Vegetable Crop Update

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

Extension UNIVERSITY OF WISCONSIN-MADISON

No. 15 – August 25, 2024

In This Issue:

Calendar of Events:

December 3-5, 2024 – Midwest Food Producers Assoc. Processing Crops Conference, Kalahari Convention Center
January 13-14, 2025 – Wisconsin Agribusiness Classic, Alliant Energy Center, Madison, WI
February 4-6, 2025 – 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/

More aphids!! – (https://vegento.russell.wisc.edu/pests/aphids/).

Through the late summer we continue to observe increasing aphid populations in a variety of vegetables, field crops and ornamentals. Aphids that colonize potatoes are not subsiding and continue to increase rapidly in many portions of the state, and particularly northern Wisconsin. Once scouts reveal these aphids in susceptible crops, it is essential to consider application of an appropriate aphicide to limit the development of these populations. Listed below, there are several aphid specific compounds registered for use in potatoes (and other vegetables) and are all considered very good for the control of colonizing species.

Trade name	Chemical name	Mode of Action Class	Max labeled rate (single application)
Admire Pro	imidacloprid	Group 4A	1.3 fl oz/ac
Actara 25WG	thiamethoxam	Group 4A	3.0 oz/ac
Assail 30SG	acetamiprid	Group 4A	4.0 oz/ac
Belay	clothianadin	Group 4A	3.0 fl oz/ac
Beleaf 50SG	flonicamid	Group 29	2.8 oz/ac
Exirel 10SL	cyantraniliprole	Group 28	13.5 fl oz/ac
Fulfill 50WG	pymetrozine	Group 9B	5.5 oz/ac
Movento HL	spirotetramat	Group 23	2.5 fl oz/ac
PQZ	pyrifluquinizon	Group 9B	3.2 fl oz/ac
Sefina Inscalis	afidopyropen	Group 9D	6.0 fl oz/ac
Sivanto HL	flupyradifurone	Group 4D	7.0 fl oz/ac
Torac	tolfenpyrad	Group 21	21.0 fl oz/ac
Transform 50WG	sulfoxaflor	Group 4C	1.5 oz/ac
Venom 70SG	dinotefuran	Group 4A	1.5 oz/ac

Photo credit: NBAIR

Corn leaf aphid, *Rhopalosiphum maidis*

The corn leaf aphid is another example of an aphid that has been steadily increasing in both field and sweet corn. The corn leaf aphid shows a preference for barley, sorghum, and (sweet) corn, and infests many other wild and cultivated grasses. An occasional pest of winter wheat, it is an important vector of Barley Yellow Dwarf virus (BYDV). BYDV symptoms include reddening or yellowing of leaves (starting from the tip and leaf edges), reduced root biomass, and decreased stem height, ultimately affecting yield and grain quality. Once infected, there is no remedy for the affected plants, however, a combination of cultural and chemical approaches can help minimize the risk of BYDV spreading. Managing weeds and volunteers can eliminate BYDV and aphid reservoirs. Late fall

planting provides an opportunity for the young seedlings to evade infestation by aphids that will be on the move from these corn reservoirs. Seed treatment with systemic insecticides combined with late planting are expected to further minimize the risk of BYDV infection in the fall. Any infections that occur in the spring are not expected to result in significant losses since plants often outgrow BYDV infection resulting from spring inoculations.

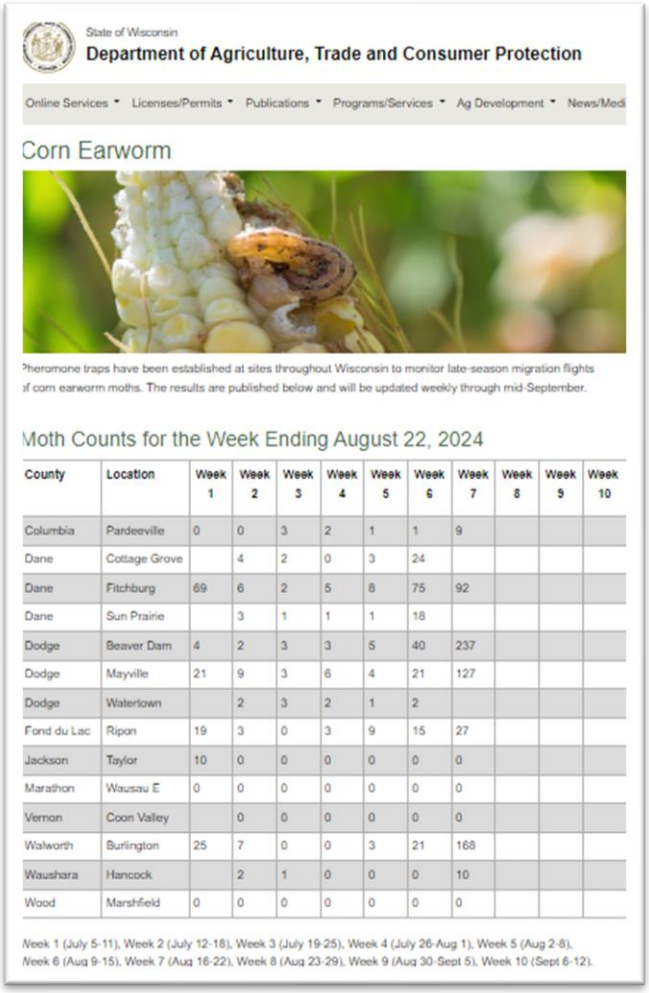
Green peach aphids (GPA) are increasing in a variety of nightshades including potato, pepper, eggplant and tomato. We may also expect this species to infest late-planted greens in both the field and the hoophouse. Check late planted greens often and consider an application once populations are detected in these crops. Many crops are attacked including greenhouse transplants of pepper, tomato, and cabbage, along with beet, carrot, broccoli, Brussels sprouts, lettuce, eggplant. GPA is often considered a pest of cold-weather crops and are inherently difficult to kill with contact insecticides because they are often under the leaves or on new, sheltered growth. Cooler weather (less than about 20°C) exacerbates the problem because there is less volatilization by contact insecticides (e.g., tolfenpyrad, Torac). Even systemic insecticides (many listed above), which will kill GPA feeding under the leaf where the insecticide was applied, are much less mobile and thus less effective at cool temperatures. The upcoming warm temperatures will not only drive rapid increase in aphid populations but may also increase the efficacy of our insecticides. The average generation time for several aphid species occurs over just a few days and is temperature dependent.

Temperature dependent generation times (potato-colonizing species)
- *Aphis craccivora* (4.7 days) cowpea aphid
- *Aphis gossypii* (5.0 days) melon aphid
- *Rhopalosiphum padi* (5.1 days) bird cherry-oat aphid
- *Rhopalosiphum maidis* (5.0 days) corn leaf aphid
- *Aphis nasturtii* (7.8 days) buckthorn aphid
- *Myzus persicae* (9.1 days) green peach aphid
- *Macrosiphum euphorbiae* (10.3 days) potato aphid

Corn earworm – (https://vegento.russell.wisc.edu/pests/corn-earworm/). Captures of adult male corn earworm moths are back on the rise signaling the emergence of the second generation. Pheromone traps (see capture data included) are the best method to document the timing of adult emergence, but the magnitude of these captures do not always predict risk of injury within a field. If corn is pollinating or silking during scouting, it is also a good idea to inspect the tassel and silk for early instar larvae. Adult moths remain active in terms of mating and egg laying for as much as 15-20 days after their initial emergence. The risk for continued infestations and colonization of fields will continue through the last week of August in southern and central Wisconsin and will continue throughout early to mid-September in central and northern portions of the state.

If you have a pheromone trap, place the trap 4 to 6 feet above the ground on the south or west side of fields when corn is in the green silk stage. Pheromones should be changed every 2 weeks with the unused lures kept frozen until needed. For accurate counts, be sure to remove used lures from the trap area.

Another technique for monitoring earworms uses a black light to lure night-flying insects. However, black light traps are more expensive, less effective, and more difficult than pheromone traps to monitor. Counts in blacklight traps are consistently lower than those in pheromone traps in adjacent fields.



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Corn Earworm

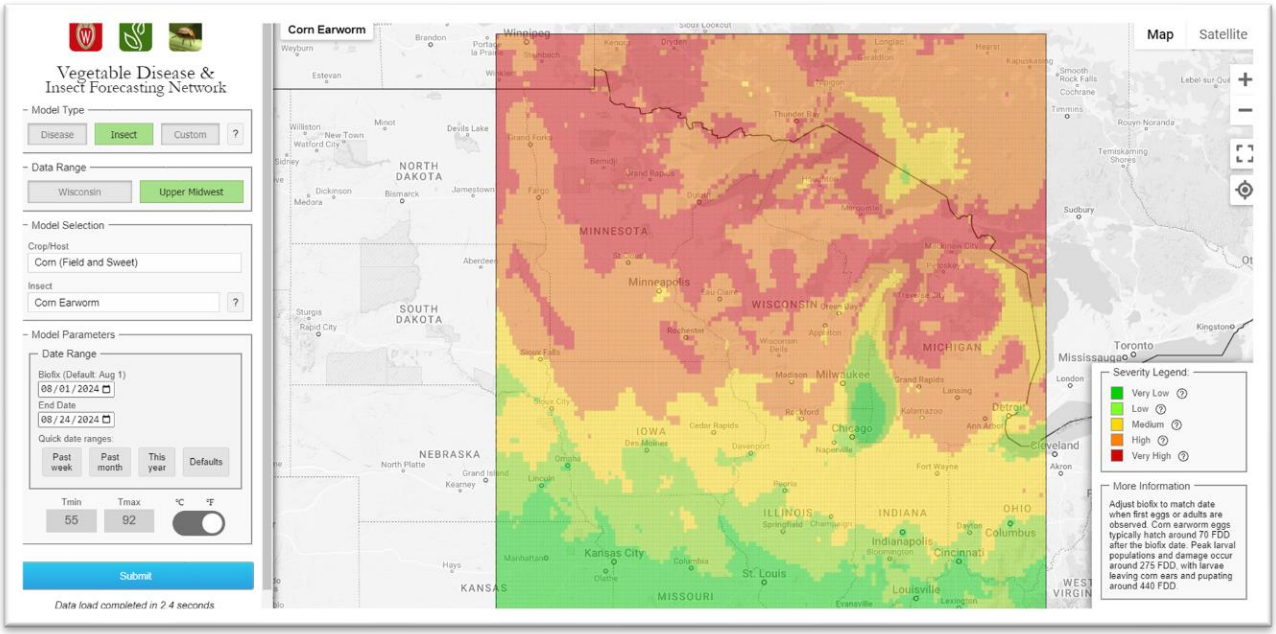
Pheromone traps have been established at sites throughout Wisconsin to monitor late-season migration flights of corn earworm moths. The results are published below and will be updated weekly through mid-September.

Moth Counts for the Week Ending August 22, 2024

County	Location	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Columbia	Pardeeville	0	0	3	2	1	1	9			
Dane	Cottage Grove		4	2	0	3	24				
Dane	Fitchburg	69	6	2	5	8	75	92			
Dane	Sun Prairie		3	1	1	1	18				
Dodge	Beaver Dam	4	2	3	3	5	40	237			
Dodge	Mayville	21	9	3	6	4	21	127			
Dodge	Watertown		2	3	2	1	2				
Fond du Lac	Ripon	19	3	0	3	9	15	27			
Jackson	Taylor	10	0	0	0	0	0	0			
Marathon	Wausau E	0	0	0	0	0	0	0			
Vernon	Coon Valley		0	0	0	0	0	0			
Walworth	Burlington	25	7	0	0	3	21	168			
Waushara	Hancock		2	1	0	0	0	10			
Wood	Marshfield	0	0	0	0	0	0	0			

Week 1 (July 5-11), Week 2 (July 12-18), Week 3 (July 19-25), Week 4 (July 26-Aug 1), Week 5 (Aug 2-8), Week 6 (Aug 9-15), Week 7 (Aug 16-22), Week 8 (Aug 23-29), Week 9 (Aug 30-Sept 5), Week 10 (Sept 6-12).

Pheromone trap catches of 5 to 10 moths or blacklight trap captures of 3 to 5 moths per night for three consecutive nights indicate that moths are probably laying enough eggs to warrant treatment of fields that are in the vulnerable stage between brush and silk browning to add precision to your scouting, check silks for the small, spherical corn earworm eggs before beginning a spray program.



Vegetable Disease and Insect Forecasting Network (VDIFN) map of risk for infestation by Corn earworm, (CEW), https://agweather.cals.wisc.edu/vdifn (sourced 08/25/2024). Notice areas within the 'orange or red shaded' zones indicate high risk zone for adult moth oviposition, and these zones bisect the center of the state, but extend into northern portions of the state. Sweet corn producers with susceptible crop stages (silking corn,) should be scouting for these mobile insects.

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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/late blight in WI.

	Planting Date		50% Emergence Date	Disease Severity Values (DSVs) *through 8/24/2024*	Potato Physiological Days (P-Days) *through 8/24/2024*
Spring Green	**Early**	Apr 3	May 9	**58**	**902**
	Mid	Apr 17	May 12	**58**	**884**
	Late	May 10	May 25	**53**	**783**
Arlington	**Early**	Apr 5	May 10	**30**	**898**
	Mid	Apr 20	May 15	**30**	**867**
	Late	May 12	May 25	**28**	**788**
Grand Marsh	**Early**	Apr 5	May 10	**51**	**868**
	Mid	Apr 20	May 15	**51**	**840**

	Late	May 12	May 25	**44**	**766**
Hancock	**Early**	Apr 10	May 17	**61**	**823**
	Mid	Apr 22	May 21	**59**	**793**
	Late	May 14	June 2	**54**	**713**
Plover	**Early**	Apr 14	May 18	**50**	**819**
	Mid	Apr 24	May 22	**46**	**787**
	Late	May 19	June 7	**42**	**672**
Antigo	**Early**	May 1	May 24	**50**	**720**
	Mid	May 15	June 1	**50**	**684**
	Late	June 1	June 15	**37**	**580**
Rhinelander	**Early**	May 7	May 25	**26**	**706**
	Mid	May 18	June 8	**25**	**614**
	Late	June 2	June 16	**25**	**565**

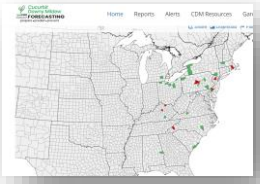
Late blight of potato/tomato. Late blight diagnostics continue to be available at no cost to WI growers and gardeners. Dr. Brian Hudelson of our UW Plant Disease Diagnostic Clinic and Dr. Amanda Gevens of UW-Potato & Vegetable Pathology can offer confirmation of the pathogen. Dr. Gevens will also offer strain typing of the pathogen. The usablight.org website (https://usablight.org/map/) indicates reports of late blight from the US so far in 2024 including NY (US-23), MI (US-23), ME (US-23), PA, and TN. Please keep in mind that the site is not comprehensive. Outside of this site, I'm aware of 2 Ontario Canada confirmations of potato and tomato late blight (US-23), and a Florida late blight sample from potato (March 2024).

Late season late blight control in potato. While I'm not aware of late blight in potato or tomato in Wisconsin this season so far, it's important to remain vigilant in managing the potato crop for this disease through senescence and harvest. Any green and succulent tissue in the lower plant canopies can still become infected by the late blight pathogen and should be protected. Further, late-season showers can 'wash out' spores from the air and conveniently deliver them to the lower stems and tubers as the suspension percolates down through the soil. Continued foliar fungicide use can keep the crop protected in this final stage and limit late-season late blight infections that can further develop in a stored crop. Practice good harvest, movement, and storage practices to maintain the health and quality of tubers.

We accumulated few to no (0-1) Blitecast Disease Severity Values over the past week in WI. **All WI locations are above the threshold for late blight disease severity values and should receive preventative fungicide application to reduce the risk of disease.** An updated listing of fungicides for WI potato late blight management for 2024 can be found at the link below. Base protectants such as chlorothalonil and mancozeb offer broad-spectrum control of fungal and oomycete (water mold – like late blight) pathogens.
https://vegpath.plantpath.wisc.edu/wp-content/uploads/sites/210/2022/07/2024-Potato-Late-Blight-Fungicides.pdf

Early blight of potato. All areas of production have reached the threshold for the application of foliar fungicides to limit early blight. This disease was unusual this year with a typical timeline for onset, but slower progression than most years due to high temperatures in July. With cooler temperatures at night and the seasonal daily temperatures last week, the accumulation of P-Days is slowing down.
https://vegpath.plantpath.wisc.edu/diseases/potato-early-blight/

Cucurbit Downy Mildew: To date, downy mildew field findings in the US have been caused by Clade 2 - cucumber and cantaloupe strain type. Five states reported new disease cases in the past week (map below), including MA, NJ, PA, NC, and KY. We have seen 'look-alike' diseases in WI which have primarily been angular leaf spot or Anthracnose (see pictures, below). No field disease confirmations were made in Wisconsin.



Confirmed reports of cucumber downy mildew this past week. In red, US counties with reports of cucurbit downy mildew during the past 7 days. Green counties indicate a former report of the disease greater than 7 days ago. From: https://cdm.ipmpipe.org/

Management information can be sourced here: https://vegpath.plantpath.wisc.edu/2022/07/03/update-10-july-3-2022/

Cucurbit downy mildew "look-alike": Photo credit to UW-For more information on **angular leaf spot of cucurbits**: https://hort.extension.wisc.edu/articles/vine-crops-disorder-angular-leaf-spot/

Cucurbit downy mildew "look-alike": Photo credit to the University of Minnesota Extension. For more information on **cucumber anthracnose**: https://hort.extension.wisc.edu/articles/vine-crops-disorder-anthracnose/

Cucurbit downy mildew ("genuine"!). Photo credit to Dr. Mary Hausbeck of Michigan State University. For more information on cucurbit downy mildew: https://hort.extension.wisc.edu/articles/cucurbit-downy-mildew-identification-and-management/