

## Powdery Mildew of Cucurbits

### Symptoms

Powdery mildew symptoms first appear as pale, chlorotic spots on leaves that soon turn powdery-white in appearance (fungal spores) and spread to petioles and stems (Fig. 1 and 2).



Figure 1 Abundant powdery mildew on pumpkin leaves. Photo: Ronald French.

The disease starts on the crown and lower leaves, mainly on the under-leaf shaded surface. Young plants may turn yellow, stunted, and may die. Severely infected leaves become brown, brittle and die, resulting in foliage loss (Fig. 2). Exposed fruits may suffer sun-scald. Other fruit symptoms include reduced size, malformation, poor flavor, discoloration, speckled rind and shriveled handles.



Figure 2. Powdery mildew-caused defoliation on pumpkin. Photo: Ronald French.

### Causal Agent

Powdery mildew of cucurbits is caused by two organisms, *Sphaerotheca fuliginea* (syn. *Podosphaera xanthii*) and *Erysiphe cichoracearum* (syn. *Golovinomyces cichoracearum*). *S. fuliginea* is more commonly reported worldwide, and prefers warmer weather, while *E. cichoracearum* prefers cooler weather. The two organisms have similar conidia, and can only be differentiated by the fibrosin bodies only present in conidia of *S. fuliginea*.

Powdery mildew affects all cucurbits, most commonly cantaloupes, squash, and pumpkins.

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November 24, 2009

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## Inoculum Source and conditions

The pathogen may overwinter in crop and weed refuse, but the main source of infection is conidia produced on cucurbits grown in warmer southern areas. The airborne conidia are blown northward early in the season. Thrips and other insects and farm equipment may disseminate the conidia within the crop. Conidia germination is induced by high humidity, but inhibited by free standing water. Conidia remain viable for 7-8 days; symptoms become apparent 3 to 7 days after infection. Leaves are most susceptible 16-23 days after unfolding. Dense plant stock and poor air circulation, coupled with low light intensity and high fertility, favor this disease. Dry conditions are conducive to sporulation and dispersal.

## Management/Control

- Plant resistant varieties.
- Favor air circulation (proper spacing, balanced nitrogen amendments, weed control).
- Apply preventive fungicides after runners start developing. Air-assisted sprayers are best for full plant coverage, including coverage of lower leaves and leaf undersurface.
- Scout regularly.
- Apply fungicides to control the disease. At first symptoms, a 7-14 day fungicide application schedule should be instated alternating contact and systemic fungicides to avoid resistance (QoI fungicides generate resistance and should not be used).

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