

Flea Beetle Identification, Assessment, and Management in Canola

Flea Beetle Identification

- There are two dominant flea beetle species in Western Canada

1) Striped flea beetle:

- Black with two distinct yellow stripes on either side of their black back.
- Typically emerges earlier in the spring than the crucifer flea beetle.

2) Crucifer flea beetle:

- Completely black with a metallic sheen.
- Typically emerges later in the spring than the striped flea beetle.



Figure 1. Striped flea beetle



Figure 2. Crucifer flea beetle

Flea Beetle Distribution and Life Cycle

- Both the striped and crucifer flea beetle are found wherever canola is grown.
- The **striped flea beetle** tends to emerge and become active 1 to 4 weeks prior to the crucifer flea beetle.
- The **crucifer flea beetle** tends to peak in emergence when the ground temperature is above 15°C.
- Sunny, warm and dry weather increases flea beetle feeding.
- Cool, damp weather can slow feeding and can drive flea beetles down the plant where they feed on the stem and underside of the leaves.

Assessment of Flea Beetle Damage

- Scout fields from cotyledon to a minimum of the 4-leaf stage.
- Adult flea beetles feed on the surface of leaves, stems, and pods and produce small pits. Feeding can also occur on the underside of leaves and on stems.

- **Action threshold** established for flea beetle feeding on canola is when there is 25% defoliation of the plant, and the flea beetles are actively feeding.
 - At this time an application of a foliar insecticide should be considered.
 - High flea beetle populations combined with low plant populations and slow crop growth due to cool and/or dry conditions can allow flea beetle feeding damage to increase rapidly. Lowering the action threshold to 15-20% defoliation may be beneficial in these situations.
- **There is no threshold established for stem feeding,** however given the importance of the stem and its delicate nature, stem feeding can often result in plant mortality and warrant foliar control measures.

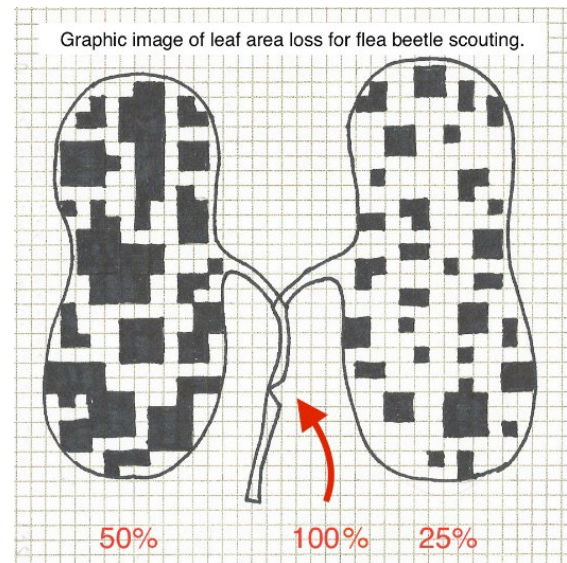


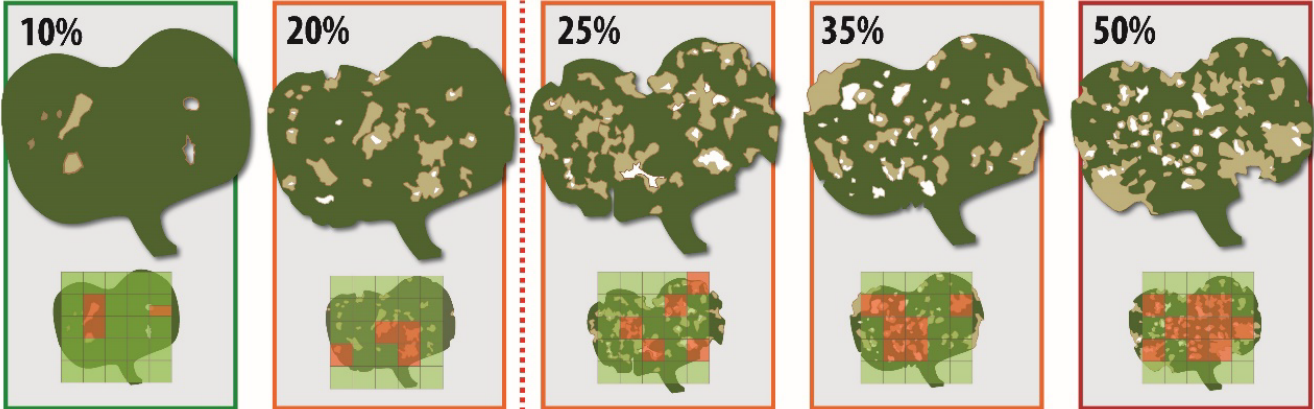
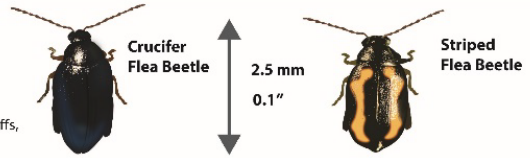
Figure 3. Image representing 25% and 50% leaf area loss due to flea beetle feeding. When stem is clipped, loss is considered to be 100%. Courtesy of the Canola Council of Canada (www.canolacouncil.org)

Flea Beetle Management

- **Seed Treatment:** all canola is treated with a neonicotinoid treatment for flea beetle protection. Additional options are available for enhanced protection.
- Flea beetle feeding still occurs when seed treatments are utilized, as insecticide ingestion is required to achieve flea beetle control.
- Use best agronomic practices to promote a healthy crop. Higher plant populations can limit the amount of damage.
- Strong early vigour can limit the amount of flea beetle damage (% defoliation) per plant and help avoid breaching the damage threshold where a foliar insecticide is required.

Flea Beetle Damage on Canola

Scout for flea beetle damage in several places throughout the field, including field edges, hedgerows, and bluffs, ideally at five points, in a "W" pattern, checking 10 plants at each point (to get a representative sample).



25% is the action threshold

When approaching the 25% suggested action threshold (nominal economic threshold) consider applying foliar insecticide, if prior to the four-leaf stage with actively feeding flea beetles (evidence of fresh feeding wounds and/or damage to newly-emerged leaves), to prevent reaching levels anticipated to cause economic injury (50%).

Stem Feeding

Include the inspection of stems and petioles when flea beetle scouting. No specific threshold exists to evaluate the impact of stem feeding, but due to the function of the stem (supplying water to the leaves) and its fragility when young, stem feeding can be more damaging than leaf defoliation and even cause plant fatality (especially under hot and dry conditions).

Feeding damage is less of a concern with moderate temperatures, good soil moisture and an adequate plant stand, but it becomes a greater concern with lower plant stands, lower moisture and higher temperatures.

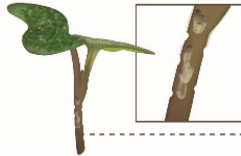
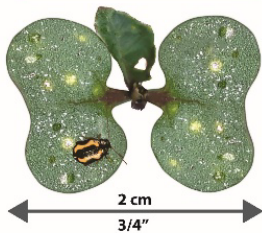


Figure 4. Assessing flea beetle damage on canola. Courtesy of the Canola Council of Canada (www.canolacouncil.org)



Figure 5. Standard canola seed treatment compared to standard seed treatment plus Lumiderm™ insecticide seed treatment 42 days after seeding. Seven Persons, AB. *Standard canola seed treatment is a neonicotinoid insecticide in combination with a fungicide package.