

Downy Mildew of Rose

Dr. Green Thumb
Arkansas Gardener – June
By: Stephen Vann

Diagnosis

This fungus disease of roses can become a significant problem to any rose grower during cool and humid environmental conditions when the fungus can infect, reproduce, and spread rapidly. Greenhouse-grown roses are especially prone to this disease. Under certain environmental conditions, field-grown roses can also develop the disease. High relative humidity (greater than 85%) with an optimum temperature (58–75 degrees F) favors infection and colonization of the fungus in rose tissues. Leaf wetness period is also a major contributor to disease outbreaks. When environmental conditions turn warm and dry, the disease may be kept in check until the next cool, humid weather period returns.

Symptoms

The first obvious symptom of this fungal disease usually appears as purple-to- brown lesions on the leaves. The lesions tend to be “blocky” in shape and may be surrounded by a yellow halo in some instances. Lesions may also occur on the stems and flowers. These lesions may be confused with chemical injury by some pesticides. The expanding lesions result in defoliation of leaflets and subsequent loss of plant vigor and blooms. Symptoms are often more predominant on younger plant portions. Symptoms may be confused with rose black spot, which is caused by a different fungus.

The downy mildew fungus (*Peronospora sparsa*) grows and produces copious spores exclusively on the lower leaf surfaces. The microscopic spores (conidia) are lemon shaped and are produced on delicate branched structures called sporangiophores. These spores are easily transported by wind or water. Unlike powdery mildew, downy mildew grows internally in plant tissues; thus, it is not as readily seen on the plant as the powdery mildew fungus.

Prescription

Lowering the humidity by ventilation and raising the temperature to 80 degrees F is helpful in controlling downy mildew under greenhouse conditions. Sanitation is also important in preventing seasonal fungal carryover. Symptomatic tissues (leaves, stems, and flowers) should be removed from the rose-growing area and destroyed. Rake leaves and prune out old flowers and stems. It is best to burn or bury these plant parts or send them to a landfill.

Several fungicides are helpful in managing this fungus disease when applied at regular intervals according to the fungicide label. Complete spray coverage of the shrub is essential for control. Both sides of the leaves should be sprayed to ensure protection. Fungicides containing the active ingredients trifloxystrobin or aluminum-tris are effective when applied according to the label. These materials work best when applied as preventatives (applied before infection occurs) rather than after the disease is established.

BYLINE: Stephen Vann is an associate professor and Extension urban plant pathologist with the University of Arkansas, Cooperative Extension Service.

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.