



Vegetable Crop Update

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

No. 16 – August 6, 2022

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Calendar of Events:

November 29-December 1, 2022 – Midwest Food Producers Assoc. Processing Crops Conference, Kalahari Convention Center
January 29-31, 2023 – Wisconsin Fresh Fruit and Vegetable Growers Conference, Kalahari Resort, Wisconsin Dells, WI
February 7-9, 2023 – UW-Madison Div. of Extension & WPVGA Grower Education Conference & Industry Show, Stevens Point, WI

Vegetable Insect Update – Russell L. Groves, Professor and Department Chair, UW-Madison, Department of Entomology, (608) 698-2434 (mobile), e-mail rgroves@wisc.edu

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

Two-spotted spider mites – (<https://vegento.russell.wisc.edu/pests/>). Two-spotted spider mites (TSSM) are small arthropods related to insects that are related to spiders, ticks, daddy-longlegs and scorpions. The TSSM has a cosmopolitan distribution and has been recorded on more than 300 species of plants, including all vegetables, fruits and ornamentals. Vegetables that are often affected include cucumbers, snap beans, lettuce, peas, potatoes and tomatoes. Each female mite produces up to 20 eggs per day, and the larvae that hatch from these eggs after 2-5 days develop through 3 immature stages that can result in reproductive adults in as few as 5-8 days during hot, dry weather (**Fig 1**).

Our forecast temperatures combined with local drought conditions in many portions of Wisconsin, predispose susceptible crops to infestation. The first sign of infestation by TSSM is usually a chlorotic, stippled appearance on the leaves, as feeding mites remove leaf cell contents, including the chlorophyll that gives leaves their green color. Without the chlorophyll, those empty cells appear whitish or bronze. Heavily infested leaves turn completely pale, dry up, and fall off.

Insecticidal and miticidal soaps and botanical oils can be effective solutions when paired with conservation biological control strategies to limit developing populations. Maintaining the nutritional (fertility) and hydraulic (water)



Figure 1. Damage associated two-spotted spider mites (soybean leaf), and images of and eggs.

health of plants is also key to lessen the success of TSSM populations.

Cutworms and armyworms – (<https://vegento.russell.wisc.edu/pests/black-cutworm/>). Armyworms are dark caterpillars measuring up to 2 inches long. They have a dark stripe running lengthwise on the side with a yellow stripe beneath. Dark and light stripes alternate along their back. Armyworms move up from grassy weeds within cornfields or migrate into cornfields from small grain or forage fields. They may hide in soil crevices and beneath clods by day. At night, they chew corn leaves and weaken plants.

Cutworm larvae feed on newly emerged vegetable crops. The worms are active feeders, clipping many seedlings at or below the soil line in a single night. They prefer crops sown as seed (rather than transplants); susceptible crops include beets, carrots, cucumber, leafy greens, melons, peas, potato, pumpkin, snap beans, squash, and sweet corn. If not controlled, these pests can destroy later plantings in very short periods of time. Careful scouting can reveal the damage and presence of these pests in later planted / fall planted vegetables. If identified early, young larvae can be easily controlled with formulations of *Bacillus thuringiensis* subsp. *kustaki* (e.g. Dipel) *B. thuringiensis* subsp. *aizawai* (XenTari).

European corn borer – (<https://vegento.russell.wisc.edu/pests/european-corn-borer/>). In most of Wisconsin, two generations of eggs are laid on the undersides of leaves. First generation larvae typically cause damage only to leaves and stalks, unless the corn is already tasseling, in which case the larvae will enter the ear. In Southern Wisconsin, begin checking early sweet corn for egg masses now by August 10-15 (**Fig 2**). Second generation larvae develop from eggs laid in mid-August and cause heavy infestations in late-planted corn, and corn that does not have a transgenic event.

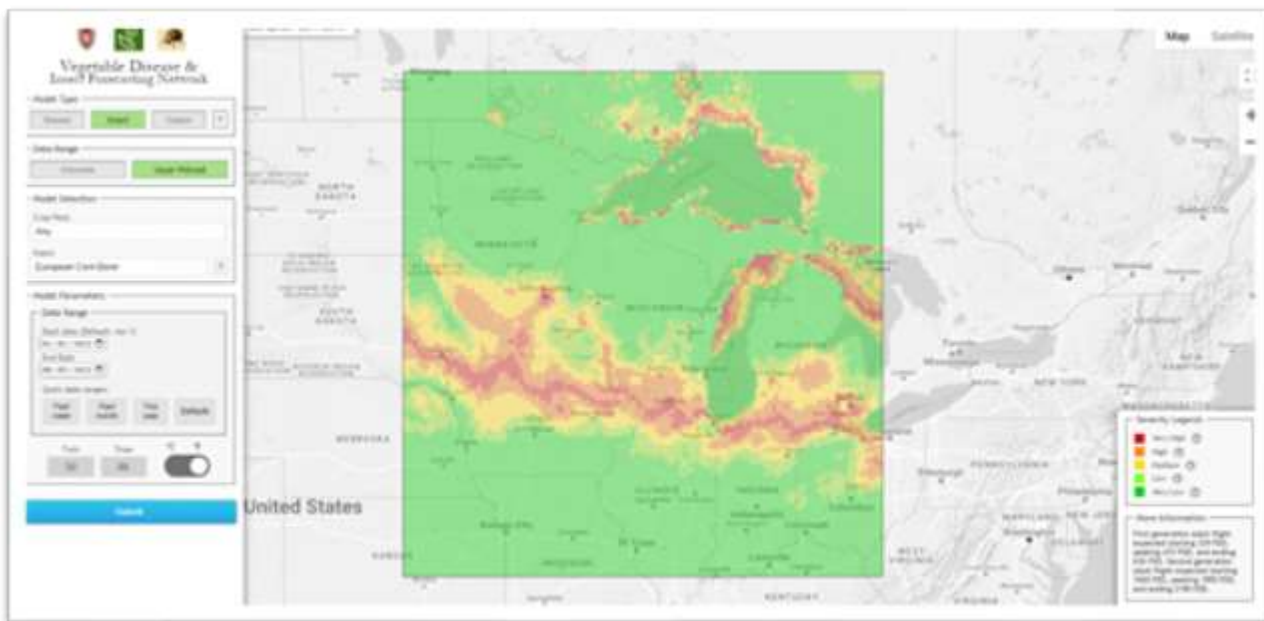


Figure 2. Vegetable Disease and Insect Forecasting Network (VDIFN) map of risk for infestation by European corn borer, (ECB), <https://agweather.cals.wisc.edu/vdifn> (sourced 08/06/2022). Notice areas within the ‘orange or red shaded’ zones indicate high risk zone for adult moth oviposition, and these remain just to our south currently, but will be advancing into the state in the week to come. Sweet corn and green bean producers with susceptible crop stages (silking corn, pin-bean stage green bean) should be scouting for these mobile insects.

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Current P-Day (Early Blight) and Disease Severity Value (Late Blight) Accumulations. 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 2022. 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 will come from weather stations that are placed in potato fields in each of the four locations, once available. Data from an alternative modeling source: <https://agweather.cals.wisc.edu/vdifn> will be used to supplement as needed. Data are available for each weather station at: <https://vegpath.plantpath.wisc.edu/dsv/>.

Location	Planting Date		50% Emergence Date	Disease Severity Values (DSVs) 8/6/2022	Potato Physiological Days (P-Days) 8/6/2022
Grand Marsh	Early	Apr 5	May 10	48	663
	Mid	Apr 20	May 15	48	622
	Late	May 12	May 25	48	564
Hancock	Early	Apr 7	May 12	27	637
	Mid	Apr 22	May 17	27	617
	Late	May 14	May 26	25	558
Plover	Early	Apr 7	May 15	79	604
	Mid	Apr 24	May 20	79	570
	Late	May 18	May 27	78	535
Antigo	Early	May 1	Jun 3	29	483
	Mid	May 15	June 15	25	409
	Late	June 10	June 24	25	338

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 (stations are not situated within potato fields). 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.

We have reached thresholds for preventative fungicide treatment in potatoes to manage early blight in all potato plantings in Wisconsin. Accumulations of P-Days were high over the past week. Potatoes should be on a preventative fungicide program with effective disease management selections to limit early blight.

All monitored Wisconsin locations accumulated very few to no DSVs this past week indicating a low-risk week for promoting late blight in potato plantings in Grand Marsh, Hancock, Plover, and Antigo. Antigo plantings have now reached/exceeded the threshold for receiving a preventative

application of fungicide for the management of late blight. A fungicide list for potato late blight in Wisconsin was provided in last week's newsletter and is available here:

<https://vegpath.plantpath.wisc.edu/2022/07/03/update-10-july-3-2022/>

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 2022 Commercial Vegetable Production in Wisconsin Guide, Extension Document A3422, linked here:

<https://learningstore.extension.wisc.edu/products/commercial-vegetable-production-in-wisconsin>

According to usablight.org there have not been recent diagnoses of late blight in tomato or potato crops in the US. For this year, there were just 2 reports entered back in March in southern Florida (US-23 clonal lineage/strain type). Eastern Ontario Canada had 2 reports of tomato late blight over the past 2 weeks. No further reports have surfaced.

Cucurbit Downy Mildew: During this past week, cucurbit downy mildew was confirmed on cucumber and/or cantaloupe in MI, OH, NY, MA, and VA. Previously this growing season the disease was confirmed in: AL, CT, DE, FL, GA, MA, MD, NC, NH, NJ, NY, OH, PA, SC, and VA. No findings of cucurbit downy mildew in our Wisconsin-based sentinel plots in Dane County. Red counties below indicate recent reports (less than 1 week old) of cucurbit downy mildew.



<https://cdm.ipmpipe.org/>

As a reminder, the pathogen is now known to have two 'strains' for clade types. The type (Clade 2) which infects cucumber, can also infect melon. Due to fungicide resistance within the downy mildew pathogen population, especially in Clade 2, selection of fungicides is important. Management of cucurbit downy mildew requires preventative fungicide applications as commercial cultivars are generally susceptible to current strains (Clades) of the pathogen. Management information can be sourced here: <https://vegpath.plantpath.wisc.edu/2022/07/03/update-10-july-3-2022/>

Brian Hudelson, Sue Lueloff, Sarah deVeer, and Ann Joy. UW-Madison/Extension, Plant Disease Diagnostic Clinic (PDDC) Update. In 2022, the PDDC continues to provide diagnoses through examination of digital photographs, as well as physical samples. [Click here](#) for the PDDC's current submission policy, as well as information on the PDDC's current [fee](#) structure. Digital diagnoses will be included in the Wisconsin Disease Almanac and when a digital diagnosis would normally require a lab confirmation, the disease/disorder will be labeled as "suspected". The following diseases/disorders have been identified at the PDDC from July 30, 2022 through August 5, 2022.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
VEGETABLE CROPS			
Potato	Black Leg	<i>Pectobacterium carotovorum</i> subsp. <i>carotovorum</i> , <i>Pectobacterium parmentieri</i>	Iowa
Tomato	Bacterial Canker	<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	Bayfield
	Bacterial Speck (Suspected)	<i>Pseudomonas syringae</i> pv. <i>tomato</i>	Dane
	Fusarium Wilt	<i>Fusarium oxysporum</i>	Bayfield
	Herbicide Damage	None	Dane
	Septoria Leaf Spot (Suspected)	<i>Septoria lycopersici</i>	Iowa
SPECIALTY CROPS			
Ginseng (American)	Alternaria Leaf Blight	<i>Alternaria panax</i>	Walworth

To learn more about plant diseases and their control, as well as PDDC educational resources and activities, visit the PDDC website at pddc.wisc.edu, follow the clinic on Facebook and Twitter @UWPDDC or email pddc@wisc.edu to subscribe to the PDDC listserv “UWPDDCLearn”.