

# Weevils in berry crops



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. Adult feeding on foliage is rarely of economic concern. **Weevils have one generation/year and can be present for several years causing gradual plant decline before economic damage is observed. A multi-year approach is needed for successful management.**

C-shaped, legless weevil larva



## Prevention is key!

Once established, weevils are difficult to control

- Limit movement of plant material and soil from field to field, as this can spread weevils
- Purchase planting stock from reputable sources and ensure plants are weevil-free prior to planting
- 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

## 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 beat trays and sweep nets in the evenings to catch adults
- Record **'hot-spots'** where and when damage occurs-these areas are most at risk in subsequent years and are the best places to monitor the life stages. They should also be targeted with treatments



Weevil notching on blueberry

## Management Timeline

<b>Before planting</b>	<ul style="list-style-type: none"> <li>• Cultivate fields before new plantings to destroy plant tissue and weevil larvae in the soil</li> <li>• Consider planting a cereal cover crop for a season to starve any weevil larvae still present in the soil</li> </ul>
<b>March-August</b> (species specific, see page 2)	<ul style="list-style-type: none"> <li>• Monitor for adults and notching, recording where in the field damage is present. If notching is observed on more than five shoots per plant, and on multiple plants in the field, prepare to spray according to guidelines on page 2</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>August-Sept</b>	<ul style="list-style-type: none"> <li>• Apply beneficial nematodes in drench to control young larvae. <i>This method is acceptable for organic crop production</i></li> </ul>

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# Weevils in berry crops - 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)	Pre-bloom
Obscure root	Foliage	May-July	Night	May-June
Black vine	Foliage in lower canopy	May-Aug		June-Aug
Strawberry root	Foliage, ripening fruit			Pre-bloom, Aug-Sept
Rough Strawberry root	Foliage	March-May, Aug-Oct		Pre-bloom, Aug-Sept
Green immigrant	Foliage in upper canopy	May-July	Day	May-June

## Chemical management of adult weevils

**Well-timed insecticide sprays are essential for effective pest 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 in the field. This will kill bees and negatively impact pollination, resulting in lost yield. For spring weevils (clay-coloured), spray at least two weeks before bloom
- Ensure application and adequate coverage to the correct location on the plant
- **For maximum efficacy, apply sprays at the time of day when adults of target species are most active**
- Some products applied for spotted wing drosophila may also have efficacy against weevils
- Insecticides from different chemical classes are registered and available in B.C.; always follow the label and refer to the Berry Production Guide for more information



Green immigrant weevil - an invasive species

### **Links and resources**

PMRA Database: [pr-rp.hc-sc.gc.ca/lr-re/index-eng.php](http://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php)  
 BC Berry Production Guide: [productionguide.agrifoodbc.ca/guides/14](http://productionguide.agrifoodbc.ca/guides/14)  
*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) and [bb.bluesticker.com/weevils/](http://bb.bluesticker.com/weevils/)

**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.**