

MANAGING POTATO LEAFHOPPER WITH IMPROVED RESISTANT ALFALFA VARIETIES

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The most economically important, but least managed pest of alfalfa in this region, is the potato leafhopper (PLH). Knowing basic information about this pest and simple scouting procedures can result in significant increase in the value of your alfalfa. The PLH is small and often overlooked. The adult body is about 3/16 inch long, thin, light green, and has large eyes on the sides of the head (instead of in front). The wings are delicate, translucent, and cover the thorax and abdomen. The immature form, or nymph, looks like a miniature (1/16-1/8 inch) wingless version of an adult. They can hop or fly and have a tendency to walk to the side instead of straight ahead when they are disturbed. It is possible to find other less injurious leafhoppers of different size, color and shape, mingling with the PLH. Do not confuse these other leafhoppers with PLH when scouting.

The PLH does not spend the winter in Indiana and will re-infest your forage each year during the month of May by hitching a ride on air currents that sweep northward from the deep South. This means that the first cutting of alfalfa will not be affected. But, PLH reproductive potential is high from early to mid summer and can impact second and later cuttings. Naturally occurring fungal pathogens and declining fecundity will reduce PLH impact in late summer and early fall. PLH are not a management consideration after the first significant frosts in the fall.

Alfalfa is injured by PLH in two ways. First, PLH pierce the leaf veins and feed on plant sap causing the affected leaves to have yellow tips bounded with a v-shaped margin. The acute angle of this pattern points toward the leaf petiole. A chemical reaction occurs within the leaves that interferes with the normal transfer of nutrients. Nutrient deficiencies (for example, nitrogen and boron) caused by other problems can result in yellow (or chlorotic) leaves, but the v-shape pattern on the leaf tips will not be present. This type of feeding reduces quality of the forage such as by lowering of crude protein level. Secondly, interference of photosynthesis results in general plant stunting (reduced yield), fewer cuttings, increased weed invasion, and reduced persistence of the stand.

The most important management consideration is that the number of PLH must be kept below the economic injury level. This means that timely scouting and appropriate management options must be performed before the appearance of plant symptoms. Once symptoms appear, it is usually too late to rescue that cutting.

Scouting and managing alfalfa is relatively simple. Second and later cutting alfalfa should be swept weekly using a sturdy 15-inch diameter net. Choose several representative areas of a field and sweep 10

times through the foliage at each area. If the average number of adults and nymphs in 10 sweeps exceed the alfalfa average height in inches, then the field should be cut within a few days (if majority of plants are in the bud stage) or an insecticide applied as soon as possible. If the PLH counts are the same as the plant height, then wait 2 days and sample again. If the number of PLH is less than the threshold, then sample again in one week.

Another management option is planting varieties that are resistant to PLH. Resistant, “glandular hair” varieties are being constantly improved and are outperforming the early introductions. When PLH numbers are low there is little or

no advantage to resistant varieties (first cutting), but when PLH are present in damaging numbers (second and later cuttings), resistant varieties yield similar to insecticide-treated susceptible varieties. When the cost of treatment is considered, the value of untreated resistant varieties can be higher than insecticide-treated susceptible varieties. Resistant varieties will usually only need to be protected during the seeding year and then only rarely spraying when really needed. One final advantage is that although the necessity to scout is not eliminated, the period between sampling may be increased and the number of trips to the field may be reduced.

