

SOME IMPORTANT INSECTS WHICH ATTACK THE AVOCADO IN FLORIDA*

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Mr. President, Ladies and Gentlemen:

There are a number of insects which attack the avocado in Florida, and their presence may cause considerable concern to growers of this fruit. Up to this time, Guatemalan varieties have shown that the same general type of insects which attack the West Indian varieties will adapt themselves to the hardier Guatemalan varieties as well. The avocado in Florida serves as a host for various insect pests subject to varying changes of temperature as far as their activities are concerned, which possibly would not attack the avocado in a more northern latitude. Some of these insect pests may have been introduced, while others may have always been present in Florida and have adapted themselves to the avocado as a host.

Like most fruits which have their particular scale pests, the avocado has its destructive scale insect. What the San Jose scale is to the apple and pear, and the red and purple scale is to the orange and grapefruit, the *Dictyospermum* scale is to the avocado in Florida. The scales vary from light grayish-white to reddish or amber-brown, and are circular or slightly elongated. They are about the size of the red scale which attacks citrus. The scales are slightly convex, the central nipple is grayish, surrounded by a dark depressed area. It is scientifically known as *Chrysomphalus dictyospermi*, Morgan.

The section where this scale is especially destructive to the avocado is on the keys and stretches of land lying between the ocean and bay inlets along the coasts of Florida. The writer has found that the temperature runs more evenly, and averages a number of degrees warmer throughout the year in these localities than on the mainland, which perhaps accounts for the abundance of the scale in those places. It is, however, doing damage, and is to be found in varying numbers in nearly every place where the avocado is growing in southern Florida. The scale is a pest in avocado nurseries and especially finds protection where the trees are crowded together. It has been found by the writer to infest both the West Indian and Guatemalan varieties. It is known to attack various plants in tropical and semi-tropical countries.

Where this scale attacks the avocado it makes inroads into the tree, attacking the twigs and branches. The branches so attacked are gradually weakened and ultimately become of little use to the tree. Where this scale is present in numbers, the branches infested soon become roughened and crack considerably, affording entrance places for various fungus and bacterial diseases. Branches severely attacked generally show a lack of lateral twigs and foliage. This scale does not produce honey dew as is characteristic of some scale insects. It does not attack the fruit but confines its attacks

to the branches, twigs, and leaves.

A thrips which often attacks the avocado in the open in Florida is the greenhouse thrips of the northern states scientifically known as *Heliolhrrips hemorrhoidalis* B. It possesses a black head and a thorax with the abdomen yellowish brown in color, and in size is similar to most thrips. It attacks the foliage and when very numerous may also attack the fruit. It is present on the avocado during the dry winter months, and evidently the rainy weather of summer is unfavorable to its multiplication. They work very rapidly on the foliage, and the writer has observed trees which were completely defoliated in a comparatively short time. The work of the thrips is easily distinguished from that of the red spider. In addition to the foliage appearing brown, it also possesses a roughened surface due to the feeding of the thrips. It confines its attacks, almost entirely, to the upper surface of the foliage.

Like citrus, the avocado also possesses its particular white fly in Florida. It is scientifically known as *Trialeurodes floridensis* Q. This fly is very small in size, somewhat smaller than those which attack citrus. In color it is golden brown, abdomen with large orange colored areas, and wings white. This fly may also be distinguished from a number of other white flies in that the pupae possess a characteristic fringe. It is present in nearly every locality where avocados are growing in Florida, but evidently is sensitive to varying changes of temperature as regards its activities and numbers in different localities. It prefers localities where the trees are protected and the temperature runs more evenly. The work of this white fly is similar to white flies which attack citrus, in that it attacks the foliage and produces an abundance of honey dew in which sooty mold develops on the leaves, fruit and branches. It is a pest in the nursery as well as in the bearing grove.

Another pest of importance is the avocado red spider. On the approach of dry weather in the fall this spider becomes very active, and often gives considerable concern to the grower. Especially is this true where trees are more or less neglected. In shape and color this red spider is similar to all red spiders generally, and is scientifically known as *Tetranychus yothersi*, McG. This spider is to be found infesting a number of plants in Florida, among which is camphor, and has particularly adapted itself to the avocado. It may be distinguished somewhat from other red spiders in that it confines its depredations to the upper surface of the foliage entirely. It is usually from the latter part of October until April that the greatest damage is caused to the avocado by this pest. Orchards heavily infested in a short time appear as if scorched by fire. The foliage attacked turns brown and drops prematurely. Frequently there is a heavy denudation and the trees so attacked generally bear less fruit.

A species of the thrips which attacks the avocado during the blossoming period is scientifically known as *Frankliniella cephalica* Crawford. It is a close relative to the citrus blossom thrips, from which it differs in that it is much lighter in color. The species is known to occur in Mexico and has but recently been reported in this country. It is present in southern Florida, where it lives on many species of plants during their blossoming time. As soon as the avocados commence to bloom, this thrips makes its appearance. It deposits its eggs in great numbers in the bloom spikelets and other parts of the stems supporting the bloom. It also attacks the tender new growth flushing out from the blossom cluster, and deposits its eggs in the veins of the tender leaves. The

thrips often so severely attacks bloom as to seriously weaken the stems which bear the fruits. Where injury is extensive to bloom it may seriously interfere with the setting of the fruit. The adults and young also feed on the blossom parts within the flower.

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