

# Black Spot of Roses

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**B**lack spot is the most important foliar disease of roses (*Rosa* spp.), which are perhaps the most popular flowering shrubs in Ohio (Fig. 1). This disease is widespread among all rose species and cultivars, although some rose cultivars have shown good resistance to black spot. Many hybrid tea roses are very susceptible, whereas many of the shrub and Rugosa roses show more resistance. Differences in reports of resistance or susceptibility of certain cultivars may be due to the population differences of the pathogen between geographic areas.

## Symptoms

Black spots that range from round in shape to quite irregular appear with the disease on the upper surface of leaves. The black spots are often surrounded by extensive chlorosis (yellowing), and often coalesce (Fig. 2). Ultimately, the plant sheds infected leaves in an attempt to prevent disease spread. However, this is not usually suc-



Figure 1. Typical black spot foliar symptoms.



Figure 2. Black spot lesions that have begun to cause chlorosis (yellowing).

cessful and leads to repeated defoliation that weakens the plants, leading to less blooming and greater sensitivity to other stresses. Sometimes symptoms can be seen on petals (red dots, distortions), petioles, fruit and canes (Fig. 3). The fungus can be seen fruiting (producing spores) in the black spots on infected leaves using a hand lens.

## Disease Cycle

The fungus, *Diplocarpon rosae*, overwinters on diseased canes and fallen, infested leaves. Spores produced on fallen leaves are spread via rain or water splashed to newly emerged leaves and stem tissue in the spring. Under ideal conditions of leaf wetness, humidity and temperature the spores can germinate and infect in 1 day, cause symptoms in 4 to 5 days, and produce new spores that can infect additional leaves, flowers and canes within 10 to 11 days. Spores are easily moved by air currents.

**Table 1. Rose varieties reported to have resistance to black spot.**

<p><b><i>Resistant hybrid teas:</i></b></p> <p>Carla Cayenne Charlotte Armstrong Chrysler Imperial Duet Electron First Prize Forty Niner Granada Miss All American Beauty Mr. Lincoln Olympiad Pascali Pink Peace Portrait Pristine Proud Land Smooth Lady Sutter's Gold Tiffany Tropicana</p> <p><b><i>Resistant floribundas/ grandifloras:</i></b></p> <p>Angel Face Betty Prior Carousel Cathedral Europeana Fashion First Edition Gene Boerner Goldilocks Impatient Ivory Fashion Love Mirandy Montezuma Pink Parfait Prominent Queen Elizabeth Razzle Dazzle Red Gold Rose Parade Sonia Sunsprite</p>	<p><b><i>Resistant shrub roses:</i></b></p> <p>Alba Meidiland All That Jazz Baby Love Belinda's Dream Caldwell Pink Carefree Beauty Carefree Delight Carefree Sunshine Carefree Wonder Distant Drums Else Pulsen George Vancouver Harrison's Yellow Katy Road Pink Knock Out Mrs. R. M. Fincn Prairie Harvest Prairie Sunshine Robusta Sea Foam Simon Fraser Simplicity Sir Thomas Lipton The Fairy Wanderin' Wind Winter Sunset</p> <p><b><i>Resistant Rugosa hybrids:</i></b></p> <p>Blanc double de Coubert F. J. Grookendorst Frau Dagmar Hartopp Linda Campbell Polyantha Rugosa Alba Rugosa Magnifica Rugosa Rubra Rosecraie de l'Hay The Fairy Therese Bugnet</p>	<p><b><i>Resistant miniatures:</i></b></p> <p>Always a Lady Angel Darling Anytime Apricot Twist Baby Betsy McCall Beauty Secret Black Jade Centerpiece Cinderella Cuddles Deep Velvet Green Ice Gourmet Popcorn Jennifer Linville Little Artist Loving Touch Magic Carousel Minnie Pearl Old Glory Pacesetter Queen City Rainbow's End Red Cascade Red Flush Rose Gilardi Simplex Singles Better Sweet Pickens Watercolor Work of Art</p> <p><b><i>Resistant climbing roses:</i></b></p> <p>Dortmund Dublin Bay Eden John Davis New Dawn Pinkie Prosperity Rambling Red Red Climber Royal Sunset William Baffin</p>
<p>Source: Pest Resistant Ornamental Plants by Deborah C. Smith-Fiola, Rutgers Cooperative Extension, and University of Kentucky Cooperative Extension Service Newsletter article by John Hartman, UK Extension Plant Pathologist.</p>		



Figure 3. Severe black spot infections can also spread to the canes.

## Management

- **Keep foliage dry.** Avoid overhead irrigation, and water only during the morning. Increase air circulation to promote drying by pruning and spacing plants. Allow the roses to have enough sun to dry foliage promptly when they are wet.
- **Sanitation.** Remove black spot infested leaves and fallen leaves as often as feasible throughout the season. At the end of the season, rake and dispose of old leaves and prune out black spot infected stems.
- **Disease resistance.** Chose cultivars that have resistance to black spot if at all possible, realizing that resistance may vary somewhat due to differences in local races of the pathogen; see Table 1. Consult local Extension publications, rosarians, and horticulturists for suggestions of cultivars that may be best suited to resist black spot in your area. Make observations of relative disease incidence in local rose collections and your own gardens, and chose future cultivars based on those observations.
- **Preventative fungicide applications.** Fungicide controls are not successful if cultural and sanitation practices are not followed. For fungicides to work effectively, applications must be made preventively, providing a protective fungicide barrier that kills germinating fungal spores that land on uninfected leaves. This may involve starting spray programs as soon as foliage emerges in the spring and continuing throughout the summer at frequent intervals (as frequently as every 7 to 10 days in wet weather). Some examples of fungicides that are marketed toward the homeowner market and labeled for the control of black spot of rose include captan, chlorothalonil (Ortho Garden Disease Control, Bonide Fung-onil Multi-purpose Fungicide), mancozeb, myclobutanil (Spectracide Immunox Multipurpose Fungicide), potassium bicarbonate (Bonide Remedy), propiconazole (Bonide Infuse, Ferti-lome Systemic Fungicide), thiophanate-methyl (Ferti-lome Halt Systemic Fungicide), copper hydroxide (Hi-Yield Copper Fungicide), copper salts (Bonide Liquid Copper Fungicide), lime sulfur, neem oil, and sulfur.

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