



# Vegetable Crop Update

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

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## Calendar of Events

**July 20, 2017** – UW-Hancock ARS Field Day, Hancock, WI  
**July 27, 2017** – UWEX Langlade County Airport Research Station Field Day, Antigo, WI  
**August 4, 2017** – UW-Lelah Starks Elite Foundation Seed Potato Farm Field Day, Rhinelander, WI (10AM to Noon Lunch to Follow)  
**January 21-23, 2018** – Wisconsin Fresh Fruit & Vegetable Conference, Wisconsin Dells, WI  
**February 6-8, 2018** – UWEX & WPVGA Grower Education Conference, Stevens Point, WI

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**Current P-Day (Early Blight) and Severity Value (Late Blight) Accumulations (R.V. James, UW-Plant Pathology/R.V. James Designs):** A P-Day value of  $\geq 300$  indicates the threshold for early blight risk and triggers preventative fungicide application. A DSV of  $\geq 18$  indicates the threshold for late blight risk and triggers preventative fungicide application. **Red** text in table below indicates threshold has been met/surpassed. “-“ indicates that information is not available. Blitecast and P-Day values for actual potato field weather from Grand Marsh, Hancock, Plover, and Antigo are now posted at the UW Veg Path website at the tab “P-Days and Severity Values.”  
[http://www.plantpath.wisc.edu/wivegdis/contents\\_pages/weather\\_%20list\\_2017.html](http://www.plantpath.wisc.edu/wivegdis/contents_pages/weather_%20list_2017.html)

Location	Planting Date	50% Emergence	P-Day Cumulative	Disease Severity Value	Date of DSV Generation	Increase in DSV from 5/28
<i>Antigo</i>	Early 5/3	5/25	-	-	-	-
	Mid 5/15	6/1	-	-	-	-
	Late 6/1	6/15	-	-	-	-
<i>Grand Marsh</i>	Early 4/10	5/15	77	10	6/2	0
	Mid 5/1	5/22	70	8	6/2	0
	Late 5/17	6/1	-	-	-	-
<i>Hancock</i>	Early 4/15	5/18	81	10	6/2	0
	Mid 5/5	5/30	18	0	6/2	0
	Late 5/20	6/5	-	-	-	-
<i>Plover</i>	Early 4/20	5/20	55	12	5/28	-
	Mid 5/8	5/25	30	1	5/28	-
	Late 5/25	6/8	-	-	-	-

Thank you to Dr. Steve Jordan, Mr. John Hammel, and Mr. Sam Myers for getting our weather stations up and running this spring.

**Summary: Disease Severity Values (DSVs) and Late Blight Blitecast:** The earliest and mid-planted potatoes in our Grand Marsh, Hancock, and Plover sites are at 50% emergence or greater. The calculations of DSVs from the earliest emerged potatoes were 10 DSVs for Grand Marsh and Hancock; 12 DSVs for Plover. Mid-planted potatoes were 8 DSVs for Grand Marsh and just 1 DSV for Plover. 0 DSVs were accumulated for mid-planted potatoes at Hancock. Note that there was no accumulation of DSVs from 5/28-6/2. Recall the maximum number of DSVs that one day can accumulate is 4. Once thresholds of 18 DSVs have been met, routine, protection of susceptible tomato and potato crops is recommended. Wisconsin commercial conventional fungicides for potato late blight control can be found at: <http://www.plantpath.wisc.edu/wivegdis/pdf/2017/May%2022,%202017.pdf>

P-Days indicating early blight risk have not yet reached threshold for Wisconsin potatoes. Recall the threshold is 300 P-Days. We are at 77 for early planted potatoes in Grand Marsh; 70 for mid-planted potatoes in Grand Marsh; 81 for early planted and 18 for mid-planted potatoes in Hancock; 55 and 30 P-Days for early and mid-planted potatoes, consecutively, in Plover. No early blight lesions have been noted in earliest emerged plant canopies.

**National Late Blight Updates:** <http://usablight.org> is a useful resource for the detection and characterization of late blight on tomato and potato crops from the U.S. No new reports of late blight in the US have been reported at the site during recent weeks. However, reports of late blight were confirmed from parts of NC and VA earlier this week. No clonal lineage/strain types have yet been described. Already this year, late blight has been confirmed on potato and tomato in southwestern Florida. In all reported cases, the pathogen genotype was US-23. This has been the predominant genotype in Wisconsin, and across the U.S., in recent years. US-23 can still generally be managed well with use of phenylamide fungicides.

**National Cucurbit Downy Mildew Updates:** <http://cdm.ipmpipe.org/> offers information on the detection and characterization of the cucurbit downy mildew pathogen from the U.S. (and often Canada). On May 15 downy mildew was confirmed on cucumber in GA. Other recent reports of the disease have come from western FL on cantaloupe, watermelon, and cucumber. No new reports of the disease in the past week.

**Considerations for Cucurbit Downy Mildew Prevention:** Based on replicated research conducted by Dr. Mary Hausbeck of Michigan State University, a 7-day interval fungicide program is recommended for cucumber crops before disease is confirmed (but when inoculum is likely in the region). The program should tighten up to a 5-day program after disease is confirmed. In other vine crops (cantaloupe, melon, zucchini, squash, pumpkin, and gourd), a 7 to 10 day program is recommended before disease, with a tightening up of the program to a 7-day interval after disease is confirmed.

In Dr. Hausbeck's 2016 field trials on pickling cucumbers (link to 2016 report at end of this paragraph and depicted in Table 2, below), the following fungicides provided the best downy mildew control: Ranman 3.6SC (0 day PHI), Omega SC (PHI), Orondis Opti SC, Orondis Ultra SC, Zampro 4.4SC (0 day PHI), and Gavel 75DF (5 day PHI). I will also include Zing! (0 day PHI) in this group as it has the zoxamide component as Gavel but with a chlorothalonil pre-mix rather than mancozeb. The previously listed fungicides should be alternated and tank-mixed with either mancozeb or chlorothalonil (unless one of these protectants is in a pre-mix formulation such as Zing! or Gavel). <http://glexpo.com/summaries/2016summaries/PicklingCucumber.pdf>

Fungicides that used to manage downy mildew well, but were not highly effective in the 2016 Michigan study included: Previcur Flex 6SC (2 day PHI), Presidio 4FL (2 day PHI), Tanos DF (3 day PHI), Curzate DG (3 day PHI), Revus SC (0 day PHI), and Forum SC (0 day PHI). These data suggest that the

downy mildew pathogen may have developed resistance to these fungicide active ingredients, rendering them less effective in controlling disease.

**Table 2.** Foliar downy mildew severity of pickling cucumbers treated preventively with fungicides.

Treatment and rate/acre, applied at 7-day intervals	Disease severity*	
	9/6	9/22
Untreated control	6.0a**	9.3a
Bravo WeatherStik SC 2 pt	3.3 de	6.0 de
Koverall DG 2 lb	5.3a-c	7.5 c
Cueva SC 2 qt	5.5ab	8.0 bc
Presidio SC 0.25 pt	4.5 bc	8.0 bc
Previcur Flex SL 1.2 pt	5.0a-c	8.8ab
Ranman SC 0.17 pt	2.3 e	4.3 fg
Zampro SC 0.88 pt	2.8 e	5.5 de
Gavel DF 2 lb	4.3 cd	5.0 ef
Tanos DF 0.5 lb	4.8 bc	7.8 bc
Curzate DG 5 oz	4.8 bc	8.3a-c
Omega SC 1 pt	2.3 e	3.5 gh
Revus SC 8 fl oz	6.0a	8.8ab
Forum SC 6 fl oz	5.3a-c	8.8ab
Orondis Opti SC 34.2 fl oz	1.0 f	2.0 i
Orondis Ultra SC 9.64 fl oz	1.0 f	2.8 hi
V-10208 SC 8 fl oz	2.5 e	6.3 d
Priaxor SC 8 fl oz	5.3a-c	8.0 bc

\*Rated on the Horsfall-Barratt scale of 1 to 12, where 1=0% plant area diseased, 2=>0 to 3%, 3=>3 to 6%, 4=>6 to 12%, 5=>12 to 25%, 6=>25 to 50%, 7=>50 to 75%, 8=>75 to 87%, 9=>87 to 94%, 10=>94 to 97%, 11=>97 to <100%, 12=100% plant area diseased.

\*\*Column means with a letter in common are not statistically different (LSD t Test;  $P=0.05$ ).

The phosphites and salts of phosphorous acid for downy mildew control in cucurbits provide some control, but have not provided equivalent control to the previously mentioned water mold-specific conventional fungicides. Generally, the phosphites reduced foliar disease by about half, when compared to a non-treated control. However, highly effective fungicides reduced disease down to less than 25% of non-treated controls. In looking into the potential benefits of phosphites as tank-mixes with other effective fungicides, I didn't see a significant benefit in disease control or yield gain with this approach. In theory, the use of phosphites can upregulate disease resistance within the plant while other fungicides can directly limit pathogen infection on/in foliar tissues. In several crops, phosphites significantly add to the disease management program overall (ie: hop downy mildew), but this doesn't appear to be the case for cucurbit downy mildew.

For more information on symptoms, disease cycle, and general management, please visit: <http://learningstore.uwex.edu/Assets/pdfs/A3978.pdf>

**The 2017 A3422 Commercial Vegetable Production in Wisconsin Guide is now available** for 2017. As in past years, the guide can be downloaded for free (link below) or a hard copy can be purchased from UWEX Learning Store for \$10. <https://learningstore.uwex.edu/Assets/pdfs/A3422.pdf>