# Vegetable Crop Update

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

**No. 3 – May 4, 2013**

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**Calendar of Events**

**July 23**– Hancock Ag Research Station Field Day, Hancock, WI (tentative agenda begins at noon)

**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. Vegetable Path Webpage: http://www.plantpath.wisc.edu/wivegdis/**

**Cabbage downy mildew on transplants:** Cabbage downy mildew can occur on cabbage at any growth stage and is caused by a fungus-like plant pathogen, *Peronospora parasitica*, that can overwinter in crop debris and is favored by cool, damp weather and night time temperatures between 50 and 60°F. Prolonged leaf wetness, particularly wetness that persists during the night and into mid-morning especially promotes downy mildew. Cabbage downy mildew is a sporadic problem in cabbage production in open field plantings. Downy mildew is common on cabbage grown in the greenhouse or high tunnel for transplant generation. Symptoms include sunken yellow to brown lesions with pathogen sporulation often evident within the lesion on leaf underside (Figure 1 below). Symptoms on very young leaves may be hard to identify as downy mildew, especially if the pathogen is no longer sporulating.

**Management:** Mitigate cool night temperatures and conditions favoring wetness in the greenhouse. Increased plant spacing can aid in limiting moisture and disease. Several fungicides are registered for use on cabbage downy mildew in Wisconsin, but note that not all fungicides permitted for use in the field can be used in the greenhouse or high tunnel (see table below). Good management of downy mildew on young cabbage plants can aid in improved establishment and success when moved to the field. Photosynthetic capability of leaves is reduced in severely infected leaves often resulting in poor growth and further development of young plants. A list of some fungicides registered for use in controlling cabbage downy mildew in Wisconsin is included after symptom photos.

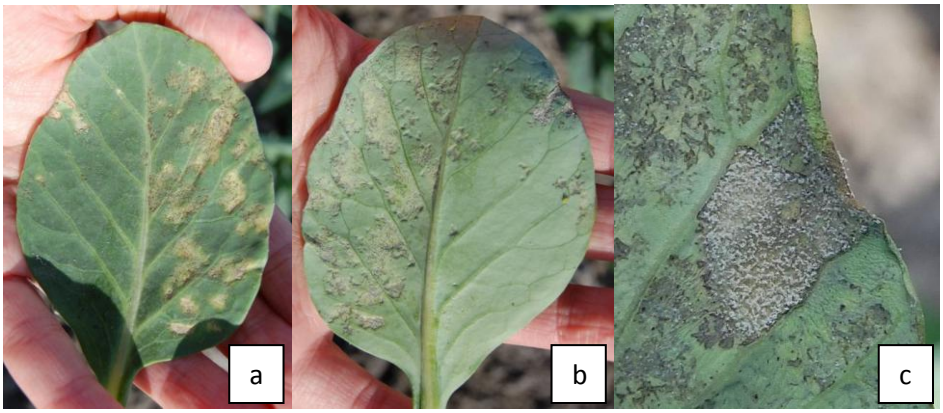


**Figure 1.** Symptoms and signs of cabbage downy mildew. Note sunken yellow lesions (a), and pathogen sporulation on leaf underside (b). Close up of pathogen sporulation (c).

| Trade Name | Active ingredient | FRAC group | Manufacturer and/or Distributor (GH allowance?) |
|---|---|---|---|
| Bravo, Chloronil, Chlorothalonil, Echo, Equus, Initiate | chlorothalonil | M5 | Syngenta, Syngenta, Arysta, Sipcam, MANA, Loveland (NOT for use in GH) |
| Badge, Champ, COCS, Copper Count N, Cueva, Cuprofix, Kocide, Kentan, Nordox, Nu-Cop | coppers | M1 | Isagro, Nufarm, Loveland, Mineral R&D, Certis, UPI, DuPont, Isagro, NORDOX, Albaugh (CAN be used in GH) |
| Quadris | azoxystrobin | 11 | Syngenta |
| Quadris Top | azoxystrobin + difenoconazole | 11 + 3 | Syngenta |
| Cabrio | pyraclostrobin | 11 | BASF |
| Reason | fenamidone | 11 | Bayer |
| Trilogy | neem oil | | Certis |
| Alude, Fosphite, Fungiphite, Porcephite, Prophyt | potassium phosphite | | Cleary's, JH Biotech, Plant Protectants, Loveland, Helena |
| Presidio | fluopicolide | 43 | Valent (NOT for use in GH) |
| Forum | dimethomorph | 40 | BASF (NOT for use in GH) |
| Revus | mandipropamid | 40 | Syngenta (CAN be used in GH) |
| Ranman | cyazofamid | 21 | FMC (CAN be used in GH) |
| Apron, Ridomil Gold, Ultra Flourish | mefenoxam | 4 | Syngenta, NuFarm (NOT for use in the GH) |
| Allegiance, Metastar, Sebring | metalaxyl | 4 | Bayer, Arysta, NuFarm |
| Switch | cyprodinil + fludioxonil | 9 + 12 | Syngenta |
| Inspire Super | cyprodinil + difenoconazole | 9 + 3 | Syngenta |
| Aliette, Linebacker | fosetyl aluminum | 33 | Bayer, Novasource |
| Maxim | fludioxonil | 12 | Syngenta |
| Phostrol | phosphorus acids | 33 | NuFarm |
| Microfine Sulfur, MicroSulf, Microthiol Disperss | sulfur | M2 | Loveland, NuFarm, Cerexagri-Nisso |
| Zampro | ametoctradin+dimethomorph | 45+40 | BASF (NOT for use in GH) |

The 2013 A3422 Commercial Vegetable Production in Wisconsin guide is available for purchase through the UW Extension Learning Store website: http://learningstore.uwex.edu/Commercial-Vegetable-Production-in-Wisconsin2013-P540.aspx

A pdf of the document can be downloaded or is available at the following direct link: http://learningstore.uwex.edu/Assets/pdfs/A3422.pdf

**Mefenoxam and metalaxyl rate determinations:** I had a few calls this past week regarding the difference between mefenoxam and metalaxyl formulations and rates. Mefenoxam is the R-enantiomer (mirror image chemical structures) of metalaxyl and at half the application rate, provides the same level of efficacy as metalaxyl.

Some of the commonly used metalaxyl/mefenoxam formulations used to manage oomycete or 'water mold' diseases such as Pythium, and Phytophthora species include: Ridomil Gold SL (45.3% mefenoxam), Ultra Flourish (25.1% mefenoxam), and MetaStar (23% metalaxyl). Note that among the mefenoxam formulations, Ridomil Gold SL has near double the active ingredient as Ultra Flourish. Therefore, when applying in furrow, you need 0.08 fl oz/1000 row feet Ridomil Gold SL, whereas with Ultra Flourish, you need 0.15 fl oz of total product for the same linear application.

With MetaStar, you need 25.83 oz product/acre with a 1.68 oz/1000 ft row rate (34 in rows). In comparison, for equivalent amount of a.i., you need 12.91 fl oz/acre of Ultra Flourish. Further compared to need for 6.5 fl oz/acre of Ridomil Gold SL.

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**Dual Magnum 24c Special Local Needs label approved in Wisconsin**

The Wisconsin Department of Trade and Consumer Protection (DATCP) recently approved a Special Local Needs 24(c) registration for Dual Magnum herbicide in several vegetable crops. This label is valid through December 31, 2017 in Wisconsin only.

Vegetable crops on the label include: transplanted bell and non-bell pepper (excluding Tabasco), transplanted broccoli, transplanted Brussels sprout, transplanted cabbage, transplanted cauliflower, transplanted Chinese cabbage (Napa), carrot, transplanted celery, cucumber, dry bulb onion, transplanted eggplant, daikon radish, garden beet, parsnip, radish, turnip, rutabaga, leek, green onion, spinach and Swiss chard.

The label is available through the Wisconsin DATCP special registrations web page: http://datcp.wi.gov/Plants/Pesticides/Special_Registrations/. As always, read and follow the label prior to use.