CROP FOCUS

DUPONT PIONEER

Potato Leafhopper (PLH) in Alfalfa

Potato Leafhopper Facts

- One of the most common and destructive insects affecting alfalfa
- No reliable method to forecast damage
- Scouting fields and using a sweep net is the only effective method to monitor PLH activity
- Once visible symptoms of hopperburn and plant stunting become evident, it is too late for corrective action
- PLH-resistant alfalfa varieties can simplify and improve management

Identification

- Adults are yellowish, lime-green, wedge-shaped insects about 1/8 inch long
- Nymphs are paler in color, smaller in size and lack wings
- Adults jump or fly when disturbed
- Nymphs crawl rapidly sideways and hide when disturbed

Life Cycle and Development

- Adults overwinter in the southern/southeastern US
- Adults migrate to the northern and eastern US in the spring, carried by prevailing weather systems
- Females deposit eggs into the stems, petioles and leaf veins of alfalfa
- Eggs hatch in 7-10 days into wingless nymphs that become fully grown winged adults in ~ two weeks
- Populations greatly increase by early summer
- Can cause major economic damage on new seedlings and second- and third-cutting alfalfa
- Optimum temperatures for reproduction and growth are between 70 and 90 degrees F

Plant Symptoms

- Wounds from PLH feeding cause leaf chlorosis ("hopperburn") and plant stunting
- Initial symptom is V-shaped yellowing at leaf tips

- With severe or prolonged PLH feeding stress:
  - Leaves turn reddish or bronze
  - Plants stop growing and appear stunted

- The shorter the alfalfa, the more susceptible it is to damage from PLH. This includes:
  - Very young plants
  - Early stages of regrowth
  - Stress by other factors

Impact on Crop

- Greatest impact on crop is yield reduction
- Severe damage can reduce crude protein content, carbohydrate reserves in taproot and plant regrowth

Leafhopper Management Practices

- **Chemical control –** Growers have a choice of several effective insecticides

- **Mechanical Control –** Harvesting infected stands may be required

- Harvesting potentially reduces egg, nymph and adult populations
- Harvesting severely damaged alfalfa stands may be the only method to initiate regrowth of alfalfa stems

Thresholds for treatment

- Scout alfalfa field using a sweep net
- For non-LH resistant varieties, spray when leafhopper count per ten sweeps exceeds average plant height in inches
- For LH resistant varieties, spray when leafhopper count per ten sweeps exceeds 3X the alfalfa height in inches

PLH Resistant Varieties

- Resistance comes from small hairs on the stem that repel the leafhopper
- Pioneer brand 53H92 has best-in-class leafhopper resistance when compared to competitor varieties
- Pioneer 53H92 has outperformed competitors in Pioneer and university trials across multiple locations and years
- This variety is recommended where intense LH pressure spans 2 to 3 cuts per year
- Because not all plants in an alfalfa variety are genetically identical, some plants in an LH resistant variety do not carry LH resistance
    - Some feeding symptoms may be noticed on non-LH plants

PLH-resistant variety on left, non-resistant variety on right (differences may not be this extreme in all cases)

Selecting a Resistant vs. Non-resistant Variety

- If scouting and spraying offer adequate control, growers may choose varieties that are not LH resistant
- If scouting and spraying does not normally control potato leafhopper, an LH-resistant variety is a good choice
- First-year LH-resistant alfalfa may need chemical control