

increases in number of workers and equipment units. Costs within the packinghouse, on the other hand, approximate constant average variable costs because volume per week is varied primarily by changing hours of operation, rather than changing the rate per hour. Departures from linear total variable cost functions may be expected from such factors as assured minimum earnings or employment and payment of overtime wage rates.

#### ESTIMATING COSTS

The development of the individual packinghouse costs is primarily a problem of addition. The least cost method for each economic stage may be selected stage by stage, and costs representing the most efficient methods for each rate of output aggregated and combined with the costs described herein as "other packinghouse costs" into a total cost function.

With discontinuous input-output relations for nearly every stage, it is clear that, if the synthesized data were to describe completely the cost conditions under which citrus fruits can be packed, the development of many individual packinghouse cost curves would be needed. To simplify the aggregation process, totals have been calculated for a limited number and type of packinghouses. Least cost combinations of the available work methods were synthesized into two types of model packinghouses: (1) single-unit packinghouse and (2) a two-unit packinghouse. Short-run packinghouse cost curves were developed for packinghouses of each type and with several capacity rates. For the single-unit model packinghouse, costs were calculated for packinghouses with capacity rates of 200, 300, 450 and 750 boxes per hour. The selected rates for the two-unit model packinghouse were two 200 box-per-hour units, 300 and 200 box-per-hour units, two 300 box-per-hour units and 450 and 300 box-per-hour units. The short-run costs were then used to approximate long-run cost functions. Costs of the model packinghouses were compared with the average costs of the conventional packinghouses most commonly used during the 1953-54 season. The cost curves were developed within the same institutional framework regarding prices of the productive factors, production standards, rates of output, season variation, type of fruit, type of pack and level of efficiency.

The approach used to calculate costs in this study combines an analysis of accounting data of a relatively large sample of firms with an economic-engineering study of a subsample of