

Durham Master Gardener in the Garden Powdery Mildew (PM), June 5, 2019



What is it?

Powdery mildew is caused by a fungus and is seen as a light gray or whitish powder on the surface of leaves. Later there may be dark "pepper-like" spots among the powder the spots are spore-producing bodies. These spots can be different colours on different vegetables.

There are over 11,000 varieties which cause the most diseases in the garden. Some fungi only target a specific host, while others affect a larger range of hosts. PM is spread by air currents, and occasionally insects, and grows well in moist warm environments.

The PM absorbs nutrients from the leaf cells and diseased leaves eventually dry up and die. Depending on time of year when it occurs, may not be harmful to crop however, yield can be reduced.

PM may appear on stems, tops and underside of leaves, flowers and fruit

As the disease progresses, leaves may be dwarfed, curl, turn yellow, and drop off. Flowers may be deformed. Fruit crops may be reduced, with the fruit misshapen and covered with powdery patches.

Spores can overwinter on infected plant material and be carried on the wind

When to watch for it:

Spreads quickly

Usually, starts mid-summer on older leaves, following warm days and cool nights.

A new generation may be produced every 72 hours, if conditions are right.

Common on cucumbers, squash

Integrated Pest Management Strategies

Look for disease resistant varieties

These are available in Canada

Seed catalogue code for Powdery Mildew Resistant is PM

Provide adequate air circulation

Do not overcrowd plants

Plant vertically is an option

Plant rows in direction of prevailing winds to dry off sooner

Site plants where they will get sufficient light of six hours or more each day

Fertilization

Use a slow-release fertilizer or compost, manure

Avoid excess nitrogen

Watering

To prevent - water near the roots of the plant not over head *

Do not handle the plant when the leaves are wet.
Avoid drought stress

*To control - once plants are infected with PM spraying water on the leaves, inhibits spore germination for most powdery mildews. Therefore, spraying the leaves early in the day at times of low humidity when they have time to dry off greatly inhibits infection and can protect the plant. **Caution: Only spray if other leaf diseases are not a problem since other pathogens require liquid water to infect.**

Sanitation

Pick and remove infected leaves on when first appear.
Do not compost infected plant material as spores overwinter.

Fungicides and other Control

Use fungicides as a preventive treatment before a rain for maximum protection. Spray both sides of leaves and flowers well.

Bacillus sbtilis strain QST 713 is a microbial pest control agent used to suppress a number of bacterial and fungal plant pathogens

Bordeaux mix is a combination of copper sulfate and hydrated lime. Caution it builds up in the soil and it's toxic to earthworms and a wide variety of different plants and aquatic organisms.

Horticultural with powdery mildew control listings. Most effective when temperatures are 40-90° F and humidity is low. This allows the oil to evaporate quickly.

Durham Master Gardeners, June 2019

References:

Master Gardener Reference Manual

Savvy Gardening: <https://savvygardening.com/?s=vegetable+pests>

Ottawa Carlton Master Gardeners: http://www.mgottawa.ca/The_Edible_Garden.php

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<https://www.ontario.ca/page/pesticides-home-lawns-and-gardens>

<http://gardenprofessors.com/understanding-the-mysteries-of-plant-diseases-prevention-control-and-cure-part-3-of-3-in-this-blog-series/>