Vegetable Crop Update

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

No. 8 – June 6, 2014

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Calendar of Events

June 19 – Organic & Sustainable Diversified Veg Farm Field Day, Sunbow Farm, Eau Claire, WI (UWEX St. Croix County)
June 26 – WI IPM Field Day, Arlington Ag Research Station, Arlington, WI
July 15 – Crops Diagnostic Workshop, Arlington Ag Research Station, Arlington, WI
July 18 – UW Potato Breeding Station Tour, Rhinelander Ag Research Station
July 22– UW-Hancock Agricultural Research Station Field Day, Hancock, WI
August 12-14 – Farm Technology Days, Stevens Point, WI
August 21 – 1:00PM Antigo Field Day, Antigo, WI

News Items (contributed by Amanda Gevens):

Dr. Erin Silva has joined the Department of Plant Pathology at UW-Madison as the sustainable and organic cropping systems specialist on April 1, 2014. Erin is a native of Wisconsin and has been serving in a similar role at UW since 2006. In this new position, Erin will continue to work with vegetable, row crop, and pasture-based systems, integrating and optimizing organic and sustainable techniques. Her research and outreach program has included cover cropping strategies for building soil and reducing weeds, cover crop-based no-till production, variety trials for organic systems, and cost-of-production determinations on diversified vegetable farms. Additionally, Erin will expand her extension activities related to production and postharvest practices that maximize food safety principles.

Erin's contact information: Erin Silva, Assistant Professor & Organic and Sustainable Cropping Systems Specialist, Department of Plant Pathology, University of Wisconsin-Madison, 1630 Linden Dr., Madison, WI 53706, Phone: (608) 890-1503. E-mail: emsilva@wisc.edu.

Vegetable Disease Update – 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/

General vegetable disease update: I have seen and heard of very few disease problems in vegetable crops in the past week. Snap beans and peas are doing well with planting still ongoing. No concerns with early season damping off or disease-related emergence issues. Additionally, no disease concerns from commercial carrot and in my research trials on this crop in Hancock, we have excellent emergence with no concerns at this time. I have had few calls on

fruiting vegetable crops such tomatoes and peppers, as well as both direct-seeded and transplant cucurbits and cabbage. All are progressing well with no immediate disease concerns.

Late blight updates: Nationally, in the past week, there were no new late blight diagnoses reported at http://www.usablight.org/. So far in 2014, several FL counties have reported late blight caused by genotype US-23 in tomato and potato. The website provides location (by county) of positive reports of late blight in the U.S. and provides further information on disease characteristics and management.

Current P-Day (Early Blight) and Severity Value (Late Blight) Accumulations
A P-Day value of ≥ 300 indicates the threshold for early blight risk and triggers preventative application of fungicide. A DSV of ≥ 18 indicates the threshold for late blight risk and triggers preventative application of fungicide. Red text in table below indicates threshold has been met. NA indicates that information is not yet available as emergence has yet to occur. 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_2014.html

Location	Planting Date	50% Emergence	P-Day Cumulative	Disease Severity Value	Date of DSV Generation
Antigo	Early 5/20	NA	NA	NA	NA
	Mid NA	NA	NA	NA	NA
	Late NA	NA	NA	NA	NA
Grand Marsh	Early 4/20	5/19	135	19	6/6
	Mid 5/4	6/1	47	14	6/6
	Late 6/5	NA	NA	NA	NA
Hancock	Early 4/24	5/20	144	6	6/6
	Mid 5/8	6/2	46	2	6/6
	Late 6/8	NA	NA	NA	NA
Plover	Early 4/21	5/20	135	9	6/6
	Mid 5/5	6/1	50	6	6/6
	Late 6/5	NA	NA	NA	NA

Please note that we have surpassed the threshold for DSVs (18) in the Grand Marsh area for early planted potatoes. This occurred on 6/4 after two consecutive days of favorable weather for late blight (3 & 4 of June). This indicates that temperature and humidity have been favorable for the promotion of late blight. Early preventive fungicide application for late blight control may include base protectants such as chlorothalonil or mancozeb, or include a base protectant tank-mixed with one of the reduced risk fungicides with specific activity in controlling late blight. Below, please find the updated list of potato fungicides for 2014 in Wisconsin. I have omitted seed treatment fungicides. The list will also be available in a pdf format under the "Late Blight" tab of the UW-Vegetable Pathology website.

Potato Late Blight Fungicides Registered for WI, 2014.

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 6 June 2014.

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Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
Agri Tin, Super Tin 4L, Super Tin 80WP (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.
Alude (1.25 qt in 90 gal water) Confine Extra (3-5 qt in 20 gal water/acre)	mono and dipotassium salts of phosphorous acid	0 days	4 hours	33	Foliar application
Ariston (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.
Elixir (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.
Fosphite, Rampart (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.
Fungi-Phite (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.
Badge SC (1-3 pt at 7-10 day interval)	copper hydroxide, copper oxychloride	0 days	24 hours	M1	Protectant activity only.
Bravo Ultrex (.7 then .9 to 1.36 lb) Bravo WeatherStik, Echo 720, Equus 720 SST, Initiate 720, Chlorothalonil 720 SC, Chloronil 720 (.75 then 1-1.5 pt) Bravo Zn, Equus 500 Zn (1 1/8 then 1 1/5 to 2 ¼ 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.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
Echo Zn (1 to 2.125 pt) Equus DF (.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.
Cabrio Plus (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.
Champ WG (1 to 1.5 lb 3 to 4 lb in severe areas) Champ Formula 2 Flowable (2/3 to 2 2/3 pt) Champ DP Dry Prill (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.
Kentan DF (1-2.5 lb 4 lb when severe) Kocide 2000, Kocide 3000 (.73-3 lb .5-1.75 lb) Nu-Cop 3L (2/3 to 2 pt 2 to 4 pt if severe) Nu-Cop 50DF (1-1.5 lb 3-4 lb if severe)	copper hydroxide	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
C-O-C-S WDG (1.5- 4 lb) Cuprofix-Ultra 40 Disperss (0.75-3.0 lb)	copper oxychloride, basic copper sulfate	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
Mastercop (0.5-1.5 pt)	copper sulfate pentahydrate	0 days	24 hours	M1	Use high label rates for foliar late blight protection.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
Cueva (2 gal in 50-100 gal water/acre)	copper octanoate	0 days	24 hours	M1	Use high label rates for foliar late blight protection.
Curzate 60DF (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.
Dithane F45 Rainshield (.4 to 1.6 qt) Dithane M45 (.5 to 2 lb) Koverall, Roper DF Rainshield (1-2.0 lb)	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.
Evito 480SC, Aftershock (3.8 fl oz)	fluoxastrobin	7 days	12 hours	11	Follow label for resistance management.
Forum (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.
Gavel 75DF (1.5 to 2 lb)	zoxamide+ mancozeb	3 days	48 hours	22+M3	Do not make >6 applications/crop. Contact fungicide.
Gem 500SC (3.8 fl oz)	trifloxystrobin	7 days	12 hours	11	Follow label for resistance management.
Headline (6 to 12 fl oz)	pyraclostrobin	3 days	12 hours	11	Follow label for resistance management.
ManKocide (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.
Omega 500F (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.
Omega Top MP (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.
Oxidate (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.

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) Manzate Pro-Stick (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.
Phostrol (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.
Polyram 80DF (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.
Previcur Flex (.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.
Priaxor (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.
Quadris, Satori (6 to 15.5 fl oz)	azoxystrobin	14 days	4 hours	11	Alternate away from Group 11 fungicides to manage resistance.
Quadris Opti (1.6 pt)	azoxystrobin+ chlorothalonil	14 days	12 hours	11+M5	Alternate away from Group 11 fungicides to manage resistance.
Ranman (1.4 to 2.75 fl oz)	cyazofamid	7 days	12 hours	21	Follow label for resistance management.
Reason (5.5 to 8.2 fl oz)	fenamidone	14 days	12 hours	11	Follow label for resistance management.
Revus (5.5 to 8 fl oz)	mandipropamid	14 days	4 hours	40	Addition of an adjuvant is recommended.

Trade Name (rate/A)	Active Ingredient(s)	PHI	REI	FRAC #	Comments
Revus Top (5.5 to 7 fl oz)	mandipropamid+difenoconazole	14 days	12 hours	40+3	Addition of an adjuvant is recommended.
Tanos (8 to 10 oz)	cymoxanil + famoxadone	14 days	12 hours	27+11	Must be tank-mixed with an effective protectant fungicide.
Ridomil Gold SL (1 to 2 pt)	mefenoxam	14 days	48 hours	4	Do not apply beyond the at-planting stage.
Ridomil Gold Bravo SC (2.5 pt)	mefenoxam+ chlorothalonil	14 days	48 hours	4+M5	Follow label for resistance management.
Ridomil Gold Copper (2 lb)	mefenoxam+ copper hydroxide	14 days	48 hours	4+M1	Tank-mix with an effective protectant.
Ridomil Gold MZ WG (2.5 lb)	mefenoxam+ mancozeb	3 days	48 hours	4+M3	Follow label for resistance management.
Zampro (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).