

THE PESTS OF SUB-TROPICAL FRUITS

J. R. Watson

Agricultural Experiment Station, Gainesville

As the previous speakers have said, the subject of Pests on any crop is not a popular one. Your typical promotor never mentions them, but any horticulturist knows we have pests. Even the Tung Oil tree is not exempt. So to be quiet on this subject and to ignore the subject, only arouses the suspicion of the horticulturist.

Taking up, then, some of the insects of the Avocado, first I will say that on the whole, the problems you have in the Avocado insects are very similar to those you have with citrus. I am not saying the insects are the same, but they are comparable to them, and the control measures on the whole are very similar.

Taking the state as a whole, one of the worst pests of Avocado is the Pyriform Scale, which is flat and pear-shaped, and is entirely capable of taking the leaves off a tree quite promptly. It is apparently not as severe in this part of the State as it is to the North in the State. It is principally killed with the oil emulsions we use for citrus trees, but on the other hand, Avocado trees will not stand quite as heavy strength of oil sprays as citrus trees. The Avocado requires about three-fourths of one per cent of oil when the Avocado is fairly dormant, but one-half of one per cent when in active growth.

You probably are familiar with the fact that there are on the markets in Florida two types of oil emulsion; one, you will remember is made from red oils, the other from the white oils, so-called. The white oils are always safer from the standpoint of burning foliage, and if an Avocado is in active growth, you will be apt to get by with white oil emulsion without severe burning.

The Pyriform Scale has been called the White Fly of the Avocado, because it gives off honeydew copiously which blackens up the tree; if the tree turns black you can look for Pyriform Scale. Next in importance is the Dictyospermum Scale, which is comparable to the Purple Scale of citrus, and works in about the same way. It can be controlled in the same manner as Purple Scale namely with oil emulsions.

There is one of the Red Spiders that commonly attacks Avocados and sometimes does more or less damage. It is the same that attacks the camphor tree. You people from the Northern part of the State know occasionally your camphor tree turns rusty brown, but does not drop its leaves. This same red spider gets on the Avocado and does somewhat similar work as it does on the camphor trees. This is named after our friend Yothers, and called Yothersii. It is controlled by sulfur, in some form. You can spray with lime sulfur solution or dust with sulfur on the trees. Dusting with sulfur is much more simple, and easily applied. We recommend that ordinarily, but where the temperature is below seventy degrees, you will get better control of these spiders with the lime sulfur spray than by dusting with sulfur. But in a temperature in the eighties, dusting gives you

good control and is easier applied, so the growers prefer it.

We have two species of thrips. The worst is the red banded thrip, common throughout the tropical regions of the world, however, it is found out-of-doors in Florida, only in this extreme southern part of the State. Sometimes it is a very serious pest on Avocados particularly, and on Mangos. It sucks the juice or sap from the leaves, and gives off an excretion which makes blotches on the leaf. They turn pale in color, and the presence of these blotches indicates the presence of thrips. These are controlled best by nicotine sulphate, which in commercial form is the standard Black Leaf Forty. We use about one part of it to 750 of water. Black Leaf Forty alone in water will not stick, but will roll off the insect, so we have to use some spreader or sticker. The standard spreader or sticker for these has been whale oil soap. But the experiments of Mr. Thompson, who is here, as well as other members of our department, show that of all of the common spreaders we have used, whale oil soap is about the poorest. Oil emulsion is a much better spreader than fish oil soap, and you can't use it on citrus trees. You can use it on your Mangos and your Avocados, so instead of the soap, which is recommended for a spreader for nicotine sulfate, you will substitute about one part of oil emulsion in 100 of water. With any of these emulsions you will get a better spreader than with the soap. There are still other spreaders on the market which are better. We don't care to advertise commercially, but you are all familiar with Penetrol and perhaps so with solium oleates such as Sofine. I mention this because with the newer spreaders you can reduce the amount of nicotine sulfate, and instead of one part to 750 all you will need is one part to 3,000 of water, which we use with these spreaders. For thrips use Penetrol a little more strong, not one one-half of one per cent but three quarts in 100 gallons of water will give you a better control.

Some insects attack the blossoms of the Avocado, but our time is up.

Mr. C. I. Brooks: Are there any special insects that attack the Mango?

Member: There is a little bug that belongs to the June Bug Tribe that does sometimes. It is not a pest you have every year.

Mr. Brooks: Is there anything to do for it?

Member: Yes, you can use arsenic compounds.

Member: What is the best time to spray for fungus, before or during or after the bloom?

Mr. Stevens: That's a pretty hard question to answer. I have but very little hope for bloom that comes in December, to carry through. If I were going to spray the late bloom, in April or May, I would give one application about the time those bloom buds came out. Then I would wait until a little fruit had set, and give another application, and probably following that I would give a third application, two or three weeks later. If they didn't get through with that, I would let them go.