

Therefore conclusions based only on residue data from the Northeast or Northwest sections of the country are often quite unrealistic locally. Florida growers of crops maturing in the spring are usually faced by more serious insect and disease problems compared with Northern growers of these same crops maturing in the fall. These conditions often necessitate more frequent control measures in Florida. Fortunately, as far as residue build-up is concerned, sunlight, rainfall and temperature all play paramount roles in the breakdown of pesticides. Therefore despite the additional pesticide applications sometimes required in Florida, the climatic factors often more than counteract the effect of the high initial deposits.

Provided the pesticide is cleared for use, there is no reason why Florida growers should not be able to utilize any chemical for insect or disease control. However, considerable caution should be employed by the grower in his control program to prevent his field from being condemned by Food and Drug Inspectors. Not only would the grower suffer personal financial loss, but indirectly the entire vegetable industry in the State would feel the effects of the adverse publicity.

Growers should remember that the Miller Amendment is a law to permit them to use pesticides in the production of food without hazard to consumers. There is no reason for concern regarding excessive residues if the approved label directions for applying sprays and dusts to vegetable crops are followed. Any grower who deviates from the label directions should do so only on the basis of reliable advice that the deviation will not result in excessive residues. If Florida Agricultural Experiment Station residue data has indicated that a shorter interval can be followed, this information will be made available with the necessary accompanying restrictions required for local conditions. However, though a shorter interval for a very toxic compound may have been shown to be feasible locally as far as safe residues on the marketable crop are concerned, the grower should keep in mind the possibility of a harvesting hazard. The picker may be exposed by direct contact to considerable toxicant because of a heavier residue accumulation on the unmarketable plant foliage. The safest rule for the growers to follow is: Use only sprays and dusts according to label and Station recommendations—on the crops specified, in the amounts specified and at the times specified.

## MECHANIZATION OF CITRUS FRUIT PICKING<sup>1</sup>

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Picking citrus is an onerous and time consuming task. Florida Citrus Mutual's Statistical Report (3) indicates that 138,000,000 boxes of citrus were harvested in Florida in the 1956-57 season. The cost of picking<sup>2</sup> this crop, at 29 cents per box, was approximately \$40,000,000 (12). Of this total 63 percent (\$25,000,000) was for picking labor.

Cost is not the only factor to take into consideration. The labor situation is creating difficulties of ever increasing magnitude.

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<sup>2</sup>Cooperative research by the Florida Citrus Experiment Station and the Florida Citrus Commission.

<sup>3</sup>"Picking" here includes all costs allocated by Spurlock (12).

Larger production and shortage of housing facilities help to aggravate the situation (1).

A review of literature shows that work has been done to develop improved methods for handling Florida citrus after it is picked (8, 10, ), but little has been done to mechanize the actual picking operation.

In 1957 work was initiated at the Florida Citrus Experiment Station to develop improved methods and equipment for harvesting citrus. This paper presents the results of the initial phase of this project.

### IDEAS PROPOSED OR TRIED

Several methods were considered and some have already been tried. Each one will be discussed briefly:

*Elimination of the Picking Bag.*—The method of throwing the picked fruit from its location in the tree into a moveable catch frame placed in the center of four adjacent trees was tried at the Station (Fig. 2). This

