



Vegetable Crop Update

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

No. 15 – August 27, 2023

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- Potato and tomato early blight and late blight disease updates
- Cucurbit downy mildew updates
- New vegetable disease fact sheets

Calendar of Events:

November 28-30, 2023 – Midwest Food Producers Assoc. Processing Crops Conference, Kalahari Convention Center

January 9-11, 2024 – Wisconsin Agribusiness Classic, Alliant Energy Center, Madison, WI

January 21-23, 2024 – Wisconsin Fresh Fruit and Vegetable Growers Conference, Kalahari Resort, Wisconsin Dells, WI

January 25-26, 2024 – Organic Vegetable Production Conference, UW Madison Division of Extension (Online)

February 2-3, 2024 – Organic Vegetable Production Conference, UW Madison Division of Extension, Alliant Energy Center, Madison, WI

February 6-8, 2024 – UW-Madison Div. of Extension & WPVGA Grower Education Conference & Industry Show, Stevens Point, WI

Amanda Gevens, Chair, Professor & Extension Vegetable Pathologist, UW-Madison, Dept. of Plant Pathology, 608-575-3029, Email: gevens@wisc.edu, Lab Website: <https://vegpath.plantpath.wisc.edu/>

Early blight of potato/tomato. Accumulations of P-days this past week were between 47-64 across the state of Wisconsin. In all locations and all planting dates, potato fields have surpassed the threshold and should continue to receive fungicide applications for early blight management. Hotter days generate roughly 10 P-days per day if you are looking ahead to likely accumulations and preventative fungicides.

Late blight of potato/tomato. Accumulations of Blitecast DSVs were low this past week in the 7 sites detailed in our table, below, ranging from 0 to 3. The usablight.org website (<https://usablight.org/map/>) indicates new late blight reports in the past week on tomato and potato in Tompkins County. So far, all characterizations of the late blight pathogen identified in North America this growing season have resulted in the US-23 type. Fungicides for the management of late blight in tomato and potato crops are provided:

<https://learningstore.extension.wisc.edu/products/commercial-vegetable-production-in-wisconsin>. A specific list of fungicides for potato late blight in Wisconsin was also offered in a special report shared via email on July 28. <https://vegpath.plantpath.wisc.edu/wp-content/uploads/sites/210/2023/08/2023-Potato-Late-Blight-Fungicides.pdf>

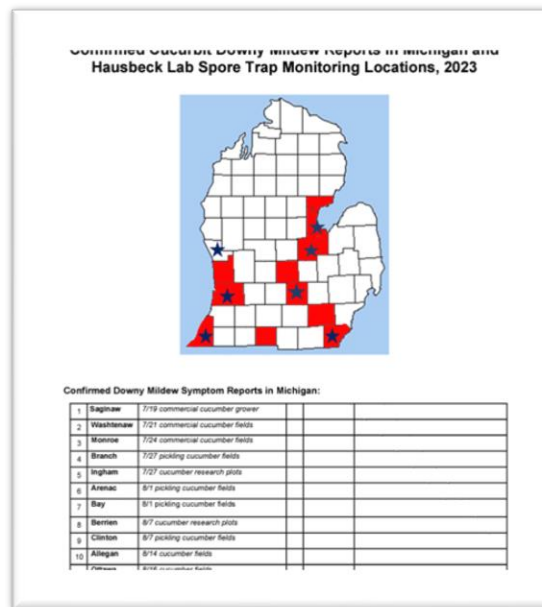
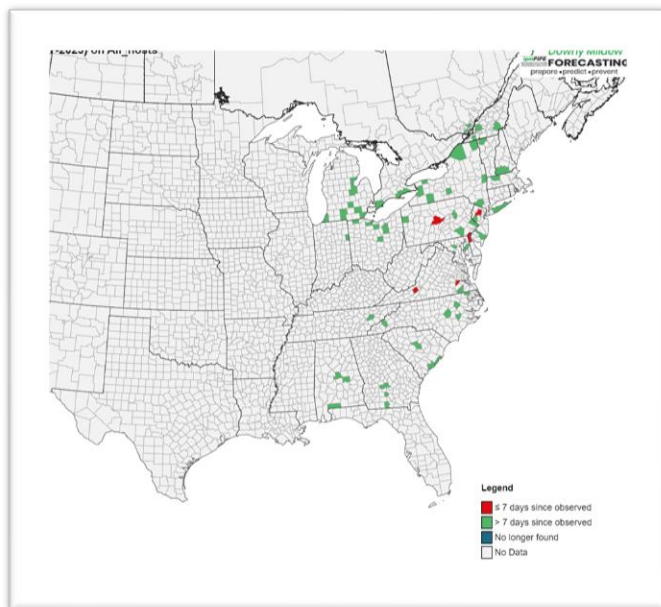
Current P-Day (Early Blight) and Disease Severity Value (Late Blight) Accumulations. Many thanks to Ben Bradford, UW-Madison Entomology; Stephen Jordan, UW-Madison Plant Pathology; and our grower collaborator weather station hosts for supporting this disease management effort again in 2023. A Potato 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. Red text in table indicates threshold has been met or surpassed. Weather data used in these calculations is from weather stations that are placed in potato fields in each of the four locations, as available. Data from an alternative modeling source: <https://agweather.cals.wisc.edu/vdifn> will be used to supplement as needed for missing data points and for additional locations (indicated with *). Data are available in graphical and raw formats for multiple locations at: <https://vegpath.plantpath.wisc.edu/dsv/>.

	Planting Date		50% Emergence Date	Disease Severity Values (DSVs) <i>through 8/26/2023</i>	Potato Physiological Days (P-Days) <i>through 8/26/2023</i>
Spring Green*	Early	Apr 3	May 9	12	849
	Mid	Apr 17	May 12	12	827
	Late	May 10	May 23	12	758
Arlington*	Early	Apr 5	May 10	11	861
	Mid	Apr 20	May 15	11	823
	Late	May 12	May 25	11	763
Grand Marsh	Early	Apr 5	May 10	11	823
	Mid	Apr 20	May 15	11	789
	Late	May 12	May 25	11	737
Hancock	Early	Apr 10	May 17	12	793
	Mid	Apr 22	May 19	12	787
	Late	May 14	May 28	12	738
Plover	Early	Apr 14	May 19	16	780
	Mid	Apr 24	May 20	16	775
	Late	May 19	May 29	16	728
Antigo	Early	May 1	May 28	13	698
	Mid	May 15	June 3	13	653
	Late	June 7	June 23	13	518
Rhineland*	Early	May 7	June 1	8	667
	Mid	May 18	June 5	8	632
	Late	June 9	June 24	8	509

In addition to the potato field weather stations, we have the UW Vegetable Disease and Insect Forecasting Network tool to explore P-Days and DSVs across the state (<https://agweather.cals.wisc.edu/vdifn>). This tool utilizes NOAA weather data. In using this tool, 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 2023 Commercial Vegetable Production in Wisconsin Guide, Extension Document A3422. <https://learningstore.extension.wisc.edu/products/commercial-vegetable-production-in-wisconsin>

Cucurbit Downy Mildew. The Cucurbit Downy Mildew forecasting webpage (<https://cdm.ipmpipe.org/>) is not forecasting the movement of the pathogen, but the group is offering reporting of findings of cucurbit downy mildew from the US (see current map below showing red counties with new reports from PA, VA, NJ, and MD). Dr. Mary Hausbeck reported cucumber downy mildew in commercial fields in 11 Michigan Counties as of 8/16/2023. **To date, there have been no reports of downy mildew here in WI.** We should be considering preventative treatment of cucumber and melon crops here due to the likelihood of the disease resulting from clade 2 downy mildew. A list of best-performing conventional fungicides is provided below.

- Elumin + chlorothalonil or mancozeb
- Omega (Orbus) + chlorothalonil or mancozeb
- Orondis Opti (Chlorothalonil is part of the premix, additional chlorothalonil is suggested. See label for maximum chlorothalonil rates.)
- Previcur Flex + chlorothalonil or mancozeb
- Ranman + chlorothalonil or mancozeb
- Zampro + chlorothalonil or mancozeb



New Vegetable Disease Factsheet! In collaboration with an organic vegetable grower consultative panel, MS graduate Ariana Abbrescia (Agroecology MS granted in Spring 2023), Ben Bradford (UW Vegetable Entomology), Russell Groves (UW Vegetable Entomology), and myself, we developed a series of vegetable disease ‘fact sheets’ at <https://vegpath.plantpath.wisc.edu/diseases/>. These pages provide photos and additional information for the identification and management of key vegetable diseases in Wisconsin and the upper Midwest. Example is shown below for tomato early blight.



Tomato leaf showing symptoms of early blight.
Photo credit: Gerald Holmes, Strawberry Center,
Cal Poly San Luis Obispo, via Bugwood.org

TOMATO DISEASES

Tomato Early Blight is a fungal disease of Solanaceous crops caused by *Alternaria solani*. It causes circular, dark brown lesions with concentric, target-like rings. These foliar lesions often first develop on older, more mature foliage, and are commonly surrounded by yellow margins. Similar lesions can also develop on stems and fruit, with infected tomato fruit often dropping off of the vine. The pathogen causing this disease survives on infected soil-bound plant debris, seeds, and diseased plant tissue, spreading via windborne or water-splashed spores.

Favorable conditions include poor airflow, high humidity, and high leaf wetness. Cultural management involves using pathogen-free seed, fumigated or pathogen-free soil, planting resistant varieties if available, rotating fields for at least two years, destroying host weeds and volunteer plants, and properly fertilizing fields. Fungicides can also 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.