The acidity may have decreased at the same rate for all maturities but started decreasing at harvest, and so the less mature fruits would have reached a lower value due to the extra storage period.

Because the color after ripening was generally the same or better for fruits which turned color from 1 to 9 days after harvest, it cannot be inferred that qualities such as appearance and flavor would be as good for all maturities. The color method used measured the average color and does not indicate the possible variations which might be seen when the fruits are sliced. The fruits which turned 7 and 9 days after the second harvest had green seeds and jelly and much white tissue in the outer pericarp upon ripening.

Manapal fruits which turned 7 days after the second harvest were noted to have a "woody" feeling when sliced after ripening. This was mainly due to rather hard tissue in the inner pericarp. Homestead 24 fruits which turned on the 9th day had a very thin outer pericarp.

LITERATURE CITED

1. Hall, C. B. 1964. The effect of short periods of high temperature on the ripening of detached tomato fruits. Pro. Amer. Soc. Hort. Sci. 84: 501-506.
2. Hall, C. B. 1964. The ripening response of detached tomato fruits to daily exposures to high temperatures. Proc. Fla. State Hort. Soc. 77: 252-256.

PRODUCTION AND TRANSLOCATION OF ETHYLENE IN CITRUS FRUIT AS RELATED TO ABSCISSION

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ABSTRACT

Ethylene production, by tissues of Valencia and other citrus fruit and by Valencia leaves, was studied. Leaf tissue produced more ethylene than fruit tissue. Temperature, light, and oxygen tension were proportional to chemically induced ethylene production by the leaves. For orange and green rind, light had little effect on ethylene evolution, while temperature and oxygen tension had a proportional relationship. The rind tissues inhibited ethylene evolution from a solution of methionine-copper sulfate-ascorbic acid. The flavedo but not the albedo inhibited penetration of the Valencia orange rind by ethylene.

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INTRODUCTION

Ethylene is produced in measurable amounts in various tissues of most higher plants (1). It is generated in plants under normal conditions and in larger amounts when the plants or tissues are under stress (3, 5), or after treatment with any one of a large number of chemicals (2). Abscission of fruits and leaves often occurs in plants under stress or following chemical applications, and it is now apparent that the presence of ethylene and abscission is somehow connected.