



**POTATO FUNGICIDES (Labeled & Rates/A) as of JULY 2014**

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Underlined Products are Registered in NYS; \*, † refer to restrictions; Abbreviations given before the Product No., Bio., Multi ie. [FRAC No. **PRODUCT** DTH] are from the Fungicide Resistance Action Committee & EPA to indicate MOA (mode of action), and the last number refers to Days to Harvest (DTH), and OMR listed products as registered in NYS. (*Fungicide Resistance concerns are given in RED italics -as well as other important comments*). NOTE: *Because of Early Blight resistance to Strobilurins in NYS, use only as Tank-Mixed*, or consider protectants, <sup>7</sup>Endura, or already pre-mixtures of Cabrio Plus, Quadris Opti, Quadris Top or Revus Top, or Tanos tank-mixed with protectant, or Gavel for EB control, **do not rely upon strobilurins use alone!** Other fungicides belonging to Group 7 are in the registration process for use in NYS.

**Systemic fungicides** are given in **BOLD**. Major fungicide groups have been color coded to aid in finding and categorizing by MOA (mode of action): *Phosphorous acids* = Blue; *Strobilurins* or Group 11 = violet; *Chlorothalonils* = Black; *Coppers* = green; and *Sulfurs* = Orange.

Fungicides/Nematicides: **for use as seed piece, postharvest and tuber blight protection**; or **for in-furrow and soil treatments** have been highlighted as shown.

**Alphabetical Fungicide List for Potato**

- <sup>40</sup>**Acrobat**<sup>4</sup> 50 WP See <sup>40</sup>**Forum**<sup>4</sup>
- <sup>Bio</sup> **Actinovate AG**<sup>0</sup>, **OMRI** (EPA 73314-1) REI 1 hr or till dry as foliar application (*Streptomyces lydicus* WYEC 108, biological) (Natural Industries) **AG** as **In-furrow** and **Soil drench** at planting for *Fusarium*, *Rhizoctonia*, *Pythium*, *Phytophthora*, 3-12 oz/A in sufficient water; **Foliar treatment** for *Botrytis*, *Alternaria*, 3-12 oz/20-150 gal/A. **0 DTH**.
- <sup>Bio</sup> **Actino-Iron**<sup>0</sup>, **OMRI** Biological Fungicide (EPA 73314-2) REI 4 hrs. (*Streptomyces lydicus* WYEC 108, biological) (Natural Industries); for *Fusarium*, *Rhizoctonia*, *Pythium*, *Phytophthora*; **In-furrow application**, 10-15 lb/A; also used as a **side-dress** followed by watering in. **0 DTH**.
- <sup>M</sup> **AgClor 310**<sup>0</sup> (EPA 2792-62) REI 4 hrs (*sodium hypochlorite*, 12.5%) (Decco Post-harvest) **Postharvest**; 65-125 ppm of chlorine, with conc. given for use in flow through washer systems only; for treating potatoes in a pit system use 100-150 ppm Cl<sub>2</sub>. **0 DTH**.
- <sup>33</sup>**Agri-Fos**<sup>0</sup> (EPA 71962-1) REI 4 hrs (*phosphorous acid*) (Liquid Fertilizer); **In-furrow** Pink rot & leak 2-5 qt/10 gal; **Foliar** LB, PR, Leak, 1.25 qt/A; **Postharvest**: For use on russet potatoes (processing) for LB and Pink rot, 16.5 fl oz/1/2 gal for ton of tubers. **0 DTH**.
- <sup>25</sup>**Agri-mycin 17**<sup>0</sup>, **OMRI** (EPA 55146-96) REI 12 hrs (*Streptomycin sulfate*) (Nufarm); Soft rot and blackleg, 100 ppm (4 oz/50 gallons water) for **treatment of cut seed before planting**; inclusion of fungicides is recommended. **0 DTH**.
- <sup>25</sup>**AG-Streptomycin**<sup>0</sup> (EPA 66222-121) REI 12 hrs (*Streptomycin sulfate*) (MANA/Farm Saver); see Agri-mycin 17 above. **0 DTH**.
- <sup>\*30</sup>**Agri Tin**<sup>7</sup> (EPA 55146-72) REI 48 hrs, (**\* Restricted applicator use**) (*triphenyltin hydroxide*) (limit of 11.25 oz/season) (Nufarm); EB<sup>OK</sup>, LB, suppression of CPB, 2.5-3.75 dry oz pack/A. **7 DTH**.
- <sup>M1</sup>**Badge SC**<sup>0</sup> (EPA 80289-3) (limit 88.15 pts.) or <sup>M1</sup>**Badge X<sub>2</sub>**<sup>0</sup>, **OMRI** (EPA 80289-12) (limit 25 lbs.) REI 48 hrs (*copper oxychloride + copper hydroxide*, 20 or 28% metallic equiv. w/w) (Isagro). EB<sup>OK</sup>, LB, 0.9-3.7 pt/A. **0 DTH**. (**Greenhouse and shadehouse use for crops on label**)



- <sup>M1</sup>Basic Copper 53<sup>0</sup>, OMRI (EPA 45002-8) REI 24 hrs (*basic copper sulfate*, 53% metallic equiv.) (Albaugh). EB<sup>OK</sup>, LB, 3-6 lb/A. **0 DTH.**
- <sup>M1</sup>Basic Copper Sulfate<sup>0</sup> (EPA 46923-9) REI 24 hrs (*basic copper sulfate*, 53% metallic equiv.) (Old Bridge); EB<sup>OK</sup>, LB, 3-6 lb/A. **0 DTH.**
- <sup>Bio</sup>Bio-Save 10 LP<sup>0</sup>, OMRI (EPA 81803-5) REI 4 hrs? (*Pseudomonas syringae* strain ESC-10, biological) (JET Harvest Solutions); **A postharvest biological disease prevention treatment**, aids in the control of dry rot and silver scurf; for overhead spray application, add 500 g to 30 gallon of water and agitate to achieve uniform coverage to 3,000 cwt of potatoes. **DTH does not apply.**
- <sup>14</sup>Blocker<sup>0</sup> 4F (EPA 5481-472) REI 12 hrs (*quintozene*, PCNB) (limit 20 lbs. actual) (Amvac); In-furrow Rhizoc stem canker and Blk scurf, 5-10 pt (34-in row spacing; 5.2-10.4 fl oz/1,000 row ft. **0 DTH.** (NOTE: product has a 24c in western states for chemigation method of application for WM and **Black Dot** control)
- <sup>M5</sup>Bravo Weather Stik<sup>7</sup> 6SC (EPA 50534-188-100) REI 12 hrs (**54% chlorothalonil**) (Limit of 15 pts./A or 11.25 lbs. a.i./A/season) (Syngenta); EB<sup>OK, rotate</sup>, LB, Botrytis vine rot, **Black Dot**, ¾ pt. then 1 – 1 ½ pt./A. **7 DTH. (Do not use on greenhouse-grown crops)**
- <sup>M5</sup>Bravo Ultrex<sup>7</sup> **82.5 WDG** (EPA 50534-201-100) REI 12 hrs (*chlorothalonil*) (limit 13.6 lbs.) (Syngenta); EB<sup>OK, rotate</sup>, LB, Botrytis vine rot, 0.7lb then 0.9-1.4 lb. then 0.75-1.1 lbs/A. **7 DTH. (Do not use on greenhouse-grown crops).**
- <sup>M5</sup>Bravo ZN<sup>7</sup> (EPA 50534-204-100) REI 12 hrs (**38.5% chlorothalonil**) (limit 21.5 pts.) (Syngenta); EB<sup>OK, rotate</sup>, LB, Botrytis vine rot, **Black Dot**, 1.25 pt, then 1.5-2.25 pt/A. **7 DTH. (Do not use on greenhouse-grown crops).**
- <sup>11+M3</sup>Cabrio Plus<sup>3</sup> (EPA 7969-321) REI 24hrs. (*pyraclostrobin + metiram*) (limit of 17.4lb/A or 6 applic/ season) (BASF); 2-2.9 lb/A for **Black Dot** and EB<sup>OK</sup>; LB and PM use 2.9 lb/A; suppression of white mold; (max. sequential applications is 2; No aerial application in NYS). **3 DTH.**
- <sup>M1</sup>Camelot 0<sup>0</sup>, OMRI (EPA 67702-2-67690) REI 4 hrs. (10% octanoic acid, copper salt) (W. Neudorff) **0 DTH.**
- <sup>M5 + 33</sup>Catamaran<sup>7</sup> (EPA 42519-31) REI 12h (*chlorothalonil*, 16.7% + **potassium phosphite**, 38.9%) (limit of 40 pt./A/season). (Luxembourg-Pamol); Late Blight, EB<sup>OK</sup>, Botrytis vine rot, **Black Dot**, 4-5.5 pt/A. **7 DTH.**
- <sup>Bio. (44)</sup>Cease<sup>0</sup>, OMRI (EPA 264-1155-68539) REI 4hrs (*Bacillus subtilis* str. 713, biological) (AgraQuest Bayer, BioWorks); Gr. Hs. (including open). Use per label for multiple diseases. **0 DTH.**
- <sup>M1</sup>Champ Formula 2<sup>0</sup> (EPA 55146-64), REI 24 hrs (*copper hydroxide* 37.5%) (Nufarm); EB<sup>OK</sup>, LB, 2/3 – 1 pt/A then 2 - 2/3 pt/A; only suppression of CPB. **0 DTH.**
- <sup>M5</sup>Chlorothalonil 720 SC<sup>7</sup> (EPA 66330-362) REI 12 hrs. with PPE. (54% *chlorothalonil*) (limit 15 pts.) (Arysta); Foliage: EB<sup>OK, rotate</sup>, LB, Botrytis vine rot, **Black Dot** ¾ then 1-1/2 pt. **7 DTH.**
- <sup>Bio</sup>Contans WG<sup>0</sup>, OMRI (EPA 72444-1), REI 4 hrs (*Coniothyrium minitans*, biological) (Sylvan Bioproducts/Prophyta); WM in agricultural and greenhouse soils, 1-4 lbs. /A, or 0.75-1.5 oz per 1000 sq ft. **0 DTH.**
- <sup>M1</sup>C-O-C-S WDG<sup>0</sup> (EPA 34704-326) REI 24 hrs. (74.8% *copper oxychloride* + 14.2% *basic copper sulfate*, 50% metallic equiv.) (limit 48.8 lbs.) (Loveland). EB<sup>OK</sup>, LB, 1 ½-4 lb/A. **0 DTH.**



## 2014 Potato Fungicides NYS

- †<sup>Insect+12</sup> **CruiserMaxx Potato Insecticide & Fungicide<sup>0</sup>** - liquid seed treatment (EPA 100-1248) REI 12 hrs. (*thiamethoxam* 28% + *fludioxonil* 7%) (Syngenta); See label for rates used on 2.5 oz seed pieces per 100 lb seed; apply over cut or whole seed tubers first before adding any inert dust (fir bark, talc, etc.); apply liquid only with Syngenta approved equipment; use thiamethoxam against certain chewing and sucking insects (aphids, CPB, flea beetles, LH, LM, psyllids and WF); use fludioxonil for Fusarium dry rot, seedborne Rhizoc. and silver scurf. († **Not for use on L. I.**). **0 DTH.**
- <sup>M1</sup> **Cuprofix Ultra 40 Disperss<sup>0</sup>** (EPA 70506-201) REI 48 hrs (40% *basic copper sulfate*) (limit 62.5 lbs.) (UPI) EB<sup>OK</sup>, LB, 0.75-3 lb. (**Label allows greenhouse [hoop] and field applications**) **0 DTH.** Also Cuprofix Disperss DF (20% metallic copper).
- <sup>M1</sup> **Cueva<sup>0</sup>**, **OMRI** Fungicide Concentrate (EPA 67702-2-70051) REI 4 hrs. (10% *copper octanoate*) (Neudorff/Certis); EB<sup>OK</sup>, LB as generic label 0.5-2 gal/100 gal. **0 DTH.**
- <sup>27</sup> **Curzate<sup>14</sup> 60 DF** (EPA 352-592) REI 12 hrs (*cymoxanil*) (limit of 7 applications per season) (DuPont) LB, 3.2 oz (**Must be tank-mixed with a protectant fungicide**); seed treatment for LB, 0.25-1.0 oz/cwt. of cut seed. **14 DTH.**
- <sup>1</sup> **Decco Salt No. 19<sup>0</sup>** (EPA 2792-50) REI 12 hrs (*thiabendazole*, **99.5%, resistance common**) (Decco US Postharvest); Post harvest treatment Fusarium dry rot of unwashed tubers using 5.67 gm/2000 lbs potato, and may be used as additional treatment before shipping using the same rate or dip the tubers for 20 sec in a solution containing 5.67 gm per gallon of water. *Up to half of the fungus population may be resistant\* to this fungicide.* **DTH does not apply.**
- <sup>\*M3</sup> **Dithane DF<sup>3</sup>** Rain Shield (EPA 62719-402) REI 24 hrs (75% *mancozeb*) (limit of 15 lbs. or 11.2 lbs. a.i./season). (Dow); Seed treatment for Fus. Decay, LB, Com scab, Rhiz, SS 1.25 lb/50 gal; Foliage, EB<sup>OK</sup>, LB, 0.5-2 lb/A. **3 DTH** (**\* Restricted applicator use**). 3 DTH. Also Dithane M-45 (EPA 62719-387) or Dithane F-45 (EPA 70506-183)
- <sup>11</sup> **Dynasty** (EPA 100-1159) REI 4hrs. (*azoxystrobin*) (Syngenta); Seed treatment for Rhizoc, **Black Dot** and Silver Scurf, 0.10-3.75 fl oz/100 lb seed. **0 DTH.**
- <sup>M5</sup> **Echo 720<sup>7</sup>** (EPA 60063-7) REI 12 hrs (*chlorothalonil*) (limit 11.25 lbs. ai) (Sipcam); LB, EB<sup>OK, rotate</sup>, Botrytis vine rot 0.68 lb then 0.91-1.36 lb. **7 DTH** (OLF Echo 90DF) (**Do not use on greenhouse-grown crops**).
- <sup>7+3</sup> **Emesto Silver<sup>0</sup>** (EPA 264-1123) REI 12hrs (*penflufen* 9.35% + *prothioconazole* 1.68%) (Bayer) Potato seed piece application, Rhizoc (suppression), Silver scurf, Fusarium seed piece rot (suppression), 0.31 fl oz/100 lbs seed pieces (2.5 fl oz of slurry/100 lbs); can add mancozeb for added Fusarium protection; ensure uniform coverage. **0 DTH.**
- <sup>7</sup> **Endura<sup>10</sup> 70 WG** (EPA 7969-197) REI 12 hrs (*boscalid*) (limit 18 or 20 oz by rate used) (BASF); EB<sup>OK</sup>, 2.5-4.5 oz; White mold (limit of 2 applications at high rate), Suppression only for Botrytis gray mold, 5.5-10 oz; (**Do not make more than 2 sequential applications before switching to a diff. MOA fungicide**). **10 DTH.**
- <sup>M5</sup> **Equus 720 SST<sup>7</sup>** (EPA 66222-154) REI 12 hrs (54% *chlorothalonil*) (limit 15 pts.) (MANA); LB, EB<sup>OK, rotate</sup>, Botrytis vine rot 0.75 then 1-1.5 pts/A. **7 DTH.** (OLF are Equus 500-ZN Equus DF) (**Do not use on greenhouse-grown food crops**).
- <sup>11</sup> **Evito 480 SC<sup>7</sup>** (EPA 62171-MS-001) NOT YET REGISTERED in NYS. REI 12 hrs. (*fluoxastrobin*) (limit of 22.8 fl oz/season) (Arysta). **Primarily for-EB\*** (3.8 fl oz/A) and suppression of LB (3.8 fl oz/A). (**Do not use alone for EB\* control; Alternate every application of Group 11 fungicide with at least 1 application of an effective fungicide with a**



**2014 Potato Fungicides NYS**

different MOA; experience shows that Group 11 fungicide should be tank mixed with a good protectant like chlorothalonil to deal with fungicide resistance issues) **7 DTH.**

- <sup>1+M3+27</sup>**Evolve Potato S-P Treatment**<sup>0</sup> (EPA 264-973) REI 24 hrs (*thiophanate-methyl, mancozeb, cymoxanil*) (Bayer); **Seed treatment** to prevent spread of LB, Fusarium dry rot, Rhizoc. Stem canker and Blk scurf, and Silver scurf, 0.75 per 100 lbs cut seed pieces. **0 DTH.**
- <sup>18</sup>**Firewall 17WP**<sup>0</sup> (EPA 80990-4) REI 12 hrs (*Streptomyces sulfate*) (Agrosource); Bac. soft rot and Blackleg, 100ppm, **soak cut seeds in solution and add fungicide for fungal dis. control.** **0 DTH.**
- <sup>40</sup>**Forum<sup>4</sup> 4.18 SC** (EPA 241-427) REI 12 hrs (**43.1% dimethomorph**) (Do not exceed 30 oz/A/growing season), **replaces Acrobat 50WP** (BASF); **LB** 6 oz/A; **Tuber blight suppression**, 6 oz/A. (**Must be tanked mixed with protectant; do not make more than 2 sequential applications before alternating with another material for specific control of LB for at least one application; may be applied after vine killing; addition of spreading/penetrating adjuvant is recommended.**) **4 DTH.**
- <sup>\*33</sup>**Fosphite**<sup>0</sup> (EPA 68573-2) REI 4 hrs (**53% mono- and dipotassium salts of Phosphorous Acid**) (JH Biotech); **Foliar**, Pink rot, Late blight, 3-5 qts/min. 20 gal/A; **Postharvest**: LB and Pink Rot, 6.4-12.8 fl oz/0.5 gal water/tom of tubers. **Do not use at intervals of less than 3 days; do not apply Fosphite foliarly to plants treated with copper at less than 20 day interval.** **0 DTH.**
- <sup>33</sup>**Fungi-Phite**<sup>0</sup> (EPA 83472-1) REI 4 hrs (**45.5% mono- and di-potassium salts of phosphorous acid**) (limit of 6 applications) (Plant Protectant); **suppression of LB foliar spray** 1-2 qt/A in a minimum of 20 gal; **Seed piece spray**, LB, mix 0.4 quart/2 qt water to treat 2 tons of potato with 1 gal solution; **Postharvest**: **Suppression of LB and pink rot**, use 1-1.5 pts/0.5-1 gal water as spray/ ton of tubers. (**Suppression means Fungi-Phite needs to be applied with another effective product**) **0 DTH.**
- <sup>Insect+M3</sup>**Gaucho-MZ Potato S-P Treatment**<sup>0</sup> (EPA 264-978) REI 24 hrs (1.25% *imidacloprid* + 6% *mancozeb*) (Gustafson/Bayer); **Seed piece treatment** Fusarium dry rot and insect control, 0.5-0.75 lb per 100 pounds of cut seed pieces. **0 DTH.**
- <sup>\*22+M3</sup>**Gavel<sup>3</sup> 75 DF** (EPA 10163-6414) REI 48 hrs, (**\*Restricted use, toxic to fish**); (*zoxamide* 8.3%, and *mancozeb* 66.7%) (No more than 6 applications or 15 lbs. /season) (Gowan); LB, EB<sup>OK</sup>, 1.5-2 lbs. **3 DTH.**
- <sup>11</sup>**Gem<sup>7</sup> 500 SC** (EPA 264-826) REI 12 hrs (42.6% *trifloxystrobin*) (limit 23 fl oz/A/season) (Bayer) (**No aerial application in NYS**) **EB\*, 2.9-3.8 fl oz**; LB 3.8 fl oz in a tank mixed with 75% of a protectant fungicide; (**Do not use alone for EB\* control; Do not make more than 1 foliar application before switching to fungicides with diff. MOA, other than Group 11.**) **7 DTH.**
- <sup>11</sup>**Headline<sup>3</sup> SC** (2.09 lb ai/gal) (EPA 7969-289) and <sup>11</sup>**Headline<sup>3</sup>** (EPA 7969-186) REI 12 hrs (23.6% *pyraclostrobin*) (limit of 72 fl oz/A/season) (BASF) **Black Dot, EB\***, 6-9 fl oz; LB = 6-12 fl oz; **Suppr only for WM @ 6-12fl oz.** (**aerial application of SC on Supplemental label till Dec. 2014 in NYS**) (**Do not use alone for EB\* control; Do not make more than 1 application before alternating with a fungicide with a diff. MOA**); **In-furrow application** for the control of soilborne Rhizoctonia 0.4-0.8 fl oz/1000 row feet (**0 DTH**). Foliar, **3 DTH.**
- <sup>33</sup>**Helena ProPhyt<sup>0</sup>** (EPA 42519-22- 5905) REI 4 hrs (*potassium phosphite*) (Helena); Foliar **LB**, 4 pt/A plus protectants like mancozeb (3 DTH); **In-Furrow Storage rots** (pink rot, leak), 4-10 pt + mefenoxam 11.6-13 fl oz (14 DTH); **Postharvest (LB and Pink rot)** 13 fl oz





## 2014 Potato Fungicides NYS

to ½ gal water sprayed to ton of potatoes. (see comments under use of Phostrol for postharvest use). 0 DTH. (Do not apply to plants under water stress). 0/3/14 DTH.

- <sup>M5</sup> Initiate<sup>7</sup> 720F (EPA 34704-881) REI 12 hrs, (54% chlorothalonil) (limit 15 pts.) (Loveland); EB<sup>OK, rotate</sup>, LB, Botrytis vine rot, 5/8-1 ¼ lb/A. **7 DTH.**
- <sup>Oil</sup> JMS Stylet-Oil<sup>0</sup>, OMRI (EPA 65564-1) REI 4 hr (*paraffinic oil*, Not classified) (JMS Flower Farms); Alternaria blight, PM, mites, whiteflies, 3-6 qt/A. **0 DTH** (may be used in GH; see label for compatibility information)
- <sup>M1</sup> Kentan<sup>0</sup> DF (EPA 80289-2) REI 48 hr, (*copper hydroxide* 61.3% = 40% metallic cu) (limit 25 lbs.) (Isagro). EB, LB, 1-4 lb/A. **0 DTH.** May be used for greenhouse crops on label.
- <sup>\*33</sup> Kphite 7LP<sup>0</sup> (EPA 73806-1) REI 4 hrs. (53% Mono & di-potassium salts of *phosphorous acid*) (Plant Food Systems); Foliar LB and Pink Rot, 1-3 qt in 20 gal water; *Commercial applicators only.* **0 DTH.**
- <sup>M1</sup> Kocide<sup>0</sup> 3000 Dry Flowable (EPA 352-662) REI 48 hr, (*copper hydroxide* 46.1% = 30% metallic copper equiv.) (limit of 83.3 lbs.) (DuPont). EB<sup>OK</sup>, LB, 0.5-1.75 lbs. **0 DTH.** (May be used for greenhouse crops on label; 1 level TBS per 1000 sq. ft. is equivalent to 0.5 lb per A). See also <sup>M1</sup> Kocide 101<sup>0</sup> and <sup>M1</sup> Kocide 2000<sup>0</sup>.
- <sup>M2</sup> Kumulus DF<sup>0</sup>, OMRI (EPA 51036-352) REI 24 hrs. (80% *sulfur*) (Microflo). PM, red spider mite, 3-10 lb. **0 DTH.**
- <sup>7</sup> Luna Privilege<sup>7</sup> (EPA 264-1078) REI 12hrs (*fluopyram*, 41.5%) (limit of 10.95 fl oz/season, less if aerial) (Bayer); Rates are for ground application for EB<sup>OK</sup>, 4.0-5.47 fl oz; WM, Botrytis LS, 5.47 fl oz and suppression of SS. (Do not make more than 2 sequential application of any group 7 fungicide before rotating to a fungicide with a different MOA). **7 DTH.**
- <sup>7+9</sup> Luna Tranquility<sup>7</sup> (EPA 264-1085) REI 12hrs. (*fluopyram + pyrimethanil*) (Limit to 43.6 fl oz per season) (Bayer); EB<sup>OK</sup>, Alternaria Brown leaf spot, PM (*Erysiphe, Leveillula*), Black dot, Botrytis Leaf spot, 8-11.2 fl oz/A; W Mold (11.2 fl oz/A). (Do not make more than 2 sequential applications of this or other Group 7 or 9 fungicides before rotating to a fungicide with a different MOA). **7 DTH.**
- <sup>Insect</sup> M-Pede<sup>0</sup>, OMRI (EPA 10163-324) REI 12 hrs (*potassium salts of fatty acids*) (Gowan); (Field and greenhouse) insects and PM. **0 DTH.**
- <sup>M1+M3</sup> ManKocide<sup>3</sup> (EPA 352-690) REI 48 hrs (mancozeb 15% + copper hydroxide 30% equivalent) (limit 74.66 lbs.) (DuPont) EB<sup>OK</sup>, LB, 1.5-5 lb/A. (limit to 74.66 lb/season). **3 DTH.**
- <sup>M3</sup> Manzate Pro-Stick<sup>3</sup> (EPA 70506-234) REI 24 hrs (75%, *mancozeb*) (limit 15 lbs.) (UPI) Seed Treatment for Fus. Decay, seedborne Com Scab, 1 ¼ lb/50 gal; Foliage EB<sup>OK</sup>, LB, and Black Dot, 1-2 lb/A. See for suppression of Botrytis vine rot. **3 DTH.** Also Manzate Flowable (EPA 70506-236).
- <sup>M1</sup> Mastercop<sup>0</sup> (EPA 55272-18-66222) REI 48 hrs. (*copper sulfate pentahydrate*, 21.5%) (limit 6 pts.) (MANA) EB<sup>OK</sup>, LB at 0.5-1.5 pts./A. **0 DTH.**
- Maxim 4FS (EPA 100-758) (Syngenta) (*fludioxonil* 40.3 %). For protection against seed-borne and soil-borne fungi which cause decay, damping-off, and seedling blight, apply 0.08-0.16 fl. oz. of Maxim 4FS per 100 lb. of seed (Maxim 4FS applications to potato seed pieces must be made only through specific types of equipment. Contact a Syngenta seed treatment rep) ; **Potatoes Intended for Seed Production:** As a resistance management strategy, if Maxim 4FS is used on potatoes intended for seed production, a labeled rate of mancozeb seed treatment dust must be applied to seed tubers after the Maxim 4FS treatment. If the



**2014 Potato Fungicides NYS**

mancozeb dust is not used, an in-furrow application of Quadris® at 0.40 fl. oz. /1000 ft. of row must be applied over the Maxim 4FS treated seed tubers.

- <sup>12</sup> **Maxim<sup>0</sup> Potato Seed Protectant** Also **Maxim PSP** (EPA 100-821) REI 12 hrs. (0.5% *fludioxonil*) (Syngenta); for the control of seedborne Fus Dry Rot, Rhizoctonia and Helminthosporium SS, 0.50 lb/100 lb seed. **Not for use on seed planted for seed production. 0 DTH.**
- <sup>12+M3</sup> **Maxim MZ Potato Seed Protectant<sup>0</sup>** (EPA 100-1158) REI 24 hrs (0.5% *fludioxonil* + 5.7% *mancozeb*) (Syngenta); **Seed piece treatment** for Fusarium dry rot, seedborne Rhizoc, and seed piece borne Silver scurf; 0.5 lb per 100 lbs of seed pieces. **DTH does not apply.**
- <sup>1</sup> **Mertect<sup>0</sup> 340-F** (EPA 100-889) REI 12 hrs (42.3% *thiabendazole*, *resistance common*) (Syngenta); **Post harvest treatment** *Fusarium tuber rot\**, *monitor resistance of fungus population*; 0.42 fl oz to 2,000 tubers on a conveyor line with tumbling action. If additional treatment is need before shipping, mist the tubers at the same rate or dip tubers for 20 sec. in a solution containing 0.42 fl oz per gallon of water. **DTH does not apply.**
- <sup>M2</sup> **Microfine Sulfur<sup>0</sup>** (EPA 6325-13-34704) REI 24 hrs (90% sulfur) (Georgia Gulf and Loveland); PM, 4-12.5 lb/A; two-spotted mites 4 – 12.5 lb/A. **0 DTH.**
- <sup>M2</sup> **Micro Sulf<sup>0</sup>. OMRI** (EPA 55146-75) REI 24 hrs (*Sulfur*) (Nufarm). PM, red spider mite, 5 lb/A. **0 DTH.**
- <sup>M2</sup> **Microthiol Dispers<sup>0</sup>. OMRI** (EPA 70506-187) REI 24 hrs (80% sulfur) (UPI); PM, red spider mite, 5 lb/A. **0 DTH.**
- \*<sup>Nem</sup> **Mocap EC<sup>0</sup>** (EPA 264-458) REI 48 hrs (69.6% *ethoprop*) (Amvac) (**† Not for use in Nassau or Suffolk Counties due to leaching into sandy soils**); For control of symphylans, wireworms and nematodes (Suppr. of stubby root); see label of details. **0 DTH.**
- <sup>7+M3</sup> **Moncoat MZ Potato S-P Treatment<sup>0</sup>** (EPA 10163-320) REI 24 hrs (1.5% *flutolanil* + 6% mancozeb, in tree bark formulation) (Gowan); **Seed piece treatment** for suppression of Fusarium dry rot, Silver scurf, and Rhizoc. Stem canker. 0.75-1 lb per 100 lb cut seed. **0 DTH.**
- <sup>†7</sup> **Moncut 70-DF<sup>0</sup>** (EPA 10163-301) REI 12 hrs (*flutolanil* 70%) (Gowan); **In-furrow treatment** Rhizoc. Stem canker and **suppression of Powdery Scab**, 0.71-1.1 lb/ 1000 row feet. (**† Not for use in Nassau or Suffolk Counties due to leaching into sandy soils**). **0 DTH.**
- <sup>Bio</sup> **Mycostop<sup>0</sup>. OMRI** (EPA 64137-5) REI 4 hrs (*Streptomyces sp.*30%, biological) (Verdera Oy) Product may be used in a variety of application methods per label; for a variety of root pathogens; 0.05-0.08 oz/1 lb **seed piece treatment. 0 DTH.**
- <sup>M1</sup> **Nordox75 WG<sup>0</sup>. OMRI** (EPA 48142-4) REI 12 hrs. (*cuprous oxide* 83.9%) (limit not given) (Nordox) EB and LB, see label for rates. **0 DTH.**
- ~~<sup>M3</sup> **Nubark Mancozeb<sup>0</sup> Potato Seed Protectant** (EPA 2935-496) also **Nubark Gold** (EPA 2935-496, REI 24 hr (*mancozeb* 6%) (Wilbur-Ellis); **for seed piece treatment** of whole or cut tubers, 1 lb/100 lb. **0 DTH.**~~
- <sup>M1</sup> **Nu-Cop 50 WP<sup>0</sup>. OMRI** (EPA 45002-7) REI 24 hrs (77 % *cupric hydroxide*, equiv. 50%) (Albaugh). EB<sup>OK</sup>, LB, 1-4 lb/A. **Approved for greenhouse and shadehouse crops on label. 0 DTH. See Also Nu-Cop 3L (37.5%) and Nu-Cop HB (77%).**
- <sup>29</sup> **Omega<sup>14</sup> 500F** (*fluazinam*) NOT REGISTERED in NYS. (LB, WM, some suppression of Powdery Scab but not on label).
- <sup>M</sup> **Oxidate<sup>0</sup>. OMRI** (EPA 70299-2) REI 1 hr (*hydrogen peroxide*, 27%) (BioSafe Systems); Fus. Dry rot (**seed**), 2 ½ fl oz/gal; EB, LB, 40-128 fl oz/100 gal. **0 DTH.**



- <sup>14</sup>PCNB<sup>0</sup> (*pentachloronitrobenzene*) See Blocker
- <sup>M3</sup>Penncozeb 75 DF<sup>3</sup> (EPA 70506-185) REI 24 hrs (75%, *mancozeb*) (limit 15 lbs.) (UPI) Seed Treatment for Fus decay, seedborne Com Scab, 1 ¼ lb/50 gal; Foliage EB<sup>OK</sup>, LB, 0.5-2 lb. 3 DTH. Also Penncozeb 4FL (EPA 70506-194) and Penncozeb 80WP (EPA 70506-183).
- <sup>33</sup>Phostrol<sup>0</sup> 53.6 SC (EPA 55146-83) REI 4 hrs (Na, K, NH<sub>4</sub> *phosphorous acid*) (Nufarm); in-furrow suppression of Pink rot and Pythium leak use 3.75-10 pt plus 11.6-13 fl oz of mefenoxam; additional applications of this mixture may be necessary under severe disease conditions; Foliar applications for LB (may be mixed with LB products), and suppression of storage rot such as Pink rot and Pythium leak, 2.5-10 pt in minimum of 20 gal water/A; Post harvest treatment for Pink rot and late blight, 0.1 gal (12.8 fl oz) in 0.5 gal. of water per 2,000 lbs of potato as a spray, with complete coverage. 0 DTH.
- Protein PM223<sup>0</sup> (GRAS, exempt from EPA registration, therefore not in PIMS (3% protein-polysaccharide complex with fir bark) REI none (Global Protein Products); potato seed piece treatment, apply to cut seed @ 0.4 lb/cwt. A corn protein used to suberize and dry cut tuber surfaces. 0 DTH. (not listed on PIMS)
- <sup>M3</sup>Polyram 80DF<sup>3</sup> (EPA 7969-105-34704) REI 24 hrs (*metiram*) (limit to 6 applications or 12 lbs./season) (Loveland, BASF); EB<sup>OK</sup>, LB, 1.5-2 lb/A. 3 DTH.
- <sup>M3</sup>Potato Seed Treater PS (8%)<sup>0</sup> (EPA 2935-539-34704) REI 24 hrs (8% *mancozeb*) (Loveland) or 6% formulation (EPA 2935-541-34704) (6% *mancozeb*, Group M3); to suppress *Fusarium sambucinum* seed piece decay, use 1 lb/100lb of cut or whole seed for 8% or 1 to 1 1/3 lb for 6% dust. 0 DTH.
- <sup>43</sup>Presidio<sup>7</sup> (EPA 59639-140) REI 12 hrs. (*fluopicolide*) (limit to 4 applications or 12 fl oz/season). (Valent); LB, Pink rot; 4 fl oz/A, for LB make foliar applications on a 7-10 schedule, but prior to disease development, and apply as a tank mix with another fungicide with a different MOA; for Pink rot apply using a 6-8 in. band directly over the seed piece prior to furrow closure. A side-dress application should also be made between hilling and tuber initiation. (\* Restricted applicator use) 7 DTH.
- <sup>M</sup>Prev-Am Ultra<sup>0</sup> (EPA 72662-3) REI 12 hrs (sodium tetraborohydrate decahydrate = *borax*) (ORO Agri); PM, LB, 50 fl oz/100 gal, also some insects. 0 DTH.
- <sup>28</sup>Previcur Flex<sup>14</sup> 500 SC (EPA 264-678) REI 12 hrs, (*propamocarb*, plus protectant) (limit to 5 applications or 6 pts./season) (Bayer); LB, EB, 0.7-1.2 pts. plus protectant such as chlorothalonil or mancozeb. 14 DTH.
- <sup>11+7</sup>Priaxor<sup>7</sup> (EPA 7969-311) REI 12 hrs (*fluxapyroxad* + *pyraclostrobin*) (limit 24 fl oz) (BASF); EB<sup>OK</sup>, Brown Spt., Black Dot, Suppression of Gray mold, LB, 4-8 fl oz; PM and suppression of White mold, 6-8 fl oz; In-furrow use for *Rhizoctonia* control, 0.6 fl oz per 1,000 row ft. with 32-34in. rows. Do not make more than 2 consecutive applications before alternating to a fungicide with a different MOA. 7 DTH.
- <sup>33</sup>ProPhyt<sup>0</sup> see Helena ProPhyt
- <sup>11</sup>Quadris<sup>14 or 0 days</sup> Flowable (EPA 100-1098) REI 4 hrs (*azoxystrobin* 22.9%) (limit 123 fl oz/A/season) (Syngenta); Foliar EB\*, LB, Black Dot, 6.2-15.4 fl oz (Do not use alone for EB\* control; Do not apply near apple trees; Do not make more than 1 application before switching to a fungicide with a diff. MOA, and no more than 6 applications per season) (14 DTH); In-furrow Rhizoc., Silver scurf, 0.40-0.80 fl oz/1000 row feet (If Quadris is used in-furrow, the first foliar application for the season should be with a fungicide with a diff. MOA. 0 DTH for IF.



**2014 Potato Fungicides NYS**

- <sup>11+M5</sup>**Quadris Opti**<sup>14</sup> F 5.5SC (EPA 100-1171) REI 12 hrs (*azoxystrobin 4.6% + chlorothalonil 46%*) (limit 1.5 lbs. ai for azoxystrobin and 11.25 lbs. ai of chlorothalonil) (Syngenta); EB<sup>ok</sup> because used as a mixture, LB, **Black Dot**, 1.6 pt; (Do not apply near apple trees; Do not make more than one foliar application before switching to a fungicide with a diff. MOA, and do not make more than 6 foliar applications per season). **14 DTH.**
- <sup>11+3</sup>**Quadris Top**<sup>14</sup> (EPA 100-1313) REI 12 hrs (*azoxystrobin 18.2% + difenoconazole 11.4%*) (limit of 55.3 fl oz/A/season) (Syngenta); **Black Dot**, Alternaria Brown Spot, EB<sup>OK</sup>, PM, 8.0-14.0. **14 DTH.**
- <sup>4+11</sup>**Quadris Ridomil Gold**<sup>0</sup>SL (EPA 100-1311) REI 0 hrs (**is soil incorporated**) (*azoxystrobin 22.9% and mefenoxam 45.3%*) (limit of 1.5 lbs. a.i. of azoxy. and 0.5 lbs. a.i. of mefenoxam-containing product/A/season) (Syngenta); Rhizoc, **Black Dot**, *Pythium leak\**, *Pink rot\** (only effective if sensitive isolates of these fungi are present), 0.82 fl oz per 1,000 row ft. **0 DTH.**
- <sup>3</sup>**Quash**<sup>1</sup> (EPA 59639-147) REI 12 hrs (*metconazole, 50%*) (limit 4 applic/season and no more than 16 oz/season) (Valent); 2.5-4.0 oz/A for **Black Dot**, Alt. Brown Spot, EB<sup>OK</sup>, Suppression of Gray mold, PM (*Erysiphe*); 4.0 oz for White Mold. (Not more than do not make more than 2 sequential applications before rotating any MOA). **1 DTH.**
- <sup>33</sup>**Rampart**<sup>0</sup> (EPA 34704-924) REI 4 hrs (Mono- and dipotassium salts of *phosphorous acid, 53%*) (Loveland); Foliar Generic label for late blight and Pink Rot, 1-4 quarts in a minimum of 20 gal water/A; do not apply at intervals less than 3 days; **Postharvest** use 6.4-12.8 fl oz/0.5 gal water/ton of tubers, spray, rinse or inject into humidification water. **0 DTH.**
- <sup>21</sup>**Ranman** 400 SC<sup>7</sup>, (EPA 71512-3) REI 12 hrs (*cyazofamid, 34.5%*) (limit 27.5 fl oz) (ISK, FMC); Foliar, LB, 1.4-2.75 fl oz/A; **Tuber blight**, 2.75 fl oz/A, make last 2-3 applications applied weekly prior to desiccation. (Alternate Ranman with of fungicide with a different MOA; tank mix with an organosilicone surfactant when water volumes are up to 60 gal/A). **7 DTH.** For **In-furrow** pink rot (note: not on PIMS old label), apply 0.42 fl oz per 1,000 linear ft of row in a minimum of 5 gal water per acre. Apply using a 6 to 8-inch ban directly over the seed piece prior to furrow closure; a side dress application of Ranman in combination with a phosphoric acid product like **Phostrol** may be applied for additional control; *may also be applied with mefenoxam product if mefenoxam-resistant\* strains of P. e. are not present.*
- <sup>†11</sup>**Reason** 500 SC<sup>14</sup> (EPA 264-695) REI 12 hrs (*fenamidone, 44.4%*) (Limit of 24.6 fl oz [0.80 lbs. a.i.]/A/season) († Restricted use, not for sale or use in Nassau or Suffolk Co.) (Bayer); EB\*, LB and suppression only for **Black Dot**, 5.5-8.2 fl oz. (Do not make more than one application of product before switching to a fungicide with a diff. MOA). **14 DTH.**
- <sup>Bio SAR</sup>**Regalia Biofung. Conc.**<sup>0</sup>, **OMRI** (EPA 84059-3) REI 4h, (*Reynoutria sachalinensis 5%, extract, biological SAR*) (Marrone); Multiple diseases, 2-4 qt/50-100gal or 1-4 qts/A when mixed with another registered fungicide. **0 DTH.**
- <sup>\*33</sup>**Resist** 57<sup>0</sup> (EPA 82940-1) REI 4 h. (mono- and dipotassium salts of *phosphorous acid, 57%*) (Actagro); Foliar Generic label for late blight, Pink Rot and mention of Silver scurf, 3-5 quarts in a minimum of 20 gal water/A; do not apply at intervals less than 3 days; **Postharvest** use 0.1 gal/0.5 gal water/ton of tubers, spray, rinse or inject into humidification water. **0 DTH.**
- <sup>40+3</sup>**Revus Top**<sup>14</sup> (EPA 100-1278) REI 12 hrs (*mandipropamid, 21.9% + difenoconazole, 21.9%*) (limit to 4 applications or 28 fl oz/season) (Syngenta); **Black Dot**, Brown Spot,





**2014 Potato Fungicides NYS**

EB<sup>OK</sup>, LB, PM (*Erysiphe*), Septoria L S., 5.5-7 fl oz/A (The addition of a non-ionic surfactant is recommended; do not make more than 2 consecutive applications before switching to an effective fungicide with a different MOA) **14 DTH**.

- **<sup>4</sup>Ridomil Gold SL<sup>0</sup>** (EPA 100-1202) REI 48 hrs (45.3% *mefenoxam*) (Syngenta); see also **Ultra Flourish** (Nufarm); (Only for use at-plant-stage to prevent resistance development). **Preplant incorporated and surface application**; *Pythium leak\**, *Pink rot\** (only effective if sensitive isolates of these fungi are present), 0.42 oz/1,000 linear row ft in 6-8 in. band. A **Foliar application** of **Ridomil Gold Bravo** at tuber initiation may be necessary. **0 DTH**.
- **<sup>4+M5</sup>Ridomil Gold Bravo SC<sup>14</sup>** (EPA 100-1221) REI 48 hrs (*mefenoxam* + *chlorothalonil*) **Foliar application** (limit of 11.25 lbs. a. i./A/season of chlorothalonil containing products; see limits on mefenoxam) (Syngenta); EB<sup>OK</sup> and LB (**US22<sup>P&T</sup>, US23<sup>P&T</sup>, US24<sup>P</sup> only**), 2.5 pt/A; **Storage rots**, *Pythium leak\**, *Pink rot\** (only effective if sensitive isolates of these fungi are present), 2 lb at flowering and another 2 wks. later. **14 DTH**. (Also <sup>4+M1</sup> **Ridomil Gold Copper<sup>14</sup>** (EPA 100-804), **Foliar application** for LB (**US22, 23, 24 only**) tank mix with mancozeb (see limits on label), EB, *Pythium leak\**, *Pink rot\**; <sup>4+M5</sup> **Ridomil Gold Mancozeb<sup>3</sup>** (EPA 100-1269), **Foliar application** for LB (**US22, 23, 24 only**), EB, *Pythium leak\**, *Pink rot\** (see limits on label).
- <sup>Bio</sup> **RootShield WP<sup>0</sup>**, **OMRI** (EPA 68539-7) REI 0 hrs or until dry (1.15% *Trichoderma harzianum* Rifai strain KRL-AG2) (BioWorks); **Gr Hs soil drench**, Tsp. starter solution, Chemigation (Gr Hs or Field), rates vary; provides protection against plant root pathogens such as *Pythium*, *Rhizoctonia*, *Fusarium*, *Cylindrocladium* and *Thielaviopsis*. **0 DTH**.
- <sup>Bio</sup> **RootShield Granules<sup>0</sup>**, **OMRI** (EPA 68539-3) **0 REI** if soil incorporated (*Trichoderma harzianum* Rifai strain T-22, 1.15%) (BioWorks); **in-furrow** 2.5-6.0 lbs/1/2 A
- <sup>Bio</sup> **Rootshield Plus WP<sup>0</sup>**, **OMRI** (EPA 68539-9) **REI 4hrs**. (*Trichoderma harzianum* + *T. virens*) (BioWorks); for use on **Whole or cut seed as a Dip or Dust**, or **IF spray**, provides root protection against *Rhizoctonia* and *Fusarium*. **0 DTH**. Also: (<sup>Bio</sup> **RootShield Plus Granules<sup>0</sup>** **OMRI** (EPA 68539 -10) not registered for use on potatoes, but on many other vegetables and most root crops)
- <sup>M3</sup> **Roper DF<sup>5</sup>** **Rainshield** (EPA 34704-1063) REI 24 hrs. (58.1%, *mancozeb*) (Loveland); EB<sup>OK</sup>, LB, 1-2 lb; Potato Seed Piece for Fus. Dry rot, LB, SB common scab, Rhiz Canker, Silver Scurf, **1.25 lb/50 gal water for whole or cut seed**. Foliar **5 DTH**, Seed **0 DTH**.
- <sup>2</sup>**Rovral 4F<sup>14</sup>** (EPA 264-482) REI 24 hrs, also Rovral 50W (EPA 264-453); Rovral 75WG (EPA 264-689) (1-2 lbs./A) (*iprodione*) (limit of 4 applications/season) (Bayer); EB<sup>OK</sup>, 1-2 pt; WM, 2 pt. **14 DTH**.
- <sup>9</sup>**Scala<sup>7</sup>** 400SC (EPA 264-788) REI 12 hrs (See Personal Protective Equipment Comments for NY) (*pyrimethanil*) (limit of 35 fl oz/season [1.4 lb a.i./A]) (Bayer); EB<sup>OK</sup>, 7 fl oz. (Use only in a tank mix with another fungicide effective for early blight control). **7 DTH**.
- <sup>\*Nem.</sup> **Sectagon 42** (EPA 61842-6) REI Varies (**\* Restricted applicator use**) (*sodium methylthiocarbamate*, 42.2%) **for soil applications** (fumigant for suppression of Root knot nematodes, fungi (*Verticillium dahliae*), weeds and weed seeds and volunteer seeds) (Tessenderlo Kerley); apply 30-75 gal/A using injectors. See label for specifics.
- <sup>Bio (44)</sup> **Serenade ASO<sup>0</sup>**, **OMRI** (EPA 264-1152) (*Bacillus subtilis*), REI 4 hrs (Bayer); **Field**, EB<sup>OK</sup>, LB, 6 qts/A. **0 DTH**.
- <sup>Bio (44)</sup> **Serenade MAX WP<sup>0</sup>**, **OMRI** (EPA 264-1151) REI 4 hrs (*Bacillus subtilis*) (Bayer); **Field and Greenhouse** PM, WM, Gray mold, EB, LB 1-3 lb/A/100gal. **0 DTH**. **Post harvest** Silver Scurf 1-3 oz/ton of tubers.



**2014 Potato Fungicides NYS**

- <sup>Bio (44)</sup> Serenade Soil<sup>0, OMRI</sup> (EPA 264-1152) REI 4hrs. (*Bacillus subtilis*) (Bayer); Soil drench, 2-6 qt/A; In-furrow, 2.2-13.2 fl oz/1000 row feet; Use primarily for Rhiz., but other diseases are listed. **0 DTH.**
- <sup>Bio</sup> Sonata<sup>0, OMRI</sup> (EPA 264-1153) REI 4 hrs (*Bacillus pumilus*) (Bayer); Field and Greenhouse EB<sup>OK</sup>, LB, PM, WM, Gray mold, 2-4qt/A/100gal. **0 DTH.**
- <sup>11+12+3</sup> Stadium<sup>PH use, Not seed potatoes</sup> (EPA 100-1453) REI ?; (*azoxystrobin* 12.51%+ *fludioxonil* 12.51%+ *difenoconazole* 9.76%) (Syngenta); Post-harvest use for Silver Scurf and Fusarium Dry Rot, 1.0 fl oz/2,000lb of tubers, as in-line aqueous spray; **Only 1 PH application; Not for use on seed potatoes or seed pieces.** 0 DTH.
- <sup>M</sup> StorOx 2.0<sup>0</sup> (EPA 70299-7) REI 1 hr (*hydrogen peroxide*, 27 + 2%) (BioSafe Systems); Post harvest for Bac. Soft rot, EB, LB, Fusarium and SS, 1:25 (5 fl oz/gal), 1:50 (2 ½ fl oz./gal) to 1:100 (1 ¼ fl oz/gal), used in 1-2 gal of water per ton of tubers. **0 DTH.**
- <sup>\*30</sup> Super Tin<sup>7</sup> 4L (EPA 70506-212) REI 48 hrs (\* **Restricted applicator use**) (*fentin hydroxide*) (limit of 18.0 fl oz/season) (UPI); EB, LB suppression of CPB, 4-6 fl oz. **7 DTH.**
- <sup>Bio</sup> T 22<sup>0, OMRI</sup> HC Biological Fungicide (EPA 68539-4) REI 0 hrs (*Trichoderma harzianum*) (also Plant Shield) (BioWorks); Seed treatment for Rhizoc. Stem canker and Blk scurf, 0.5-2 oz/ cwt cut or whole seed, applied as a dust or aqueous solution. **0 DTH.**
- <sup>11+27+contact</sup> Tanos<sup>14</sup> **50DF (EPA 352-604) REI 12 hrs (*famoxadone* 25%+ *cymoxanil* 25%, must be tank mixed with a protectant) (limit of 6 applications per season, 48 oz) (DuPont); **2oz for Brown Spot (*Alternaria alternata*), 6 oz; EB<sup>ok</sup> because used as a mixture, suppression only for Black Dot, 6 oz; LB, 6-8 oz (protectant can be *mancozeb*, *chlorothalonil*, *metiram*, etc.). (Do not apply more than 1 application before switching to a fungicide with a different MOA).** **14 DTH.****
- <sup>M2</sup> That Flowable Sulfur<sup>0</sup> (EPA 57538-5) REI 24 hrs. (*Sulfur*) (Stoller); PM, 3-5 pts/A. **0 DTH.**
- <sup>1</sup> Thiophanate Methyl 85 WDG<sup>21</sup> (EPA 66222-145) REI 2 days (*thiophanate-methyl*) (limit 3.2 lbs.) (MANA); Wh. Mold, 0.8-1.2 lb/A. **21 DTH**
- <sup>1+M3</sup> Tops MZ 8.5D<sup>0</sup> Potato S-P Treatment (EPA 264-958) REI 24 hrs (2.5% *thiophanate-methyl*) + 6% *mancozeb*) (Gustafson/Bayer); Seed piece treatment for Fusarium dry rot, Rhizoc. Stem canker and Blk scurf, and Silver scurf, 0.75 lb/100 lb cut seed pieces. **0 DTH.**
- <sup>Insect+M3+1</sup> Tops-MZ-Gaucha<sup>0</sup> Potato S-P treatment (EPA 264-977) REI 24 hrs (1.25% *imidacloprid* Insecticide, 2.5% *thiophanate-methyl*, 6% *mancozeb*) (Gustafson/Bayer); for insect control and Fusarium dry rot, Rhiz, silver scurf and reduce spread of LB while cutting seed, 0.75 lb/100 lb applied to cut seed pieces. **0 DTH.**
- <sup>1</sup> Topsin M 70WSBags<sup>21</sup> (EPA 73545-16) REI 3 days (*thiophanate-methyl*) (limit 4 lbs.) (UPI); Wh. Mold 1-1 ½ lb/A (may be mixed with other fungicides for EB and LB). **21 DTH.** Also Topsin M 70 WP (EPA 73545-11)
- <sup>Oil</sup> Trilogy<sup>0, OMRI</sup> (EPA 70051-2) REI 4 hrs (70% clarified hydrophobic extract of *Neem oil*, biological) (Certis); Listed for multiple diseases including EB, Anthracnose, Botrytis and PM and various insects, 0.5-1% in 25-100 gal/A. **0 DTH.**
- <sup>4</sup> Ultra Flourish<sup>0</sup> 2EC (EPA 55146-73) REI 48 hrs (*mefenoxam*) (limits of 0.75 pts. in soil and 1.6 pts. Foliar) (Nufarm); **(Should consider only for use at-plant-stage to prevent resistance development).** Preplant incorporated and surface application; *Pythium leak\**, *Pink rot\**, (only effective if sensitive isolates of these fungi are present), 0.84 oz/1,000 linear row ft in 6-8 in. band (0 DTH); Foliar rate 6.4 fl oz/A, beginning at flowering and repeat after 14 days (**14 DTH**).



- \*<sup>Nem</sup> Vapam<sup>0</sup> HL (EPA 5481-468) REI 5 days (sodium methylthiocarbamate, 42%) (Amvac); (\* **Restricted applicator use**) a **soil fumigant** (liquid converted into a volatile fumigant) for weeds, nematodes i.e. Root Knot (suppression only), Symphylids (garden centipede) and soilborne diseases including Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia. Vapam is phytotoxic, so protect non-target plants. See label for specifics.
- <sup>7</sup>Vertisan<sup>7</sup> (EPA 352-836) REI 12 hrs (*pen thiopyrad*, 20.6%) (limit 72 fl oz) (DuPont); EB<sup>OK</sup>, Brown Spot, Gray mold, PM, 10-24 fl oz; **Black Dot**, 14-24 fl oz; Suppression White mold, 14-24 fl oz; **Soilborne Rhizoctonia, IF treatment 0.7-1.6 fl oz/1,000 row ft. (No more than 2 sequential applications before switching to a fungicide with a different MOA). 7 DTH.**
- †<sup>Nem</sup> Vydate<sup>7</sup> C-LV † (EPA 352-532) REI 48 hrs (*oxamyl*, insecticide/nematicide) (DuPont); 24(c) label for In-furrow application of Vydate C-LV for suppression of Lesion, Stubby Root and Root Knot Nematodes of Potato († **Restricted; not for use in Suffolk or Nassau Co**); also foliar application for insect control. (**Not for use on Long Island**). **7 DTH.**
- <sup>45 + 40</sup> Zampro (EPA) (BASF) LB and **Tuber Blight.**
- \*<sup>22</sup>Zoxium 80WSP<sup>3</sup> (EPA 10163-6413) REI 48 hrs. (*zoxamide*) (limit of 8 applications or no more than 2.0 lbs. [1.6 lbs. a.i]/A/season) (Gowan); LB, 2.5-4.0 oz/A; tank-mix with other fungicides for other disease control; (**Do not make more than 2 sequential applications before alternating to a fungicide with a different MOA**). **3 DTH**

This summary is provided as a helpful guide to some of the products that are available for Potato Disease Control and is not a substitute for Pesticide Labels. Refer to the 2014 Cornell Vegetable Guidelines or the product label before buying any product. Every effort has been made to provide correct, complete, and up-to-date information at the time of this presentation/publication. Trade names used are for convenience only. No endorsement of products intended, nor is criticism of unnamed products implied. These recommendations are not a substitute for pesticide labeling. Always read the product label before applying any pesticide.

Abbreviations: † = **Restricted use pesticide** (see label); \* = **Restricted applicator use**; MOA = Mode of action; M = **Multi-site activity**; OLF = **Other labeled formulation**; \*EB= **Fungicide resistance concern with product for this particular disease pathogen.**

EB = **Early blight**, *Alternaria solani*; LB = **Late blight**, *Phytophthora infestans*; **Brown spot** and **Black Pit** = *Alternaria alternata*; Rhizoc = **Rhizoctonia Black scurf and canker**, *Rhizoctonia solani*; **Silver scurf**, *Helminthosporium solani*; BD = **Black Dot**, *Colletotrichum coccodes*; **Botrytis vine rot**, *Botrytis cinerea*; Fusarium decay = **Fusarium dry rot**, *Fusarium sambucinum*, also *F. coeruleum* and *F. graminearum*; **Common scab**, *Streptomyces scabies*; **Powdery scab**, *Spongospora subterranea*; WM = **White mold**, *Sclerotinia sclerotiorum*; **Pythium leak**, *Pythium ultimum* var. *ultimum*; PR = **Pink rot**, *Phytophthora erythroseptica*; **Black leg**, *Erwinia* spp. (primarily *E. carotovora* subsp. *atroseptica* and *E. carotovora* subsp. *carotovora*); PM = **Powdery mildew**, *Erysiphe cichoracearum*.



**Overview of Potato Fungicide Roster**

See: <http://vegetablemdonline.ppath.cornell.edu> for more updates. NYS (underlined = currently registered); [FRAC No. **Product** <sup>DTH</sup>]

**Systemic** fungicides are in **BOLD**; **Protectants** are listed first in upper left corner.

T. A. Zitter, JULY 2014

**Protectants/Mixing Partners (Field diseases listed)**

- <sup>M5</sup>*chlorothalonil*<sup>7</sup> = **Bravo** WS (limit of 15 pts/A), **Echo**, **Equus**, **Chlorothalonil 720**, **Initiate** 720 & Zn (EB, LB, **BD**, Botrytis vine rot)
- <sup>M3</sup>*mancozeb*<sup>3</sup> = **Dithane**, **Manzate**, **Penncozeb**, **Roper DF** (EB, LB, **BD** on some) (all as **Seedpiece** trt.) (15 lb/crop)
- <sup>M3</sup>*metiram*<sup>3</sup> = **Polyram** (EB, LB) (**sgl Seed Trt.** allowed) (12 lb/crop)
- <sup>30</sup>*tin hydroxide*<sup>7</sup> = **\*Super Tin**, **\*Agri Tin** (EB, LB) (restricted use) (limit of 18 fl oz or 11.25 oz/sea., respect.)
- <sup>M1</sup>*fixed copper*<sup>0</sup> = **Badge SC**, **Badge X**, **OMRI**, **Basic Copper Sulfate & 53**, **OMRI**, **Camelot O**, **OMRI**, **Champ Formula 2**; **Cueva**, **OMRI**, **Kentan DF**, **Kocide**, **Cuprofix**, **Mastercop**, **Nordox 75WG**, **OMRI**, **Nu-Cop 50WP**, **OMRI** (EB, LB) (Also <sup>M3+M1</sup>**ManKocide**<sup>5</sup> (limit of 74.7 lb/A)
- <sup>Bio(44)</sup>*Bacillus subtilis*<sup>0</sup> = **Serenade ASO**, **OMRI** (EB, LB), **Serenade MAX**, **OMRI** and **Sonata** (<sup>Bio</sup>*Bacillus pumilis*<sup>0</sup>), **OMRI** (PM, WM, Gy Mold, EB, LB)(**Seed**, SS)
- <sup>Bio</sup>**RootShield Plus WP**<sup>0</sup>, **OMRI** (*T. harzianum* + *T. virens*) (root pathogens) (**Whole or Cut Tuber Dip**, **Dust**, **IF**) also **RootShield WP & GR**
- <sup>Multi</sup>**Oxidate**<sup>0</sup> (*hydrogen peroxide*) **OMRI** (**Seed**, Fus.) (EB, LB)
- <sup>M2</sup>*Sulfur*<sup>0</sup> = **Kumulus**, **OMRI**, **Microfine**, **Micro Sulf**, **OMRI**, **Microthiol**, **OMRI**, **Sulfur 6L**, **That** (PM)

**Group 11 Strobilurins (QoI) and "others"** (EB\*, LB, **BD**) (*Strobilurins are no longer effective for \*EB\* unless tank-mixed with another MOA*)

- <sup>11+M3</sup>**Cabrio Plus**<sup>3</sup> (*pyraclostrobin* + *metiram*) (EB<sup>OK</sup>, LB, **BD**, PM, **Suppr.** WM (limit to 17.4lbs. /A/sea.)
- <sup>11</sup>**Quadris**<sup>14</sup> (*azoxystrobin*), (EB\*, LB, **BD**) (123 fl oz/sea)
- <sup>11+M5</sup>**Quadris Opti**<sup>14</sup> (*azoxystrobin* + *chlorothalonil*) (EB<sup>ok with mixture</sup>, LB, **BD**) (6 applic or 1.5lb a.i./season)
- <sup>11+3</sup>**Quadris Top**<sup>14</sup> (*azoxystrobin* + *difenoconazole*) (EB<sup>OK</sup>, **BD**, Brown Spot, PM) (limit 55.3 fl oz/A)

- <sup>11</sup>**Gem**<sup>7</sup> (*trifloxystrobin*) (EB\*, LB), (*No aerial application in NYS*) (23 fl oz/season)
- <sup>11</sup>**Headline SC**<sup>3</sup> (*pyraclostrobin*) (EB\*, LB, **BD**, WM **suppr**) (72 fl oz/season) (*aerial application allowed, not w/in 100ft water*)
- <sup>†11</sup>**Reason**<sup>14</sup> (*fenamidone*) (EB\*, LB, **BD**) (limit to 24.6 fl oz/season)
- <sup>11</sup>**Tanos**<sup>14</sup> (*famoxadone* + *cymoxanil*) (EB<sup>ok when with protectant</sup>, LB) (6 applications/season or 48 oz.)
- <sup>11</sup>**Evito**<sup>7</sup> 480 SC (*fluoxastrobin*) NOT NYS (EB\*, Supp. of LB) (22.8 fl oz/sea.)

**Others (Primarily White Mold or Early Blight, but also Black Dot, or Gray Mold)**

- <sup>10</sup>**Endura**<sup>10</sup> (*boscalid*) (EB) (4 applic./season, 18 or 20 oz by rate) (2 applic @ hi rate)
- <sup>3</sup>**Headline SC**<sup>3</sup> (*pyraclostrobin*) (Suppr. WM) (72 floz/season)
- <sup>14</sup>**Rovral**<sup>14</sup> (*iprodione*) (EB, W Mold) (4 applic/sea.)
- <sup>7</sup>**Scala**<sup>7</sup> (*pyrimethanil*) (EB) (tank mix; 35 fl oz/sea.)
- <sup>1</sup>**Quash**<sup>1</sup> (*metconazole*) (**BD**, Br Spot, EB, GM, WM) (4 applic/sea. or 16oz)
- <sup>21</sup>**Topsin M**<sup>21</sup> (*thiophanate methyl*) (WM) (4 lb/season limit)
- <sup>0</sup>**Contans**<sup>0</sup>, **OMRI** (*C. minitans*) (WM)
- <sup>7</sup>**Luna Privilege**<sup>7</sup> (*fluopyram*) (limit 10.95 fl oz) (EB, WM, Gray Mold, suppression **BD**)
- <sup>7+9</sup>**Luna Tranquility**<sup>7</sup> (*fluopyram* + *pyrimethanil*) (limit 43.6 fl oz) (EB, PM, suppression of Botrytis, WM, **BD**)
- <sup>11+7</sup>**Priaxor**<sup>7</sup> (*fluxapyroxad* + *pyraclostrobin*) (limit 24 fl oz) EB, Br. Spt, **BD**, Supp. Gray mold and LB, PM, Suppression for WM, **IF for Rhiz.**
- <sup>7</sup>**Vertisan**<sup>7</sup> (*pentihiopyrad*) (limit 72 fl oz total) (EB, Br. Spt, GM, **BD**, **IF Rhiz.**)
- <sup>29</sup>**Omega**<sup>14</sup> (*fluazinam*) (NOT registered)

**Late Blight (tank mix [TMix] and alt. with protectant or other MOA) Pythium Leak as noted**

- <sup>4+M5</sup>**Ridomil Gold Bravo**<sup>14</sup> (LB, US 22, 23, 24 only, EB, Storage Rots (Pink rot & Leak) (also <sup>4+M1</sup>**RidGold/Cu**<sup>14</sup> and <sup>4+M3</sup>**RidGold/MZ**<sup>3</sup>) (see label for limits)
- <sup>43</sup>**Presidio**<sup>7</sup> (*fluopicolide*) (LB, PR) **Tuber blight** (limit of 4 applic./season or 12 fl oz)
- <sup>28</sup>**Previcur Flex**<sup>14</sup> (*propamocarb*) TMix, LB (limit to 5 applic.)
- <sup>7</sup>**Ranman**<sup>7</sup> (*cyazofamid*) (LB, **Tuber blight**) (TM, limit of 27.5 fl oz/sea. or 10 applic.)
- <sup>22+M3</sup>**Gavel**<sup>3</sup> (*zoxamide* + *mancozeb*) (also EB) (6 applic. limit or 6 pts.)
- <sup>22</sup>**Zoxium**<sup>3</sup> (*zoxamide*) (LB) (TM, limit of 8 applic. or 2 lbs.)
- <sup>40</sup>**Forum**<sup>4</sup> (*dimethomorph*) (TMix, LB, **suppression of Tuber blight.**) (limit 30 oz/season)





## 2014 Potato Fungicides NYS

- †<sup>11</sup>Reason<sup>14</sup> (*fenamidone*) (LB) † (Not LI) (limit 24.6 fl oz/season)
- <sup>3 + 40</sup>Revus Top<sup>14</sup> (*difenoconazole* + *mandipropamid*) (BD, Brown spot, EB, LB, PM (*Erysiphe*) Sept LS (limit 4 applic./sea. or 28 fl oz)
- <sup>11 + 27</sup>Tanos<sup>14</sup> (*famoxadone* + *cymoxanil*), TMix (LB) (6 appl./season limit or 48 oz.)
- <sup>27</sup>Curzate<sup>14</sup> (*cymoxanil*) TMix (limit of 7 applic./yr.)
- <sup>M5 + 33</sup>Catamaran<sup>7</sup> (*phosphorous acid* + *chlorothalonil*) (LB, EB, BD, Botrytis vine rot) (limit 40 pts/season)
- <sup>33</sup>ALL<sup>0</sup> for LB = *Agri-Fos*, \**Fosphite*, *Fungi-Phite*, *ProPhyt*, \**Kphite*, *Phostrol*, *Rampart*, *Resist 57* (*phosphorous acid*)
- <sup>29</sup>Omega<sup>14</sup> (*fiuzinam*), (not NYS) (LB, WM, Suppression of Powdery Scab)
- <sup>45 + 40</sup>Zampro (*ametoctradin* + *dimethomorph*) (LB and **Tuber Blight**) NOT registered.
- <sup>M</sup>Prev-Am<sup>0</sup> (*borax*) (LB)

### Seed Piece Treatments (liquids and dusts; some combinations for insects and diseases)

- <sup>25</sup>Agri-mycin 17<sup>0</sup>, <sup>OMRI</sup>, or *AG Strep.* (Soft rot, Black leg)
- †<sup>Insect+12</sup>CruiserMaxx Potato<sup>0</sup> (*thiamethoxam* + *fludioxonil*) liquid seed treatment (chewing and sucking insects and Fusarium dry rot, seedborne Rhiz. & SS) (Not LI)
- <sup>11</sup>Dynasty (*azoxystrobin*) liquid seed treatment (Rhiz, BD, Silver Scurf)
- <sup>M3</sup>Potato Seed Treater<sup>0</sup> PS 8% or 6% (*mancozeb*) (Fus. Rot)
- <sup>M</sup>PM223<sup>0</sup> (*protein*) (seed suberization) Exempt, not listed in PIMS registry.
- <sup>1 + M3 + 27</sup>Evolve<sup>0</sup> (*thiophanate-methyl* + *mancozeb* + *cymoxanil*) (LB, Fus, R, SS)
- <sup>Insect. + M3</sup>Gaucha MZ Pot S-P Trt.<sup>0</sup> (*imidacloprid* + *mancozeb*) (Fus dry rot)
- <sup>12 + M3</sup>Maxim MZ<sup>0</sup> (*fludioxonil* + *mancozeb*) (Fus, R, SS)
- <sup>7 + M3</sup>Moncoat MZ<sup>0</sup> (*flutolanil* + *mancozeb*) (Fus, R, SS)
- <sup>Bio-T</sup>T-22-HC<sup>0</sup> - <sup>OMRI</sup> (*T. harzianum*) (Rhiz.); <sup>Bio</sup>RootShield Plus WP<sup>0</sup> (*T.h* + *T.v.*) (Rhiz, Fusarium) (<sup>Bio</sup>RootShield Plus Granules<sup>0</sup> NOT Listed for potato)
- <sup>Bio</sup>Mycostop<sup>0</sup> <sup>OMRI</sup> (*S. griseoviridis*)
- <sup>1 + M3</sup>Tops MZ Pot. S-P Trt.<sup>0</sup> (*thiophanate-methyl* + *mancozeb*)
- <sup>Insect. + 1 + M3</sup>Tops MZ Gaucha<sup>0</sup> (*thiophanate-methyl* + *imidacloprid* + *mancozeb*) (Fus, R, SS)

### In-Furrow and Soil Treatments

- <sup>Bio</sup>Actinovate AG and *Actino-Iron*<sup>0</sup> (*S. lydicus*) (?)

- <sup>11</sup>Quadris<sup>0</sup> (*azoxystrobin*) (IF, Rhiz, SS, BD) (see label limits)
- <sup>11</sup>Quadris + <sup>4</sup>Ridomil Gold<sup>0</sup> (*azoxystrobin* + *mefenoxam*) (Rhiz, BD, Pythium, PR) (IF see label limits)
- <sup>14</sup>Blocker<sup>0</sup> (*quintozene*) (IF, Rhiz.)
- †<sup>7</sup>Moncut<sup>0</sup> (*flutolanil*) (IF, Rhiz., Powdery Scab suppression only) (Not LI)
- <sup>11</sup>Headline SC<sup>0</sup> (Rhiz. in-furrow see label)
- <sup>33</sup>Agri-Fos<sup>0</sup>, *ProPhyt* (IF), *Phostrol* (IF) or OLP (Sto. Rots = Pyth leak, Pink rot)
- <sup>4</sup>Ridomil Gold<sup>0</sup> (*mefenoxam*) (Sto. Rots, *Pyth*\*, *PR*\*, *Resistance concern*) (see label limits)
- <sup>4</sup>Ultra Flourish<sup>0</sup> (*mefenoxam*) (Sto. Rots, *Pyth*\*, *PR*\*, *Resistance concern*)
- <sup>4 + M5</sup>Ridomil Gold Bravo<sup>14</sup> (*mefenoxam* + *chlorothalonil*) (Sto. Rots, Pyth, PR)
- <sup>21</sup>Ranman<sup>0</sup> (*cyazofamid*) (IF, Pink Rot)
- <sup>Bio</sup>RootShield Plus WP (T. h. + T. v.) (IF Rhizoctonia, Fusarium); <sup>Bio</sup>RootShield WP and GR (T. h.)
- <sup>Bio</sup>Serenade Soil<sup>0</sup> <sup>OMRI</sup> (*Bacillus subtilis*) (IF, Rhiz.)
- †\*<sup>Nem</sup>Vydate<sup>14</sup> C-LV (*oxamyl*) (IF, Supp. lesion, stubby root, root knot nematodes) (not LI)
- †\*<sup>Nem</sup>Mocap EC (not LI)
- <sup>7</sup>Vertisan<sup>7</sup> (*penthiopyrad*) (limit 72 fl oz total) (IF Rhizoctonia)

### Post-harvest Treatments

- <sup>33</sup>Agri-Fos<sup>0</sup>, \**Fosphite*, *Fungi-Phite*, *ProPhyt*, *Phostrol*, *Rampart*, \**Resist 57* (LB, Pink Rot), (Recommended for processing only)
- <sup>Bio</sup>Bio-Save<sup>0</sup>, <sup>OMRI</sup> (Fus DR, SS)
- <sup>1</sup>Mertect<sup>0</sup> (*thiabendazole*) (*Fus. Dry rot*\*, *Resistance is a concern*)
- <sup>Bio</sup>Serenade MAX<sup>0</sup> <sup>OMRI</sup> (SS)
- <sup>11 + 12 + 3</sup>Stadium<sup>0</sup> (*azoxystrobin* + *fludioxonil* + *difenoconazole*) **Not for use on seed potatoes or seed pieces** (Silver Scurf & Fusarium Dry Rot)

### OMRI Listed Products (Most multi-site)

- <sup>Bio</sup>Actinovate AG
- <sup>Bio</sup>Bio-Save 10LP<sup>0</sup> (*P. syringae*) (Fus DR, SS)
- <sup>Bio</sup>RootShield Plus WP<sup>0</sup> (*T. harzianum* + *T. virens*) (Root rot pathogens like *Fusarium* and *Rhizoctonia*) (**Whole or cut Tubers as dip, dust, or IF**)
- <sup>SAR</sup>Regalia EC<sup>0</sup> (*Reynoutria*), (see label)
- <sup>Bio</sup>Mycostop<sup>0</sup> (*S. griseoviridis*) (see label)
- <sup>M3</sup>Badge X<sup>0</sup> *Camelot O. Cueva*, *Nordox 75WG*, *Nu-Cop 50WP*, (EB, LB)
- <sup>M2</sup>Sulfur<sup>0</sup> = *Kumulus*, *Micro Sulf*, *Microthiol*, (PM)
- <sup>M</sup>Organic JMS Stylet-oil<sup>0</sup> (EB, PM, Insects)
- <sup>Bio</sup>Contans<sup>0</sup> (*Coniothyrium*) (White Mold)
- <sup>M</sup>Trilogy<sup>0</sup> (*neem oil*) (EB, PM, insects)
- <sup>Bio(44)c</sup>Serenade ASO&MAX<sup>0</sup> (*B. subtilis*) (EB, SS)
- <sup>Bio(44)</sup>Serenade Soil<sup>0</sup> (*B. subtilis*) (Rhiz.)
- <sup>Bio</sup>Sonata<sup>0</sup> (*Bacillus pumilis*) (EB)
- <sup>Mult</sup>Oxidate<sup>0</sup> (*hydrogen peroxide*) (EB, LB?)

\* Restricted to registered applicators; †Not for use on Long Island; TM = tank-mix. Every effort has been made to provide correct and up-to-date information at the time of this publication. Trade names used are for convenience only. No endorsement of products intended, nor is criticism of unnamed products implied. These



recommendations are not a substitute for pesticide labeling. Always read the product label before applying any pesticide.