

Thinning Crowded Avocado Orchards

Raymond H. Marsh

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In the early days of avocado culture in California, as well as in more recent times, many orchards were planted with insufficient spacing between trees. As a result normal development of the fruiting areas of these trees has not been possible. The character of tree growth and soil type were not generally considered at the time when many plantings were made, possibly because there was no general knowledge as to growth habits or the ultimate size avocado trees would attain, growing under the influence of Southern California climate and soil conditions. Close plantings were also made with the object of getting early maximum production.

Today many avocado growers are confronted with the problem of orchard thinning, the greater number being those with groves planted on the more suitable soil types. In these groves the lateral branches of the trees are crowded together and lower limbs are being, or have been, shaded out. The fruit bearing surfaces of the trees are being reduced in extent and forced higher and higher. Eventually they will form somewhat of a plain or flat surface over the ground, with shallow spherical protrusions at each tree location. This type of bearing surface will approximate 48,000 square feet per acre, whereas, the ideal type, i.e., (trees somewhat the shape of half spheres with the lower skirts of adjacent trees meeting), would approximate 68,000 square feet per acre, or 41% greater bearing surface.

If one were to assume that a Fuerte avocado tree in a crowded planting would, as it reached maturity, continue to extend its branches vertically at a rate equal to one-half that of the lateral growth, then there would be no loss of total bearing surface as a result of close planting, only an elevating of it. This assumption however is incorrect, as observations made in mature Fuerte groves show a decrease in the amount of vertical growth as compared to the lateral growth.

Production Records Important

The problem of orchard thinning is one of judicious pruning coupled with complete tree removal. Before either operation can be done with a minimum loss of fruit production the grower should have for reference at least a three year individual tree production record. In addition to production records he should have data on the health and vigor of individual trees, noting in particular those which have sun blotch symptoms, or are diseased in any way. The age of tree at which thinning becomes necessary in an orchard will depend upon the planting distance and the rate of lateral growth made by the trees. Thinning operations should start when the trees begin to crowd each other and compete for space in which to grow.

As one example of how to handle an orchard thinning problem let us deal with a grove of Fuerte trees planted 20 x 20 feet (109 per acre) on deep, well drained soil. If these trees have had good care and made a normal growth some of the lateral limbs will be intermingling by the sixth or seventh year from date of planting. Assuming that individual tree production records have been kept from the time the trees started bearing, a fair estimate of their producing ability will be available in the seventh year; however, the data will not be complete enough in the case of some trees which are slower in coming into production, to permit the removal of entire healthy trees during the seventh year, without sacrificing production. In this discussion every other tree in each row will be referred to as temporary trees, and the remaining trees in every other row, as semi-permanent, the remainder being the permanent trees.

Thinning Program

The first phase of a thinning program consists of cutting back the long lateral limbs of temporary trees (every other tree in each row). Remove the outer three or four feet of all limbs which tend to shade the permanent or semi-permanent trees. Trees with low production which show definite sun blotch symptoms should be completely removed. The production data may show two exceptionally good trees adjacent to one another with low producing trees surrounding them. In this case the two good trees can be properly pruned and handled as an individual.

It will be necessary to do some follow up work each season for three or four years in order to prevent crowding and shading of the permanent trees. When the grove is approximately eleven years of age, complete removal of the temporary trees should be started. By this time the production data covering approximately six years, will be complete enough to give the grower sufficient information so that he can intelligently remove trees. When removal of the temporary planting is completed the tree spacing in the orchard will be 40 x 40 feet with an inter-set, or semi-permanent tree, in the center of each square, or fifty-four (54) trees per acre.

Temporary Trees

After removal of the temporary trees the semi-permanent, or inter-set trees, should be pruned back as competition for space with the permanent planting develops. By treating them in this manner they can remain in the orchard and produce some fruit until about the fifteenth year, after which time it will be necessary to start their removal, or top work them to some upright growing variety.

In working out the problem of thinning a Fuerte grove planted 20 x 20 feet, we have in successive steps removed eighty-two (82) of the original one hundred nine (109) trees per acre, leaving twenty-seven (27). Not all Fuerte avocado groves in need of thinning today are planted 20 x 20 feet; however, regardless of the planting distance if competition for space in which to grow develops to a point where shading out of lower limbs occurs, a thinning program should be started. In groves planted with greater tree spacings than 30 x 30 feet, the thinning operation may be one of pruning only plus the removal of diseased trees. Each grove will be an individual problem which can be solved with proper study of complete production records.