Disease control in warm-season ornamentals

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The great variety of ornamental host plants and their many diseases precludes a comprehensive list of common diseases. Fortunately, several common diseases attack a wide range of host plants.

As with turfgrasses, many diseases of ornamentals are caused by fungi. However, the leading causes of death of most ornamentals are cultural or environmental problems.

Powdery mildew on rose leaves appears as whitish or grayish mildewy growth on young plant tissues or upper leaf surfaces.

Powdery mildew

(Erysiphe spp., Sphaerotheca spp., Phyllactinia spp., Microsphaera spp., Podoshaera spp., Uncinula spp.)

Powdery mildews are probably the most wide-spread and easily recognizable plant diseases. They seldom kill the host plant but they do reduce photosynthesis and impair growth. Whitish or grayish mildewy growth appears on young plant tissues or upper leaf surfaces. Slight reddening and curling of leaves may occur before fungal mycelium is seen. Tiny, black pinhead-sized spherical fruiting bodies may be present in older areas of infection. Plants may be stunted and flower buds deformed.

Powdery mildews are specialized pathogens specific to a given host. The powdery mildew found on roses won't infect zinnias, crape myrtles, or turfgrass. Unlike most fungal pathogens, powdery mildew spores don't require free water to germinate, so mildews are more abundant in semi-arid regions than areas of high rainfall. Powdery mildew needs moderate to high relative humidity for infection to occur.

Management strategies

1) Avoid overcrowding of plants and use selective pruning to improve air circulation.

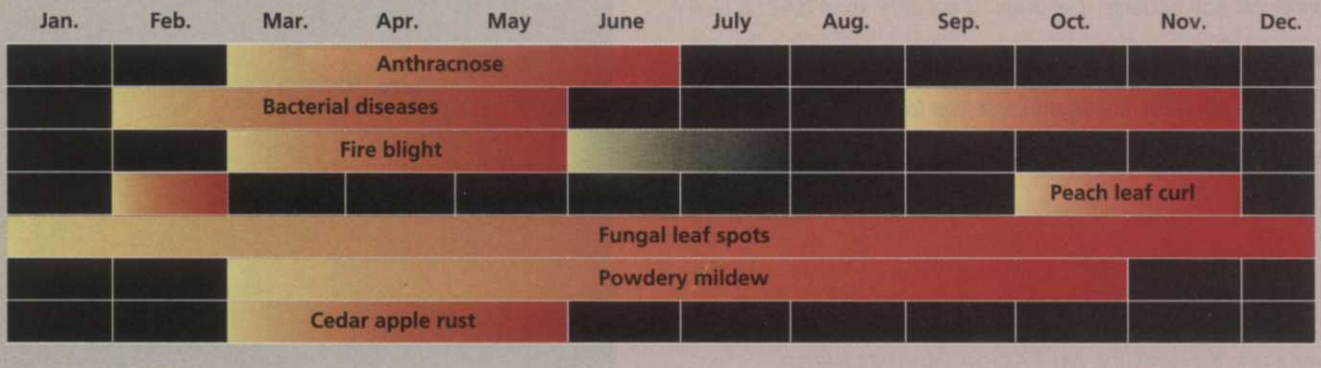
2) Irrigate early to allow the relative humidity at the leaf surface to drop quickly.

3) Select resistance species or cultivars.

4) Fungicides are available, when needed, to control established infections.

LANDSCAPE ORNAMENTALS - TIMING OF COMMON DISEASES

Chart gives general times when common ornamental diseases occur. They may occur at other times, however, depending on location and environmental conditions.



Rust (various fungal species)

Rusts attack leaves and stems, although sometimes flowers and fruits are affected. Most rusts are very specialized and attack only specific host plants. However, there are more than 4,000 kinds of rusts and many ornamental plants are susceptible to at least one of them.

Rusty, orange, yellow or even white spots break through the leaf surface. Spots don't enlarge, unlike most fungal leaf spots. Reddish discoloration (caused by spray injury, weather, or other leaf spot fungi) is often mistaken for rust. When rusts cause disease, the tissue around the pustule is usually yellow and the pustules have a powdery, rusty "dust" in them. Frequently, plants are stunted.

Management strategies

1) Plant resistant varieties when available.

2) Fungicides are effective in controlling many rust diseases.

Botrytis

(Botrytis spp.)

Many bedding plants are susceptible to botrytis. Symptoms vary depending on the host plant but may include bud and flower blights, blossom blights, gray-mold rot and stem and crown rots. When infection occurs on leaves, they appear watersoaked and often a brownish-gray mold covers the affected area. Dark spores can be rubbed off affected areas with a light touch. Botrytis diseases generally occur in areas of high humidity or excessive moisture. They are especially damaging in greenhouse situations.

Management strategies

1) Sanitize; remove fading flowers, blighted foliage or whole plants if infection is near the base.

2) Use proper plant spacings and good ventilation.

3) Avoid overhead watering and too cool temperatures.

4) Fungicide applications may be necessary.

General foliar leaf spots

Fungal leaf spots are the most common ornamental diseases, so common we seldom notice them, which is good. It would be impossible to control the myriad of leaf spots every season. Most leaf-spot-causing fungi require a thin layer of moisture on the leaf surface for them to germinate and infect. While many leaf spots are unsightly, few cause significant damage to the plant and, in many instances, can be ignored.

Management strategies

1) Irrigate to allow leaves to dry quickly.

2) Improve air circulation.

3) Several broad-spectrum fungicides are available.

Pythium and phytophthora rots

These fungi are known as water molds, and cause more damage in poorly-drained areas when temperatures prevent optimum plant growth and when excessive nitrogen has been applied. Both cause seed rots, damping-off, root rots, and soft rots. Infected seeds fail to germinate, become soft and mushy, and finally disintegrate. Seedlings can be infected at the roots, sometimes at or below the soil line. Invaded areas become water soaked and discolored. Infection of older roots is usually limited to the outer cortex of the root. The cortex slips easily from the rest of the root when held between the thumb and forefinger and gently tugged. In some cases, Phytophthora can cause aerial diseases of foliage. Leaves appear to melt away very rapidly.

Management strategies

1) Improve surface and subsurface drainage.

2) Manage water carefully.

3) Plant when temperatures are favorable for fast germination and growth.

4) Seed treatments and foliar-applied fungicides are available.

Rhizoctonia, Fusarium, Thielaviopsis Rots / Blights

These fungi cause root rots, stem rots, and in some cases, leaf spots and blights. As soil-borne organisms, these fungi attack roots or stems near the soil line. While *Pythium* and *Phytophthora* do best in the low oxygen environment of poorly drained soils, *Rhizoctonia* causes similar root rots in well-drained soils. *Thielaviopsis* is most destructive in heavy, cold wet soils with lots of organic matter. All of these diseases are problems in greenhouses where cuttings are being started.

Management strategies

1) Use sterile potting mix.

2) Optimize environmental conditions for rapid plant growth.

3) Practice good sanitation.

4) Fungicides may be necessary to bring these diseases under control once they become established. **LM**

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Botrytis causes leaves to appear watersoaked. Brownish-gray mold often covers leaves.