



Vegetable Crop Update

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

No. 18 – August 15, 2017

In This Issue

Late Blight Updates

- **tomato** detections from Waukesha Co. 7/26, Pierce Co. 8/2, Dane Co. 8/7 (all US-23)
- **potato** detection from Portage Co. 8/14

Calendar of Events

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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Late blight was confirmed in commercial potatoes on August 14 in Portage County, WI. The disease was detected in a few fields at low to moderate levels. Symptoms were primarily on upper foliage and did not suggest a seedborne source of inoculum. I included photos of the symptoms seen today (next page) to aid in your field observations. From afar, the fields look green and healthy. Walking the field with a careful eye, particularly in areas in which fungicides may be limited, is critical in finding symptoms early to most effectively adjust fungicide selection and timing to best manage this destructive disease. Symptoms included brown, circular lesions with pale green/olive edges and white fuzzy pathogen sporulation, especially on leaf undersides and on shaded petioles. Lesions appeared somewhat dry and did not have the characteristic wet or oily appearance that late blight symptoms under very wet conditions can have.

It is particularly challenging to identify a sole source of initial inoculum in situations such as this. I did not see an apparent ‘hot spot’ which could be called out as the source, rather symptoms appeared as the result of an aerial spore dispersal event, likely 5-7 days ago based on the status of the lesions. You will note from the photos that fungicides were present on the foliage and fungicides have been applied routinely in this and other affected fields. Fungicide selections have been ‘Cadillac,’ with use of multiple modes of action including systemics, antisporelants, and curatives – all tank mixed with a base protectant – on a weekly schedule. Areas of greatest infection were vine killed to limit sporulation. Tightened fungicide schedules and additional modes of action are being implemented.

Fungicides provide strong protection against late blight, however, they are not perfect. Varieties of potato (and tomato) with high susceptibility to late blight are especially challenging to manage when disease pressure (high inoculum and ideal weather conditions favoring infection) is high. In some cases, early vine kill and harvest may be a good option to limit risk.

Wisconsin commercial conventional fungicides for potato late blight control can be found at link below, and at table at the end of this newsletter.

www.plantpath.wisc.edu/wivegdis/pdf/2017/Potato%20Late%20Blight%20Fungicides%202017.pdf

Previous confirmations were on tomato in Dane County on August 7 from a commercial field. And, we had confirmed late blight on tomato in Waukesha and Pierce Counties Wisconsin (all US-23) during 7/26-8/2. All of the WI tomato late blight has been genotyped as 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 (ie: Ridomil) fungicides. However, there are isolates of the US-23 type that have been shown to be resistant to phenylamides. We will be testing the WI-collected isolates for this character to better understand the epidemic and its management.



Fungicide	a.i.	FRAC	PHI potato	Activity
Bravo, Equus, Echo	chlorothalonil	M5	7 days	protectant <i>16 lb a.i./acre limit/yr</i>
Dithane, Penncozeb, Mancozeb	mancozeb	M3	3 days	protectant <i>11.2 lb a.i./acre limit/yr; excellent tuber LB control; aids yield; apply late season, and with or post vine kill for added tuber blight control</i>
Kocide, Champ	copper	M1	0 days	protectant
Agri-tin, Supertin	triphenyltin hydroxide (TPTH)	30	7 days	protectant <i>best in late sprays (final 2-3)/restricted use fung; good choice to clear up sporulation and protect tubers esp. those for storage</i>
Polyram 80DF	metiram	M3	3 days	protectant <i>EBDC like mancozeb and counts in total a.i./yr/acre</i>
Forum	dimethomorph	40	4 days	Systemic <i>adjuvant enhances management/can be applied post vine kill; antisporeulant; rainfast</i>
Curzate	cymoxanil	27	14 days	Locally Systemic <i>rainfast 2 hrs/mix with protectant; curative for infections that are less than 2 days old</i>
Fosphite, Phostrol, Crop-Phite, Prophyt, Rampart	phosphorous acid formulations	NC	0 days	Systemic <i>phytotox possible applied at low carrier volumes; tuber late blight control at multiple apps + hi rates; post-harvest applic; not great antisporeulant</i>
Gavel	mancozeb + zoxamide	M3+22	3 days	Protectant <i>do not apply >6 apps/crop/yr; reduce tuber blight; rainfast</i>
Omega	fluazinam	29	14 days	Protectant <i>excellent tuber blight control; rainfast</i>
Orondis Opti/Ultra	oxathiapiprolin (+chlorothalonil/or mandipropamid)	U15	5 days	Systemic and contact <i>Excellent control of all phases of late blight pathogen including antisporeulant; rainfast in 30 min; detailed resistance management guidelines</i>
Previcur Flex	propamocarb hydrochloride	28	14 days	Systemic and Contact <i>antisporeulant; rainfast; curative; good protectant on leaf, new growth, stem</i>
Ranman	cyazofamid	21	7 days	Protectant, Limited Systemic <i>Good on leaf and tuber blight; rainfast</i>
Revus Top	difenoconazole + mandipropamid	3 + 40	14 days	Preventative, Systemic, Curative <i>rainfast; excellent protectant on leaf blight</i>
Ridomil Gold MZ, Ridomil Gold Copper	mefenoxam + mancozeb	4 + M3	14 days	Systemic <i>works on US-23 not US-8</i>
Tanos	cymoxanil + famoxadone	27+11	14 days	Locally Systemic, Curative <i>tank mix with protectant; excellent curative; good leaf protectant; rainfast</i>
Zampro	ametoctradin + dimethomorph	45 + 40	4 days	Systemic and Protectant <i>New registration includes two a.i.s with excellent activity on late blight, Forum plus new a.i.</i>

Post-harvest treatments can also aid in late blight management and include phosphorus acid fungicides (ie: Phostrol, Prophyt, Rampart, FungiPhite, K-Phite, Phiticide, Confine Extra, Alude) and Stadium (fludioxonil + azoxystrobin + difenoconazole). While Stadium is not labeled for late blight (or pink rot) control, the azoxystrobin component has been shown to limit development of the water mold diseases including late blight and pink rot in our WI trials. Stadium can now be used for seed and production potatoes.

More information on phosphorous acid fungicides:

<http://wisconsinpotatoes.com/admin/wp-content/uploads/2017/06/Vegetable-Crop-Update-8-2017.pdf>

The 2017 A3422 Commercial Vegetable Production in Wisconsin guide is available for purchase through the UW Extension Learning Store website: <https://learningstore.uwex.edu/Commercial-Vegetable-Production-in-Wisconsin2017-P540.aspx>

A pdf of the document can be downloaded or is available at the following direct link:

<https://learningstore.uwex.edu/Assets/pdfs/A3422.pdf>

Tomato and potato late blight samples can be submitted free of charge to the UWEX Plant Disease Diagnostic Clinic (PDDC) or directly to my Potato & Vegetable Pathology program. We will confirm presence of late blight (or other diagnosis). If it is late blight, we will determine pathogen genotype, or strain type.

PDDC in Russell Labs, Dr. Brian Hudelson, UW-Madison campus: <https://pddc.wisc.edu/>

Potato & Vegetable Pathology, Dr. Amanda Gevens: UW-Madison campus: <http://www.plantpath.wisc.edu/wivegdis/>