



Vegetable Crop Update

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

No. 10– May 28, 2015

In This Issue

Late blight updates
Disease forecasting updates

Calendar of Events

July 15 – UW-Hancock ARS Field Day, 1:00PM, Hancock, WI
July 17 – Rhinelander State Farm Field Day, Lelah Starks Elite Found. Seed Farm, Rhinelander, WI
August 20 – UWEX Langlade County Airport Field Day, Antigo, WI
August 25-27 – Wisconsin Farm Technology Days, Statz Bros., Inc. Farm, Sun Prairie, WI

Amanda J. Gevens, Assistant Professor & Extension Vegetable Plant Pathologist, UW-Madison, Dept. of Plant Pathology, 608-890-3072 (office), Email: gevens@wisc.edu. Veg Pathology Webpage: <http://www.plantpath.wisc.edu/wivegdis/>.

Late blight updates: Nationally, in the past week, there were no new diagnoses reported at www.usablight.org. So far in 2015, there have been confirmations of late blight (US-23) in FL, CA (US-11), and TX (not reported on usablight.org/strain not yet identified).

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

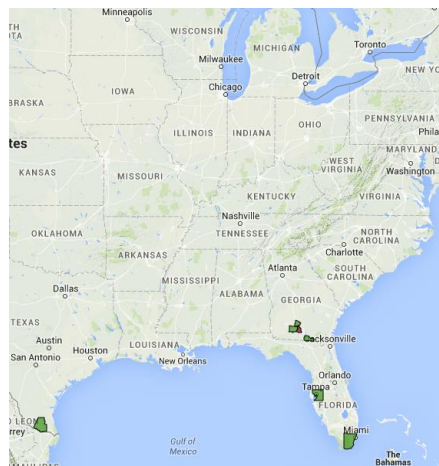
<i>Location</i>	Planting Date	50% Emergence	P-Day Cumulative	Disease Severity Value	Date of DSV Generation	Increase in DSV from last week
<i>Antigo</i>	Early 4/25	NA	NA	NA	NA	NA
	Mid 5/5	NA	NA	NA	NA	NA
	Late 5/15	NA	NA	NA	NA	NA
<i>Grand Marsh</i>	Early 4/5	5/10	94	16	5/27	13
	Mid 4/15	5/15	84	15	5/27	13
	Late 5/1	NA	NA	NA	NA	NA
<i>Hancock</i>	Early 4/10	5/15	84	11	5/27	8
	Mid 4/20	5/18	59	11	5/27	11
	Late 5/5	NA	NA	NA	NA	NA
<i>Plover</i>	Early 4/15	5/15	85	14	5/27	11
	Mid 4/25	5/22	45	11	5/27	11
	Late 5/10	NA	NA	NA	NA	NA

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>. Disease indicator/forecast tools provide information based on pathogen ecology to help make management decisions. No tool replaces field scouting and disease observations.

Potato Early Blight Preventive Management: P-Days have nearly doubled over the past 5 days and are now ranging from 45-94 depending upon location and date of crop emergence. Under very warm conditions, we can accumulate up to 10 P-Day values per day. As such, we may be 2-3 weeks away from reaching the threshold of P-Day of 300 for early planted/emerged potato fields in most of Wisconsin. This is a little early compare to the ‘average year.’ It is typical to reach P-Day of 300 for early/mid planted crops on/around July 1st. Currently, the earliest planted potato fields in southern Wisconsin are nearing row closure. While the early blight complex pathogens may not yet be fully active, the application of preventive fungicides prior to/at row closure is often justified at this time because the open canopy allows for optimum application of fungicides to protect the most mature and susceptible foliage in the lower potato canopy.

Late Blight Preventive Management: Based on the Blitecast, we are nearing the DSV 18 threshold in early planted/emerged fields in the Grand Marsh area at this time. This threshold indicates that environmental conditions have been met to promote late blight disease activity. At 18 DSVs, the recommendation for preventive applications of effective late blight fungicides is made. An additional alert is issued when the first symptoms of late blight appear anywhere in the state. The determination of late blight management recommendations is made by taking into consideration DSVs, projected weather forecast, and presence/risk of inoculum.

Cucurbit downy mildew updates: There was one new report of cucurbit downy mildew in the US in the past week in Cook County, Georgia on cucumber. Earlier this season, locations in TX, GA, and FL also confirmed cucurbit downy mildew. The website: <http://cdm.ipmpipe.org/> offers up to date reports of cucurbit downy mildew and disease forecasting information. I will continue to include the pertinent updates and risks in this newsletter throughout the production season.



Green counties indicate locations of older reports (>7 days ago); red county indicates location of newer report (≤7 days ago) of cucurbit downy mildew in the U.S. in 2015. Map sourced from <http://cdm.ipmpipe.org/> from 11:23AM May 28, 2015.

Further information on cucurbit downy mildew: <http://learningstore.uwex.edu/Assets/pdfs/A3978.pdf>

Potato Late Blight Fungicides Registered for WI, 2015.

In-furrow and seed treatment registrations are omitted. This is not a comprehensive list. Most fungicides listed are for use in conventional production systems. List compiled 30 April 2015.

Amanda J. Gevens, Extension Plant Pathologist, UW-Madison

Office Phone: 608-890-3072; E-mail: gevens@wisc.edu

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
<u>Agri Tin, Super Tin 4L, Super Tin 80WP</u> (4-6 fl oz)	triphenyltin hydroxide	7 days	48 hours	30	Restricted use pesticide. 3 fl oz rate can be used if material is tank-mixed with another fungicide.
<u>Alude</u> (1.25 qt in 90 gal water) <u>Confine Extra</u> (3-5 qt in 20 gal water/acre)	mono and dipotassium salts of phosphorous acid	0 days	4 hours	33	Foliar application
<u>Ariston</u> (2.0 pt)	chlorothalonil+ cymoxanil	14 day	12 hours	M5+27	Newly registered fungicide. Additional chlorothalonil may be tank-mixed with this formulation to enhance % active ingredient applied, but be sure to include the Ariston component in overall season total. Cymoxanil is same active ingredient in Curzate.
<u>Elixir</u> (1.2-1.8 lb)	mancozeb+ chlorothalonil	7 days	24 hours	M3+ M5	Newly registered fungicide for potato only. Use higher rate as vines increase in size.
<u>Fosphite, Rampart</u> (1-4 qt in at least 20 gal water/A)	potassium phosphite	0 days	4 hours	33	Foliar post-emergence spray and post harvest spray for control in storage.
<u>Fungi-Phite</u> (Foliar: 2 qt/A Seed trt: 15% volume to volume-2 ton in 1 gal solution)	potassium phosphite	0 days	4 hours	33	Seed piece spray and foliar post-emergence spray. Tank-mix with another effective fungicide is recommended and use high label rate for late blight control.
<u>Badge SC</u> (1-3 pt at 7-10 day interval)	copper hydroxide, copper oxychloride	0 days	24 hours	M1	Protectant activity only.
<u>Bravo Ultrex</u> (.7 then .9 to 1.36 lb) <u>Bravo WeatherStik, Echo 720, Equus 720 SST, Initiate 720, Chlorothalonil 720 SC, Chloronil 720</u> (.75 then 1-1.5 pt) <u>Bravo Zn, Equus 500 Zn</u> (1 1/8 then 1 1/5 to 2 1/4 pt)	chlorothalonil	7 days	12 hours	M5	11.25 lb a.i./acre maximum on standard label. However, WI has a special 24(c) registration for long season potatoes extending the max a.i. from 11.25 to 16 lb a.i./acre with Bravo (Syngenta) and Echo (Sipcam Advan) formulations.

Potato Late Blight Fungicides Registered for WI, 2014.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
<u>Echo Zn</u> (1 to 2.125 pt) <u>Equus DF</u> (.7 then .9 to 1.36 lb) Echo 90DF (5/8 then 7/8 to 1.25 lb)	chlorothalonil	7 days	12 hours	M5	11.25 lb a.i./acre maximum on standard label. However, WI has a special 24(c) registration for long season potatoes extending the max a.i. from 11.25 to 16 lb a.i./acre with Bravo (Syngenta) and Echo (Sipcam Advan) formulations.
<u>Cabrio Plus</u> (2.9 lb)	pyraclostrobin+metiram	3 days	24 hours	11+M3	17.4 lb/acre maximum per season. Do not apply more than 2 sequential applications.
<u>Champ WG</u> (1 to 1.5 lb 3 to 4 lb in severe areas) <u>Champ Formula 2 Flowable</u> (2/3 to 2 2/3 pt) <u>Champ DP Dry Prill</u> (2/3 to 1 lb 2 to 2 2/3 lb when disease is severe)	copper hydroxide	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
<u>Kentan DF</u> (1-2.5 lb 4 lb when severe)	copper hydroxide	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
<u>Kocide 2000, Kocide 3000</u> (.73- 3 lb .5-1.75 lb)					
<u>Nu-Cop 3L</u> (2/3 to 2 pt 2 to 4 pt if severe)					
<u>Nu-Cop 50DF</u> (1-1.5 lb 3-4 lb if severe)					
<u>C-O-C-S WDG</u> (1.5- 4 lb)	copper oxychloride, basic copper sulfate	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
<u>Cuprofix-Ultra 40 Disperss</u> (0.75-3.0 lb)					
<u>Mastercop</u> (0.5-1.5 pt)	copper sulfate pentahydrate	0 days	24 hours	M1	Use high label rates for foliar late blight protection.

Potato Late Blight Fungicides Registered for WI, 2014.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
<u>Cueva</u> (2 gal in 50-100 gal water/acre)	copper octanoate	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
<u>Curzate 60DF</u> (3.2 oz foliar)	cymoxanil	14 days	12 hours	27	Locally-systemic fungicide. Must be tank-mixed with a protectant fungicide. Rainfast within 2 hours.
<u>Dithane F45</u> <u>Rainshield</u> (.4 to 1.6 qt)	mancozeb	24 hours	3 days	M3	Max rate per acre/season is 11.2 lb a.i. Plant as soon as possible after seed treatment.
<u>Dithane M45</u> (.5 to 2 lb)					
<u>Koverall, Roper</u> <u>DF Rainshield</u> (1-2.0 lb)					
<u>Evito 480SC,</u> <u>Aftershock</u> (3.8 fl oz)	fluoxastrobin	7 days	12 hours	11	Follow label for resistance management.
<u>Forum</u> (Foliar and tuber control: 6 oz)	dimethomorph	4 days	12 hours	40	May be tank-mixed with another effective fungicide for enhanced management – but not required by label. Addition of an adjuvant may enhance management. Can be applied after vine kill.
<u>Gavel 75DF</u> (1.5 to 2 lb)	zoxamide+ mancozeb	3 days	48 hours	22+M3	Do not make >6 applications/crop. Contact fungicide.
<u>Gem 500SC</u> (3.8 fl oz)	trifloxystrobin	7 days	12 hours	11	Follow label for resistance management.
<u>Headline</u> (6 to 12 fl oz)	pyraclostrobin	3 days	12 hours	11	Follow label for resistance management.
<u>ManKocide</u> (1.5 to 2 then 4-5 lb)	mancozeb+ copper hydroxide	3 days	24 hours	M3+ M1	Not labeled as a seed trt for potatoes.
<u>Omega 500F</u> (5.5 fl oz)	fluazinam	14 days	48 hours	29	REI is 4 days for high exposure activities. New special local need label 24c in April 2011.
<u>Omega Top MP</u> (5.5 fl oz) – individual label for Omega sold in co-pack with Top MP (difenoconazole)	fluazinam	14 days	48 hours	29	Can be applied aerially. REi is 4 days for high exposure activities.
<u>Oxidate</u> (40 to 120 fl oz to 100 gal water, 30- 100 gal solution per acre)	hydrogen dioxide	0 days	1 hour	NC	Foliar spray for late blight. Frequent applications (5-day intervals) can limit sporulation.

Potato Late Blight Fungicides Registered for WI, 2014.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
Penncozeb 80WP, Penncozeb 75DF (.5 to 2 lb) Penncozeb 4FL, Manzate flowable (.4 to 1.6 qt) <u>Manzate Pro-Stick</u> (1 to 2 lb, seed trt: 1.25 lb/50 gal water)	mancozeb	3 days	24 hours	M3	Do not exceed 11.2 lb a.i./acre/year.
<u>Phostrol</u> (2.5 to 10 pt) (Post harvest trt: 1 gal/ton in .5 gal water)	mono- and di- basic sodium, potassium, and ammonium phosphites	0 days	4 hours	33	Can be applied as a foliar for late blight, pink rot, and Pythium leak. Can be applied post- harvest for storage disease control.
<u>Polyram 80DF</u> (1.5 to 2 lb in 15 gal water/acre minimum)	metiram	3 days	24 hours	M3	Metiram is an EBDC, like mancozeb (M3). Total amount of a.i. per year/acre must include all EBDCs.
<u>Previcur Flex</u> (.7 to 1.2 pt)	propamocarb hydrochloride	14 days	12 hours	F	Apply in a tank-mix with effective protectant. Can be applied as a broadcast or banded application over the row, post-emergence.
<u>Priaxor</u> (4-8 fl oz)	fluxapyroxad+ pyraclostrobin	7 days	12 hours	7+11	Cannot apply more than 3 applications/season. Follow label for resistance management. Xemium and Headline pre-mix.
<u>Quadris, Satori</u> (6 to 15.5 fl oz)	azoxystrobin	14 days	4 hours	11	Alternate away from Group 11 fungicides to manage resistance.
<u>Quadris Opti</u> (1.6 pt)	azoxystrobin+ chlorothalonil	14 days	12 hours	11+M5	Alternate away from Group 11 fungicides to manage resistance.
<u>Ranman</u> (1.4 to 2.75 fl oz)	cyazofamid	7 days	12 hours	21	Follow label for resistance management.
<u>Reason</u> (5.5 to 8.2 fl oz)	fenamidone	14 days	12 hours	11	Follow label for resistance management.
<u>Revus</u> (5.5 to 8 fl oz)	mandipropamid	14 days	4 hours	40	Addition of an adjuvant is recommended.
<u>Revus Top</u> (5.5 to 7 fl oz)	mandipropamid+ difenoconazole	14 days	12 hours	40+3	Addition of an adjuvant is recommended.
<u>Tanos</u> (8 to 10 oz)	cymoxanil + famoxadone	14 days	12 hours	27+11	Must be tank-mixed with an effective protectant fungicide.
<u>Ridomil Gold SL</u> (1 to 2 pt)	mefenoxam	14 days	48 hours	4	Do not apply beyond the at-planting stage.
<u>Ridomil Gold Bravo SC</u> (2.5 pt)	mefenoxam+ chlorothalonil	14 days	48 hours	4+M5	Follow label for resistance management.
<u>Ridomil Gold Copper</u> (2 lb)	mefenoxam+ copper hydroxide	14 days	48 hours	4+M1	Tank-mix with an effective protectant.

Potato Late Blight Fungicides Registered for WI, 2014.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
<u>Ridomil Gold MZ</u> <u>WG</u> (2.5 lb)	mefenoxam+ mancozeb	3 days	48 hours	4+M3	Follow label for resistance management.
<u>Zampro</u> (11-14 fl oz)	ametoctradin+ dimethomorph	4 days	12 hours	45+40	Do not make more than 2 sequential applications. Follow label for resistance management. Ametoctradin is new a.i.; dimethomorph is Forum (formerly Acrobat).
<u>Zing</u> (32-34 fl oz)	zoxamide+ chlorothalonil	7 days	12 hours	22+M5	Do not make more than 2 sequential applications before alternating with another fungicide of a different mode of action. Do not make >8 applications or apply >1.52 lb of zoxamide and 8.88 lb of chlorothalonil per season per acre.