

done to clarify the condition, this would appear to be a sound approach.

The experiments made on trees in poor condition showed that they could withstand CHI sprays as readily as in a healthy condition, indicating strongly that tree vigor *per se* could not account for reported CHI injury. The relatively poor fruit loosening of some of the fruits on these trees may have been associated with low Brix/acid ratios. Field experience in other areas has shown poor abscission often results when ratios average less than 12 to 1. It would appear that a grower could profit by allowing fruit ratios to be as high as practicable before using an abscission chemical, although excessive delays to the point where tree dormancy has been broken should be avoided. In actual field practice where a grower has several blocks of fruit to harvest, it would probably be best to pick those with the highest Brix/acid ratios first.

There appear to be no unusual conditions which preclude the use of CHI in the Indian River area

or similar areas where trees have a shallow root system. In fact, it appears probable that somewhat lower concentrations of CHI can be used in these areas without sacrificing fruit loosening, thus lowering the cost of application. There are even indications that complete chemical picking might be achieved with CHI in some blocks of fruit under mild weather conditions. This is particularly true in the latter portion of the orange season.

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## ABSCISSION CHEMICALS IN RELATION TO THE HARVEST OF 'VALENCIA' ORANGES<sup>1</sup>

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#### ABSTRACT

'Valencia' oranges on sour orange and 'Rough' lemon rootstock, growing at different sites in the Indian River region, respond to 3-[2-(3, 5 dimethyl-2 oxocyclohexyl)-2 hydroxyethyl-] glutarimide [cycloheximide] by lowering the attachment

force to levels suitable for some type of mechanical harvesting. However, cycloheximide treatment does not loosen 'Valencia' oranges on 'Rough' lemon rootstock grown on the "Ridge" adequately to aid mechanical harvesting during April and May when this fruit is normally harvested.

#### INTRODUCTION

During the past 5 years we have presented papers relating to the use of abscission chemicals, including cycloheximide, to loosen fruit as an aid to harvest (3, 4, 5, 6, 14, 15). Cycloheximide is now being used under an experimental permit for early and midseason maturing varieties of oranges destined for the juice processing industry.

We (5, 6, 15) indicated earlier that the harvesting of 'Valencia' oranges by the use of cycloheximide and mechanical harvesters is a more difficult problem than the harvest of early and midseason varieties. The new vegetative growth and small immature fruit developing on the tree after the spring flush and bloom are very sensitive to abscission chemicals. Also, mature 'Valencias' tend

<sup>1</sup>This report deals with the current status of research on the agricultural uses of growth regulators, including abscission chemicals. It does not contain recommendations for use of these chemicals nor does it imply the uses discussed have been registered. All uses of growth regulators must be registered by appropriate State and Federal agencies before they can be recommended. All chemical uses described in this report should be applied in accordance with directions on the manufacturer's label as registered under the Federal Insecticide, Fungicide and Rodenticide Act.

