

# Pea Leaf Weevil : *Sitona lineatus* Linnaeus

## Monitoring Protocol

### Host plants:

Plants belong to the family Leguminaceae including cultivated and wild legume species and specifically dry beans, faba beans with economic damage caused in peas.

### Identification, Life cycle and Damage:

**Adult:** Adults overwinter in alfalfa or other perennial legumes and emerge in the spring primarily by flying (at temperatures above 17C) or they may walk short distances. Adults are slender, greyish-brown measuring approximately 5 mm in length (Figures 1 and 2). The Pea leaf weevil resembles the sweet clover weevil (*Sitona cylindricollis*) yet the former is distinguished by three light-coloured stripes extending length-wise down thorax and sometimes the abdomen. The Pea leaf weevil has a short snout.

Adults will feed upon the leaf margins and growing points of legume seedlings (alfalfa, clover, dry beans, faba beans, peas) and produce a characteristic, scalloped (notched) edge (Figures 3-6). Females lay 1000 to 1500 eggs in the soil either near or on developing plants from May to June.



Figure 1: Adult *S. lineatus* on pea leaf (Photo: L. Dosdall).



Figure 2: Dorsal view of adult *S. lineatus* (Photo: H. Goulet).



**Figure 3: Pea seedling with weevil damage (Photo: L. Dosdall).**



**Figure 4: Damaged pea leaves (Photo: L. Dosdall).**



**Figure 5: Damaged pea leaves (Photo: L. Dosdall).**



**Figure 6: Weevil damage on pea (Photo: H. Goulet).**

**Eggs:** Eggs are laid singly in the soil either near or on developing plants from May to June.

**Larva:** Larvae develop under the soil and are “C” shaped and milky-white with a dark-brown head capsule ranging in length from 3.5-5.5 mm (Figure 7). Larvae

develop through five instar stages. After hatching, larvae seek and enter the roots of a pea plant. Larvae will enter and consume the contents of the nodules of the legume host plant. It is the nodules that are responsible for nitrogen-fixation which affect yield plus the plant's ability to input nitrogen into the soil. Consumption of or damage to the nodules ( Figure 8) results in partial or complete inhibition of nitrogen fixation by the plant and results in poor plant growth and low seed yields.



**Figure 7: Weevil larva (Photo: L. Dossdall).**



**Figure 8: Damaged pea nodules (Photo: L. Dossdall).**

**Pupa:** Pupation takes place in the soil. New generation adults emerge from late July to August and seek pulse crops to feed upon prior to overwintering in the late fall.

**Figure 9. *Sitona* species occurring on the Canadian prairies.**



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<p><b><i>Sitona lineatus</i> Linnaeus</b>  <b>Pea leaf weevil</b>  <b>5 mm long</b>                      Three dorsal stripes extending laterally from head to abdomen; unlike any other <i>Sitona</i> species, the fore-coxal cavities touch or nearly touch a narrow groove located on the ventral surface of the pronotum (Bright 1994; Bright and Bouchard 2008).</p> <p><b>Hosts:</b> Peas, faba beans, seedling alfalfa.</p>	<p><b><i>Sitona cylindricollis</i> Fahraeus</b>  <b>Sweet clover weevil</b>  <b>5 mm long</b>                      Uniformly dark grey to black.</p> <p><b>Hosts:</b> Sweet clover, seedling alfalfa, cicer milkvetch.</p>	<p><b><i>Sitona lineelus</i> Bonsdorff</b>  <b>Alfalfa curculio</b>  <b>3-4 mm long</b>                      Smaller and lighter in colour than <i>S. cylindricollis</i>.</p> <p><b>Hosts:</b> Alfalfa, sainfoin, cicer milkvetch, native vetches.</p>	<p><b><i>Sitona hispidula</i> Fabricius</b>  <b>Clover root curculio</b>  <b>4-5 mm long</b>                      Three dorsal stripes extending laterally from head to thorax; spotting pattern on elytra; "hairy" on abdomen.</p> <p><b>Hosts:</b> Clovers, alfalfa, other legumes.</p>
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## Monitoring

**Timing:** Pea leaf weevil populations are estimated by plant damage assessments performed during the **last week of May and first week of June**, the period typically coinciding with maximum damage.

### Plant Damage Assessments:

Assess pea plants for weevil feeding damage at five different locations within the field in the following pattern (Figure 10):

1. 10 metres from the field access point but remain within 2 metres of the field margin,
2. 25 metres from above but remain within 2 metres of field margin,
3. 25 metres from previous but within 2 metres of field margin,
4. 25 metres from previous but within 2 metres of field margin,
5. 25 metres from previous but within 2 metres of field margin.

At each of the five locations, record the following for 10 plants:

1. Pea node stage,
2. Total number of crescent-shaped notches,
3. Number of plants with clam-shell feeding damage.

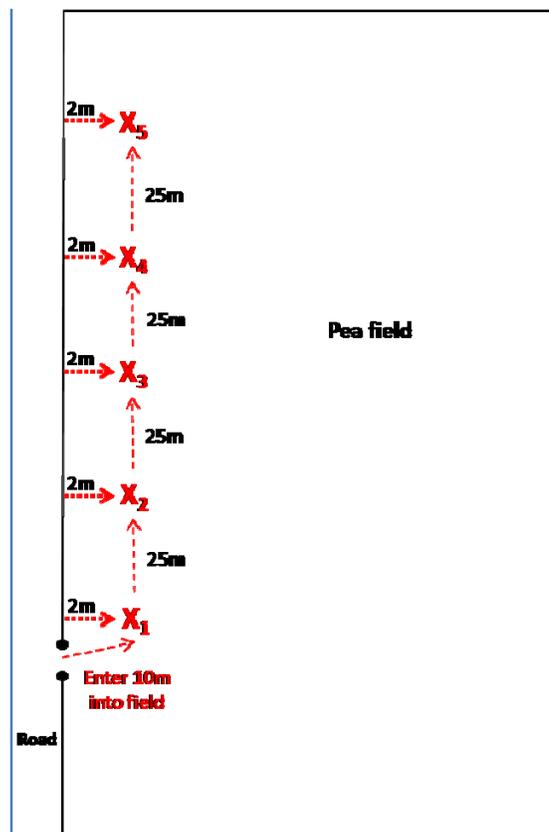


Figure 10. Example of field monitoring pattern when sampling for pea leaf weevil.