

Black Vine Weevil:

Life Cycle, Monitoring, and Pest Management in New Jersey

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The Black Vine Weevil, also known as the Taxus Weevil, is a species of snout beetle (weevil) that feeds as an adult on plant foliage and whose immature form (grub) feeds on roots and crowns. Adults do not fly; they must crawl up plants to feed on foliage and walk to feed on new plants. Infestations therefore spread slowly and may be initially introduced to a site from infested nursery stock. Once a plant is infested, the population on that plant may increase rapidly.

Description – Adult Black Vine Weevils are about $\frac{3}{4}$ inch long, oval, and dull black in color. Adults are nocturnal, feeding at night and hiding under leaf litter, mulch, or plant bark during the day. When adults are disturbed, they will drop to the ground and feign death. Immature grubs feeding in the soil are legless, C-shaped, and off-white in color with light brown heads.

Plants Attacked – The Black Vine Weevil is a pest of over 200 plants, ranging from weeds to shrubs to greenhouse plants. Broadleaf evergreens are common hosts. Some common host plants in New Jersey include: yew, azalea, privet, hemlock, holly, euonymus, rhododendron, and grape.

Damage – Adult weevils feed on foliage by chewing the edges of leaves in characteristic C-shaped notches (see illustration). Adult feeding may detract from the appearance of the plant but usually do not kill it.

The grubs are highly destructive to plants. Small grubs consume small plant feeder roots under ground. Larger grubs feed on larger roots, stripping bark, and sometimes girdling the plant crown. This blocks the flow of water and nutrients to the foliage. Infested plants have stunted

growth and leaves turn yellow and wilt. Young plants can be killed by just a few grubs. Mature, vigorous plants appear to tolerate a high grub population with seemingly little effect, yet often die when transplanted.

Life Cycle – Adult Black Vine weevils typically emerge in mid-June. All adults are females, able to produce fertile eggs without mating. A newly emerged adult requires four to five weeks of feeding before her eggs develop. Feeding and egg laying continue throughout the growing season 300 or more eggs are laid dropping to the ground as the adult feeds.

Eggs hatch in 10 to 14 days. Young grubs tunnel into the soil beneath the host plant and begin feeding on plant roots. Grubs feed all summer and into the fall before moving below the frost line for the winter.

Grubs resume feeding and produce the greatest amount of root damage the following spring. Some adults may also overwinter in homes and protected areas in New Jersey and begin feeding and egg laying much earlier in the spring. Therefore, grubs of different sizes are sometimes found in the soil at the same time.

By mid-May, many grubs have transformed into a resting stage called a pupa. Adults emerge from the soil about two weeks later (400-800 GDD depending upon site/exposure).

Monitoring – Look for fresh feeding notches on plant foliage beginning in mid-June. Use a flashlight to observe adult weevils at dusk or at night. Adults prefer mature foliage and are often within the inner canopy. If plants are found with wilted foliage, leaf notching, or both, inspect the rootball for the presence of grubs.



Remove the rootball from container plants, and use a pencil to probe grubs out.

Trapping adult weevils:

- Place a drop cloth beneath an infested plant in early morning and shake the plant. Adult weevils will drop off onto the cloth.
- Place boards on ground near plant. Weevils hid beneath the boards during daylight hours. Check boards daily.
- Wrap trunks of plants with corrugated cardboard (corrugated side against the bark) or burlap. For blocks of plants, wrap a tree stake and place every 10 feet under plants. Adult weevils hide during the day beneath the corrugations, which simulate loose bark. Check traps weekly.
- Pitfall Traps – Sink a 16 oz. cup into the ground so the rim is just below the surface. Punch a pin hole into the bottom of the cup for drainage. A smaller 4 oz. cup lined with a coffee filter is placed within as a receptacle. Weevils walking on the surface fall into the trap and cannot get out.
- Sticky bands: wrap tree wrap or paper around the plant trunk and coat with a sticky adhesive (Tanglefoot, Stickum) to act as a barrier to trap nonflying weevils. Bands should be 6 inches wide. Follow label directions.

CONTROL METHODS

Control adults when leaf notching is abundant on new growth, approximately 20 days after adults are first noticed. This allows the majority of the adult population to be present before egg laying occurs

Biological Control – Beneficial nematodes are microscopic predators of Black Vine weevil grubs. Selection of the best adapted nematode species is important. In general, the nematode *Heterorhabditis bacteriophora* has provided more consistent control of Black Vine weevil (49-100%) than *Steinernema carposcapsae*. Research also shows high levels of control (70-95%) using *H. heliothidis* and *H. megidis*.

Following label directions, mix nematodes in a watering can or any sprayer that has not previously contained an insecticide. Apply to moist soil around plants. Best results occur when topsoil temperatures are above 60°F and when treatments are applied during dusk or evening hours. Thoroughly water the soil both before and after nematode application.

Resistant Varieties – The following Rhododendrons have been found to exhibit resistance to Black Vine Weevil:¹

a. Resistant species:

R. heliolepis	R. impeditum
R. scintillans	R. burmanicum
R. dauricum	R. intricatum
R. minus	R. desquamatum
R. ferrugineum	R. hemsleyanum

b. Resistant cultivars:

‘P.J.M.’ ‘Sapphire’ ‘Jock’

Chemical Control – If damage is intolerable, spray just after the adults are first seen (before they lay eggs), and again 3-4 weeks later if necessary. This period is from mid-June to August, depending on local conditions.

Homeowners may spray acephate (Orthene) or Azatin (neem) according to label directions. Certified pesticide applicators can use acephate (Orthene), Mavrik, bendiocarb (Turcam or Dycarb), or cyflurthrin (Tempo or Decathlon). Three applications 14-day intervals may be necessary on high populations. Apply sprays as late in the day as possible.

Bendiocarb is also labeled as a soil drench to control grubs. Before applying any insecticide, read and follow all precautions and directions stated on the label.

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