Potato Leafhopper in Minnesota Soybean

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NAME
Potato Leafhopper (PLH) (*Empoasca fabae*)

IDENTIFICATION
Adult
- Small (0.10 inch), narrow, bullet-shaped and bright yellow-green
- Very active and jump when disturbed

Nymph
- Light green and similar to adult, but lack wings.
- If disturbed, will move sideways

Eggs: Laid within plant stems

NATURAL HISTORY
PLH do not overwinter in Minnesota, but migrate from the Gulf Coast states in spring. They can arrive in Minnesota as early as May, and continue migrating through early July. PLH lays eggs in stems of susceptible plants. It has a host range of over 200 species, including soybean, alfalfa and potato. Each female lays 2-3 eggs per day and continues to lay eggs for at least a month. Eggs hatch in 7 to 10 days. Nymphs molt five times before becoming adults in about two weeks. Nymphs feed primarily on the undersides of leaves. Given their limited mobility, nymphs are considered more damaging than adults. There are usually two generations per year in the upper Midwest. However, because of the long oviposition period, infestations usually consist of overlapping generations.

IMPACTS
PLH feed on soybean leaves and cause injury by sucking sap out of leaves and injecting toxic saliva into the plant. This feeding destroys plant cells and blocks the transport of fluids within the leaves. Early symptoms of PLH feeding include yellowing near the leaf tip, which is referred to as “hopperburn.” In heavy infestations leaves become yellow or reddish in color, curl, and eventually fall off. Plants may also be stunted. PLH injury can be exacerbated under drought conditions.
Young plants are more susceptible to feeding injury because they lack the pubescence (leaf hairs), which deter PLH feeding and egg laying. As plants mature they often acquire more pubescence and become less preferred by PLH.

SCOUTING & MANAGEMENT

Typically PLH does not cause enough damage to warrant treatment of soybean; however, heavy infestations can occur and early soybean growth stages can be especially susceptible if planting has been delayed (i.e., planted after June 10) or if the variety has little pubescence. In these situations PLH can be monitored via plant sampling.

Scouting

To assess PLH densities in early growth stages of soybean, sample plants in 5-10 randomly selected 1 foot sections of a row. At each section, count the individuals and note how many plants were in each section. This information will allow you to determine how many PLH/plant you have in your field.

Treatment Thresholds

From soybean emergence to two trifoliate leaves (V2), treat if populations exceed 1 leafhopper per plant or if there are seedling plants with dying leaves are present.

Damaging infestations in later growth stages of soybean are unlikely.

Treatment

Labeled rates of foliar insecticides can be used to manage PLH populations. Follow instructions on product label.

For situations with high risk for attack by this pest, seed-applied systemic insecticides (e.g., neonicotinoid) can offer protection of early soybean growth stages from this pest.