CONTROL OF STRAWBERRY ROOT WEEVILS

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Control of Strawberry Root Weevils

by

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Strawberry root weevils are among the most common and important pests attacking strawberries in Washington. When numerous, these insects can destroy a strawberry planting in one season. Controlling strawberry root weevils, therefore, is important to grow strawberries successfully.

Root Weevils

Three kinds of weevils attack strawberries. They are commonly known as the strawberry root weevil, Brachyrhinus ovatus (Linn.), the rough strawberry root weevil, Brachyrhinus rugosostriatus (Goeze), and the black vine weevil, Brachyrhinus sulcatus (Fabr.). The adults and larval forms of these are similar in appearance except for size; all have snouts or beaks and none can fly.

The adult strawberry root weevil is about 1/5 inch long and varies from black to brown.

The adult rough strawberry root weevil is about 1/4 inch in length and is usually an even dark brown.

The adult black vine weevil, the largest of the three kinds, is about 5/8 inch long, black, and often marked with small flecks of yellow or white.

There are several other kinds of root weevils which injure strawberry plants. Usually not numerous, you can control them the same way you do strawberry root weevils.

Life History

The life histories of the various strawberry root weevils are somewhat similar. Most of them pass the winter as white to pinkish-colored legless grubs in the soil around strawberry plant roots. In the milder sections of the state, however, some adult weevils overwinter around the bases of the plants. The weevils which are adults in the winter usually appear and begin feeding on plant foliage in the latter part of March or the first of April.
The weevils which spend the winter in the grub stage usually start changing to adults late in May or during June. This development can be tied to the development of the strawberry plants. Many growers begin control measures as soon as the Marshall strawberries begin to develop a red color. The adults begin laying eggs about 2 weeks after they emerge and continue until late in August. The small grubs which hatch from the eggs enter the soil and start to feed on the roots of the strawberry plants.

Injury

Plants heavily infested with root weevil have a stunted appearance and are either destroyed or the yield reduced to a point where the planting is unprofitable. The small grubs of the root weevils feed entirely on the small rootlets. As the grub grows, it feeds on the larger roots and even on the crown in heavily infested areas. The adult weevils feed on the leaves and fruits, but the damage done by the adult weevils is not considered serious compared to that of the larvae or grubs.

Control

Poison bait is recommended to control strawberry root weevils. Most growers use commercial preparations of weevil bait. These baits usually contain dried apples or other fruits and sodium fluosilicate.

Homemade bait formulas are as follows:

**Fruit Baits**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried apples, raisins or prunes</td>
<td>50 pounds</td>
</tr>
<tr>
<td>Bran</td>
<td>45 pounds</td>
</tr>
<tr>
<td>Sodium fluosilicate, calcium arsenate, or sodium fluoride</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Moisture, including water in fruit from soaking</td>
<td>5-6 quarts</td>
</tr>
</tbody>
</table>

**Bran Baits**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bran</td>
<td>100 pounds</td>
</tr>
<tr>
<td>Molasses</td>
<td>6.5 pounds</td>
</tr>
<tr>
<td>Sodium fluosilicate, calcium arsenate, or sodium fluoride</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Water (approximate)</td>
<td>5 gallons</td>
</tr>
</tbody>
</table>

Prepare the bran baits by mixing the bran and insecticide together. Then add the water containing molasses by sprinkling the liquid over the bran and chemical mixture, stirring thoroughly. Such a bait should be moist enough to form a ball in your hand, but not too wet.
METHOD OF APPLICATION

For strawberries planted in hills, scatter 1 tablespoon of bait around the crown of each plant. For matted row plantings, broadcast the bait among the plants. You need from 50 to 100 pounds of bait per acre, depending on the number of plants. For best results, the bait should fall on the ground close to the crown of the plant rather than on the foliage.

TIME AND NUMBER OF APPLICATIONS

Carefully watch your strawberry plantings for signs of root weevils, beginning about the first of April and on throughout the season. Make the first application of the bait when or soon after the first root weevils are found. Most of the weevils usually emerge from the ground during the latter part of May or the first part of June. This may vary slightly from year to year and with localities, but usually coincides with the development of the red coloring of the berry.

The strawberry root weevil appears first, followed in about a week by the rough strawberry root weevil. The black vine weevil is last to appear. Many have been found the first week in July or at the end of the strawberry harvest.

The number of bait applications varies, depending on when the weevils appear in the spring and the occurrence of rains. If it rains soon after you apply the bait, repeat the treatment.

You may need three to four applications a year. Make the earliest application in April if you find overwintering weevils at that time. Apply again usually just before or during harvest, and again just following harvest. You may need a final application during the latter part of August if you still find live weevils in strawberry fields.

NEW INSECTICIDES

Some evidence indicates that using benzene hexachloride in a dust to control the strawberry aphid may also control root weevils. The results of studies designed to prove the effectiveness of these and other insecticides as controls for the root weevils are inconclusive at this time. Some growers feel they get weevil control by applying a chlordane spray following harvest. Soil applications of DDT or chlordane before planting may also give control.