



**Potato Leafhopper, *Empoasca fabae* (Harris), in Dry Beans**

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Severe injury to certain heirloom dry bean varieties from potato leafhopper feeding has been observed in Vermont. Potato leafhoppers have an appetite for more than 200 broad leaf plants. Adult females overwinter in southern states and are carried northward on spring wind currents. The migratory nature of this native pest makes its arrival time and population size unpredictable.

**Biology.** Adults land in alfalfa and bean fields upon arrival where they feed and lay eggs. Potato leafhoppers are light green, wedge shaped insects that can be found scuttling on the underside of leaves. Adults are 1/8<sup>th</sup> of an inch long. Wings do not develop until the adult stage (Figure 1). Depending on spring arrival time and temperature, growers have witnessed 2-4 generations per season in the Northeast.

**Symptoms.** Potato leafhoppers feed with piercing-sucking mouthparts on host plant vascular tissue. This restricts phloem and eventual xylem flow to the rest of the leaf resulting in leaf edge yellowing and curling. At high infestation levels stunted internodes can be observed. Visual damage



**Figure 1. Potato leafhopper nymphs**



**Figure 2. Potato leafhopper damage called “hopperburn”.**

caused by potato leafhopper is called “hopperburn” (Figure 2). Hopperburn is not present until 5-7 days after leafhopper feeding has occurred. The first sign is yellowing of the leaf at the tip followed by necrosis and leaf curling. These symptoms are the result of the plant shutting down photosynthesis in the leaf in response to leafhopper feeding. As this pest weakens a plant, it becomes more vulnerable to disease (Figure 3).

**Management.** Integrated Pest Management (IPM) programs in other crops include weekly monitoring of the population. In dry beans, scouting the underside of three leaves/plant in each variety is recommended weekly. Potato leafhoppers have feeding preference for different varieties. Leafhoppers will steer clear of leaves with more leaf hairs that exude chemical compounds. Preliminarily, Tiger’s Eye appears to be a more susceptible dry bean variety. Insecticide options are limited for organic growers. Products with azadirachtin or pyrethrin as active ingredients are effective against potato leafhopper. Products with active ingredients beta-cyfluthrin or imidicloprid are used for potato leafhopper control under conventional management. As always, pesticides used must be registered for use on hops in your state. Read and follow pesticide labels carefully. Be aware that broad-spectrum insecticides often lead to secondary outbreaks of other pests such as two-spotted spider mite.

Potato leafhopper populations are severe in 2015. Because dry beans were planted in late spring, they escaped arriving females. As the season progressed favorably for further leafhopper development, they made their way to dry beans on certain farms. The NW Crops and Soil Team is currently researching varietal susceptibility of heirloom dry bean varieties for potato leafhopper management.

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**Figure 3. Hopperburn weakens plants making them more susceptible to pathogens such as Anthracnose.**