THE UNIVERSITY OF MAINE Cooperative Extension
Pest Management
Insect and Plant Disease Diagnostic LAB
FACT SHEET

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Powdery Mildew of Cucurbits

Bulletin #5085

Introduction

Powdery mildew of cucurbits is caused by either of two fungi. *Sphaerotheca fuliginea* (less common) is known to infect about 60 plant genera and *Erysiphe cichoracearum* is known to infect about 160 plant genera. All cucurbits are susceptible to powdery mildew although it does not commonly attack watermelon. Yield losses of up to 50% have been reported and are the result of defoliation caused by the fungi.

Environmental Conditions

Unlike most fungi, the spores of powdery mildew do not require free water for germination and are actually inhibited in its presence. High humidity is beneficial but not necessary for spore germination. Infection has been known to occur below a relative humidity of 50%, although the humidity at the surface of the leaf is undoubtedly higher. High humidity also increases the rate at which the fungus grows after infection occurs. Spores will germinate above 50°F with an optimum of around 80°F and an upper limit of 90°F.

Symptoms

The initial signs of the fungus show on the upper or lower surface of (especially) shaded leaves. The infection may appear first as pale yellow spots but the fungus soon sporulates yielding a characteristic powdery-white appearance (brown in the case of *Sphaerotheca*). This powdery appearance can involve the entire leaf which eventually turns yellow then brown and dries to the point that it crumbles when crushed.

Survival and Dispersal

Overwintering of the fungi probably does not occur in Maine, although survival is possible on alternate hosts in the greenhouse. The initial infections are from spores carried by the wind from more southerly areas. Once the disease is present in the crop, abundant numbers of spores are produced which can spread the disease quite rapidly. Tens of millions of spores can be produced on a single infected leaf.

Control

1. Use resistant varieties.
2. Plant in areas with good air drainage and allow for maximum air circulation.
3. Crop rotation and fall plowing are of no benefit because the fungus does not survive in the field.
4. The fungicides listed on the tables on the back are registered for powdery mildew control.

Traditional Fungicides for Powdery Mildew Control

Fungicide	Apply When First Observed	Examples of Trade Names
Strobilurins: azoxystrobin and trifloxystrobin	Alternate with other chemicals; 5-7 day schedule	Quadris, Flint
chlorothalonil	Good coverage is critical; 7 day schedule	Daconil, Bravo, Echo, Fungonil, and others
myclobutanil	Alternate with other chemicals	Nova

Alternative Fungicides for Powdery Mildew Control

Fungicide	Apply When First Observed	Examples of Trade Names
Bacillus subtilis strain QST 713	Coverage critical. Preventative 7 day schedule.	Serenade
Copper products	Coverage critical. 5-7 day schedule.	Kocide, Tenn-Cop, Basicop, and others.
Neem oil	Preventative 7-14 day schedule.	70% Neem Oil
Potassium Bicarbonate	7-14 day schedule	Remedy Fungicide, Armicarb 100
Potassium salt of fatty acids	7-10 day schedule	M-pede
Sulfur	Coverage critical. 5-7 day schedule	Sulfur Dust, Wettable Sulphur, and others.

When Using Pesticides
ALWAYS FOLLOW
LABEL DIRECTIONS!

Bruce A. Watt
Extension Plant Pathologist
2004

Where trade names are used, no discrim -ination is intended and no endorsement by Cooperative Extension is implied.

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