

● ALTERNATIVES

DEALING WITH ROOT WEEVILS WITHOUT USING PESTICIDES

BY CAROLINE COX

Root weevils are insects that can be troublesome for gardeners growing rhododendrons, azaleas, strawberries, and a variety of other small fruits and ornamental plants.^{1,2} They've been called "the most important insect pests of woody ornamentals in the Pacific Northwest."¹ Fortunately, there are a variety of pesticide-free techniques for managing weevils.

Recognizing Root Weevils

Root weevils are small (between 0.2 and 0.4 inches long) and are gray, brown, or black.² They have an oblong body and a long snout. Juvenile root weevils are white grubs with a brown head; they are about the same size as the adults with a curved shape.²

Adult weevils feed by making characteristic notches on the edges of leaves. The grubs live in the soil and feed on plant roots and crowns.²

There are five common root weevils in the Northwest. You don't need to identify which kind of weevil is bothering your plants; similar techniques are used to manage all five.²

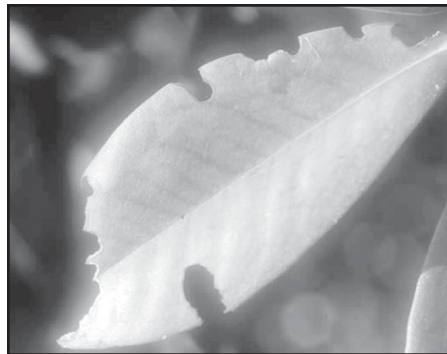
Life Cycle and Behavior

Understanding some facts about root weevils' life cycle and behavior will help you manage these insects.

Most root weevils spend the winter as grubs. In the Northwest, the grubs feed heavily in March and April. They turn into adults in late April, May, and June. The females lay eggs in the soil around the base of the plants where they fed as grubs. When the eggs hatch, the grubs work their way into the soil and begin feeding.²



Caroline Cox is JPR's editor.



An adult root weevil, an immature grub, and "notches" made by adults feeding.

Adult root weevils cannot fly.² They feed at night and rest in moist shady places during the day.¹

When Weevils Come Indoors

In some areas, root weevils are a nuisance when they come inside seeking shelter during hot dry weather. If weevils are bothering you inside your house, remember that they don't damage your home or your furniture. Neither do they harm people and pets. Vacuum or sweep up unwanted weevils.

Seal cracks and make sure windows and doors are tightly screened. If your problem is particularly serious, you may want to replace plants near your house with varieties not well-liked by weevils.^{3,4}

Choosing Rhododendrons

Many Northwest gardeners are concerned about weevil notches on their rhododendron leaves. Chewed leaves can remain on rhododendrons for years. If you have had problems with weevils and are choosing a new plant, consider varieties that are rarely attacked by weevils: P.J.M., Dora Amateis, Crest, Odee Wright, Point Defiance, or any of the *Yakushimanum* types. These rhododendrons either taste bad to root weevils, or have leaves that make chewing difficult.⁵

Rotating Strawberries

Root weevils can "seriously damage strawberry plantings if left unchecked."⁶ One way to prevent weevil damage in strawberries is to use a rotation: plant strawberries in a different area and grow another crop in the old strawberry bed. Corn, clover, and alfalfa are recommended. Since root weevils don't fly, even a short distance is sufficient.²

Don't Bring Weevils Home

Root weevils are "commonly transported as larvae [grubs] in nursery stock."⁷ When you bring new plants home for your garden, you may want to keep them isolated until you're sure that no weevils came with the new plants. Isolating new plants with a barrier is one good way to do this. You can make a simple barrier with six-inch aluminum flashing. Surround the plants with flashing pushed several inches into the ground⁷ and topped

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with auto mechanic's grease.⁸

You can also use this kind of barrier to protect a plant from weevils.⁷

Breaking the Weevil Life Cycle

If root weevils are feeding on your shrubs, you can interrupt their life cycle by keeping the adults from climbing up and down the trunk. Washington State University extension agent Mary Robson recommends that you "wrap some clear plastic cling wrap around the trunk of the shrub,"⁹ then spread Tanglefoot, a sticky insect trapping material "over the wrap so it isn't directly on the bark."⁹ To be successful, this method requires that no other parts of the plant are touching the ground or other bushes.⁹

Removing Weevils

Adult weevils can be removed from plants in your yard or garden fairly easily. Because they feed at night, you should look for them after dusk with a flashlight. Pick them up and drop them into soapy water.⁹ You can also put a sheet⁹ or an upside-down umbrella¹⁰ under your plant, then shake hard and dispose of the weevils you collect.⁹

Using Nematodes to Manage Weevils

Nematodes are tiny roundworms. Some kinds of nematodes attack a variety of insects, and two kinds (*Steinernema* and *Heterorhabditis*) prey on root weevils. The juvenile nematodes penetrate inside the weevil grub and release a bacteria that causes rapid death of the insect. The nematode then feeds on the bacteria and the dead insect.¹¹ Rutgers University extension specialist Peter Shearer evaluated the success of using nematodes as a root weevil management tool and wrote, "Fortunately, good biological control of these grubs can be achieved with insecticidal nematodes."⁶

Nematodes that prey on root weevils can be purchased from a number of commercial suppliers.¹¹ Check with local experts (your extension agent, for example) about which species of nematode will work best in your area.

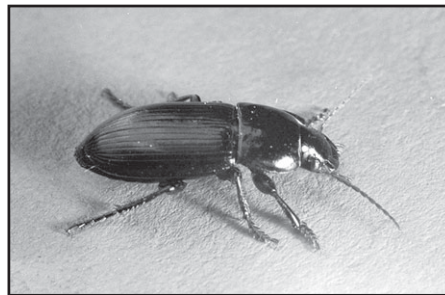
To make a nematode application



A nematode, highly magnified.

effective, take the following steps:⁶

- Since they are killed by sunlight, apply nematodes in the early morning or late evening.
- Make sure soil is moist. If dry, irrigate with 1/4 inch of water before applying the nematodes.
- Apply nematodes when the soil temperature is over 60° and under 85°.
- Mix nematodes with water when applying them so they don't dry out.
- Irrigate with 1/4 inch of water after application to move the nematodes into the soil.



Beetles

Ground beetles are important predators of root weevil grubs and adults. You can encourage ground beetles to capture more weevils by using a coarse mulch around your plants. The beetles are more active (and hunt more) when the mulch protects them from sun. Also, excessive cultivation adversely affects beetles, so you can encourage beetles by minimizing your hoeing.⁸

Other Predators

Birds, frogs, toads, shrews, and

hedgehogs also eat root weevils. Encouraging these animals in your yard will help reduce weevil problems.¹⁰

Insecticides for Root Weevils

Connecticut Agricultural Experiment Station scientist Richard Cowles reports that using insecticides to kill weevils is "unfortunately flawed in two important ways." First, the weevils adapt to insecticides. Some weevils are resistant to all the different insecticides used for their control. Second, the insecticides are toxic to the weevils' ground beetle predators.⁸

Conclusion

Try using the techniques outlined in this article to avoid root weevil problems. These are pests for which pesticide use can be counterproductive.⁸ ♣

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