

Root Weevils in the Nursery and Landscape

Identification and control

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Root weevils are the most important insect pests of woody ornamentals in the Pacific Northwest. There are several species that cause injury. Larvae do most of the direct damage when they chew and girdle roots, sometimes killing plants (Figure 1). Control treatments, however, should be directed at adult weevils.

Successful control depends on accurate timing of sprays, so it is essential that you monitor for adult weevils beginning in late May to early June (Figure 2). Weevil emergence can vary by as much as several weeks from year to year depending on springtime temperatures.

Life cycle

Adult weevils (Figure 2) emerge from the soil in late May or early June through mid July. They must feed for about

4 weeks before laying eggs. This 4-week period is the best time to control them.

Egg laying continues until early September. Since all black vine weevils are egg-laying females (males of this species have not been found in North America), even a single one can produce a damaging infestation. Other root weevil species have both sexes.

Eggs are laid in the soil near plants. Larvae enter the soil, where they feed on plant roots during the fall, winter, and spring (Figures 3 and 4). Pupation, or the change from larvae to adults, occurs in late spring. There is only one generation per year under most conditions.

Some adult weevils survive our mild winters and are found in early spring. We do not fully understand how important these overwintered weevils are, but they



Figure 1.—Root girdling.

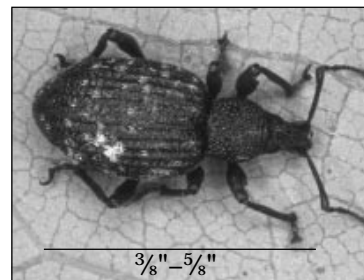


Figure 2.—Adult black vine weevil. Note the light-colored marks on the wing covers.

may pose a threat in areas protected from low winter temperatures such as hoop houses. Under normal circumstances, however, you should target newly emerged weevils in late spring or early summer.

Host range

Root weevils can be pests on many of our most valued nursery and landscape plants. Some of the most susceptible ones are rhododendron and azalea, heather,

salal, manzanita and kinnikinnick, pieris, maples, viburnum, most conifers, astilbe, cyclamen, helleborus, hosta, and primrose.

Control

Control begins with monitoring for adult weevils. Search in areas where weevil activity was observed the year before or where you see fresh evidence of feeding damage (notching; Figure 5). This scouting should be done at least once a week starting in May until you are sure that weevils have started to emerge.

Adult weevils move onto the plant after sundown and feed on leaves during the night. During daylight, they seek a moist, shady spot to rest on sunny days,

weevils are found in the leaf litter under plants. On cloudy days, they may remain hidden on the plant.

Here are two easy ways to monitor for weevils:

- Go out after sundown with a flashlight and search plants directly or shake them over a white cloth.
- Examine leaves for evidence of new adult feeding damage. Injury shows up as fresh notches on leaf edges. Weevil notching is quite distinctive, and you'll quickly learn to identify it.

It is easiest to control weevils when they are adults. Control efforts directed at larvae (soil or pot drenching) are not as effective. Insecticides applied to the foliage

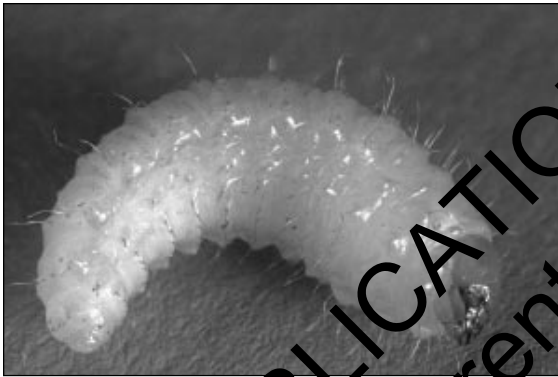


Figure 3.—Larva. Note C shape and dark head.



Figure 4.—Larvae and potting soil.



Figure 5.—Leaf notching on rhododendron.

work best to control adult weevils.

If applications are done properly, at the correct time, you will reduce the possibility of re-infestation. If applications are incorrectly timed, however, they may be worthless. Accurate timing is crucial because all available insecticides have short residual activity (from 3 days to 3 weeks, depending on which one you use).

To be most effective, foliar applications should begin at the first appearance of adults in early summer (Figure 6). Continue foliar applications at 2-3 week intervals (three applications usually are enough) until no more adults are found.

Apply a fall drench of beneficial nematodes (see below) for control of young larvae, if needed. Time this drench to follow egg laying but before November 1. Older larvae, which are present in the soil between October and May, are not effectively controlled by insecticide drenches because the soil is too cold.

Foliar insecticides

Insecticide registrations for use against adult weevils (foliar applications) change constantly. Table 1 lists the available materials

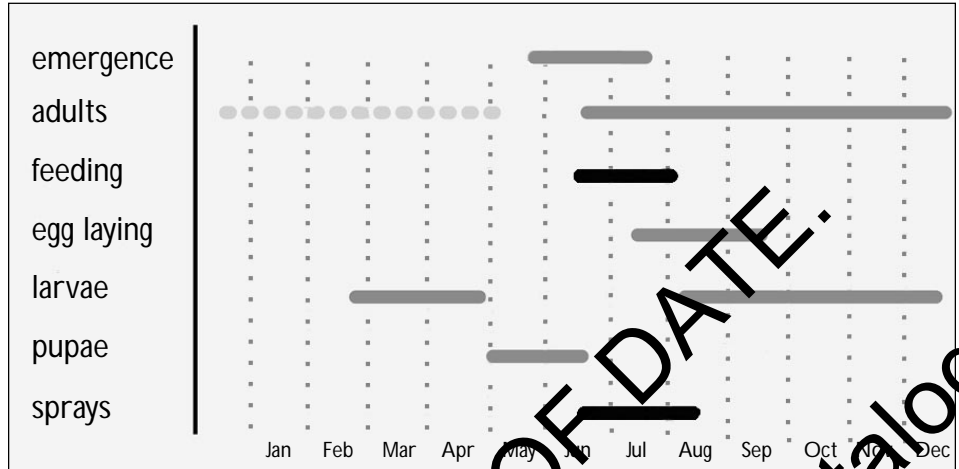


Figure 6.—Life cycle chart for black vine weevil.

as of November 1996. Check a current edition of the *Pacific Northwest Insect Control Handbook* for current information.

The pyrethroid insecticides tend to have longer residual activity and hence may provide more effective control than do the organophosphates and carbamates. Be aware, however, that pyrethroids may be repellent, especially at low rates, so weevils simply may move to untreated areas. Azatin is primarily an insect growth regulator.

Where possible, accompany foliar applications with treatment of the soil surface immediately beneath the plant since this is where adult weevils rest during daylight hours.

Table 1.—Foliar insecticides for adult control

Common name	Class
Azatin E	growth regulator
Ducban	organophosphate
Mavrik Aquaflo	pyrethroid
Orthene	organophosphate
Scimitar/Topcide	pyrethroid
Talstar	pyrethroid
Tempo 2	pyrethroid
Turcam	carbamate

Beneficial nematodes

Beneficial nematodes are a relatively new pest control product. They are a special group of free-living nematodes that attack only soil-dwelling insect larvae. They are nontoxic to plants and other animals. They are effective against root weevil larvae and white grubs, but must be used strictly according to label instructions,

especially regarding application rates, soil moisture, and soil temperature requirements.

You can use nematodes effectively in the fall as a drench for container plants, landscape plantings, and

field-planted stock. They may not be as effective when used in the spring because of low soil temperatures. They do not persist in our soils, so you must reapply them whenever needed.

Things to consider

- Start monitoring for adults or damage in May, or earlier if plants are protected.
- Concentrate control efforts on adults during June and July. Late summer treatments, after eggs have been laid, are not effective.
- Use beneficial nematodes for drench treatments in the fall.

Use pesticides safely!

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the pesticide label—even if you've used the pesticide before. Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply pesticides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

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