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POWDERY MILDEWS OF ORNAMENTALS

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Powdery mildew is a fungus disease that can affect a variety of plants. Severity of the disease depends on several factors — the variety, age and condition of the plant, time of infection and weather conditions during the growing season.

Plant damage ranges from an unsightly powdery covering on the foliage to reduced leaf size, drying and browning of infected leaves. In some plants, buds fail to open in the more advanced stages of mildew.

If diagnosed early, powdery mildew can be effectively controlled. Therefore, the home gardner should know how to recognize the disease and how to control it.

THE FUNGUS

Powdery mildew applies to a group of closely related fungi that grow primarily on leaf surfaces. These fungi obtain nutrients from the host through small, rootlike organs that enter the outer or epidermal layer of cells.

Some species of powdery mildew can infect only a few closely related host plants; others attack many genera of plants. Infection of one ornamental does not necessarily mean that neighboring plant species also will be attacked. The life cycle of all mildew species regardless of host is nearly identical.

The fungi overwinter as small, black fruiting bodies (cleistothecia) or as fungus threads (mycelium), located on leaf debris, stems, spurs or dormant buds. In the spring the cleistothecia produce spores which initiate primary infections, which in turn produce summer spores. Summer spores produced on overwintering mycelium also can start spring infections. Soon after infection, a powdery growth of the fungus appears on the infected leaf surface, due to fungal threads and chains of small summer spores. After the mildew has become well established, small black fruiting bodies are formed, completing the life cycle.

SYMPTOMS

Powdery mildew of ornamentals can be recognized by a white to gray or slightly brownish growth of fungus over the leaf surface. On roses and several other ornamentals, the fungus also may attack the stems, buds and flower petals. Initial signs on bluegrass include fine wefts of cobwebby growth confined mostly to the top leaf surface. Broadleaves, when infected with mildew, often are distorted, curled or twisted and may be smaller than normal. Severely infected leaves may be yellow in color with small patches of green—"green island" effects—and may fall prematurely.

CONDITIONS FAVORING POWDERY MILDEW

The disease is favored by humid conditions with widely fluctuating temperatures. It is common in crowded plantings where air circulation is poor and in damp shaded areas. Powdery mildew is generally most severe on young succulent growth.

CONTROL

The home gardner can adopt several practices that will reduce and often prevent powdery mildew. Keep in mind how the fungus survives and the environmental conditions favoring the disease.

Removal of infected plant debris from the soil surface will reduce fungus inoculum in the immediate vicinity. Remove debris entirely in the fall of the year, or incorporate into the soil to allow for decomposition before the next year's planting.

For bluegrass turf, collect and remove lawn clippings or incorporate them into the garden site or include them in the compost pile.

Space plantings to permit good air circulation. Judicious pruning of susceptible perennial trees and shrubs also provides better air circulation. Avoid poorly drained soils and damp areas.

Do not apply too much water, as this increases humidity, and avoid excessive fertilizing, particularly nitrogen, because this promotes succulent growth.

Plant species and varieties differ in susceptibility. Wherever possible, select those varieties advertised as being resistant or tolerant to powdery mildew.

Chemical control of powdery mildew is effective and should be used as a last resort, if the disease is severe enough to justify the expense. Since most of the powdery mildew fungus is on plant surfaces, this disease is one of the few that can be controlled after infection has occurred. However, if mildew has been a perennial problem, disease prevention rather than control should be the goal.

Several fungicides are available for mildew control as shown in this table:

Fungicide	May damage foliage	Will damage foliage if over 90°F
Acti-dione PM	x	
Benlate 50W		
Daconil 75W		
Karathane	x	
Mertect		
Phaltan		
Sulfur	x	x
Wettable sulfur	x	x

Read the label carefully as some of the chemicals listed may not be registered for use on all species of plants.

PESTICIDE RESIDUES - These recommendations are based on the best information currently available for each chemical listed. If followed carefully, residues should not exceed the tolerance established for any particular chemical. To avoid excessive residues, follow recommendations carefully with respect to dosage levels, number of applications and minimum interval between application and harvest.

REMEMBER: Read the label directions thoroughly before preparing and applying pesticides. Many of the commercially prepared mixtures contain insecticides as well as fungicide.

The grower is responsible for residues on his crops as well as for problems caused by drift from his property to other properties or crops.

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