Harvest Practices

Sevillano olive growers may affect yields and returns by management

_____ **Gordon R. Sitton**

Careful timing of the picking of Sevillano olives—and prompt handling after picking—may increase returns to growers by amounts greater than the harvesting costs.

Reports by growers in the Corning area indicate 1952 harvesting costs ranged from $54 to $82 per ton. Of the total harvesting costs, 83% was for picking and 17% was for supervision and hauling.

The tonnage, size distribution, and quality of olives picked are affected by the stage of maturity at picking time and the instruction and supervision of pickers. It is the grower who decides when to pick and whether all sizes will be picked, or the smaller fruits are to be left for later picking or abandoned.

In limited tests conducted in 1952 the total increase in tonnage was not so great when the smaller sizes were left for a second picking as it was when all fruit was left on the tree for a single picking late in the season.

Picking before the final upsurge in fruit size—just before the fruit starts to color—causes the loss of 25% to 45% of potential tonnage. The loss in potential gross income is even greater because the smaller sized fruit sells at a lower price per pound.

Too late harvest will cause comparable loss in total tonnage—because of freezing or cold winds which cause a shriveling of the fruit.

Differences in time of maturity among orchards—because of weather, fruit set or physical conditions—make it possible for growers to pool their pickers and pick the more mature orchards first.

Growers at Corning attempted to standardize — at the beginning of the 1952 season — on a single price for picking, of 2½c per pound, but deviations were made as the season progressed to cover varying conditions of tree height, density of fruit set and time of season. Picking rates generally paid for a 40-pound box ranged from $1.00 to $1.50.

Time required for clean picking varies according to the average number of olives per pound, and the fruit density—tree surface per box.

For the average picking conditions observed in the study — size count, 49 olives per pound; tree surface per 40-pound box, 729 square feet—the average net labor requirements were 0.94 man-hour per 40-pound box.

Estimates of labor required include time spent in moving and climbing ladders. Idle time was not included but would add 6.7%.
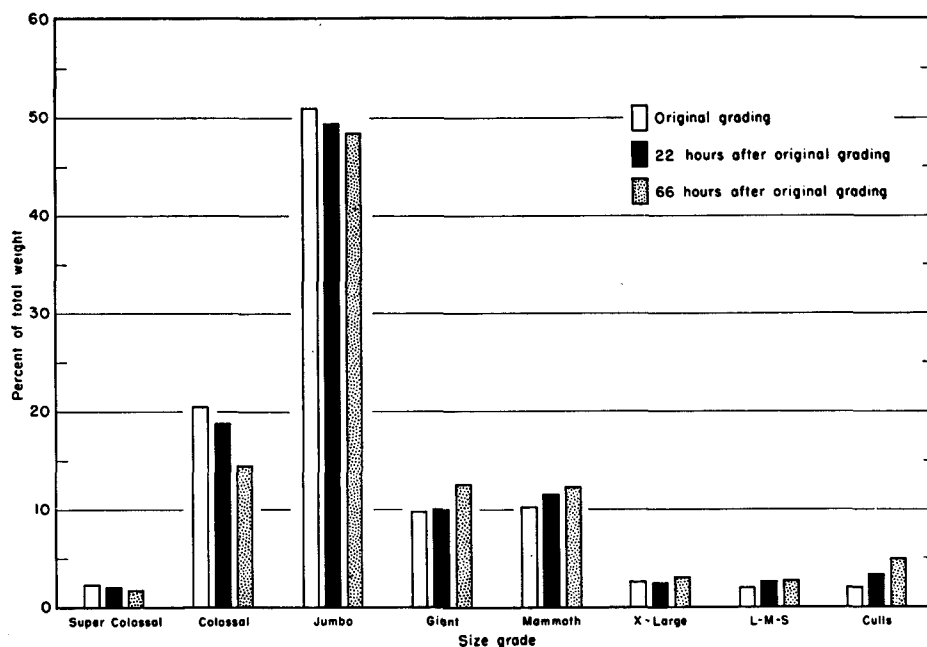
Shrinkage in size after picking causes a change in the proportion of olives in the various size grades and a decrease in average value per ton of fruit picked.

POULTRY

eral grade specifications are available but their application is left to the discretion of individual traders. The result in California is that few chickens retailed locally carry U. S. grade labels. Some co-operatives and large private processors selling in out-of-state markets station a federal grader in their production line. Thus all their throughput might be graded to federal standards even though trade brands were used in distribution. Employment of a federal grader would involve high costs for firms processing only for a limited number of hours each day.

Moreover there is some doubt as to the commercial acceptability of the federal grade specifications in their present form. One investigation found that the weighting of different grade factors was out of touch with their economic value in contemporary markets. Thus birds might be reduced a grade because of skin tears to which many sections of the trade did not attach a differential equivalent to one whole grade step. The present federal specifications are designed for birds displayed whole on retail counters rather than for produce sold cut up, frozen or ready cooked.

Thus a double set of obstacles stands in the way of general adoption of the federal grading system as presently constituted. The actual specifications await revision to bring them in line with current trends in processing and merchandising technique. Employment of a specialized federal grader may be impracticable in many plants with the present dispersion of processing facilities. Eventually concentration as a result of scale economies and recognition of the technical revolution in handling meat poultry may clear away these obstacles.

In the meantime different processing techniques and adherence to the policy of advertising specific brands are likely to preclude the adoption of uniform grading. A state grading system based on a modified form of the Canadian model could prove a vital factor in keeping California meat poultry producers in the forefront of the market.

John C. Abbott is Junior Agricultural Economist, University of California, Davis.

The findings in these tests indicated increasing labor requirements as the count per pound increased and as the tree surface per box increased. With an average size of 50 olives to the pound, an average picker would pick 9.0 boxes per 9-hour day when tree surface is 800 square feet per box, but only 7.3 boxes when the tree surface is 1,400 square feet per box. If the payment rate for average picking conditions were $1.00 per 40-pound box, an appropriate rate for the thinner set of fruit would be $1.22 per 40-pound box.

The observed time required to pick a 40-pound box varied from 0.41 to 1.78 man-hours. This range is caused by natural factors—maturity, fruit-set—and the skill and effort of individual pickers. Studies of the actions of 150 different pickers while picking 258 trees indicate that of the time spent actually working, 84% was spent in picking fruit and 16% in climbing ladders, moving ladders, emptying buckets, and in miscellaneous activities.

After olives are picked the fruit growth process is reversed because the normal processes of respiration use up food stored in the fruits and they decrease in size and weight.

These physical losses can be minimized by having the fruit weighed, graded, and placed in brine storage as soon as possible after picking.

Weight loss will normally be greater for fruit held in the orchard after picking than for fruit held inside plants prior to grading. Based on tests conducted during the warm dry harvest season at Corning in 1952, Sevillano olives left in the orchard after picking will lose from 1.0% to 2.6% of their weight within 48 hours. A loss of 2.0% would be equivalent to one 40-pound field box per ton of fruit picked. For the same 48-hour period weight losses for fruit stored in the plant prior to grading would be one-third less than losses in the orchard.

Size and grade loss are more costly than weight loss. As olives stand after picking, shrinkage of individual fruits causes a decrease in the proportion of any lot that will fall in the larger sizes— supercolossal through jumbo — and an increase in the proportion falling into the smaller sizes. In addition, there is an increase in the amount of fruit sorted out as culls. Some fruits which would not be culls at picking time deteriorate because of continued ripening, and some deteriorate because of the breakdown and discoloration of bruises and scratches inflicted in picking. The value of this loss is increased by the fact that these overmature and damaged fruits are mostly in the larger sizes.

Using the schedule of prices ranging downward from $300 per ton paid some growers in 1952 for Sevillano olives, one

Fertilizer Placement

citrus production compared in between-rows, under-tree broadcast

W. W. Jones and C. B. Cree

The application of granular nitrogenous fertilizers to citrus trees resulted in the same production regardless of whether the material was broadcast in the irrigated middles between the rows, or under the trees.

Differential treatments at the Citrus Experiment Station, Riverside, consisted of 1, fertilizer applied in the cultivated zone or row middle, and 2, fertilizer applied under the skirt of the trees. Navel orange, Valencia orange, and grapefruit trees—all on sweet orange root—were used. Nitrogen was applied in the fall of each year at the rate of three pounds per tree—1½ pounds from manure, and ¾ pound each from ammonium sulfate and calcium nitrate.

The trees were 10 years old when the yield records in the experiment were started in 1927. All trees were uniformly treated for eight years. In the fall of 1933, the differential fertilizer placement treatments commenced and were continued through 1952. The 1933 treatment was not considered to have affected the 1934 harvest.

During the eight years—1927–1934— before the treatments were started, the production of the three varieties combined was slightly biased in favor of the plots which later received the under-tree applications. Production for the corresponding row-middle application plots was 97.5% of the under-tree application plots.

The differential treatments were maintained and production records kept for 18 years. During this time the row-middle application was 94.3% of the under-tree production. The bias present in the beginning of the experiment was maintained, on the average, throughout the experimental period. The treatments had no influence on production. This conclusion is confirmed by statistical analysis of variance.

W. W. Jones is Horticulturist, University of California, Riverside.

C. B. Cree is Principal Laboratory Technician, University of California, Riverside.

The above progress report is based on Research Project No. 594.

Relation of Fertilizer Placement to Yield in Citrus
(mean yield in pounds per tree)

Pretreatment period	Years 1927–1934	Fertilizer in cult. zone				Fertilizer under tree			
		Nav.	Val.	Gf.	Ave.	Nav.	Val.	Gf.	Ave.
		112	97	138	116	99	107	151	119
Treatment	1935–1940	129	148	225	167	144	166	210	173
period in	1941–1946	211	185	215	204	208	204	223	212
6-yr. groups	1947–1952	183	145	201	176	196	174	214	195
18-yr. ave.	1935–1952	174	159	214	182	183	181	216	193

ton of olives having the size distribution shown by the original grading in the graph on the adjacent page would have a value of $142. Twenty-two hours later this value would have fallen to $134 and by 66 hours after the original grading, to $126. This loss of $16 due to the combined effects of weight and grade loss is equal to $0.32 per 40-pound field box picked from the tree—an amount equal to approximately one-third of the cost of picking in 1952.

The loss cited in this example would have been even greater if the fruit had been stored in the orchard rather than inside a processing plant. The time lapse of 66 hours is not based on any signifi-

cant practice but came as a result of the timing in this particular test.

The Sevillano olive producer can increase his profits, either by lowering the cost of production and harvesting on all sizes, or by shifting as much of his production as possible to the more profitable sizes. The studies made at Corning in the 1952 season indicate that the latter is more promising.

Gordon R. Sitton is Lecturer in Agricultural Economics, University of California, Davis.

This article is based on the more detailed report, "Economic Factors in Picking, Assembling, and Grading Sevillano Olives," Giannini Mimeograph Report No. 155 by Gordon R. Sitton and L. L. Sammet.