

AGRICULTURAL EXPERIMENT STATION
Oregon State College
Wm. A. Schoenfeld, Director
Corvallis

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SPITTLE BUG ON STRAWBERRIES

by

Don C. Mote

The control of spittle bugs on strawberries has been a serious problem to the small fruit growers. The appearance of these pests upon the plants in large numbers in the spring and the damage caused by their feeding makes control measures imperative on the majority of patches. Experimental tests conducted from 1931 to 1938 have resulted in the use of dusts for control of the spittle bug.

Materials

Rotenone dusts for control. The most effective material for spittle bug control is "rotenone" combined with inert carriers such as talc or diatomaceous earth, preferably the latter. Rotenone is found in the roots of tropical or subtropical plants such as cube, derris, timbo, and devil's shoestring. Commercial dusts made from these roots appear to be equally effective when applied at the same amount of rotenone per acre.

A strength of one-half of one per cent actual rotenone in a completed dust is suggested for the control of spittle bugs on strawberries.

Other dusts for control. Other materials have been used for controlling spittle bugs, but as each of these has one or more disadvantage their use is not recommended on strawberries.

Nicotine-hydrated lime: Used at a strength of 2 per cent actual nicotine. Not as effective as rotenone dust and costs approximately the same.

Powdered quicklime: Not as expensive as rotenone dust, but does not give as good control. May cause some injury to plants.

Hydrated lime: Cheap but least effective of dusts mentioned. May also injure plants when heavily applied.

Amount of Dust Per Acre

The amount of dust to be applied per acre for the control of spittle bugs depends on the size of the plants, the planting distance, type of duster, and methods used by the operator. Generally the dust is applied at the rate of 50 to 60 pounds per acre. Thoroughness of application is important as the dust must be brought into contact with the insects to secure control.

Type of Dusting Equipments

Either hand or power dusters may be used to apply the dust, depending on the acreage of the plantings. Hand dusters are more commonly used, but power equipment is equally effective when hoods are used to confine the dust. Hoods should be attached flexibly to the machine so that they may rise or fall as the ground surface requires.

Time and Number of Applications

Dusting should start as soon as the insects appear in numbers. One application if timed correctly may give satisfactory control.

Cautions

In the use of dust for spittle bug control the following cautions should be observed:

1. Dust should be applied only when the weather outlook is fair, as rain destroys to some extent the effectiveness of the material, while higher temperatures increase its effect.
2. Dust thoroughly, especially on the under side of the leaves and on the fruit-bud clusters, which support most of the pests.
3. Careful dusting will pay dividends on the crop. Indifferent dusting is a waste of time and material.
4. Rotenone dust should not be stored from year to year as it may deteriorate.

Life Habits Outlined

The spittle bugs, immature forms (nymphs) of a family of insects known as froghoppers, appear on strawberries shortly after new growth starts in the spring. These pests have sucking mouth parts and by inserting them into the tender succulent portions of the plants and withdrawing the juices seriously devitalize the strawberries. Characteristic of these insects is the production of "spittle" sometimes called "snake spit." The function of this "spittle" is not definitely known but apparently it serves as a protection against enemies and possibly assists in cooling the insects during warm weather.

The nymphs continue to feed and grow by successive molts within the "spittle" until the adult stage is reached, usually in May. The change or transformation to the adult froghopper takes place before leaving the "spittle," the insects developing wings and waiting until the froth bubble breaks before emerging. The adult froghoppers remain on the strawberry plants in large numbers for three to four weeks and then the population decreases sharply. It appears that the adults move to more succulent host plants at this time, scattering out over wide areas. During the late summer and fall the froghoppers return to strawberry patches as the majority of other host plants have been harvested, leaving the green strawberry plants as an attractive food plant.

Mating pairs of adults have been observed throughout the summer and until late fall. Egg-laying, however, starts late in July, reaching a maximum during November and may continue into January as females with developed eggs have been collected at this time.

Eggs on strawberries may be laid singly, but more often in groups on the under side of leaves, stems and hidden in the scales and debris on the crown. The egg cluster is white, but upon examination with a lens the eggs appear pale yellowish-orange and in shape are maggot-like, tapering at both ends. The eggs remain on the plant throughout the winter, hatching in the spring.