

AVOCADO PRUNING TO REGULATE CROP PRODUCTION

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The alternate bearing tendency of avocado trees is a characteristic which both grower and the industry would like to eliminate. Irregular fruit production creates a variability in yield for the grower and a marketing problem for the industry. Some varieties tend to fluctuate more widely in their yields than other varieties.

The Nowels variety on the Hoeger Ranch at Corona is one of the varieties in which this alternate bearing tendency is pronounced. Not all Nowels trees in a planting show an extreme variation each year as some may produce several more or less medium crops before a light crop or an exceptional heavy crop. Since all trees are not in the same cycle of production, the yield for the orchard does not show the wide variation of individual trees.

When a Nowels tree produces a large crop the fruit tends to be small and is a little later in maturity. In an effort to "smooth" out this production and increase the average size of the fruit, a trial plot was started to determine if it would be possible to influence the production of fruit by pruning.

Two Nowels trees were selected which Mr. Hoeger's records indicated had produced a light crop in 1955 and therefore could be expected to produce a heavy crop in 1956. It was recognized that many trees would be needed to give good statistical results, but this two-tree-test might serve as a demonstration to get some information.

The method of pruning was discussed by Henry Hoeger, Marvin Rounds, and I. We decided to remove vigorous terminal twig growth and branches which extend out away from the general contour of the tree. On February 21, 1956, when we did the pruning, the clusters of blossoms had already started to show. The tip growth of twigs with large clusters of flower buds were removed if they were outside the "shell" of the tree. In this way we hoped to remove more fruit setting blossoms. A few cuts were made removing branches 1½ to 2 inches in diameter. Horizontal branches were pruned to reduce the possibility of sunburning. The check tree, as nearly like the pruned tree as possible, was selected and left unpruned for comparison.

The first year results of the pruning indicate (1) a reduction in pounds of avocados produced. Since the returns per pound for the small fruit this year was about the same as the large fruit, there was also a reduction in dollars returned. (2) An increase in the average size of the fruit, and (3) earlier maturity. This is important with early maturing varieties.

COMPARISON OF FRUIT HARVESTED FROM PRUNED AND
UNPRUNED TREES IN 1956

Fruit Picked 11-12-1956	No. of Fruit	No. of Boxes	Pounds Harvested	Average Weight Ounces
Row 1, Tree 3 Unpruned	856	5.2	208	3.9
Row 7, Tree 11 Pruned	440	3.4	136	4.9

After the first year it was decided to continue the tests for several years. The first pair of trees were not pruned. A second pair was selected and one of them pruned as was done the previous year.

At the end of the four year period, a production records for the first pair (started in 1956) show that the first year the pruned tree had a lower production than the unpruned tree, the second year it was higher, the third year lower, and the fourth year higher. At the end of the four year period, the cumulative total was the same.



Marvin Rounds and Henry Hoeger start to prune Nowels tree.



After the operation—prunings in pile in foreground.

Production records for the second pair (started in 1957) were in favor of the non-pruned tree the first year, then the pruned tree, and then the non-pruned tree. The cumulative yield was in favor of the pruned tree for the second and third years.

FOUR YEAR RECORD OF PRODUCTION FROM PRUNING PLOTS

Pair of Trees in Plot Started in 1956				
Year of Harvest	Tree Pruned in 1956 Only Row 7, Tree 11		Tree Not Pruned Row 1, Tree 3	
	Year	Cumulative	Year	Cumulative
1956	136	136	208	208
1957	144	280	25	235
1958	75	355	235	468
1959	120	475	4	472

Pair of Trees in Plot Started in 1957				
Year of Harvest	Tree Pruned in 1957 Only Row 1, Tree 1		Tree Not Pruned Row 5, Tree 1	
	Year	Cumulative	Year	Cumulative
1957	240	240	300	300
1958	285	525	10	310
1959	160	685	200	510

Nowels trees tend to produce vigorous branches which bend over and expose the bark to sunburning. Pruning the tips of these branches will keep the tree more compact and shades the branches better. Because of this and to influence the crop, Mr. Hoeger has been lightly pruning most of his trees for the last few years. He is contemplating the use of some mechanical pruning to reduce the cost of pruning.

CONCLUSIONS

At this time it would be difficult to make any definite conclusions. If trees are fluctuating from very heavy to very light crops, however, it appears that a severe pruning prior to an anticipated heavy set of fruit will:

- 1.Reduce the crops for the current season and increase the crop for the following season.
- 2.Increase the size of fruit by eliminating the very small fruit which is often produced with a heavy crop.
3. Hasten maturity since the small fruit is often slow to mature. Additional tests should be made to check this information and to determine the effect of pruning on other varieties.