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In This Issue

1. Update on Maneb and Mancozeb Uses for Vegetables
2. Managing Diseases of Tomatoes in High Tunnels

Update on Maneb and Mancozeb Uses for Vegetables

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The following update was received on March 4 from Dr. Kent Smith, USDA ARS Office of Pesticide Management Policy: ♦♦♦

Maneb is due to be fully cancelled in about a month. Existing stocks of maneb can be used until exhausted. So if users can find some existing stocks of maneb, simply follow the label directions. In the future, EPA will be revoking all maneb tolerances but that is in the distant future. They expect to publish a Federal Register notice sometime this year that will propose a date of tolerance revocation but this notice will be open to comments. A decision on new mancozeb registrations that will cover cancelled maneb uses that had no mancozeb registrations is due this month. We are still expecting some decision soon but have not heard anything.

Managing Diseases of Tomatoes in High Tunnels

By Sally Miller, State Extension Specialist ♦ Vegetable Disease Management, Department of Plant Pathology, The Ohio State University. *Updated February 23, 2010*

High tunnels offer Ohio farmers an opportunity to stretch the tomato season at both ends ♦ by allowing earlier planting, earlier first harvest, and extension of the growing season into the fall. High tunnel production includes elements of both field and greenhouse management. The ♦ protected culture ♦ of high tunnel production may result in lower incidence of diseases exacerbated by rainfall such as Septoria leaf spot and bacterial spot and speck. However, diseases that often occur in greenhouses, but are uncommon in open fields, may appear in high tunnels. Botrytis blight/gray mold (Figure 1), white mold (timber rot) (Figure 2) and leaf mold (Figure 3) are among the most important of these diseases. Late blight (Figure 4) may also occur under cool, moist conditions. These diseases can be managed by employing appropriate cultural tactics and by the judicious use of fungicides.



Figure 1. Botrytis blight/gray mold



Figure 2. Tomato white mold in high tunnel



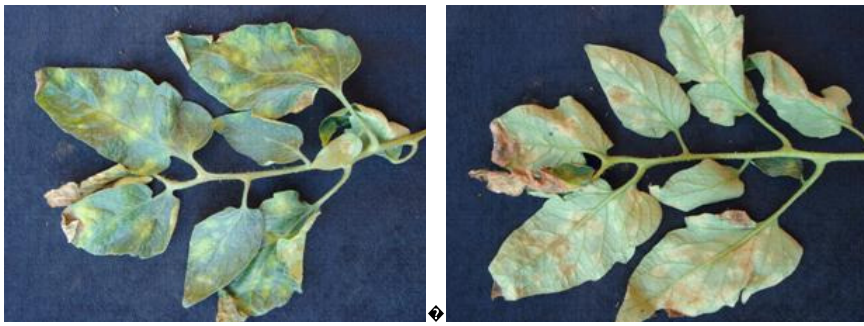


Figure 3. Tomato leaf mold, upper surface (left); lower surface (right)



Figure 4. Late blight of tomato

Cultural tactics. All of these diseases are favored by high relative humidity in the tomato canopy. Wider plant spacing and improved ventilation help to reduce the incidence of these diseases. Proper sanitation is also important ♦ diseased tissue should be removed and destroyed. Workers should avoid handling plants when free moisture is present to reduce the spread of pathogen spores from diseased to healthy plants. Plants should be irrigated without applying water to the foliage. Further, tools used in training and pruning should be disinfected regularly. ♦

Fungicides. According to the Ohio Department of Agriculture, for purposes of pesticide application, high tunnels are considered to be the same as greenhouses. Therefore, regulations PERTAINING TO GREENHOUSES, AND THE DIRECTIONS FOR USE ON THE PESTICIDE LABELS, MUST BE FOLLOWED WHEN APPLYING PESTICIDES in high tunnels. Restricted use pesticides can only be used by Certified Pesticide Applicators with THE greenhouse CERTIFICATION ON THEIR APPLICATOR LICENSE.

Pesticides that are not restricted use and are labeled for tomatoes but without specific greenhouse use directions may be used in high tunnels (and greenhouses) unless greenhouse use is expressly prohibited on the label. Thus, a specific label for greenhouse use is not required; but the label must be carefully read to be certain the greenhouse use is not restricted. For more information about fungicide usage allowances in high tunnels and greenhouses, please contact Jim Belt, Ohio Department of Agriculture (614-728-6389).

Copper products, and Manzate, Dithane and other fungicides containing the active ingredient mancozeb may be used for management of leaf mold and late blight in greenhouses and high tunnels. The fungicide Gavel 75DF may be used for late blight suppression in protected culture. ♦ Switch, Decree, Botran 75W and Scala and are labeled for Botrytis management in greenhouse tomatoes. Switch, Rally 40WSP, Microthiol Disperss and other products containing sulfur are permitted for use in greenhouses and high tunnels to control tomato powdery mildew. ♦ Some fungicides commonly used in open field tomato production, such as Bravo Weather Stik and Quadris, are not allowed in greenhouse or high tunnel systems. ♦ A number of biorational products including microbials, plant extracts and chemicals such as hydrogen dioxide may have efficacy against powdery mildew, Botrytis and other pathogens grown under protective cover. ♦ Efficacy ratings for microbials can be found in Ohioline Fact Sheet HYG-3310-08 ♦ Microbial Biopesticides for the Control of Plant Diseases in Organic Farming ♦ by Rosa Raudales and Brian McSpadden Gardener.

Fungicide and Rate	Effective Against	PHI (days)
Manzate Pro-Stick*; 0.75-1.5 lb/A	Late blight, early blight, leaf mold	5
Switch (except cherry and grape types); 11-14 oz/A	Early blight, powdery mildew, Botrytis	0
Scala; 7 fl oz/A	Early blight, Botrytis	1
Decree; 1.5 lbs/A	Botrytis	0
Botran 75W; 1 lb/43,560 ft ²	Botrytis	10
Rally 40WSP; 2.5-4 oz/A	Powdery mildew	0
Microthiol Disperss*	Powdery mildew, mites	0
Kocide 3000*; 0.5-1.5 TBSP/1000 ft ²	Anthraco nose, late blight	0

All of the diseases mentioned are difficult to manage once they become established, and an integrated approach including cultural tactics as well as fungicides is necessary. Where white mold has been a problem in tomatoes or in previous crops, growers may consider applying the biocontrol agent Contans to soil after the tomato crop to reduce the viability and number of sclerotia of *Sclerotinia sclerotiorum*, the causal agent. Our studies also showed that tomato plants grown in compost-amended soil in high tunnels had significantly less white mold than those grown in non-amended soil. ♦ Early blight was also reduced on tomatoes grown in compost-amended soil compared to those grown in non-amended

soil in high tunnels.

Treatment	% Sclerotinia white mold	% early blight
No compost	26.9 a	8.3 a
Compost	◆ 5.8 b	5.7 b
<i>P</i> value	0.0033	<0.0001