



Vegetable Crop Update

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

No. 25– July 31, 2015

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Calendar of Events

August 19 – UW-Arlington ARS Agronomy/Soils Field Day, 8AM, Arlington, WI
August 20 – UWEX Langlade County Airport Field Day, Antigo, WI
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

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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 ≥ 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 7/24
Antigo	Early 4/25	5/25	443	73	7/31	6
	Mid 5/5	6/1	443	73	7/31	6
	Late 5/15	6/15	346	47	7/31	6
Grand Marsh	Early 4/5	5/10	588	102	7/31	7
	Mid 4/15	5/15	578	101	7/31	7
	Late 5/1	5/21	544	99	7/31	7
Hancock	Early 4/10	5/15	585	83	7/31	5
	Mid 4/20	5/18	561	80	7/31	5
	Late 5/5	5/25	527	75	7/31	5
Plover	Early 4/15	5/20	588	93	7/31	3
	Mid 4/25	5/22	549	90	7/31	3
	Late 5/10	5/30	486	74	7/31	3

Potato Early Blight Preventive Management: P-Days have surpassed threshold of 300 in all potato plantings Wisconsin. We are seeing early blight in lower and middle potato plant canopies in commercial production fields of southern and central Wisconsin. Preventive control of this disease is important in effective long-season management 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%2008,%202015.pdf>

Late Blight Updates: The dry, hot weather which has prevailed over the past several days has been good for late blight management in WI. But, don't be fooled! If tomato or potato plants have shown late blight symptoms prior to the hot/dry weather, the disease can ramp up rapidly once cool/moist conditions onset. Once a field has been infected, it typically is a disease that continues to challenge the crop for the duration of the production season.

In Wisconsin: Seven 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 are 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 so far, the *Phytophthora infestans* is of the US-23 genotype. Reports are listed below. The US-23 genotype is sensitive to phenylamide fungicides such as mefenoxam and metalaxyl (ie: Ridomil Gold SL). The lesions that I have recently seen on tomato plants in Fond du Lac, Columbia, and Waushara Counties are dime to quarter-sized in diameter and appear to be uniformly spread across smaller acreage fields. The use of antisporeulant fungicides (ie: Forum, Previcur Flex, AgriTin, Revus Top, Zampro, Ridomil) is critical following first detection of late blight in a field.

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	Wood (southern, central)	Potato; Tomato	US-23
14 July	Marquette (central)	Potato	US-23
15 July; 28 July	Portage (central)	Potato	US-23
23 July	Columbia (north central)	Tomato	US-23
23 July	Fond du Lac (north central)	Tomato	US-23

Across the nation: There were new detections of late blight in IN, Ontario Canada, ID, CT, MI, and NY this past week www.usablight.org. To date, nationally, there have been confirmations of late blight in FL (US-23), CA (US-11), NC (strain not yet determined), TX (not reported on www.usablight.org/strain not yet identified), WA, MD, NC, NJ, NY (US-23), ON and QC Canada, PA, VT, and WI (US-23).

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>.

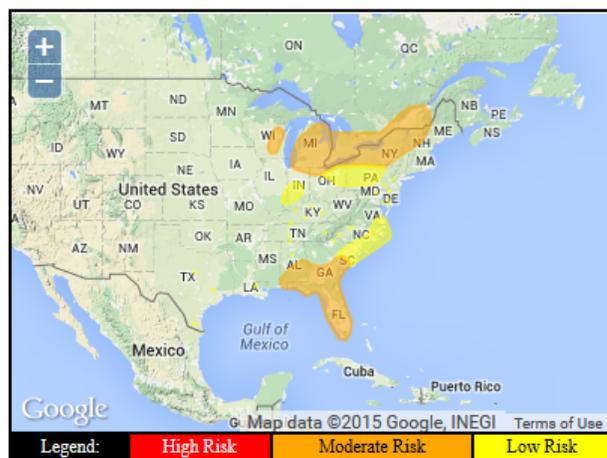
Cucurbit downy mildew updates: Our first report of downy mildew on cucurbits in WI occurred on July 20. Few lesions were identified on cucumber and cantaloupe in Dane County on a few plants that have been treated with fungicide. In the past week, downy mildew was confirmed in AL, IL, IN, KY, MD, MI, NC, NJ, NY, OH, PA, SC, TN, TX, VA, Canada, and WI. Prior reports of the disease have been confirmed in AL, DE, FL, GA, LA, MD, MI, NC, NJ, NY, OH, ON Canada, PA, SC, TN, TX, and VA. 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 6:57PM on July 31, 2015. There is moderate risk for disease spread in central Wisconsin for Sunday (see forecast map below). **We need to keep an eye out for this disease on cucurbits. Weather conditions have been prime for infection.**

Risk prediction map for Day 3: Sunday, August 2



Moderate Risk to cucurbits in eastern WI, all of lower MI, northeast IN, northwest OH, southern ON, NY except the southeast, southern Quebec, VT, northern NH, southern AL, southern GA, southern SC, and FL. Low Risk for eastern SC, southern NC, far southeast VA, central IN, northeast OH, and western and central PA. Minimal Risk to cucurbits otherwise.

Forecaster: TK at NCSU for the Cucurbit *ipm*PIPE - 2015

Fungicides are critical to maintain control of cucurbit downy mildew. 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. 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. 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 also demonstrated 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 the southeastern US, as well as in Michigan (in 2014 trials) have noted some resistance in the downy mildew pathogen population to Presidio and Previcur fungicides. As such, these fungicides should be tank-mixed with another downy mildew-specific fungicide as well as a base protectant of 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 information from Dr. Mary Hausbeck at Michigan State University on cucurbit downy mildew can be found at the link below.

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

We have had a report of **basil downy mildew in WI** last week as well. This disease is very difficult to manage once it establishes in a production field. Relatively few fungicides are registered for control of this disease on basil –and most growers do not want to use fungicides on this leafy aromatic. Dry conditions can help limit this disease. Flavored varieties (spice and lemon types) tend to be more resistant than the sweet Italian types.

To determine when to initiate a fungicide program, or when to harvest early to avoid losses, growers should routinely scout for disease, and should stay informed of disease reports within the region to determine when downy mildew is occurring. The cucurbit downy mildew forecasting web site (<http://cdm.ipmpipe.org>) might be useful for predicting when conditions are favorable for basil downy mildew since both pathogens likely have similar requirements for successful wind dispersal and infection. Basil crops should be disked under or otherwise destroyed as soon as possible after last harvest, or when abandoned because of disease, to eliminate this source of inoculum.

**UW-Madison/Extension
Plant Disease Diagnostic Clinic (PDDC) Update**

**Brian Hudelson, Sean Toporek, Catherine Wendt, Claire Wisniewski,
Jessica Bouchard and Ann Joy**

The PDDC receives samples of many plant and soil samples from around the state. The following diseases/disorders have been identified at the PDDC from July 25, 2015 through July 31, 2015.

PLANT/SAMPLE TYPE	DISEASE/DISORDER	PATHOGEN	COUNTY
VEGETABLES			
Kale	Bacterial Soft Rot	<i>Pectobacterium carotovorum</i>	Dane
Potato	Stem/Root Rot	<i>Rhizoctonia sp.</i> , <i>Pythium sp.</i>	Washburn
Snap Beans	White Mold	<i>Sclerotinia sclerotiorum</i>	Dane
Tomato	Bacterial Speck	<i>Pseudomonas syringae</i> pv. <i>tomato</i>	Brown, Dane, Sauk
	Bacterial Spot	<i>Xanthomonas sp.</i>	Dane
	Late Blight	<i>Phytophthora infestans</i>	Wood
	Septoria Leaf Spot	<i>Septoria lycopersici</i>	Green, Washburn

For additional information on plant diseases and their control, visit the PDDC website at pddc.wisc.edu.