

AVOCADO PRACTICES IN SANTA BARBARA COUNTY

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Before I get to the subject of my discussion I would like for you to know how we chose the title for my talk. A couple of weeks ago I received a letter from our friend, Jack Shepherd, along this line: We would like to have you on our program this year, to be given in Ventura County. Since you are a neighbor up there we want to let the folks look at you. Actually, that is about all we will need from you because we have on the same program speakers to discuss irrigation, pest control, fertilization and various other phases of avocado culture. However, the growers up your way must do some things different which you could talk about. Maybe you could discuss for 15 minutes some narrow field like, "Avocado Practices in Santa Barbara County."

I don't know for sure if Jack realized it at the time he wrote, but that subject he suggested left no possibility whatsoever for me to skim the cream from any of the subjects assigned other speakers. Anyone who knows Santa Barbara does not need to be told that avocado growing up there is different. Therefore, my colleagues on this program will tell you how avocados should be grown, I will tell you how we grew them in Santa Barbara County. There might be a difference.

In at least one respect we are like Ventura County, that is the avocado acreage in Santa Barbara is expanding. Basically our cultural problems are about the same too. Three of the principal ones are: Handling mature orchards; Choosing the right varieties; and, Proper spacing of the trees in an orchard.

These problems are not new. They have been recognized by people interested in avocado culture for Santa Barbara County since 1870 when, as I got the story yesterday from Dr. Wilson Popenoe, who in turn got it from Dr. Franceschi, Judge Ord planted the first avocado tree in Santa Barbara County. About 20 years later Kenton Stevens planted several seedlings in Montecito. From then until 1925 very little was done to further the avocado industry in Santa Barbara County. Since 1925 the industry has grown slowly, but rather steadily, in importance. Among the first people to become interested in this new crop were: Shepard of Carpinteria, and Dr. Franklin of Goleta. One of the largest early plantings of budded trees (approximately 800) was made in 1925 by Dr. Coit on Dr. Franklin's place in Goleta.

We in Santa Barbara County have been in the avocado business long enough to learn that what we accept as the best cultural practices for today may not be the best practice for tomorrow. We follow certain practices today because they are the best we know.

Most important of these practices are the trials that we establish in the field as we go along. Results from these trials enable us to progress on a sound program of expansion through the use of better cultural practices.

In order to encourage what we believe to be a sound agricultural industry for our county, we in Extension Service have to operate in the present as well as plan for the future. To operate in the present we draw on local experience for information to answer inquiries on cultural practices. As you well know, this approach may get as many answers as we have farmers. But when each situation is properly analyzed we usually find a good reason for every practice we do. A good example of what we find is seen in our reply to the question, "Do you prune avocados?" My answer is that some people do and some people don't. In either case, the grower has a good reason for what he does. Those who prune reduce their yield but not in proportion to what they save by facilitating such cultural operations as irrigation and, in cold spots, orchard heating.

Another common question we are asked is, "What do you do with crowded orchards or do the trees up there ever get large enough to crowd?" On some soils that we have planted the trees may not live long enough to crowd. However, we have good young orchards on soil that would not grow a good crop of hay. I call them good orchards because they have produced a high tonnage of fruit per acre and made a profitable return to the grower over the past 15 or 20 years. Some of these orchards are beginning to crowd at 20 years of age. The Fuerte variety is much more adversely affected by crowding than some other varieties we grow.

One of two approaches is made to meet the problem in our crowded Fuerte orchards. One approach is to go out into the orchard each year just before harvest, look the situation over—tell ourselves that production per acre is low because the trees are too crowded—and decide then and there to pull out half of the trees—*next year*.

The other approach followed by some of our growers is to start a tree thinning program as soon as the trees begin to crowd. The procedure he follows is either to take out the poor producing trees or to graft alternate trees in the orchard to early bearing varieties. I prefer to graft alternate trees rather than take them out. We can do this because Fuertes planted 20'x20' get to be 20 years old before they crowd and it takes from 5 to 10 years after thinning for the remaining trees to fill in the gap left by alternate tree thinning. On some soil types a gap resulting from thinning the trees to 40'x40' may never be filled. We can get several years production by grafting early bearing varieties on alternate trees in our crowded Fuerte orchards.

The subject of irrigation comes up about as often as any other practice in avocado culture. How much water do we use and what system do we prefer are the most common questions asked. We use from 12 to 24 acre inches per acre per year, depending on soil type and the particular operator. As to the system used, we irrigate with furrows, sprinklers, both overhead and low head, and during this period of water shortage some growers are using perforated plastic tubing in mature orchards. A satisfactory job of irrigation has been accomplished with each of these systems under proper management. The most important part of any irrigation system is a competent operator.

Another important cultural practice we are asked about is fertilization. What kind of

fertilizer is best and how much to use are questions in almost every grower's mind. We don't know what kind is best and we are not at all sure that we know how much of that which we do apply should be used. We have applied every kind of fertilizer that anyone has had the courage to suggest. The only kinds that I have seen benefit from are nitrogen and zinc. The amounts of nitrogen that we use vary anywhere from 150 to 200 pounds of actual nitrogen per acre per year. This is supplemented by zinc sprays once a year. One of our main problems has been to apply zinc to trees on steep sides of hills and in crowded orchards. One of our farmers got the answer to this problem about two years ago when he employed an airplane to do the job. The operation cost \$3 per acre for material and application.

Next, what about varieties for Santa Barbara County? That question is still with us and we have had variety trials in our county ever since 1890. I believe that the industry as a whole will profit greatly from a program which continues the search for good varieties that will satisfy the desire of the consumer. Through this approach we should avoid a major problem that occurred in the lemon industry after they had settled for the Eureka variety. I hope the same mistake is not made in the avocado industry. Of course we, like everyone else, would like to be able to produce the Fuerte. We have a few individual Fuerte trees that produce good returns for the grower, but on the whole our chances look slim for high yielding orchards of that variety. Some farmers with adequate capital and land are planting a few Fuertes. But for the new comer, in the business to get production, I think the best varieties are MacArthur, Rincon, Hass and Anaheim. We know that those varieties will produce and they have had good consumer acceptance. Their quality is not equal to the Fuerte, but in our area a heavier yield per acre has made them more profitable than the Fuerte.

The number of trees per acre influences our returns. What that number should be for maximum returns to the grower is one of the most important problems of our industry. Quite a number of us who have seen lemon orchards on our best Sorrento soils go out of production at the age of 10 to 15 years without any known cause firmly believe that in avocados we should select early bearing varieties and plant them close. The fact that we have not all agreed on just what we mean by close planting is demonstrated by the spacing we find in different orchards; it ranges all the way from 13'x13' to 20'x20'. The varieties we are using in the closest plantings come into bearing at 3 to 4 years of age and in our area will not crowd until they are 10 to 15 years old. Our motto here is to get high production per acre now and meet the problems of crowding, better varieties, etc., when they arrive.

In closing I would like to give a brief summary of what we are doing to learn better cultural practices for the future. In my opinion the most important test we have is the cooperative rootstock test plots which Dr. F. F. Halma is heading up. Well over 1000 trees are involved in the Santa Barbara County trials alone. Probably next in importance to this is the variety work. These trials involve testing varieties that are brought in from other areas and growing a large number of seedlings from trees of promising varieties. One phase of this variety work involves the testing of progeny from outstanding Fuerte strains in our area budded on to known rootstock. In this test, cooperating with Dr. Halma, we have kept a record of the parent limb from which the buds were taken, hoping to get some leads on the value of bud selection. In addition to these long term

projects we have many short term field tests to guide our practices in such matters as fertilization, irrigation and nursery practices.

This test plot work illustrates the progressiveness of avocado growers in Santa Barbara County. None of these trials could have been made without their support and cooperation.