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THE UNIVERSITY OF TENNESSEE
AGRICULTURAL EXTENSION SERVICE
SP370B

Powdery Mildew of Ornamentals

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Powdery mildew occurs on many herbaceous and woody ornamentals in Tennessee. Mildew diseases may appear in greenhouses, nurseries or landscape settings. Woody ornamentals like Chinese photinia (*Photinia serrulata*), flowering dogwood (*Cornus florida*) crepe myrtle (*Lagerstroemia indica*), common lilac (*Syringa vulgaris*), Persian lilac (*Syringa X persica*), euonymus (*Euonymus spp.*), rose (*Rosa* spp.) and many crab apple cultivars are highly susceptible and may be seriously damaged by powdery mildew infections. Herbaceous ornamentals that are frequently infected with powdery mildew include pot plants such as African violet (*Saintpaulia ionantha*), begonia (*Begonia* sp.), chrysanthemum and kalanchoe (*Kalanchoe blossfeldiana*). Bedding plants that are infected by mildew include zinnia (*Zinnia elegans*) and snapdragon (*Antirrhinum majus*).

Symptoms

Powdery mildew is a fungus that appears as a white or gray growth on leaves, stems or flowers of diseased plants. Young shoots and leaves may be twisted and distorted by the fungus. Damage to flower buds often causes misshapen flowers that are of low quality. Powdery mildew may prevent flowering on highly susceptible plants.

Factors Favoring Mildew

Powdery mildew produces airborne spores and usually infects plants when temperatures are moderate (65-90 F). Temperatures above 90 F often inhibit growth of the fungus. Mildew spores do not need abundant free water to germinate and infect plants. However, fungal growth is favored by cool, night-time temperatures and high relative humidity that cause condensation on plant leaves. High nitrogen fertility that produces abundant succulent plant growth usually favors disease development. Light may also affect mildew growth indirectly. Plants grown in heavy shade are generally cooler than plants grown in full sun, and powdery mildew is favored by cooler temperature and higher humidity.

Control

Cultural control methods:

1) Purchase disease-resistant plants. (See Table 1.)
2) Do not crowd plants. Space plants to encourage air movement.
3) Prevent leaf wetness. In greenhouses, heat air to increase the amount of moisture in the air and then vent the house to exhaust moist air. Horizontal air flow fans can be used to circulate air directly over leaves to reduce leaf wetness.

4) Water during morning hours to prevent leaf wetness at night.
5) Avoid excessive nitrogen fertilization, especially if young foliage has become infected with mildew.

Chemical control methods:

Management practices alone may not prevent powdery mildew. Fungicides need to be applied as soon as mildew is detected. Care should be taken to cover both surfaces of all leaves with spray. Additional applications should be may at one- to three-week intervals, depending on the fungicide label instructions, disease pressure and weather conditions. Table 2 contains a partial list of fungicides available for powdery mildew control. Not all fungicides can be used on every ornamental plant.

Table 1.
Powdery mildew resistant ornamentals

Crape Myrtle	
Regal Red	Powhatan
Tuscarora	Muskogee
Potomac	Seminole
Natchez	
Rose	
Hybrid Teas	
Tiffany	Tropicana
Futura	Chicago Peace
Peace	Double Delight
Seashell	
Floribundas-Grandiflora	
Queen Elizabeth	Saratoga
European	Prominant
Rose Parade	Sarabande

Table 2.
Partial list of ornamental fungicides labeled for powdery mildew control.

Fungicide	Rate/1 gal.	Rate/100 gal.
Banner EC	1/3-l tsp.	5-16 fl.oz.
Bayleton 25 WP	1/8 tsp.	1.0-2.0 oz.
Cleary 3336-F	1/2 tsp.	10 fl.oz.
Funginex 6.5EC	1 Tbsp.	-
Rubigan AS	1/6-2/3 tsp.	3-10 fl. oz.
Strike 25 WP	1/8 tsp.	1.0-2.0 fl. oz.
Immunex	1Tbsp.	-

PRECAUTIONARY STATEMENT

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticide registrations are continuously being reviewed. Should registration of a recommended pesticide be cancelled, it would no longer be recommended by the University of Tennessee. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

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Billy G. Hicks, Dean