Vegetable Crop Update

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

No. 28– August 21, 2015

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Calendar of Events

August 25-27 – Wisconsin Farm Tech. Days, Statz Bros., Inc. Farm, Sun Prairie, WI
September 1 – UW-Arlington ARS Organic Agriculture Field Day, Arlington, WI
December 1-3 – Midwest Food Processors Assoc. Convention & Processing Crops Conference, Green Bay, WI
January 12-14, 2016 – WI Crop Management Conference, Madison, WI
January 25-26, 2016 – WI Fresh Fruit & Vegetable Growers Conference, WI Dells, WI
February 2-4, 2016 – WPVGA & UWEX Potato Grower Education Conference, Stevens Point, WI

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Veg Pathology Webpage: http://www.plantpath.wisc.edu/wivegdis/.

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 ≥ 300 indicates the threshold for early blight risk and triggers preventative fungicide application. A DSV of ≥ 18 indicates the threshold for late blight risk and triggers preventative fungicide application. Red text in table below indicates threshold has been met/surpassed. NA 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/pday_sevval_2015.html

Location	Planting Date	50% Emergence	P-Day Cumulative	Disease Severity Value	Date of DSV Generation	Increase in DSV from 8/13
Antigo	Early 4/25	5/25	**598**	**114**	8/21	25
	Mid 5/5	6/1	**598**	**114**	8/21	25
	Late 5/15	6/15	**500**	**88**	8/21	25
Grand Marsh	Early 4/5	5/10	**738**	**133**	8/21	20
	Mid 4/15	5/15	**728**	**132**	8/21	20
	Late 5/1	5/21	**694**	**130**	8/21	20
Hancock	Early 4/10	5/15	**602 (8/2)**	**102***	8/21*	8*
	Mid 4/20	5/18	**577 (8/2)**	**99***	8/21*	8*
	Late 5/5	5/25	**543 (8/2)**	**94***	8/21*	8*
Plover	Early 4/15	5/20	**744**	**127**	8/21	17
	Mid 4/25	5/22	**705**	**124**	8/21	17
	Late 5/10	5/30	**643**	**108**	8/21	17

Potato Early Blight Preventive Management: P-Days have surpassed threshold of 300 in all potato plantings Wisconsin. Early blight pressure is especially heavy this year. We have noted

primarily *Alternaria solani* (early blight) in field, with just minor findings of *Alternaria alternata* (brown spot). Continued control of this disease is important to limit yield and quality losses. On May 8th, I provided a summary of fungicides for control of early blight in conventional potato in this newsletter, please find the link to this information below.
http://www.plantpath.wisc.edu/wivegdis/pdf/2015/May%208,%202015.pdf

Late Blight Updates: Late blight has been detected in several additional fields of potato and tomato this past week. Favorable weather prevailed across most of the state this past week with accumulations of Disease Severity Values of >17 in most locations. Recall that 4 DSVs per day is the maximum accumulation. Our Hancock weather station has been in disrepair over the past few weeks. In this newsletter, I included DSVs as generated for the Hancock location by our web-based disease forecasting tool (annotated in the above table with asterisks). This weather data is generated from NOAA environmental data and is not from an in-field weather station. Continued management of late blight is critical to maintain healthy potato tubers below ground.

In Wisconsin: Twelve counties in Wisconsin have submitted samples which were confirmed for late blight in potato and/or tomato. While I don't maintain a comprehensive list of how many fields were infected by county, the disease has been detected in several fields within each of the counties I have listed below. In all cases in which we have tested, the *Phytophthora infestans* is of the US-23 genotype. Reports are listed below. The US-23 genotype is sensitive to conventional phenylamide fungicides such as mefenoxam and metalaxyl (ie: Ridomil Gold SL). The use of antisporulant fungicides (ie: Forum, Previcur Flex, AgriTin, Revus Top, Zampro, Ridomil) is critical to manage late blight in a field. In organic systems, copper containing fungicides continue to prove most effective and provide greatest broad spectrum disease control in tomato and potato. EF-400 and BacStop (Anjon Ag) also provides control of late blight as seen in replicated open field trials in MI in recent years. While our previous lab and greenhouse investigations with Zonix indicated efficacy of the rhamnolipid for late blight control on tomato with a single inoculation, open field evaluations in PA and NC have not shown good control. Copper fungicides were, in most cases, 2X better at controlling late blight than the Zonix treatments (based on season-long disease or AUDPC).

Date of Confirmation	County (general location)	Host	Late blight pathogen genotype
23 June	Adams (northern)	Potato	US-23
8 July; 24 July; 29 July	Waushara (western)	Potato; Tomato	US-23
8 July; 28 July; 18 August	Wood (southern, central)	Potato; Tomato	US-23
14 July	Marquette (central)	Potato	US-23
15 July; 28 July; 18 August	Portage (central)	Potato; Tomato	US-23
23 July	Columbia (north central)	Tomato	US-23
23 July	Fond du Lac (north central)	Tomato	US-23
4 August	Polk (southeastern)	Tomato	US-23
12 August	St. Croix	Tomato	US-23
17 August	La Crosse	Potato; Tomato	Not yet determined
17 August	Marathon	Tomato	Not yet determined
17 August	Walworth	Tomato	Not yet determined

Across the nation: There were new detections of late blight in MA (tomato), NC (tomato), NY (tomato) and WA (potato) this past week as posted to www.usablight.org. To date, nationally, there have been confirmations of late blight in FL (US-23), CA (US-11), CT (US-23), ID (US-23), IN (US-23), NC (US-23), TX (not reported on usablight.org/strain not yet identified), WA (US-8), MD (US-23), ME (US-23), MI (US-23), NC, NJ (US-23), NY (US-23), ON and QC Canada, PA (US-23), VT, WI (US-23), and WV. See map below (blue counties are greater than 7 days old; red county indicates detection made in just the past 7 days). Screen shot grabbed at 4:01PM on 21 August, 2015.

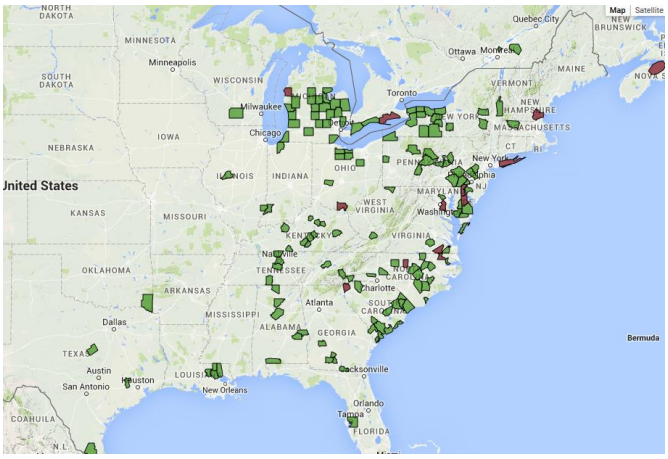
Fungicides are critical for protection of potato and tomato crops in organic and conventional systems at this time.

There is not one recommended fungicide program for all late blight susceptible potato (and tomato) fields in Wisconsin. Fungicide selections may vary based on type of inoculum introduction, proximity to infected fields, crop stage, late blight strain, and other diseases that may be in need of management. Please see UWEX Veg Crop Updates article on fungicide selections from June 5 at link below. Fungicides for organic systems and home garden fungicides can also be found at my website.
http://www.plantpath.wisc.edu/wivegdis/pdf/2015/June%205,%202015.pdf or a listing of 2015 WI potato late blight fungicides:
http://www.plantpath.wisc.edu/wivegdis/pdf/2015/Potato%20Late%20Blight%20Fungicides%202015.pdf

If you suspect/detect late blight, have the disease confirmed (free diagnostics through my lab and the UWEX Plant Disease Diagnostic Clinic) and we can genotype for further information on the nature of the pathogen.

Further details on registered fungicides for WI vegetables can be found in the Univ. of WI Commercial Vegetable Production in WI Guide A3422, http://learningstore.uwex.edu/assets/pdfs/A3422.PDF.

Cucurbit downy mildew updates: We had one new detection of downy mildew on organic winter squash in Dane County just today, 8/21/15. Sporulation of the pathogen was ample on a few plants. Recall there was also a detection on July 20 in cucumber and cantaloupe from Dane County. At that time, few lesions were identified on cucumber and cantaloupe in Dane County on a few plants that have been treated with fungicide. In the past week, downy mildew was confirmed in IL, IN, KY, MD, MI, NC, NY, PA, QC, TN, and VA. Prior reports of the disease have been confirmed in AL, DE, FL, GA, IL, KY, LA, MD, MI, NC, NJ, NY, OH, ON Canada, PA, QC Canada, SC, TN, TX, VA, and WI. For more information, visit: http://learningstore.uwex.edu/Assets/pdfs/A3978.pdf



Map of recent (red counties) and past (green counties) reporting cucurbit downy mildew in the U.S. through the http://cdm.ipmpipe.org/ website. The map was sourced at 4:05PM on August 21, 2015. **We need to keep an eye out for this disease on all cucurbits as it has been identified on cucumber, cantaloupe, winter squash, pumpkin, and watermelon in upper Midwestern states.**

Fungicides are critical to maintain control of cucurbit downy mildew. Based on replicated research conducted by Dr. Mary Hausbeck of Michigan State Univ., a 7-day interval fungicide program is recommended for cucumbers before disease is confirmed. The program should tighten up to a 5-day program after disease. 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. Fungicide selections should include Gavel 75WG (5 day PHI), Tanos 50WG (3 day PHI), Zampro 4.4SC (0 day PHI), Ranman 3.6SC (0 day PHI), and Zing! (0 day PHI). Previcur Flex 6SC (2 day PHI) and Presidio 4FL (2 day PHI) have had efficacy in past years in trials. 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).

Growers and researchers in Michigan (in 2014 trials) have noted some resistance to Presidio and Previcur fungicides. As such, these fungicides should be tank-mixed with another downy mildew fungicide as well as mancozeb or chlorothalonil. The cucurbit downy mildew that has been in MI over the past several years has also shown resistance to mefenoxam (ie: Ridomil), strobilurins (ie: Quadris, Cabrio), and mandipropamid (Revus). More info from Dr. Hausbeck at Michigan State Univ. on cucurbit downy mildew can be found at: http://msue.anr.msu.edu/news/cucumber_downy_mildew_makes_an_early_appearance_in_michigan?utm_source=Vegetable+-+MSU+Extension+News+-+06-23-15&utm_campaign=Vegetables+06-23-15&utm_medium=email