Preliminary Studies of the Syneta Beetle and
Its Control in Oregon

by

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This report, based upon preliminary studies of the Syneta beetle, is presented at this time to assist the cherry grower in combating this serious pest, and is based largely upon spray tests conducted on cherries from 1925 to 1930. It is believed the control sprays suggested herein, if applied thoroughly and conscientiously, will reduce the amount of injury in the orchard by about 75 per cent. There is a real need for a thorough more basic investigation of the Syneta beetle before control measures can be devised to give a more effective control. Such thorough studies cannot be undertaken by the Experiment Station at the present time.

History of Syneta

The Syneta beetle, a small dirty white insect about 1/4 inch long, has been known to fruit growers in Oregon for nearly 40 years. As early as 1892 and 1894 it was regarded as the most injurious insect attacking fruit buds in Oregon. In 1913 and 1914 the Oregon Agricultural Experiment Station conducted an investigation regarding the life habits, destructiveness and control of the Syneta with especial emphasis being placed on the injury to apple buds and leaves. The injury to cherries at that time was known, but it was not considered serious enough for the application of control measures. In 1916 to 1918, in connection with their pear studies at Vancouver, Washington, the entomologists of the United States Department of Agriculture considered this insect one of the most injurious enemies of pear in the West, and illustrated their publication with figures of the adults and the injury to the fruit.

The Injury to Cherries

In more recent years other insects have superseded the Syneta beetle as an important enemy of apple and pears in the Northwest, but the injury to cherries and its importance as a cherry pest have been rapidly mounting, especially in parts of the Willamette Valley. Injury to some degree is caused by the larvae feeding on the roots of the trees and by the adults feeding on the buds, blossoms and leaves. The most serious injury, however, is
that inflicted on the fruit by the adults. They eat the skin and a small part of the flesh of the fruit in from small to rather large irregular patches, which are later evidenced as shallow, dark colored scars. This fruit is unsalable and unfit for canning, and consequently the grower suffers a dockage on his weight slip corresponding to the per cent of injury to the fruit.

The injury to cherries by this insect apparently occurs in cycles of several years, although the number of years in each cycle is not known. Our records for the past six years are as follows:

In 1925, in unsprayed orchards the damage was 60 per cent; in 1926, 75 per cent; in 1927, 8.9 per cent; in 1928, 12.6 per cent; in 1929, 24.8 per cent; and in 1930, 30.9 per cent.

From these figures it appears that the Syneta is on the upward curve of its cycle, and that serious injury might result this season if control measures are not applied.

Other Host Plants

The Syneta only occurs on the Pacific Coast, and apparently is another one of our native insects that has transferred from its native host plants to the more abundant cultivated crops supplied by man. Oak and willow have been considered as its native host plants. Other plants attacked to a greater or less extent are: apple, prune, pear, cherry, quince, peach, plum, wild crabapple, hawthorn, currant, gooseberry, hazelnut, strawberry, alfalfa, alder, maple, loganberry, black walnut, English walnut and filbert.

Life History

The adults begin emerging from the ground from March 20 to April 1, depending on the season. They continue to emerge about a month and remain as late as May 20. Mating takes place soon after emergence and egg laying soon follows. The eggs are dropped promiscuously by the females to the ground from their position on the trees. The eggs hatch in from 15 to 21 days. Large numbers are evidently laid by each female as more than 100 eggs have been counted on the ground under a tree in a representative 6 inch square.

The newly hatched larvae bore into the ground on hatching from the eggs and go to a depth of from 8 to 14 inches and feed on the rootlets of the trees. About 10 months of the year is thus spent on the ground as larvae or grubs, lasting from April of one year to March of the next year. They change to the pupal stage beginning about the first of March and last into April. The average length of the pupal stage is from 15 to 16 days, at the end of which the newly formed adult works out of the soil and flies to the trees.
Control Test on Cherries Summarized

The present study which is concerned principally with the injury and control of this insect on cherries in the Willamette Valley has been carried on at Corvallis and in the Salem district in a preliminary way since 1925. The results of this investigation can be summarized as follows:

1. The standard spray of lead arsenate 4#-100 before and after blossoming gives a marked reduction in the amount of injured fruit compared with unsprayed fruit.

2. Two sprays give better control than do either of the sprays alone. The first spray after blossoming is the most effective single spray.

3. Two sprays after blossoming are more effective than one spray.

4. For the pre-blossom spray, lead arsenate combined with a fungicide such as lime sulfur or bordeaux mixture does not apparently reduce the effectiveness of the lead arsenate.

5. Molasses added to the standard lead arsenate spray apparently does not increase its effectiveness.

6. Thoroughness of application of the spray material is essential to obtain maximum control.

7. Dusting appears to be as effective as spraying in Syneta control.

8. Weather conditions are a great limiting factor in the effective control of the Syneta beetle. An application followed by a heavy rain should be repeated.

Suggestions for Control

While the control measures suggested leave much to be desired, until better control measures can be devised, the grower can profit to a considerable extent by conscientious use of the following sprays.

The First Spray is applied when the fruit stems have elongated and when the blossom buds show white at the tip but have not opened. This spray is usually applied about April 1. For this spray use:

Lead arsenate 4#, hydrated lime 2#, and water 100 gallons; this spray can be combined with the first brown rot spray of bordeaux mixture 4-4-50.
The **Second Spray** is applied after blossoming when most of the petals have fallen, and consists of:

Lead arsenate 4#, hydrated lime 2# and water 100 gallons; this can be combined with the second spray of bordeaux 4-4-50 for brown rot.

If the growers desire to put on a third spray, it should be applied when the shucks have fallen, which will come a week or ten days after the second spray. The standard spray of lead arsenate 4#/100 can be combined with the wettable sulfur spray for leaf spot.

Please remember that thoroughness of application is very essential for maximum Syneta control, and that for the average size cherry trees that 5 gallons of spray is necessary for thorough coverage.