Root Weevils

updated: 6/06

Root weevils are members of the "snout beetle" or weevil family Curculionidae. This is the largest family of beetles with 40,000+ species. Most are recognized by a distinct and elongated "snout". The antennae are elbowed and inserted on the snout (Fig. 1).

Figure 1. Adult black vine weevil about 5/8" long.

Root weevils (there are several species that cause injury) are often the most important insect pests of woody ornamentals. They have a very wide host range. Larvae (Fig. 2) do most of the direct damage when they chew and girdle roots (Fig. 3) and stem bases and can sometimes kill plants. Control treatments, however, should be directed at adult weevils in early to mid summer (see Life Cycle chart).

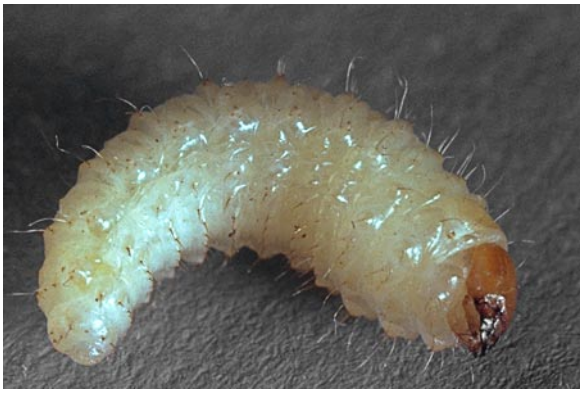


Figure 2. Root weevil larva (enlarged). Note "C" shape and dark head capsule. Original photo by Ken Gray.

Successful control depends on accurate timing of sprays. It is essential that you monitor for adult weevils beginning early summer. Weevil emergence will vary up to several weeks from year to year depending on springtime temperatures. The best way to monitor for adult emergence is to watch for new feeding notches (Fig. 4) that will begin to show up in late spring. Be careful to identify notches on *new growth* not last year's damage. Once new notches appear you can conclude that emergence has started and control of adult weevils can begin.

LIFE CYCLE

Adult weevils emerge from the soil in early summer over a period of about 4-6 weeks. They must feed for another four weeks before egg laying begins (this is called the pre-ovipositional period). Egg laying continues until early fall. Eggs are laid in the soil near plants or on foliage; larvae enter the soil where they develop on plant roots during the fall, winter and spring. Larvae spend winter months in the soil around roots and continue development in the spring when soils warm. Pupation, or the change from larvae to adults, occurs in late spring. There is only one generation per year under most conditions.

HOST RANGE

Root weevils can be pests on many of our most

valued nursery, garden 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 and strawberry.

CONTROL

Control begins with monitoring for adult weevils. Adult weevils move onto the plant after sundown and feed on leaf margins, sometimes all night long. During daylight hours they seek a moist, shady spot to rest. On sunny days weevils are found in the leaf litter under plants. On cloudy days weevils may remain hidden somewhere on the plant. Here are two easy ways to monitor for weevil emergence. Go out after sundown with a flashlight and search plants directly, or shake them over a white cloth; search in areas where weevil activity was observed the year before or where you see fresh evidence of feeding damage (notching). This scouting should be done at least once a week, starting late spring, until you are sure that weevils have started to emerge. You can also examine leaves for evidence of new adult feeding damage. Injury will show up as fresh notches on leaf edges. Weevil notching is quite distinctive and you should quickly learn to identify it (Fig. 4).

Figure 3. Girdling of conifer seedling roots by larvae.

Adult weevils are by far the easiest stage to control. Control efforts directed at larvae (soil or pot drenching) are not as effective. Insecticides applied to the foliage 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. Controls must be timed accurately because all available insecticides have short residual activity (three days to three 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 4. Weevil feeding notches on rhododendron leaves. Photo by J. DeAngelis.

Some weevils survive mild winters and will be found in early spring. We do not fully understand how important these “over-wintered” weevils are but they may pose a threat in areas protected from low winter temperatures like hoop houses. Under normal circumstances, however, you should target newly emerged weevils in late spring or early summer. Continue foliar applications at 2-3 week intervals (three applications are usually enough) until no more adults are found. Older larvae, present in the soil during winter months are not effectively controlled by insecticidal drenches because the soil is too cold.

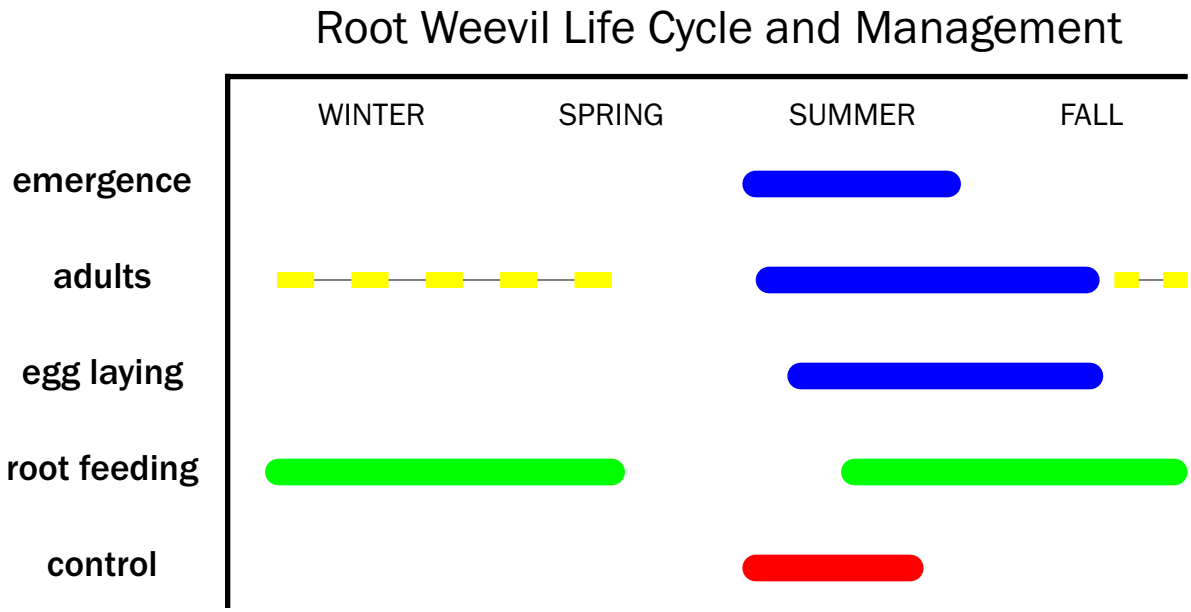
Use an insecticide that is approved for use

against root weevil adults when applied as a foliar spray.

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.

See www.LivingWithBugs.com for additional information.



Bars indicate times of the year when activities identified on left are observed. The dashed yellow bar represents "overwintering" adults. Control efforts should be timed to coincide with adult weevil emergence during early summer (red bar).

