

# Weevils in Nursery and Floriculture



Black vine (left) and strawberry root weevil (right)

Weevil larvae cause damage by feeding on and girdling roots, resulting in stunted growth and, in young plants, mortality. Feeding by adult weevils causes aesthetic damage to ornamental crops.

**Weevils have one generation/year and can be present for several years before detection, causing gradual plant decline. A multi-year approach is needed for successful management.**



C-shaped, legless weevil larva

**Prevention is key! Once weevils are established, they are difficult to eliminate**

- Limit movement of plant material and soil, as this can spread weevils
- Install barriers or ditches to prevent movement of weevils into clean stock
- Do not store potted plants alongside a hedgerow/field edge prior to planting in field as weevils from these unmanaged areas may colonize the pots
- Susceptible plants can be sticky banded around the trunk (if woody) or kept on raised benches with sticky bands around the bench legs, to prevent adult weevils from feeding. Note that this will not control larvae

## Monitoring Tips

- Inspect leaves of bushes for adult feeding damage - *notching is always on leaf edges and rounded*, rather than ragged or choppy, which is more likely to be caused by caterpillars. Notching or bud damage is sometimes hard to find, and can be difficult to differentiate from other insect feeding, particularly at low levels
- Remove damaged/notched leaves from an **indicator plant** weekly, and record any new feeding in subsequent routine scouting visits. Leaf removal helps to determine between old and new damage
- Monitor with a weevil board – a 30cm long 2"x4" piece of wood with grooves on the underside, laid flat on soil. Adult weevils will shelter under these pieces of wood



Notching by adult weevil on euonymus foliage (Credit: David Woodske, BCAGRI)

## Management Timeline

<b>Before planting</b>	<ul style="list-style-type: none"> <li>• Select weevil resistant cultivars (available for Rhododendron and azaleas)</li> <li>• Incorporate a bioinsecticide containing entomopathogenic fungi to growing media (for container grown ornamentals)</li> </ul>
<b>March-July (timing depends on species, see page 2)</b>	<ul style="list-style-type: none"> <li>• Monitor for adults and notching. If damage is observed on multiple plants, or has increased from previous years, prepare to take a management action</li> <li>• Spray for adults two to three weeks after first adults are detected</li> <li>• Consider using a Degree Day Model in combination with monitoring to correctly time management to coincide with peak adult emergence. Follow this link: <a href="https://uspest.org/cgi-bin/ddmodel.us">uspest.org/cgi-bin/ddmodel.us</a> and select the option for strawberry root weevil</li> </ul>
<b>June-Aug</b>	<ul style="list-style-type: none"> <li>• Examine base of plants for tracks made by larval feeding</li> </ul>
<b>Aug-Sept</b>	<ul style="list-style-type: none"> <li>• Apply beneficial nematode in drench to target young larvae</li> </ul>

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# Weevils in Nursery and Floriculture - page 2

## Know your pest! Which weevil species do you have?

Each species has slightly different life stage timing and behaviour, and this can affect how and when they can be managed. For identification information, refer to 'Links and resources' below.

Species	Where to monitor?	When to monitor?	What time of day to apply adult spray?	When to apply adult spray?
Clay-coloured	Buds, bark	March-May	Day (or night, if warm)	March-June
Obscure root	Foliage	May-July	Night	May-June
Black vine	Foliage in lower canopy	June-Aug		June-Aug
Strawberry root	Foliage, stems			March-June
Rough Strawberry root	Foliage	March-May, Aug-Oct		
Green immigrant	Foliage in upper canopy	May-July	Day	May-June

### 1) Management of adult weevils: Chemical control

**Well-timed insecticide sprays are essential for effective management.** The first application should be applied two-three weeks after adult notching is first detected, with consideration given to monitoring and/or to the predicted *peak adult emergence* as per Degree Day Model (see page 1).

#### Application tips:

- DO NOT apply sprays for weevils during bloom or when bees are present.
- Ensure application and coverage to correct location on the plant
- For maximum efficacy, apply sprays at the time of day when adults of target species are active
- Various registered insecticides are available; always follow the label

### 2) Management of weevil larvae: Biological control

#### Bioinsecticide treatment

- Apply *Metarhizium anisopliae* as a drench to target larvae. May remain active in soil and provide protection for 1-2 years

#### Nematode treatment

- Apply from August-October when soil temperatures are >13°C
- Ensure adequate irrigation before and after application
- Apply in a band along the base of plants
- Can also be applied as a spot treatment in specific locations where larval tracks on plants are observed
- Multiple applications are needed for adequate control



Green immigrant weevil – an invasive species

#### Links and resources

PMRA Database: [pr-rp.sc.gc.ca/ls-re/index-eng.php](http://pr-rp.sc.gc.ca/ls-re/index-eng.php)

Floriculture Production Guide: [gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/crop-production/floriculture-production-guide.pdf](http://gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/crop-production/floriculture-production-guide.pdf)

Weevil identification information: [2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/plant-health/phu-weevils-blueberry.pdf](http://2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/animal-and-crops/plant-health/phu-weevils-blueberry.pdf)

Monitoring and management: [forestrydev.org/diseases/nursery/pests/rootweev\\_e.html](http://forestrydev.org/diseases/nursery/pests/rootweev_e.html)

Due to one generation per year life cycle, the effects of a treatment may not be observed immediately. Continuous monitoring is required, with management actions as needed.