



Potato Disease Management Strategies for 2012- Plant Pathology 101

Potatoes (fresh market, processing, and niche market types) are widely grown in NYS. Disease control is important for yield, marketability and storage capabilities. Management strategies need to include the following:

- 1.) Early Blight (EB, Fig. 1 see “target” lesions) occurs every season. In general early and mid-season varieties are quite susceptible and may need more attention.

Fig. 1 Early blight *Alternaria solani*



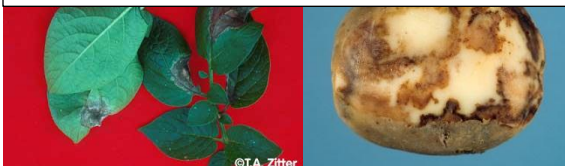
- 2.) Crop rotation is critical to reduce overwintering inoculum for Black dot (*Colletotrichum coccodes*) (BD, Fig. 2 L, R). A minimum 3 year rotation out of all solanaceous crops, will reduced inoculum levels, and a timely foliar fungicide spray (late July to early August) can reduce the early dying of the most susceptible varieties.

Fig. 2 Black dot, on stem (L) and early dying of foliage (R).



- 3.) Disease-free seed tubers is critical to preventing the introduction of late blight (*Phytophthora infestans*) (Fig. 3 L, R) into the field.

Fig. 3. Late blight, on foliage (L) and on tubers (R).



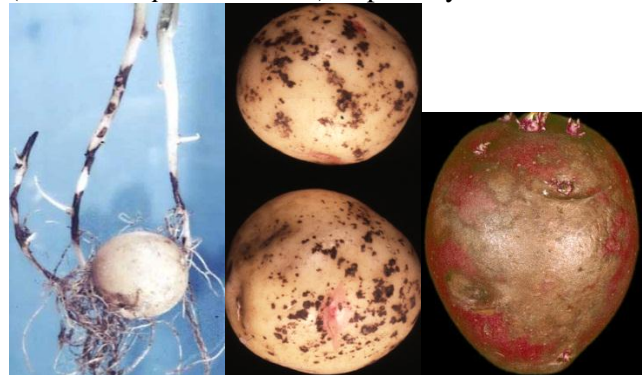
Once LB is introduced into an area, timely monitoring of weather conditions and choosing

the most appropriate fungicides as listed on the opposite page need to be applied in a timely manner to optimize control.

- 4.) Tuber blemish diseases (A, B, C) have assumed more importance now that washed tubers has become the marketing norm. A. Individual dots (microsclerotia) of BD appear on the tuber surface (L), mostly in round discolored patches (M), but can develop into sunken lesions once in longer storage (R).



- B. Black Scurf (M) and Canker (L) caused by *Rhizoctonia solani* can be reduced by using in-furrow treatments for conventional or organic production. C. Similarly, seedpiece and in-furrow fungicides can reduce the occurrence of Silver Scurf (R) (*Helminthosporium solani*), especially on red-skins.





- 6.) If you choose to spray foliar fungicides, then spray preventatively as determined by scouting. For Late Blight following the tracking maps at USAblight.org, and spray preventatively.

- 7.) The accompanying sheet (opposite side) provides a listing of fungicides for conventional, organic and home garden use. To prevent resistance from developing, follow the label to avoid making sequential applications before alternating to a fungicide with a different MOA. (Prepared by T.A. Zitter, Dept. Plant Path. Ithaca, NY 14850, taz1@cornell.edu). Additional Potato Disease Resource at:

<http://vegetablemndonline.ppath.cornell.edu/NewsArticles/NewsList.htm> .

Partial Listing of Conventional, Organic (OMRI) and Home Garden Potato Fungicides for Selected Diseases

Prepared by T. A. Zitter, Dept of Plant Path & Plant-Microbe Biology, Cornell University, Ithaca, NY. JULY 2012

Fungicide Information		Tuberborne										Foliar					Comments below are to assist in the appropriate use of these products. Read the label for rates, uses and specific diseases.			
Trade Names	MOA Code	Common Name	Uses	Activity	REI (hrs.)	PHI	Black Dot-C. <i>coccodes</i>	BlkScf/Canker- <i>Rhizoctonia</i>	Com.Scab/Pow.Scab <i>Streptomyces /Spongospora</i>	FusariumDryRot- <i>F.SDD.</i>	Late Blt. Tuber Blt- <i>Leak-Pythium</i>	PinkRot- <i>P.erythrosepica</i>	Silver Scurf- <i>H. solani</i>	Black Dot-C. <i>coccodes</i>	Early Blight-A. <i>solani</i>	Brown spot-A. <i>alternata</i>		Gray Mold-B. <i>cinerea</i>	Late Blight-P. <i>infestans</i>	WhiteMid-S. <i>sclerotiorum</i>
Fungicides if <u>UNDERLINED</u> , are registered in NYS. * = Restricted for use by certified applicator. OLP = other label products are available; See OMRI: http://vegetablemdonline.ppath.cornell.edu/NewsArticles/OMRI%20Product%20List%20June%202012.pdf for list of all registered products.																				
 Cornell University  Cornell University Cooperative Extension																				
Protectants - Conventional, Organic, Home																				
C <u>Bravo</u> WS or OLP	M5	<u>chlorothalonil</u>	F	C	12	7					P			G	G		G	G		Alone or TM partner.
C <u>Dithane</u> DF or OLP	M3	<u>mancozeb</u>	SP, F	C	24	3		F	F=CS	F	P		F		G			G		Seed piece; alone or TM
C <u>Polyram</u> 80DF	M3	<u>metiram</u>	F	C	24	3					P				G			F		Alone or TM partner.
C <u>Agri-Tin</u> <u>SuperTin</u> *	30	<u>triphenyltin hydroxide</u>	F	C	48	7									G				F	Alone/TM partner; Su Beetles.
C <u>Ranman</u>	21	<u>cyazofamid</u>	IF, F	C	12	7					G	OK, IF							G	TM for EB control.
C <u>Gavel</u> 75DF*	22+M3	<u>zoxamide + mancozeb</u>	F	C	48	3					G				G				G	* Restricted.
O <u>Champ WG</u> or OLP	M1	<u>copper hydroxide</u>	F	C	24	0					P				G			F,G		7 other OMRI coppers
H <u>Bonide Copper</u>	M1	<u>basic copper sulfate</u>	F	C	12	1					P				G			F,G		Other coppers exist.
H <u>Bonide Fung-onil</u>	M1	<u>chlorothalonil</u>	F	C	4	7									G		G	G		Other chlorothalonils exist.
Translaminar - Conventional only																				
C <u>Quadris Opti</u>	11+M5	<u>azoxystrobin+chlorothalonil</u>	F	TL	12	14	G				P			E	G			F		EB Res . resolved by mixture.
C <u>Quadris Top</u>	11+3	<u>azoxystrobin+difenoconazole</u>	F	TL	12	14	G				P			E	G	G		F		EB Res . resolved by mixture
C <u>Cabrio Plus</u>	11+M3	<u>pyraclostrobin + metiram</u>	F	TL	24	3	G				P			G	G			F	Su	EB Res . resolved by mixture
C <u>Revus Top</u>	40+3	<u>mandipropamid+difenoconazole</u>	F	TL	12	14	G				F			G	G	G		F		Quite broad spectrum
Systemic or Locally systemic (leaf base to tip) - Conventional only																				
C <u>Curzate</u> , TM	27+?	<u>cymoxanil + protectant</u> required	SP, F	Sy	12	14					P							F-G		Needs mod. temps & active growth for LB trt. to be effective.
C <u>Presidio</u> , TM	43+?	<u>fluopicolide + protectant</u>	IF, F	C	12	7					E	G,IF			G			E		TM requirement.
C <u>Previcur Flex</u> , TM	28	<u>propamocarb+protectant</u>	F	Sy	12	14					Su				G			G		Needs partner for other dis.
C <u>Quash</u>	3	<u>metconazole</u>	F	LS	12	1	G							G	G	G	Su	G		Needs partner for LB control
C <u>Ridomil Gold Bravo</u> or OLP	4+M5	<u>mefenoxam + chlorothalonil</u>	F	Sy	48	14					G	F	F	F	G		G	G		Control for US22 ^{P&T} ,US23 ^{P&T} ,US24 ^P only.
Abrev. MOA= if M then multisite; <u>Uses</u> : F=Foliar, SP=seedpiece; <u>Activity</u> : Sy=systemic, LS=local systemic; <u>Rating</u> : P=poor, F=fair, G=good, Su=suppression only; TM= tank mix.																				