

Fourth Avocado Institute of the Intercounty Farm Bureau Avocado Department

March 10, 1933, La Habra, Calif.

Mr. Marshburn: This Department was formed about five years ago, Judge Halm from La Habra being the first chairman. He was so efficient that Los Angeles County appropriated him for their Department. The purpose of the Farm Bureau Department is to cooperate in working out the problems of our avocado industry. We hold the Avocado Growers Institute and study marketing and production problems—that is the purpose of the meeting today. Also we expect to conduct orchard tours and study top-working of unprofitable trees to more profitable varieties; study windbreaks and irrigation. The third part of our program is to continue the Cost Studies on 25 avocado groves. This is a very important project because we will have the records for references in the future. When we can show government officials what it costs to produce avocados we will have better opportunity to secure some protection by tariff. The last part of our year's program is to study fertilizer problems and how they affect our soil types.

The first speaker on the program today has been working with avocados a good many years—the San Diego Farm Advisor—Mr. France. (See page 64.)

QUESTIONS AND ANSWERS

We have a few minutes left and if anyone would like to ask Mr. France questions regarding the situation at present time we will be glad to hear from you.

Question: In regard to excessive use of water, is there any way to tell about that to help us?

Answer: I presume one of the other speakers is going to take up that subject. I would say, however, that it is pretty well established that citrus fruits can come to wilting point without creating much damage. I do not believe this is true of the avocado, particularly if they are carrying a load of fruit or bloom. Immediately following wilt you can bring trees back, but they are certain to lose a considerable amount of fruit. This matter of irrigation of the avocado and excessive use of water is mighty important in some sections of our county.

Question: Does the avocado require as much water as citrus?

Answer: I am inclined to think more.

Question: You mentioned something about placing avocados in bad soil, rocky conditions—if you had some trees that were in such condition, would you blast them or would you abandon them?

Answer: It would depend on condition of trees and how bad the hard-pan situation was. Because it really is a hard-pan situation—very hard subsoil that can't be broken up. If

you had an orchard under such condition I am inclined to think some blasting might help, but I certainly wouldn't plant an orchard under such conditions.

Question: How would you go about blasting?

Answer: I have my own ideas on tree blasting. I think the poorest thing you can do is to put one shot in where you are going to plant the tree. You shouldn't do it at all. If I were going to blast, trees already in, I would place three blasts equally around the tree, depending on amount of shattering that you get—it takes some experimenting to find out. Put charges three feet from the tree. As a result you get a much greater area of shattered material there which gives the tree a chance in a much greater rooting area.

Question: Right now the trees are more or less in bloom, but nearly wilted. Is it an indication of lack of moisture.

Answer: I would want to look at the soil rather than the tree. If soil is wet and if tree is actually wilting, it has lost a good deal of its root system and putting on more water would make it worse.

Question: If there are about 11,000 acres in California planted, what proportion of that is in land unsuitable to avocado growing?

Answer: Well some time back—this is changing frequently—we had quite a few acres in our county which we no longer have in San Diego County—I can only speak for my county—60% of the acreage planted originally was planted on land suited for the culture of avocados, but I also go further to state that great part of that 60% costs too much money to buy the land to put into trees. It is going to be necessary from a business standpoint to mark off a part of the valuation and start over again.

Question: (Mrs. Olsen): Your information about marketing conditions of the avocado throughout the country, did you base that, Mr. France, solely on an investigation of Calavo Growers? Don't you think it is only fair to make an investigation of all conditions—the conditions as a whole?

Mr. France: Mrs. Olsen, I made this figure from Calavo figures—there are no figures available for the amount of fruit sold by independents. It would be an impossible job to check up on all fruit sold by independents.

Question (Mrs. Olsen): Don't you think some effort should be made to secure figures from organizations that are operating—for the benefit of all the growers.

Answer: The figures that I have were furnished to me. (Olsen): We have a great many figures available and we have never been approached.

(France): We would be very pleased to have those figures at any time. (

Olsen): I would be glad to give those figures now if you wish. (Nothing given.)

Question: As regards blasting—do you advise blasting where trees are in, and how far away from trees would you place shots?

Answer: That depends altogether on how far the shot takes effect; the condition of your soil and how much shatter from your blast. If it would shatter this far (drawing) put my shot three feet from there; if it shattered six feet in each direction—it all depends on the

situation. Of course, I want to go back and say that it is absolutely worthless in clay soils.

Question: Can you tell me what is the trouble with a number of trees in very healthy state of growth but with large trees wilting—one very large tree produced heavy crops in the past and is suddenly wilted.

France: My immediate guess is that you have drowned roots on those trees—not enough live roots to carry them along.

(Olsen): In using for instance cottonseed meal, don't you get a great deal more out of it than using ammonia sulphate.

Wahlberg: No, the only advantage is that it isn't available in so short a period—it spreads out over the season a little longer—which is an advantage on sandy soils, but on common loams, Hanford loams, we find the sulphate ammonia is very desirable and being the cheapest on the market, we believe it is the thing to use at this time. There are certain soil types where some of those other fertilizers might be more desirable and you might want some of those organics on heavy clay soils.

(Olsen): Don't some of those more expensive fertilizers give you more organic matter.

Answer: Yes, but we don't buy commercial fertilizers for organic matter—it would be too expensive—instead we have manures and straws.

Question: Does manure give you any phosphate and potash? Doesn't tankage?

Answer: You do not need to buy phosphate or potash if you are putting an ample amounts of manure because in that there is sufficient amount to take care of the needs of the tree.

Question: Is it necessary to use ammonia sulphate where you are already using manure of some sort?

Answer: We do not believe you can depend on manure alone. You should get some organic matter cheaper from other sources such as cover-crops. You cannot get sufficient amount of organic matter from commercials without great waste of money.

Question: How does sheep manure compare to barnyard?

Answer: Well it is more concentrated and will run probably around 2% nitrogen but of course you pay more for it also. Dairy manure is more valuable around here than sheep manure. At present prices I think the dairy manure will deliver you about as good a source of organic matter as you can get, at present market price.

Question: Isn't there great variation in sheep manure according to the district it comes from? Sheep manure from desert doesn't have nearly the quality.

Answer: The only safe way is on the analysis basis.

Question: In applying nitrate of lime, would there be any advantage in digging it in, in preference to throwing it on the ground?

Answer: If you get rain on it or irrigation water on it, there is no particular advantage in turning it under.

Question: Supposing that this is the condition—waiting for rain, you place this nitrate of lime under trees and there is some vegetation there; dew comes along moistens it. Will the soil take it in or will it go off into the air?

Answer: No, there is no loss by evaporation. It will go into the soil. There will be no loss.

Question: Well if you were using- a smaller amount than usual, half the nitrate of lime that you ordinarily used and you would place it in irrigation furrows or dig it in and later no rain came, later the irrigation water passing over that—would there be any saving there?

Answer: The water would take it down into the soil. It wouldn't be carried down to the end of furrow.

Question: What is best cover crop to use?

Answer: Your experience should guide you as to what will grow the best—if you can grow legumes, such as melilotus or beans—the mustards have proven very satisfactory. The thing you want to do is get the greatest tonnage per acre. If you can't get it with one, get the non-legume. You can buy nitrogen cheaper in the concentrate and make up the deficiency.

Question: Sun-blotch tree—how does this affect the tree?

Answer: At the Experiment Station they have never been able to transmit sun-blotch in any other way than by implanting some of the tissue from diseased tree into a healthy tree.

E. E. Knight: I differ from Riverside. I have found many hundreds of thousands of bacteria and I have taken that culture and fed it through a tube into a seedling tree that is 20 years old, healthy and perfect, but today it is the sickest tree in California.

Dean Palmer: I should have added there probably that in pruning—it is always a good plan to disinfect your tools and I would certainly disinfect tools in going from a diseased tree to a healthy tree, our experience at the Experiment Station notwithstanding.

Question: I'd like to call your attention to that diseased fruit on the table and the question accompanying it. "What is this trouble and how to combat it?"

Answer: We have had considerable of this fruit this year and we have made a number of cultures and we find a number of different organisms present but we are not ready yet to lay the blame on any one organism. This trouble seems to appear more toward the end of the season. In fact we very seldom get it on the early fruit, but as the fruit becomes older—not necessarily senile—we have considerable of this trouble. As I said, there are a number of different organisms isolated but we aren't ready to blame it onto any one of them. No control which would be practical. Number of our trees which are under the bordeaux sprays on which we have had a good deal less of this trouble but where percentage of fruit injured is so small I don't think it justifies applying any fungicide.

Grower: I think I ought to say that this one tree is in the middle of my orchard and has the same treatment as other trees and this is the first time it has been affected. It is a

perfectly healthy tree and the early fruit was affected the worst. Began to show signs and drop off. Later in season it discontinued. That is the only tree affected.

(Mrs. Olson): Mr. Chairman—Two years ago at a Farm Bureau meeting in San Diego I gave results of our care for Dothiorella rot, sun-burn and sun-tip. There were a number of professors at that meeting and I don't remember any of them asking one single question. But we have been continuing to experiment since that time and if anyone here is interested we would be glad to show you the orchard at Bonita where we have cured these diseases.

Dean Palmer: Prof. Horne now has a bulletin in preparation covering the diseases that he has covered in this talk and a number of others. I think that will be available before another year.

Question: What do you use to disinfect tools with?

Answer: I, myself, prefer a solution of cyanide of mercury one part; 500 parts of denatured alcohol and 500 parts water, which makes a very good disinfectant.

Grower: I'd like to say something about that split fruit. I had a tree this fall that had a big crop of fruit on and I was rather waiting for rain and watching my soil and the first thing I knew that tree showed it was getting dry. I gave it water and I got the same results—split fruit. Would that come from the cause of lack of water at the proper time?

Dean Palmer: It would probably be due to the fact that the fruit had quit growing; the skin of the fruit had rather hardened and possibly later on when you gave it water, it started growing from the inside and the skin wasn't able to expand, causing the skin to split and these organisms which I mentioned got in and they may be secondary. Organisms may not be the cause of the trouble, but after the fruit split open they get started.

Question: Is there a parasite that does away with latania scale?

Answer: Yes there is one parasite but not in sufficient number. However, as years go on that parasite might increase but that is rather doubtful.

Grower: I have a bunch of trees which had latania scale which improved without having anything done to them. The scale has disappeared to great extent and is not nearly as abundant.