

How do I manage potato leafhopper in alfalfa?

Potato leafhopper is a major alfalfa pest in Ontario. Yield losses may reach 50%, and crude protein content can drop 2-3% from heavy infestations. Potato leafhopper feeding decreases stand vigour, slows regrowth and increases winterkill.

The simple answer

As alfalfa gets taller it can tolerate more potato leafhoppers before action is necessary to protect forage yield and quality. quality (Table 1).



Table 1. Action thresholds for managing potato leafhopper in alfalfa.

Stem height	Average number of potato leafhoppers (PLH) per sweep ¹	
	Conventional varieties	PLH highly resistant varieties
9 cm (3 ½ in.)	0.2 adults	0.8 adults
15 cm (6 in.)	0.5 adults	2 adults
25 cm (10 in.)	1 adult or nymph	4 adults or nymphs
36 cm (14 in.)	2 adults or nymphs	8 adults or nymphs

¹ 1 sweep = one 180° arc with a 37 cm (15 in.) diameter net.

- Cutting alfalfa early can reduce potato leafhopper populations.
- Potato leafhopper-resistant varieties increase action thresholds after the seeding.
- Available insecticides offer suppression rather than control.

A little more information

The classic symptom of potato leafhopper feeding is V-shaped yellowing of alfalfa leaf edges. By the time this “hopper burn” is noticeable, economically significant damage has already been done to the crop. Left long enough, bronzing and wilting will occur. These late-stage symptoms are often confused with drought stress, herbicide injury or boron deficiency.

When alfalfa is harvested, potato leafhopper eggs are removed from the field and nymphs either dry out or starve. This reduces the population and usually gives alfalfa regrowth a chance to get ahead of feeding pressure.

Alfalfa varieties that are resistant to potato leafhopper are available. These varieties produce tiny hairs on their leaves, which make it difficult for potato leafhoppers to feed.

The Ontario Crop Protection Hub is OMAFRA's official crop protection resource. Products labeled for leafhopper control in alfalfa can be found there.

Ontario Crop Protection Hub



The full story

Potato leafhopper damage is most severe in new alfalfa seedlings and young regrowth. Leafhoppers also feed on soybeans, clover, potatoes, apples and beans. Grasses are not a host plant, so growing alfalfa/grass mixes is another way to reduce the impact of potato leafhopper on forage crops.

Potato leafhoppers suck juices from alfalfa leaves. As they feed, they inject a protein into the plant that blocks the vascular system. This action causes the leaf edges to become yellow and puckered. Potato leafhopper feeding reduces stem elongation and root development, which stunts the crop.

Female potato leafhoppers inject their eggs into the stems of alfalfa plants. In addition to removing eggs and nymphs from the field, cutting also signals the alfalfa plant to grow new stems from the crown. This growth protects the yield potential for the next cut. Lengthening the cutting interval increases the stress on the crop and reduces plant vigour later.

Scouting tips

Scouting should begin after the first summer thunderstorm of the year. Potato leafhoppers are blown on storm fronts into Ontario from the southern U.S. To scout, walk in a zig-zag pattern and take 20 sweeps (1 sweep = one 180° arc). Close the net to capture the leafhoppers inside. Leafhoppers move quickly, so let them out gradually and count them as they escape. Repeat this in five locations across the field, for a total of 100 sweeps. Divide the total number of leafhoppers captured by 100 to get an average number of potato leafhoppers per sweep to compare to the action thresholds table above. Weekly scouting is recommended until mid-August since leafhopper populations can increase very rapidly.

A word on resistant varieties

Potato leafhopper-resistant varieties were bred using conventional methods to produce glandular hairs. This makes leafhopper-resistant varieties suitable for organic production systems and export markets, as well as fields not scouted frequently. The glandular hairs inhibit leafhopper damage in two ways. They provide a physical barrier making it more difficult for leafhoppers to feed, and the hairs excrete a sticky substance that can trap nymphs and slows down leafhopper movement between plants.

New restrictions on insecticides

As a result of the Pest Management Regulatory Agency re-evaluation, all feed uses for lambda-cyhalothrin products are cancelled, effective April 29, 2023. Any crops treated with lambda-cyhalothrin products can not be used directly or as by-products in feed to livestock. This includes any part of treated crops that were not intended for use as feed but could become downgraded or deemed unmarketable and could be diverted to livestock feed. Alfalfa is grown in Ontario exclusively for livestock feed, so lambda-cyhalothrin products (Matador, Silencer and Labamba) can not be used on alfalfa in Ontario.

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