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Potato Leafhopper: On Beyond Spuds

A stealthy threat to some ornamentals

This past week (late May) our field scouts and I started seeing the first pale green potato leafhoppers (PLH) in the field, right about on schedule. They saw them on potatoes and beans while I spied them on tender growth of our English walnut tree, a sentinel at the north end of a long open field that often intercepts early adults arriving on southern breezes. The insect is a snowbird, migrating north each spring from Florida to Louisiana around the Gulf Coast, with later generations returning as cold fall weather sets in. There are indications some survive winter even further north but the flood of migrants from more southern areas on warm winds seems to be the main vehicle for re-introduction. Every year is different: there may be high numbers in one year followed by very low populations the next. We haven't yet been able to predict in advance what we are in for, but crop growers pay close attention to spring reports, as infestations can dramatically reduce potato, bean and alfalfa yields following appearance of 'hopperburn' symptoms characteristic for this insect. These appear a week or so after infestation and include leaf and shoot stunting, leaf yellowing, curling/distortion and edge burn due in part to a toxin the insect secretes into the plant when feeding. The damage looks similar to that caused by high soluble salts from excess fertilizer. Grape, strawberries, apples, hops, hemp and clover are among other crops affected. Among ornamental plants dahlias are high on the list of preferred



Hopperburn on Astilbe from potato leafhopper.

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hosts, sometimes dramatically injured; I've also seen the leafhoppers (and hopperburn) on astilbe, rose, lupine, wisteria, hibiscus, *Baptisia*, birch, redbud, walnut, oak, and maple. The list of susceptible ornamentals is undoubtedly longer – over 200 plants are hosts, though some are reportedly only suited to adult leafhoppers and don't support immature stages.

Adult PLH are pale green and less than ¼" long. The nymphs are smaller and also pale green, passing through five stages before becoming an adult. Eggs are inserted into leaf tissue and each female can deposit approximately 200 - 300 eggs over a lifetime of perhaps 30 to 60 days. There can be 6 generations in southern areas (Virginia) and 2 – 3 further north (Ontario). The adults and nymphs move rapidly sideways when disturbed, a fairly distinctive field feature. In the Northeast US an exotic leafhopper (PLH are believed native), *Pagaronia minor*, first seen in NY in 2005 has become common around farms and gardens and is very similar, but adults are at least twice the size of PLH. *P. minor* so far has not been associated with any noticeable plant damage.

The first spring reports of sightings growers might receive from local crop newsletters also suggest it is time to start watching for PLH on susceptible ornamentals. For those without access to weekly row crop reports there is often local knowledge on when PLH adults typically arrive in an area. Scouts use both visual inspections – checking under leaves – and sweep nets in crops like beans, alfalfa and potatoes to detect them. Weeds like smartweed, pigweed, shepherd's purse and others can also be hosts. Penn State has a helpful page on how to make and use your own sweep net at <https://extension.psu.edu/potato-leafhopper-on-alfalfa>. Our English walnut tree also serves as an 'indicator' plant where I watch for early signs of the insects and early signs of hopperburn that follow on vigorous new



Closeup showing typical hopperburn symptoms (yellowing, curling, edge burn) on Astilbe leaf from potato leafhopper feeding.



Potato leafhopper nymph under dahlia leaf



Dahlia leaf showing typical symptoms of hopperburn from potato leafhopper



Pagaronia minor, a large invasive leafhopper often mistaken for potato leafhopper.



Potato leafhopper adult

shoots. During years when levels are high we see hopperburn appearing on clover leaves growing in lawns and hedgerows. Large numbers of PLH may also migrate out of alfalfa fields after cutting and create a suddenly high population on plants nearby.

Exclusion netting or row cover can deter infestation, though not practical in many cases. Insecticides can be highly effective even at low rates and I am not aware of any reports in this species of insecticide resistance to products labeled for leafhoppers. Repeat applications may be needed for 'waves' of migrating adults arriving on weather fronts or out of other crops nearby. Drought can aggravate symptoms in some crops, so keeping plants well-watered during dry periods may help mitigate injury. Some alfalfa, bean and potato varieties have levels of resistance to injury and there is some evidence of a form of resistance to PLH damage in red maple, but the issue doesn't appear to be addressed in other ornamental crops. However, in our dahlia display garden I've noticed some dahlias seem much less affected than others – perhaps an area for further exploration.

References

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Hemp with potato leafhopper hopperburn.



Wisteria leaf with yellowing and curling, early hopperburn symptoms.

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