

A REPORT OF THE COCCIDS INFESTING AVOCADOS IN CALIFORNIA

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Summary

An examination of 27,868 trees involving practically all the bearing avocado properties of the State, shows that 43 per cent are infested with scale insects of which *A. lataniae*, a species heretofore practically unknown in the State, is dominant. The Dictyospermum scale occurs largely in a district extending from Whittier to Beverly Hills with slight local infestation in Santa Ana and Fuller-ton. In the residential properties in the Whittier area it reaches its greatest numerical abundance. Infestations of lighter degree occur in Montebello and the metropolitan district of Los Angeles. All outside infestations, insofar as survey findings show, are confined to Los Angeles and Orange counties.

An examination of world literature on the two major scales shows a host index upwards of 150 species of economic and ornamental plants. One of these is of considerable economic significance in portions of the Mediterranean basin, in certain parts of which it is the most destructive species affecting citrus.

Since 1924, one species, *C. dictyospermi*, has been the object of a program looking to its eradication in nurseries. Of those formerly infested, 93 are now reported clean. Twenty-four remain on the infested list in that they have not been reported as cleaned, though in only 11 have infested plants been found on the premises.

Little is known as to distribution in the State of the Latania scale other than what is revealed by the survey. In 1928, it was recorded from seven hosts in Los Angeles, and has been taken at quarantine since 1913. It has a world host index of over 140 species and is of cosmopolitan distribution. A strange circumstance is that despite its wide distribution and extensive host index, economic record is confined to reports of its presence in glass houses. It has been reported on avocados in Florida, Guatemala and California, but not regarded as a pest.

Conclusion

From the information developed by this survey and from observations made by the writer and others in Florida, it is not believed that evidence at hand points to the species *C. dictyospermi* or any other scale as constituting the menace to avocados that growers in California have been led to believe.

In California the species is found on a comparatively wide range of hosts, frequently on palms of the genus *Kentia*, but it has never been reported as causing specific losses.

In its distribution outside of conservatories and lath houses the evidence indicates that it will be found over a considerable range of ornamentals, and in favored locations, may cause local injury.

It is believed that such a program of eradication of this species would present insurmountable difficulties. The evidence supporting this viewpoint is;

That *C. dictyospermi* exists in an area over 200 square miles, and in practically every case is associated with other scales from which, to the casual observer, it is inseparable, making it practically impossible to find the last scale. Its presence largely in residential properties further complicates the situation, as there is no incentive to control it there. Due to the peculiar habits of growth of certain hosts, it is most difficult, if not impossible, to say with any degree of certainty that a plant is or is not infested. In this same connection, certain types of hosts do not lend themselves to treatment. Last, but not least, there are legal obstacles involving the question of penalizing one group of individuals without due compensation for the benefit of another group. A superior court judge has indicated that a presumption of infestation is not tenable from a legal standpoint.

However, it is believed that a control program would not present insurmountable difficulties for either *C. dictyospermi* or *A. lataniae*.

As a result of this survey the status of the different scales from the standpoint of numerical abundance has been tabulated, a part of the departmental program anticipating notification to every grower of the condition of his planting.

County agricultural commissioners will be furnished with lists of all plantings in their respective counties. In the event of seeming necessity the legal machinery to effect a cleanup of any property that may constitute a nuisance is already on the statutes. Either species can be reduced by fumigation or by a spraying program.

Evidence exists that varietal tree schedules can be worked out that will be compatible to the tree and yet give the measure of control that will keep either species reduced below injurious abundance through the use of an oil spray or by fumigation with hydrocyanic acid.

From first hand observation made in Florida during 1929, it is believed that *C. dictyospermi* is not the general pest of avocado in that state that California growers have been led to believe. While it is true that operations are conducted against it in parts of the State, action is dictated by circumstances in the individual properties. In no district have I been able to find where a general seasonal program is in effect.

In considering the question as a whole, the fact should be borne in mind that the avocado industry of California is just emerging from its infancy and may be expected to undergo the regular pains attendant on normal growth. It has already had to standardize on certain approved varieties due to marketing difficulties. It may yet have to standardize again from a standpoint of compatibility in pest control.

It may be said that no evidence has been adduced to warrant the assumption that this

industry is menaced by any particular species that can not be reduced below the point of injurious abundance by known control measures.