Vegetable Crop Update

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

No. 2 – May 28, 2023

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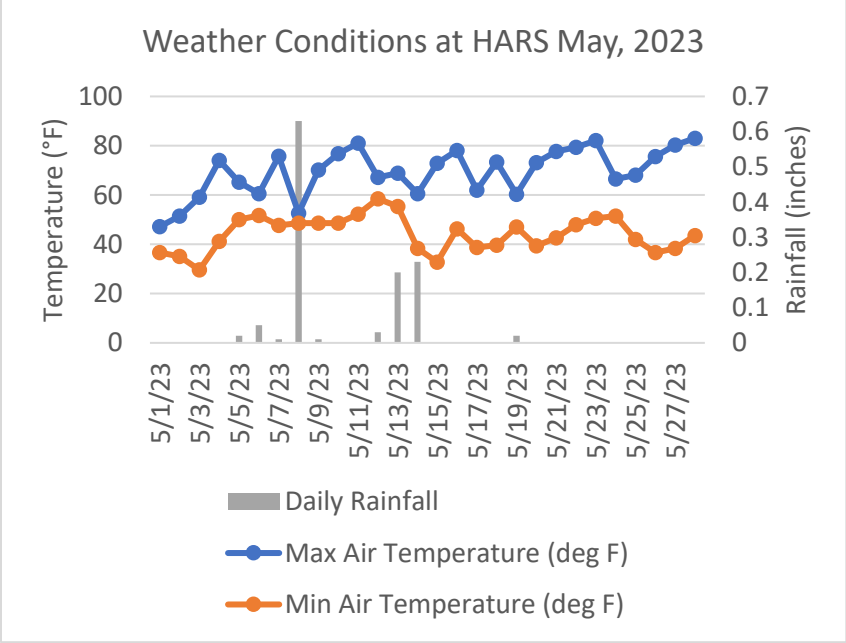
- Asparagus beetles, Colorado potato beetles, and seedcorn maggot updates
- Potato and vegetable disease model updates
- WI DATCP Special Local Need Registrations (24c) and Emergency Exemptions (Section 18) authorized for use in WI 4/20/23

Calendar of Events:

July 6, 2023 – UW Langlade County Extension & WI Seed Potato Certification Program – Ag Research Station Field Day, Antigo, WI
July 13, 2023 – UW Agricultural Research Station Potato Field Day, Hancock, WI (1-4:30PM)
July 27, 2023 – WI Seed Potato Certification Program & WI Potato Coalition Early Generation Seed Potato Field Day, Lelah Starks Seed Potato Farm, Rhinelander, WI
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
February 6-8, 2024 – UW-Madison Div. of Extension & WPVGA Grower Education Conference & Industry Show, Stevens Point, WI

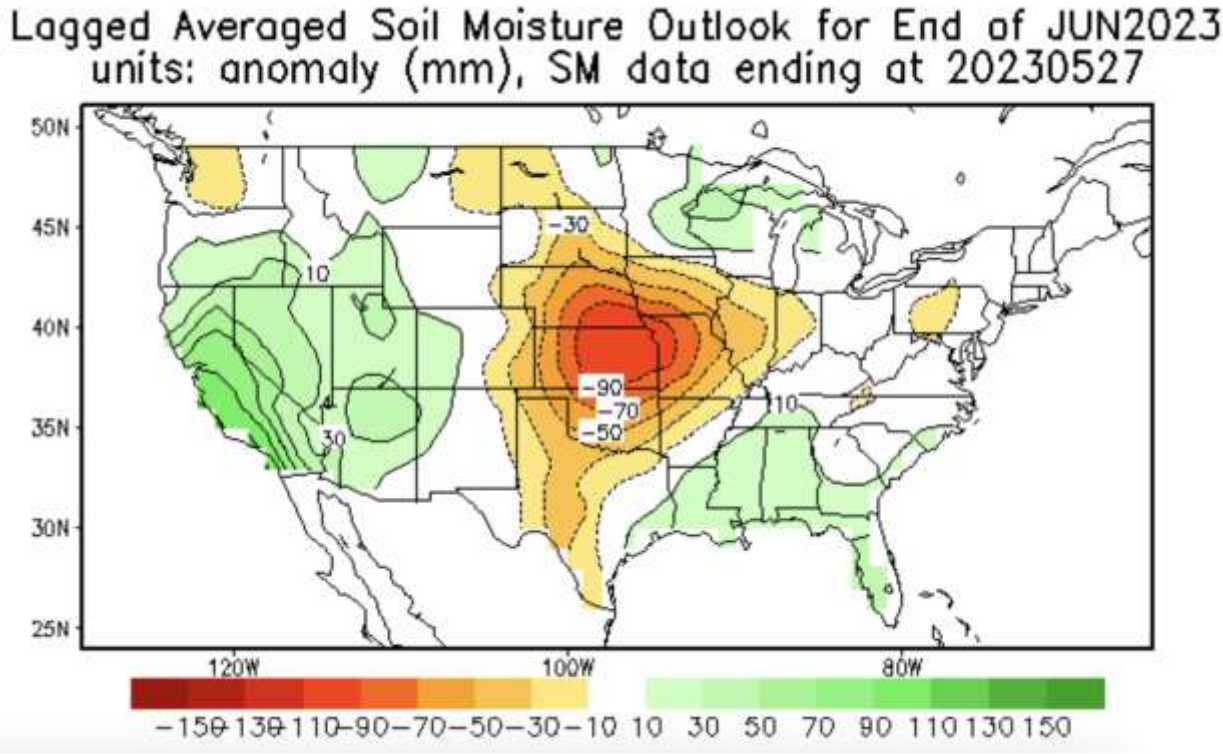
Yi Wang, Assistant Professor & Extension Potato and Vegetable Production Specialist, UW-Madison, Dept. of Horticulture, 608-265-4781, Email: wang52@wisc.edu.

The weather has been good enough to encourage smooth tuber sprouting and emergence (Figure below). Farms in Central Sands have completed hilling or are close to being done.



In our HARS research plots, we have observed 100% emergence on some early-season red and yellow varieties. The full-season russets are either cracking or very close to cracking. With the weather forecast, I would expect to see 100% emergence on all our varieties sometime this coming week.

As you may see from the weather figure above, we have been having a dry spell over the last couple of weeks. Based on the U.S. drought monitor website (https://droughtmonitor.unl.edu/ConditionsOutlooks/Outlooks.aspx), Wisconsin shouldn't have soil moisture anomaly in the upcoming month (Figure below), as long as we manage irrigation scheduling well. As most plants are at the stage between emergence and tuber initiation, which is the log phase of vine growth, roots are in the second half of their growth, and the vines grow very rapidly, as much as doubling the canopy every week. Starts at 1'' every week, and gradually increase every week by about 0.5''. Soil moisture should be maintained at 75% to 85% field capacity, and less than 65%FC would be considered a deficit. Soil moisture deficiency during this stage would inhibit canopy and root growth, and indirectly encourage weed growth due to small ground cover. However, excessive soil moisture would retard root branching by water-logging root hairs, and promote nitrogen leaching (N applied at hilling). In summary, with the increase in foliage and thereby crop ET, as well as the ongoing drought, irrigation should be applied regularly and gradually increase as the canopy develops.



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/

Asparagus beetle – (https://vegento.russell.wisc.edu/pests/asparagus-beetle/). The common and spotted asparagus beetles have been infesting asparagus in southern Wisconsin for the past 3 weeks, and emergence is now underway in much of northern Wisconsin . The common asparagus beetle is the most prevalent and the only one that causes economic damage to asparagus due to its relative earliness in colonizing the crop. Adults of the common asparagus beetle feed on the plant's spears and ferns. Disfigured and unmarketable spears can result when the beetles feed or lay eggs on the spears. Spotted asparagus beetle larvae feed more on the berries rather than the ferns of asparagus and are most often present later in the spring and early summer. Large populations of asparagus beetles, if left unchecked, can defoliate the plants.

Common asparagus beetle adult (*Crioceris asparagi*)

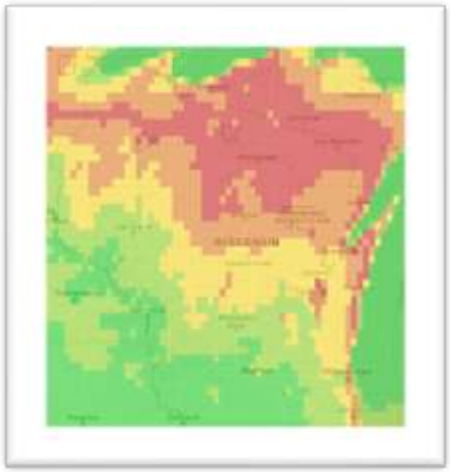
Photo credit: Mark Rowland

If you are seeing early damage from common asparagus beetle, sample twenty plants each at five different locations, and consult the infestation thresholds below following scouting. Spring sampling thresholds are designed to reduce spear damage, and scouting should occur in the afternoon when the beetles are most active.

When to control asparagus beetle

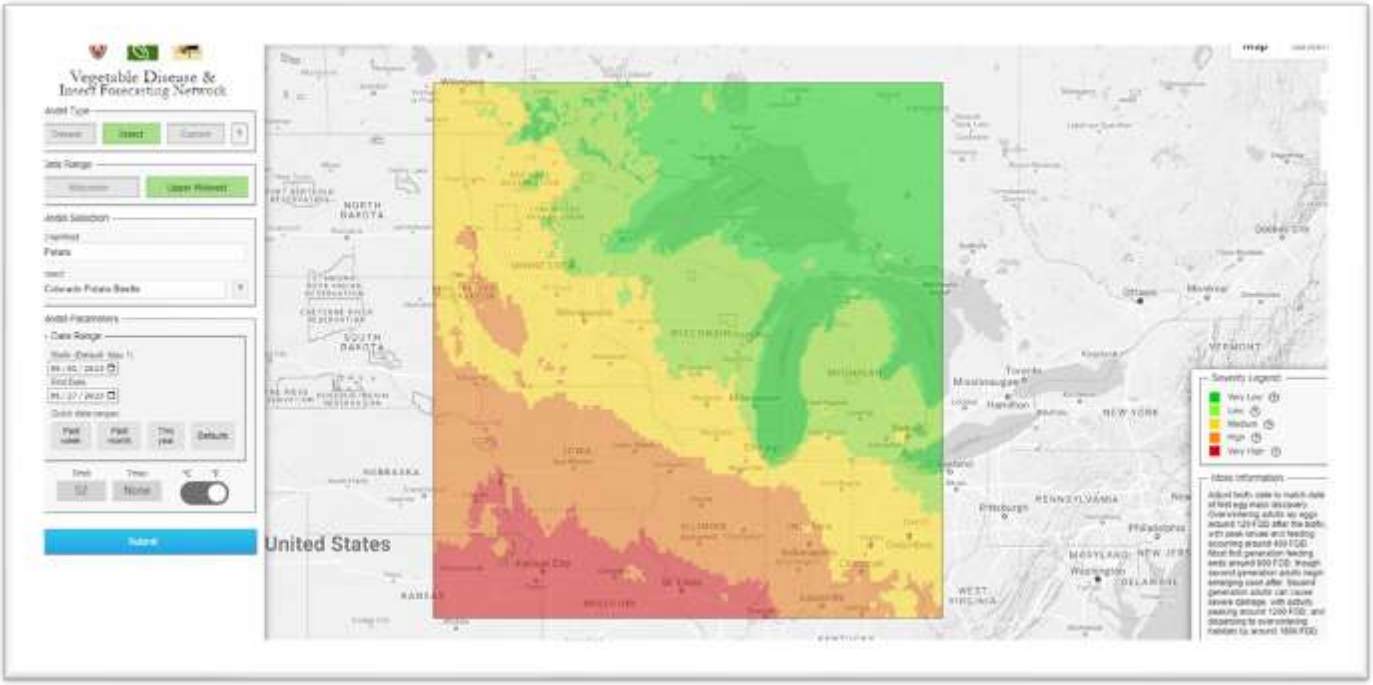
Life stage	Threshold
Adults	5% – 10% of plants infested
Eggs	2% of spears with eggs
Larvae	50% – 75% of plants infested
Defoliation	10% of plants defoliated

If insecticides are needed to reduce beetle populations below threshold levels, it is not necessary to treat the entire planting. Spot treat those areas where threshold levels have been exceeded. New plantings tolerate less injury than established plantings. Refer to the UW-Extension publication (A3422, Commercial Vegetable Production in Wisconsin, 2022) for a list of registered insecticides and management recommendations.



Peak activity for common asparagus beetle in Wisconsin has already been surpassed . First generation peak (and subsequent risk) is illustrated across central and northern Wisconsin, and the risk of infestation is illustrated by the warm colors (reds, oranges, yellows) on the map. (Source: https://agweather.cals.wisc.edu/vdifn).

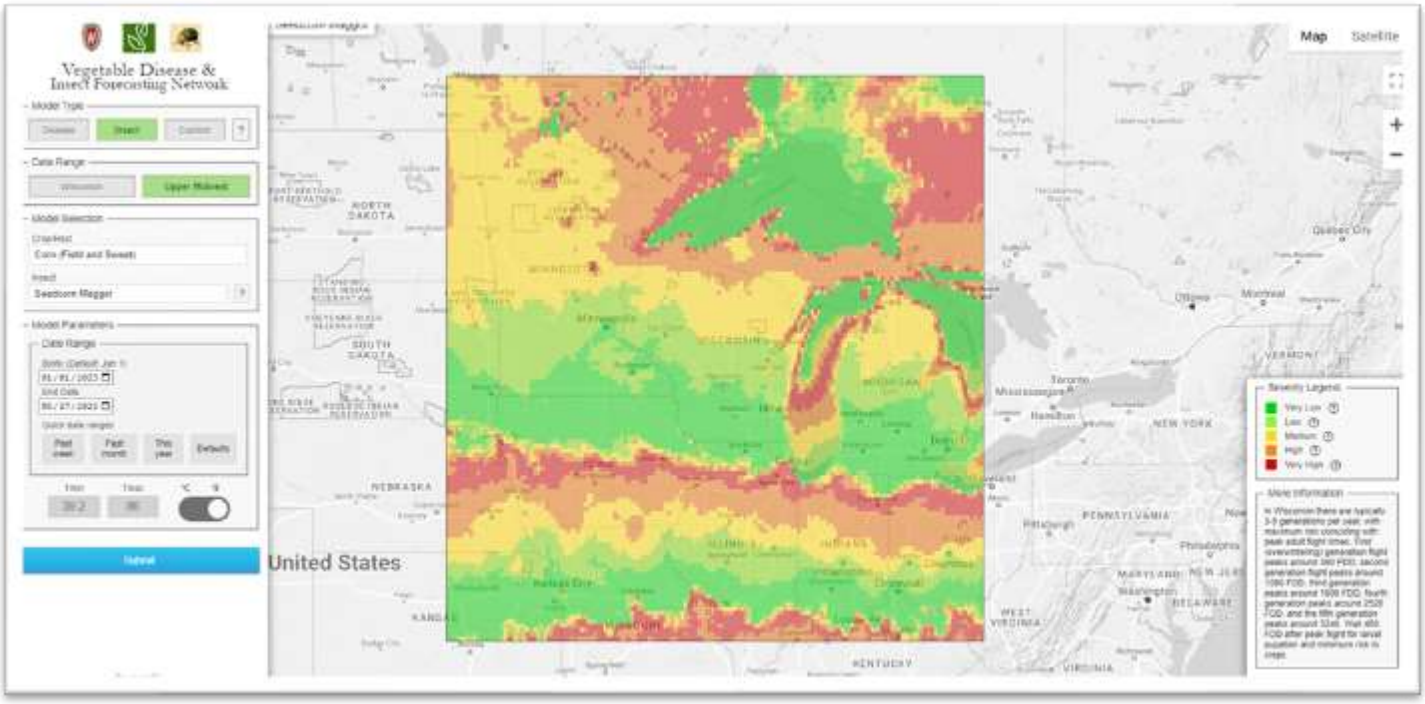
Colorado potato beetle (CPB) – (https://vegento.russell.wisc.edu/pests/colorado-potato-beetle/). Check for CPB adults now after potato plants have emerged and during hilling operations. Emerging adults are colonizing fields now in southern and central Wisconsin. Appearance of the very first egg masses is predicted for southern and central Wisconsin. Producers in these areas may be thinking about initial perimeter spray applications of the insect growth regulator, novaluron (Rimon® 0.83EC), together with a tank mix of (Avaunt® eVo 30DG). Treatments in select fields could be initiated in the next 7-10 days, especially with predicted warm temperatures into the 1st week of June.



Peak emergence activity for 1st generation of Colorado potato beetle in the upper Midwest. First generation emergence (and subsequent risk) is illustrated across central and southern Wisconsin. (Source: https://agweather.cals.wisc.edu/vdifn).

Seedcorn maggot– (https://vegento.russell.wisc.edu/pests/seedcorn-maggot/). The population of seedcorn maggot are between generations in central Wisconsin. The larvae damage the germinating seeds and young seedlings of a wide range of vegetable and agronomic crops. In addition to corn, seedcorn maggots (SCM) have a large host range including numerous common vegetable crops. SCM can cause economic damage to the seed of artichoke, beet, Brussels sprouts, cabbage, cantaloupe, carrot, cauliflower, cucumber, kale, lettuce, bean (lima, snap, red), onion, pea, pumpkin, tomato, and turnip. Management for SCM is only effective when used in a preventative manner. Once direct larval damage is detected there is no control option for the pest. Therefore, there are no economic thresholds for this insect pest. SCM forecasting models predict peak flight windows and are very useful for growers. Documenting peak flights can help to forecast subsequent generations of SCM. Following are a few strategies to hasten germination and lessen direct damage:

- Delay planting until soil temperatures are at least 50°F before planting most susceptible crops. Peas and radish may be planted when soil temperatures are above 40°F.
- After peak adult activity has passed, do not plant until 450 FDD has accumulated and passed (see risk colors below that follow peak adult emergence).
- Plant seeds as shallowly as agronomically possible to speed germination.
- Soak untreated pea and bean seeds in water for 2 hours before planting to soften the seed coat.



Peak flight activity for 1st and 2nd generation of seedcorn maggot in the upper Midwest. First generation peak (and subsequent risk) is illustrated across very northern Wisconsin and surrounding Lake Superior, and the risk of infestation is illustrated by the warm colors (reds, oranges, yellows) on the map. Second generation peaks are currently across central Illinois and this risk interval will be moving northward in the next 7 days with increasing daytime and night-time temperatures. (Source: https://agweather.cals.wisc.edu/vdifn).

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/

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. TBD indicates that data are To Be Determined as time progresses. Weather data used in these calculations will come 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. We currently have our Grand Marsh, Hancock, Plover, and Antigo weather stations up and running. Data will soon be available in graphical and raw formats for each weather station at: https://vegpath.plantpath.wisc.edu/dsv/.

	Planting Date		50% Emergence Date	Disease Severity Values (DSVs) *through* 5/27/2023	Potato Physiological Days (P-Days) *through* 5/27/2023
Grand Marsh	**Early**	Apr 5	May 10	0	98
	Mid	Apr 20	May 15	0	65
	Late	May 12	May 25	0	13
Hancock	**Early**	Apr 10	May 17	0	55
	Mid	Apr 22	May 19	0	50
	Late	May 14	TBD	TBD	TBD
Plover	**Early**	Apr 14	May 19	0	49
	Mid	Apr 24	May 20	0	44
	Late	May 19	TBD	TBD	TBD
Antigo	**Early**	May 1	TBD	TBD	TBD
	Mid	May 15	TBD	TBD	TBD
	Late	TBD	TBD	TBD	TBD

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. 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, linked here: https://learningstore.extension.wisc.edu/products/commercial-vegetable-production-in-wisconsin

Special Local Need Registrations (Section 24c) and Emergency Exemptions (Section 18) Authorized for Use in Wisconsin – Updated 04/20/2023

Product name + label	*Active ingredient(s)*	*FIFRA Section*	*Labeling ID number*	*Company*	*Site(s) of application*	*Pest problem(s)*	*Start Date*	*Expiration Date*
Avipel Dry Hopper Box	9, 10-Anthraquinone	24(c)	WI-210006	Arkion Life Sciences	Field and Sweet Corn Seed	Sand Hill Cranes	10/29/2021	07/30/2023
Bravo WeatherStik	Chlorothalonil	24(c)	WI-230003	ADAMA	Potatoes	Late blight, early blight, Botrytis vine rot, black dot	03/24/2023	12/31/2027
Bravo ZN	Chlorothalonil	24(c)	WI-230002	ADAMA	Potatoes	Late blight, early blight, Botrytis vine rot, black dot	03/24/2023	12/31/2027
Bravo Ultrex	Chlorothalonil	24(c)	WI-230004	ADAMA	Potatoes	Late blight, early blight, Botrytis vine rot, black dot	03/24/2023	12/31/2027
Dual Magnum	S-metolachlor	24(c)	WI-230005	Syngenta Crop Protection, LLC	Multi-Vegetables	Broadleaf and grass weeds	4/20/2023	12/31/2027
Echo 720	Chlorothalonil	24(c)	WI-210002	Sipcam Agro, USA	Potatoes	Late blight, early blight, Botrytis vine rot, black dot	03/26/2021	12/31/2025
Echo 90DF	Chlorothalonil	24(c)	WI-210003	Sipcam Agro, USA	Potatoes	Late blight, early blight, Botrytis vine rot, black dot	03/26/2021	12/31/2025
Echo ZN	Chlorothalonil	24(c)	WI-210004	Sipcam Agro, USA	Potatoes	Late blight, early blight, Botrytis vine rot, black dot	03/26/2021	12/31/2025
GoalTender	Oxyfluorfen	24(c)	WI-220001	NuFarm Americas Inc.	Direct-Seeded/ Transplanted Cabbage	Broadleaf Weeds	04/18/2022	12/31/2026
Linex 4L	Linuron	24(c)	WI-210001	Tessenderlo Kerley, Inc. (NovaSource)	Potatoes grown on coarse-textured, low organic matter soils	Broadleaf and grass weeds	3/16/2021	12/31/2025
Lorox DF	Linuron	24(c)	WI-200002	Tessenderlo Kerley, Inc. (NovaSource)	Carrots grown on coarse-textured, low organic matter soils	Broadleaf and grass weeds	04/24/2020	12/31/2024
Mustang Maxx	Zeta-Cypermethrin	24(c)	WI-210005	FMC Corporation	Tart and Sweet Cherries	Spotted Wing Drosophila, European Cherry Fruit Fly	03/26/2021	12/31/2023
Reflex	Fomesafen	24(c)	WI-220002	Syngenta Crop Protection, LLC	Succulent Lima Beans	Broadleaf Weeds	05/12/2022	12/31/2026
Sonalan HFP	Ethalfluralin	24(c)	WI-190002	Gowan Company LLC	Potatoes	Broadleaf weeds	05/10/2019	12/31/2023
Stinger (Cranberry)	Clopyralid	24(c)	WI-230001	Corteva Agriscience LLC	Cranberries	Broadleaf weeds	03/22/2023	12/31/2027
Stinger (strawberry)	Clopyralid	24(c)	WI-200001	Dow AgroSciences	Strawberries	Broadleaf weeds	01/03/2020	12/31/2024
Topsin M WSB	Thiophanate-methyl	24(c)	WI-230006	Nisso America Inc United Phosphorus Inc	Ginseng	White Mold and Rusty Root Rot	4/20/2023	12/31/2027
Vapam HL	Metam Sodium	24(c)	WI-200003	AMVAC	Ginseng	Cylindrocarpon Root Rot	11/10/2020	12/31/2024
Vydate L	Oxamyl	24(c)	WI-190001	DuPont Crop Protection	Dry Bulb Onions	Onion Thrips, Stubby Root Nematodes	05/03/2019	12/31/2023