Vegetable Crop Updates

A newsletter for commercial potato and vegetable growers prepared by University of Wisconsin-Madison vegetable research and extension specialists

Extension
UNIVERSITY OF WISCONSIN-MADISON

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- Potato Leafhopper updates and management
- Aphids – updates on suction traps and implications
- Disease forecasting updates for potato early blight and late blight
- Cucurbit downy mildew updates

Calendar of Events:

July 10, 2025 – UW Hancock Agricultural Research Station Field Day
July 17, 2025 – UW Langlade County Airport Station Field Day 1PM
December 2-4, 2025 – Midwest Food Producers Assoc. Processing Crops Conference, Kalahari Convention Center
January 12-13, 2026 – Wisconsin Agribusiness Classic, Kalahari Convention Center
February 3-5, 2026 – UW-Madison Div. of Extension & WPVGA Grower Education Conference & Industry Show, Stevens Point, WI

Vegetable Insect Update – Russell L. Groves, Professor and Department Chairperson, UW-Madison, Department of Entomology, 608-262-3229 (office), (608) 698-2434 (cell), e-mail: rgroves@wisc.edu

Vegetable Entomology Webpage: https://vegento.russell.wisc.edu/

Potato Leafhopper (https://vegento.russell.wisc.edu/pests/potato-leafhopper/) – In Wisconsin, the potato leafhopper (PLH) is a serious annual pest of snap beans and potatoes. Damage caused by leafhoppers includes stunted plants, brown leaves and reduced plant vigor. A wide range of plants serve as hosts for the potato leafhopper (PLH), many are economically important crops. These include alfalfa, apples, and all types of beans, clover, dahlia, eggplant, potatoes, rhubarb, soybeans, strawberries and other bedding plants.


Potato leafhopper (Empoasca fabae)
Photo: Penn State

The adult PLH is a highly mobile, small (1/8-inch), bright green, wedge-shaped insect. The body is widest at the head and tapers toward the wing tips. The front margin of the prothorax is usually marked with 6 white spots. Leafhoppers have piercing-sucking mouth parts and jump, fly or run sideways at a rapid pace when disturbed. The pale green to yellow nymphs which are smaller than the adults, are wingless, flightless and tend to move sideways very quickly when disturbed.

Both adults and nymphs feed by inserting their mouth parts into the plant's vascular tissue and extracting sap. Damage results when the insect injects saliva containing toxic substances and creates physical damage during feeding, plugging the vascular tissue and permanently reducing the plant's photosynthetic efficiency. The first signs of leafhopper feeding are the leaf veins turning pale and the leaf curling. Continued feeding results in a characteristic triangular yellowing or browning of the leaf tip known as "hopperburn". As symptoms develop, lesions spread backward and inward from the margin, eventually destroying the entire leaf. Plants become stunted and yellow leaves curl upward. Premature death of the plant may occur in severe infestations. Severe leaf damage and premature plant death is common in potato, whereas leaf discoloration and curling are more characteristic on bean.

Injury develops most rapidly during hot, dry weather. More damage is attributed to the nymphs than the adults. Leafhopper damage may take weeks before symptoms begin to show and it is typically older leaves that display the "hopperburn" symptomology. Yield loss generally occur before symptoms are readily seen. Though plants may show little evidence of hopperburn, yield losses can be substantial.

When to scout for potato leafhopper																		
	April			May			June			July			August			September		
	early	mid	late	early	mid	late	early	mid	late	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late
Potatoes																		
Beans																		

Snap beans and potatoes should be scouted regularly for PLH activity. Leafhoppers tend to migrate into other crops in early summer after alfalfa is cut. This is a key time to watch for early migrants in vegetable plantings. With snap beans, the greatest amount of injury caused by PLH occurs during the seedling stage.

Commercial vegetable growers can use sweep nets and sticky cards at field edges to monitor adult populations in their fields. Take 25 sweeps with an insect sweep net per sample site. Use at least 5 sample sites per 30 acres. Nymph populations should be monitored by visual examination of the undersides of 25 leaves per sample site. Select leaves from the middle to lower half of the plant.

Action threshold levels for vegetables

Crop	Nymphs	Adults
Seedling snap beans	1 every 10 leaves	1 adult per 2 sweeps
Larger snap beans	1 every 10 leaves	1 adult per sweep
Potatoes	2 ½ every 25 leaves	½-1 adult per sweep

Healthy, vigorously growing plants withstand damage more effectively than stressed plants. Irrigation and cultural practices that favor the crop are recommended. Leafhopper infestations are more likely to occur in crops planted adjacent to alfalfa fields, especially after alfalfa has been harvested and the insects are forced out of the field. Monitor populations of adult leafhoppers beginning in mid-May.

Aphids (https://vegento.russell.wisc.edu/pests/aphids/) – The aphid suction trap network is setup throughout the central US and has ben operating since 2005. The network generates insect capture data to include aphids, thrips, leafhoppers, whiteflies and other soft-bodied insects. Currently, the network consists of 28 suction traps in operation located across the US Midwest. The suction traps are about 5.8 m high and capture winged-insects through the suction of air through the standing pipe into a bottle filled with propylene glycol. Propylene glycol is used because it preserves the insects and it is not considered a hazardous liquid for shipping. The fan operates from 7 am to 8 pm from the third week of May through the third week of October. The samples are collected and mailed weekly to University of Illinois at Urbana-Champaign.

To date, very few aphids have been captured in the Wisconsin trap locations, and there have been no potato-colonizing species captured. It is difficult to generalize the life cycle of all aphids because of the diversity of their life habits, which can range from single to multiple hosts. One of the unique characteristics of aphids that sets them apart from all other insects is their ability to bear live young.

Aphids overwinter as eggs on a perennial host. In spring, the eggs hatch and the aphids migrate onto their summer host when it becomes available. The female aphids can then reproduce without mating and will hold the eggs in their bodies to give birth to live young. By eliminating mating and egg laying, aphids have successfully shortened their life cycle and thereby increased their reproductive capability. Throughout the summer, wingless females predominate. However, winged forms may arise when populations become too large for the available food source. In late summer, in response to the shortened daylight hours, wingless females and males are produced for the purpose of mating and laying fertilized eggs that will survive adverse winter conditions.

Look for "hot spots" of aphid activity scattered throughout the field. Because of the spotty nature of infestations, look for aphids on a number of plants in several areas. Examine the terminals of 15 consecutive plants or sample units and rate the plants as infested or uninfested. Given the huge reproductive potential of aphids, an infestation level of 5%-10% indicates a potentially damaging infestation. Repeat checks at weekly intervals to determine the need to treat, as needed.

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Current P-Day (Early Blight) and Disease Severity Value (Late Blight) Accumulations will be posted at our website and available in the weekly newsletters. Thanks to Ben Bradford, UW-Madison Entomology for supporting this effort and providing a summary reference table: https://agweather.cals.wisc.edu/thermal-models/potato. A Potato Physiological Day or P-Day value of ≥300 indicates the threshold for early blight risk and triggers preventative fungicide application. A Disease Severity Value or DSV of ≥18 indicates the threshold for late blight risk and triggers preventative fungicide application. Data from the modeling source: https://agweather.cals.wisc.edu/vdifn are used to generate these risk values in the table below. I've estimated early, mid-, and late planting dates by region based on communications with stakeholders. These are intended to help in determining optimum times for preventative fungicide applications to limit early and late blight in Wisconsin.

	Planting Date		50% Emergence Date	Disease Severity Values (DSVs) *through 6/1/2025*	Potato Physiological Days (P-Days) *through 6/1/2025*
Spring Green	**Early**	Apr 5	May 10	3	130
	Mid	Apr 18	May 14	3	102
	Late	May 12	May 26	0	45
Arlington	**Early**	Apr 5	May 10	3	126
	Mid	Apr 20	May 15	3	88
	Late	May 10	May 24	0	52
Grand Marsh	**Early**	Apr 7	May 11	0	112
	Mid	Apr 17	May 14	0	92
	Late	May 12	May 27	0	38
Hancock	**Early**	Apr 10	May 15	0	81
	Mid	Apr 22	May 21	0	55
	Late	May 14	June 2	0	5
Plover	**Early**	Apr 14	May 18	0	59
	Mid	Apr 24	May 22	1	53
	Late	May 19	June 7	TBD	TBD
Antigo	**Early**	May 1	May 24	0	48
	Mid	May 15	June 1	0	3
	Late	June 1	June 15	TBD	TBD
Rhinelander	**Early**	May 7	May 25	0	35
	Mid	May 18	June 8	TBD	TBD
	Late	June 2	June 16	TBD	TBD

Late blight of potato/tomato. The usablight.org website (https://usablight.org/map/) indicates a no new confirmed reports of late blight on tomato or potato in the US. There was a US-23 late blight strain

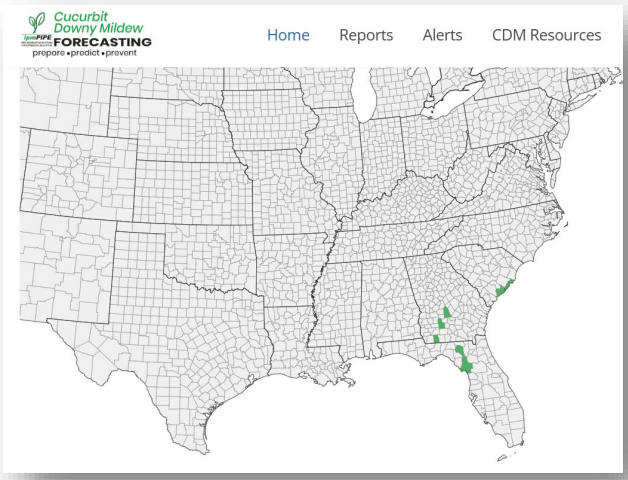
type confirmation in Collier County FL in 2025 (now several weeks old). The site is not comprehensive. This genotype/clonal lineage is generally still responsive to phenylamide fungicides meaning that Ridomil and Metastar fungicides (mefenoxam and metalaxyl) can still effectively control late blight caused by these strain types. We saw no accumulation of DSVs this past week across the state of Wisconsin.

Early blight of potato. We continue to steadily increase P-Days in potatoes. Accumulations were roughly 10/day over the past week with warmer days. Values will continue to amass and develop conditions optimum for early blight disease caused by *Alternaria solani*. Earliest inoculum typically comes from within a field and from nearby fields. Once established, early blight continues to create new infections due to its polycyclic nature – meaning spores create foliar infection and the resulting lesion on the plant can then produce new spores for ongoing new infections in the field and beyond. Early season management of early blight in potato can mitigate the disease for the rest of the season. https://vegpath.plantpath.wisc.edu/diseases/potato-early-blight/

Fungicides can provide good control of early blight in vegetables when applied early on in infection. Multiple applications of fungicide are often necessary to sustain disease management to time of harvest due to the typically high abundance of inoculum and susceptibility of most common cultivars. For Wisconsin-specific fungicide information, refer to the Commercial Vegetable Production in Wisconsin (A3422), a guide available through the UW Extension Learning Store website which is annually updated.

For custom values, please explore the UW Vegetable Disease and Insect Forecasting Network tool for P-Days and DSVs across the state (https://agweather.cals.wisc.edu/vdifn). This tool utilizes NOAA weather data. Be sure to enter your model selections and parameters, then hit the blue submit button at the bottom of the parameter boxes. Once thresholds are met for risk of early blight and/or late blight, fungicides are recommended for optimum disease control. Fungicide details can be found in the 2025 Commercial Veg. Production in WI Extension Document A3422: https://cropsandsoils.extension.wisc.edu/articles/2025-commercial-vegetable-production-in-wisconsin-a3422/

Cucurbit Downy Mildew: I will continue to track cucurbit downy mildew in the US and report via this newsletter. This information helps us understand the potential timing of arrival of the pathogen in our region, as well as the strain type which can give us information about likely cucurbit hosts in WI – as well as best management strategies. Clade 1 downy mildew strains infect watermelon and Clade 2 strains infect cucumber. I will be hosting a cucurbit downy mildew sentinel plot at the UW Hancock Agricultural Research Station this summer. This 'sentinel plot' is a non-fungicide treated collection of cucurbit plants which are observed weekly for disease symptoms. I will report the presence/absence of downy mildew from this plot in this newsletter throughout the growing season. Additionally, I keep an eye on the downy mildew spore trapping work of Dr. Mary Hausbeck at Michigan State University and include this information as relevant to WI https://veggies.msu.edu/downy-mildew-news/ . At this time, no spores reported from the MI traps.



No new cucurbit downy mildew confirmations over this past week. Green counties indicate a former report of the disease greater than 7 days ago. From: https://cdm.ipmpipe.org/

For more information and management: https://vegpath.plantpath.wisc.edu/2022/07/03/update-10-july-3-2022/ and https://hort.extension.wisc.edu/articles/cucurbit-downy-mildew-identification-and-management/#:~:text=on%20this%20site.-,Wisconsin%20Horticulture,been%20found%20primarily%20on%20cucumber.