

THE CARE AND PROTECTION OF YOUNG AVOCADO TREES

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(Ed. note: This address by Mr. White was given at the Annual Meeting of the Society on June 4, 1949)

INTRODUCTION

It means money in your pocket to take good care of young avocado trees. The principal cultural operations involved in this care are:

1. Irrigation
2. Fertilization
3. Pest control, including insects, weeds, etc.
4. Protection from sun, wind and cold.
5. Training of young trees.

The details of how to do any one of these operations will vary under different climatic conditions, on different soil types and under the management of different operators. Because of this variation it is not possible to present a specific set of rules on cultural practices which will, under all conditions, insure success with young plantings. The practice must be changed to fit local conditions. It is a good policy to talk your problems over with the local farm advisor in charge of avocados if there is any doubt as to the procedure.

I know of nothing that goes into the formula for growing a good tree that is not already known and practiced by many old timers. For the beginner, it is well to keep in mind that there is a *good reason* and a *best time* for any operation. The timeliness and importance of certain operations were brought to our attention during the past three years' experience with supervising large scale test plots in Santa Barbara county.

From these plots we have been impressed with the importance of two things:

1. Starting with a good tree.
2. Planting in soils virgin to avocados.

What is a good tree? In judging this it is well to remember that a tree which comes from a bud is no better than the tree from which the bud was taken; when they are both grown in the same locality. Therefore, grafts or buds for your trees should come from parents growing in the area where the young trees are to be planted and from trees that are old enough to demonstrate their bearing habit, freedom from disease and vigor.

Good young trees in the nursery should grow fast enough to reach standard size within from 8 to 12 months after budding. Trees that require longer than 12 months to reach standard size are likely to be inherently weak. Nursery trees that meet these standards may cost more than older or weak trees but the original investment is small considering the time required to prove young trees in the field.

PLANTING

Time and effort can be saved by digging a hole just large enough to accommodate the ball of the tree. Back filling with top soil has made no difference with trees planted in good soils in our area. Moreover, we haven't found a treatment which will enable us to grow a good commercial avocado tree where the major part of the soil in the root zone is of poor structure. We in Santa Barbara County advise farmers not to plant avocados where it is necessary to fill in with top soil in order to get the trees started.

Avocados need not be planted high—like citrus—for they are not susceptible to gummosis. Trees that are planted one or two inches lower than they were in the nursery are easier to irrigate. Also in times of cold winters the bud union of low planted trees is easy to protect by mounding up with soil. Care should be taken not to plant them too deep in good soil and to plant them above the clay in shallow soil.

IRRIGATION

How often should young avocado trees be irrigated and how much water should be applied at each irrigation? Those are the two questions most frequently asked in our county; and except for the first two irrigations they cannot be answered in terms of number of days and number of gallons. Experience gained from supervising test plots under the management of several different growers, leads me to believe that most farmers let their young trees go too long between irrigations. It is easy to do this because the root system of newly planted trees is very limited and because water moves very slowly through soils after they have reached field capacity. Most soils that have free downward drainage will reach field capacity within 48 hours after water has been applied. The amount of water that the tree can get is from that portion of the soil which is very close to the small feeder roots. Newly planted trees have a very limited number of these small roots. Therefore, their supply of water is very limited; even though the major portion of the soil around the young trees has plenty of water. This condition calls for frequent applications of small amounts of water. By frequent, I mean not more than 10 days apart and by small amount, I mean from three to ten gallons of water, depending on weather and soil type. Damage resulting from over irrigation is done by keeping the soil in the root zone saturated for a long period of time. With the exception of some very heavy soils, there is no danger of damaging the roots of trees so long as the soil in the root zone is not above field capacity.

SYSTEM OF IRRIGATION

The first irrigation should be applied through a basin immediately after the tree is

planted. Enough water should be applied at that time to settle the soil around the ball and to wet the soil in the ball. A better job can be done if the first basins are made to slope into the base of the tree. Where the soil is dry before the trees are planted it is a good practice to give the trees a second irrigation about two or three days after the first. Subsequent irrigations may be done by furrow or basin. Our experience has been that we can do a better job by enlarging the basins after the second irrigation and using them for at least the first year. If furrows are used, they should be cut around the tree to insure water penetration into the ball of the tree. Water loss by evaporation from the basins can be greatly reduced by mulching. A good material to use for this is straw. The use of manure high in nitrogen is not advisable because leaching of excessive amounts of nitrogen into the root zone will burn the roots.

FERTILIZATION

A small amount of nitrogen will improve the growth of young trees in soils low in that material. Many young trees in California have been killed by large applications of nitrogen. If young trees seem to be getting off to a slow start we recommend the use of one heaping teaspoon of fertilizer, with 15% nitrogen, per basin at each irrigation. Before doing this, however, I suggest that you check with your local Farm Advisor's Office.

PEST CONTROL

Weeds are the major pest of young avocado trees in our area. They rob what little moisture there is in the soil for the trees and limit root growth into new soil when not controlled. Mulching will help keep the weeds down in the basin but those outside the basin must be controlled either by cultivation or spraying. All too little importance is given, in our area, to weed competition with young trees.

Insect and rodent pests are a problem in isolated areas. Regular and frequent inspection should be made for such pests and any signs of distress by the trees, that is not understood by the farmer, should be reported immediately to the local Farm Advisor's office or the Agricultural Commissioner.

PROTECTION

Young avocado trees are sensitive to sun burn, wind burn, and cold. The importance of furnishing artificial protection against sun burn varies in different localities and with the time of year when the trees are planted. Most newly planted trees have been pretty well shaded in the nursery by their own leaves, which are cut back at the time of planting, and by neighboring plants. Sudden exposure of the tender bark to a hot sun will damage the tree. Where there is no danger of cold weather the trees can be planted in February. If this is possible, they will normally have enough leaves by the time hot weather sets in to furnish their own protection. If they are planted after March 15, it is good insurance to furnish them with artificial protection, even on the coast. Summer planting of avocados in Santa Barbara County, even when furnished with artificial

protection, have been slower to start growth than those planted before June.

The most efficient and economical means we have found of protecting our young trees from sun burn is by wrapping them with newspaper or placing a cylinder around them made from used newspaper mats. The mats are put on loose and last without adjustment for about two years. Both the paper wrapping and mats gave us good protection from cold last year where temperatures as low as 23 degrees were recorded. We don't know how long it stayed that cold. The unprotected trees in the same plots froze to the ground.

Wind protection is needed in some areas. Most generally this is an expensive operation and in areas where wind is severe, avocados may never do well enough to be of commercial importance. Information on this subject must be obtained from local sources.

Frost protection of young avocado trees is cheap insurance, when the grower is concerned only with occasional major freezes. Very satisfactory results were obtained in our county last year by wrapping the trunks with newspaper, newspaper mats and mounding soil up over the bud-union. Some growers protected their young trees with oil heaters. That proved to be very expensive.

TRAINING BY PRUNING

Several different systems of training young avocado trees have been accepted by different growers and workers in the industry. If your neighbor has a system that you like, then I suggest that you use his system. If you haven't seen a system that you believe superior, and I haven't, then let your trees alone. All varieties have a natural growth habit. That is, they have a predetermined or natural structure. Any interference with this natural structure through pruning will retard growth and maturity of the tree. It is said by experts to also reduce yield and prolong the time of reaching maximum production. There may be some justification for cutting the terminal growth from wild limbs. Generally speaking however, the tree will develop its own pattern of growth without our help and give earlier returns if it is left alone.

So far as I know, what I have said here applies to Santa Barbara County alone. For local recommendations, contact your Agricultural Extension Service.