OREGON STATE AGRICULTURAL COLLEGE

Experiment Station

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Strawberry Crown-Moth in Oregon

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The strawberry crown-borer, or crown-moth as it is called, is one of the most destructive insects of strawberry in Oregon. In company with the strawberry root-weevils it is a major limiting factor in strawberry production. The reduction in yield and profit normally to be expected from a strawberry planting because of this pest is difficult to measure, but it is of real consequence and in individual plantings may result in total loss.

Attacks Both Old and Young Plants

The strawberry crown-moth may be found in all of the older plantings in the Willamette valley and the younger plantings are not always immune from attack. Young plantings adjacent or near to old plantings generally can be found to be harboring a few crown borer grubs. In most cases the plants are not killed outright, but the devitilization of the plants reduces the crop yield tremendously. The Oregon Experiment Station began a study of this insect in 1928 and, although considerable data has been accumulated, no satisfactory control measure has yet been devised.

Larva Tunnels in Crown

The life history of this insect has been found to be about as follows: The larvae, or grubs, pass the winter inactively in their burrows in the crown of the plant encased in silken cells that they spin; early in the spring they again begin feeding. Along toward the last of May and early in June they work close to the outside of the crown and form a cocoon out of frass from the crown of the plant - inside of this cocoon the larvae change to pupae. After about 30 days the small steel blue moth, clear-winged and tinged with gold, emerges and begins flying about the strawberry plants. The moths resemble the common wasps and can be seen resting on the foliage of the plants at times. Mating takes place almost immediately and then the female moths begin laying eggs in and about the crown of the plant. The moths are present during July, but can be found also in the latter part of June and the first part of August. The eggs hatch in about 2 weeks and the young larvae apparently immediately begin to feed, usually working down the outside of the crown at first and then entering the center of the crown and boring up. Some of the larvae are apparently full grown by fall, but the majority are only partly grown and pass the winter in this stage

Control Methods

Control measures in the form of various sprays and dusts have been tried against all stages of the insect in the 1928 and 1929 seasons. So far none of these artificial methods have shown much promise for control. Some hope, however, is placed on these methods of control, and additional tests are planned for the coming season.

1. Plowing

In cultural methods of control a little more success was attained. The old recommendation for control was to plow up a patch infested with borers and to gather up the plants and burn them. This is, of course, the surest way to kill the borers, but in our tests we have found that by plowing the plants in the fall and planting to grain, that over 90% of the borers will be killed by spring. Also by plowing early in September and leaving the plants on top of the ground, 80% of the borers were found to have been killed before winter set in.

2. Topping

Preliminary experiments with topping also gave some encouraging results. Two patches were used in these tests, both were Marshalls, in which the 1929 season was the first crop year. In both cases it was necessary for the moths to fly over the topped plants to get to the untopped plants. In one patch where there was a light infestation, we found 1 plant in 100 of the topped plants infested with borers, while practically every plant in the untopped part of the patch was infested. In another patch heavily infested adjacent to the 1 year old patch, in 10 plants from the topped portion we found 4 borers, and in 10 plants from the untopped portion we found 19 borers. It may be added that in the adjacent patch (3 year Ettersburg) 40 and 50 borers per plant were commonly found in each plant, and in one plant 90 borers were found.

The evidence regarding topping is rather meager and considerable experimenting remains to be done. It appears, however, that we may use our experience with topping as follows: In a field where there is a succession of plants or patches according to age, as settings, one, two and three years old, the one and two year old patches would be topped immediately after harvest; the 3 year old patch left with the tops on for the moths to concentrate on, and this patch could be plowed in the fall and therefore most of the larvae be destroyed.

A sharp butcher knife or sickle seems to be the best tools to top with. All the leaves can be cut off clean immediately after harvest, care being taken not to cut the crown. A good many growers use a mowing machine but with varying results, in many cases more harm than good being done.
