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Downy Mildew Problems and Solutions

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In August 2005, Michigan cucumber growers experienced a downy mildew outbreak for the first time in recent history. In 2006, downy mildew was detected in a southeastern Michigan cucumber field in early June. Downy mildew causes symptoms on the leaves similar to a mosaic or angular leaf spot. The tell-tale symptom of downy mildew is the dark, purplish/gray fuzz on the underside of the leaf giving a somewhat dirty or velvet appearance. This fuzz may be most evident in the morning. The downy mildew pathogen moves from field to field primarily via air currents. Downy mildew is well-known for causing catastrophic losses in a brief period of time. When the conditions are favorable, unprotected foliage can become completely infected and appear to be frosted within 10 days of initial infection.

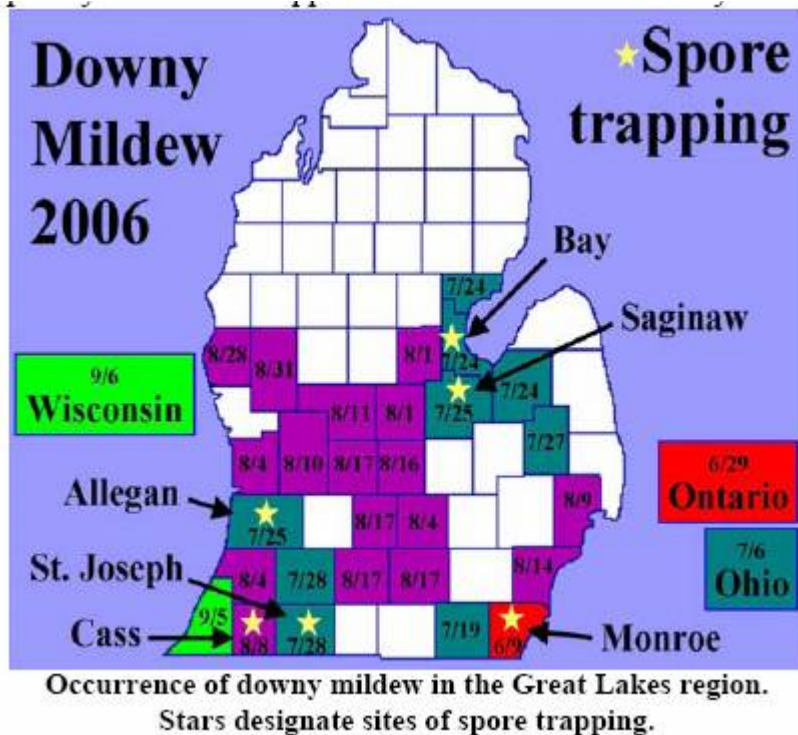
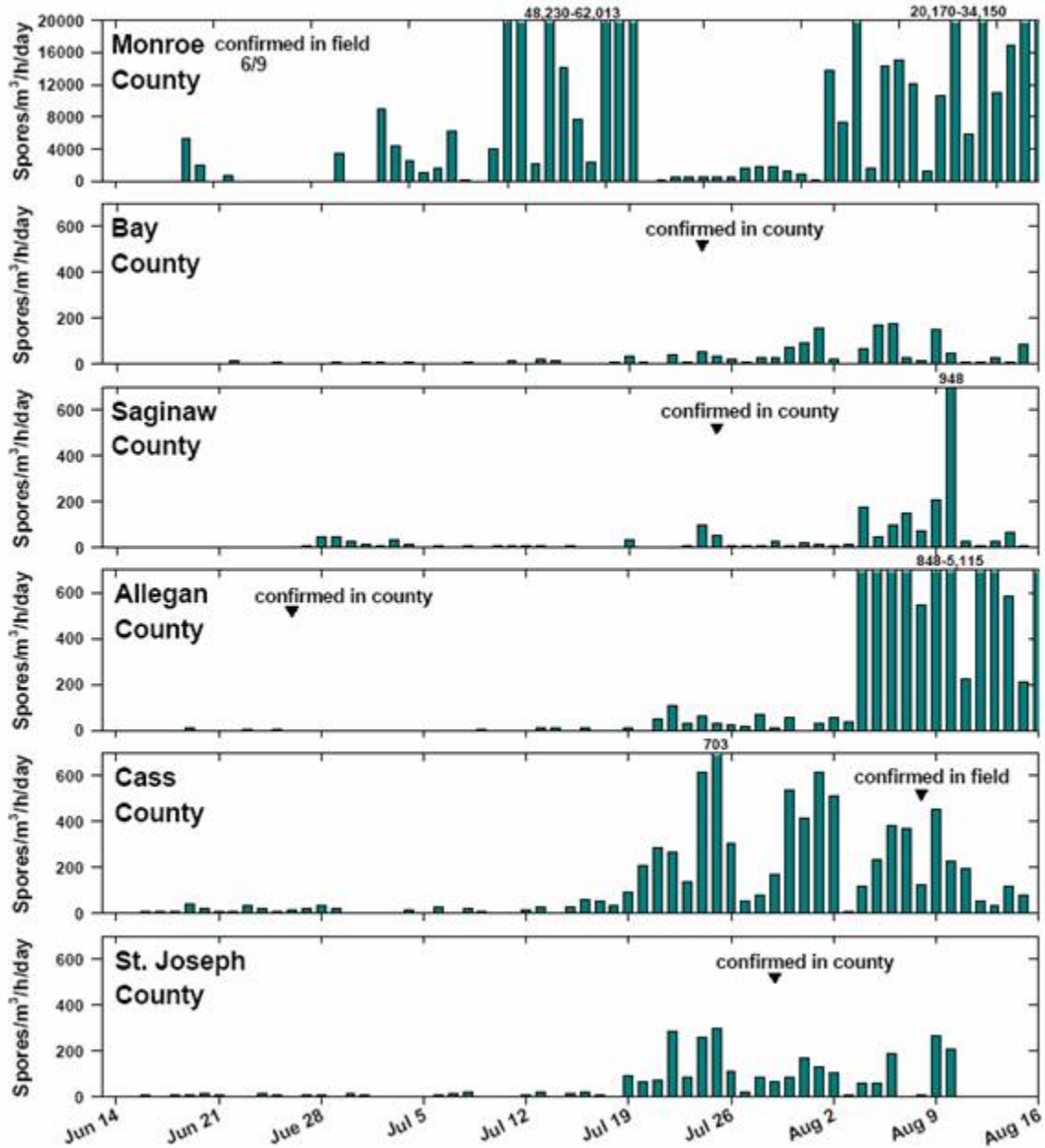


Table 1. Recommended products for managing downy mildew on pickle.

APPLIED BEFORE DISEASE (7-day intervals)	APPLIED AFTER DISEASE (5-day intervals)
<input type="checkbox"/> Gavel 75WG (5 day PHI) <input type="checkbox"/> Previcur Flex 6SC (2 day PHI) <input type="checkbox"/> Ranman 3.6SC (0 day PHI) <input type="checkbox"/> Tanos 50WG (3 day PHI)	<input type="checkbox"/> Previcur Flex 6SC (2 day PHI) <input type="checkbox"/> Ranman 3.6SC (0 day PHI) <input type="checkbox"/> Tanos 50WG (3 day PHI)
Alternate products and mix each with either: <input type="checkbox"/> Dithane (mancozeb) 3 lb or <input type="checkbox"/> Bravo (chlorothalonil) 1.5 pt	Alternate products and mix each with either: <input type="checkbox"/> Dithane (mancozeb) 3 lb or <input type="checkbox"/> Bravo (chlorothalonil) 2 pt

Downy Mildew Spore Trapping 2006

The downy mildew reproduces via tiny, microscopic spores that act as seeds of the pathogen. Spore traps were placed in one of the diseased cucumber fields and also in four other Michigan counties. A compound microscope is needed to have enough magnification to identify any downy mildew spores that may be present on the tapes. The spore traps helped to alert us to any influx of spores into those production regions, but were not used to time fungicide sprays. Since we did not have a trap in each field, it is possible that we could miss an isolated spore mass coming into a particular region (see figure, below).



Fungicide Trials

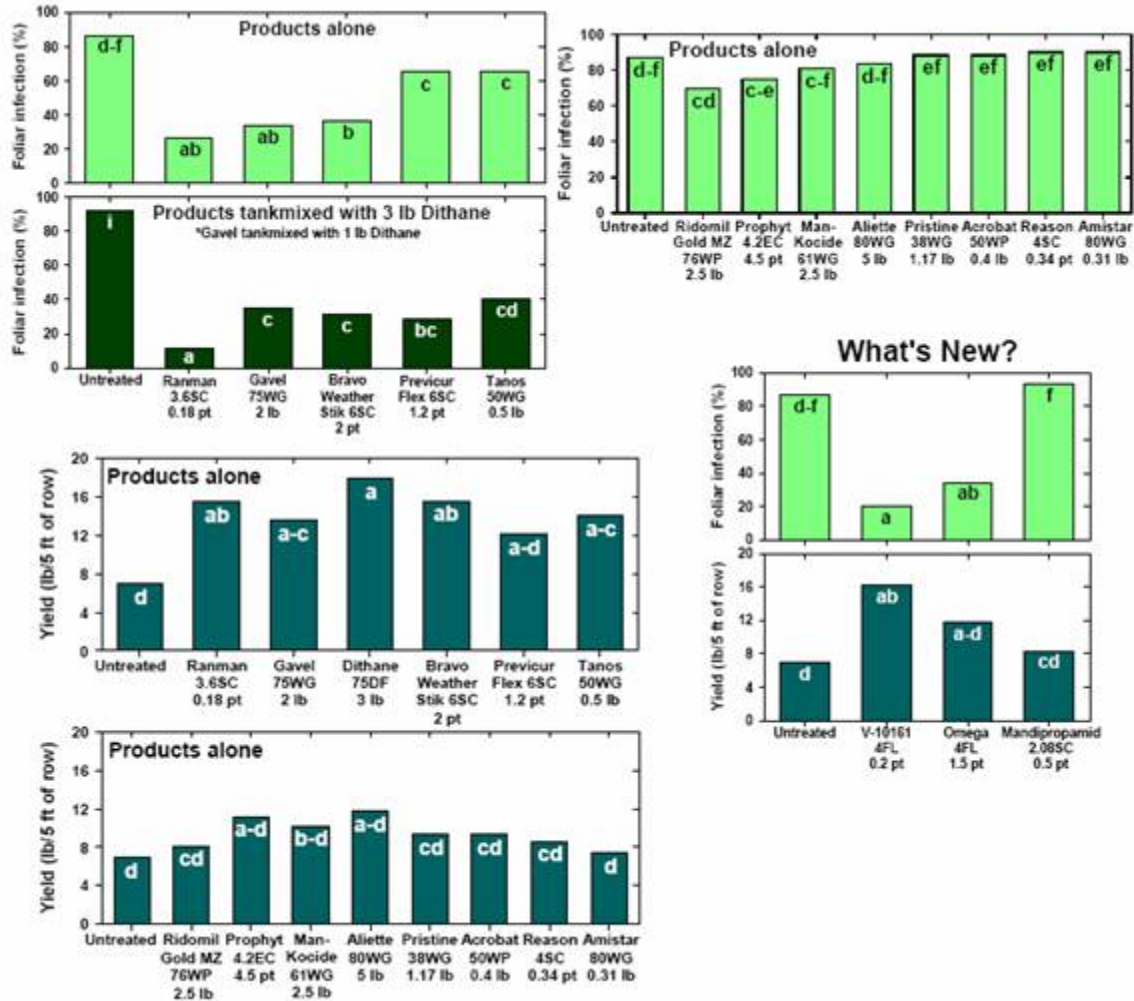
Chemical control must be focused on using the most effective products, alternating the products, and applying fungicides at short intervals. Results from our downy mildew research in 2005 indicate that an effective spray program includes the following: Previcur Flex (propamocarb hydrochloride) plus Bravo (chlorothalonil) alternated with Tanos 50DF (cymoxanil + famoxadone) plus mancozeb. The initial sprays for the 2006 trials were applied when plants had one

true leaf and no disease symptoms were apparent. Ten applications were made on 1, 7, 11, 15, 21, 26, and 31 Aug; 6, 13, and 20 Sep following a 5-7 day spray schedule. Plots were visually evaluated for necrotic leaves on 11 Sep (see figure, below). Fruits were hand-harvested four times from the entire 15 ft of all treatment rows on 5, 11, 18, and 25 Sep. Products that looked favorable in our 2006 field studies include Ranman 3.6SC (cyazofamid), Gavel 75WG (mancozeb + zoxamide), V-10161 4FL (fluopicolide), Tanos 50WG and Previcur Flex 6SC. Each of these products should be mixed with either Dithane or Bravo (see Table 1).

Downy Mildew Eureka Pickle

Sprayed Before Disease

Rates/A applied at 5- to 7-day intervals. Bars with a letter in common are not significantly different.



2006 Midwest Vegetable Variety Trial Report for 2006

This publication is still available and contains variety trials from several Midwestern states and the region. Each year, this bulletin contains the latest reports from Dr. Jerald Pataky's work at the Univ. of IL on reactions of sweet corn to common diseases. It also includes reactions to the

herbicides Accent and Calisto. A limited supply is still available for \$15.00 each. Contact: Bob Precheur, 2001 Fyffe Ct., Columbus, OH 43219, PH 614-292-3857, email: precheur.1@osu.edu

Research Reports

A new and expanded list with reports from Plant Pathology, Dr. Sally Miller and also several reports from Piketon. These research reports are available online at the VegNet website

- Evaluation of fungicides for the control of clubroot of broccoli, 2006. [MS Word]
- Cucumber cultivars - Piketon, 2006. [MS Word]
- Ornamental Corn cultivars - Piketon, 2006. [MS Word]
- Green Pepper Cultivar Evaluation, 2006 [HTML file with pictures]
- Evaluation of biopesticides and fungicides for control of Phytophthora foliar blight and Pythium root rot of peppers, 2006. [MS Word]
- Evaluation of products for the control of bacterial leaf spot of bell peppers, 2006. [MS Word]
- Evaluation of fungicides for control of Phytophthora blight of peppers, 2006. [MS Word]
- Pepper varieties-Piketon, 2006. [MS Word]
- Pumpkin Cultivar Evaluation, 2006. [HTML file].
- 2006 Pumpkin Picture Gallery PICTURES ARE HERE!!
- Pumpkins-Piketon, 2006. [MS Word].
- Pumpkin Variety Resistance and fungicide programs for powdery mildew management, 2006 [MS Word]
- Evaluation of biopesticides and fungicides to control Rhizoctonia root and hypocotyl rot and clubroot of radish, 2006. [MS Word]
- 2006 Sweet Corn Cultivar Evaluation at 2 grower locations in OH; (Thermogradient and Saturated salt extract results plus pictures of ears and plant vigor), [HTML file]
- Summer squash Cultivar Piketon, [MS Word]

- Evaluation of fungicides for the control of foliar and fruit diseases of processing tomatoes, 2006. [MS Word]
 - Evaluation of products for the control of bacterial canker of processing tomatoes, 2006. [MS Word]
 - Tomato cultivars - Piketon, 2006. [MS Word]
 - Watermelon cultivars - Piketon, 2006. [MS Word]
- Evaluation of fungicides for the control of powdery and downy mildews of winter squash, 2006.[MS Word]