

## Rose Diseases

Roses are one of the most popular and versatile flowering shrubs grown throughout South Carolina. Most roses require a lot of care to grow and bloom properly. One of the most common causes of failure with roses is poor disease control. The three most serious diseases of roses in South Carolina are black spot, powdery mildew, and stem canker and dieback. For more information on roses see [HGIC 1172, Growing Roses](#).

Remember that different types of roses vary greatly in their resistance to diseases and the maintenance they require. To grow roses successfully, you must select varieties that require an amount of care equal to that which you are able to provide. Shrub type roses bloom beautifully with few chemical controls needed, while the more susceptible varieties such as hybrid tea roses require an effective spray program to be in place before the growing season begins.

### Black Spot

Black spot is a common and serious rose disease often reaching epidemic proportions in a season. The disease is caused by the fungus, *Diplocarpon rosae*. It is most severe after long wet, warm periods in the spring. Symptoms occur on rose leaves as circular, black spots surrounded by a yellow area. Infected leaves often drop from the plant. Infection continues throughout the summer months. The immature wood of first year canes develops raised, purple-red irregular blotches. Plants become stunted and produce fewer, paler flowers. By mid-summer severely infected plants may have lost all of their leaves.

**Prevention & Treatment:** The spread of black spot can be reduced and future infections minimized by following these cultural practices:

- **Plant Resistant Varieties:** (See the following list)
- **Maintain Good Sanitation:** Sanitation practices are critical in reducing future disease development. In the fall or winter remove all old leaves on the ground along with any mulch that has been contaminated with infected leaves. Replace with a fresh layer of mulch before new rose growth begins in the spring.
- **Remove & Destroy Infected Canes:** Canes affected by black spot have dark or reddish areas (lesions). Severely infected plants should be pruned back in the winter or early spring to within 1 to 2 inches of the bud union, according to variety and cultivar. During the growing season, remove and dispose of infected leaves as they appear.
- **Keep Leaves Dry:** It is best not to syringe plants with water, and do not use overhead irrigation, especially not in the late afternoon or early evening. Soaker hoses are an excellent way to water roses and to conserve water. Promote rapid drying of leaves by planting roses in the full sun. Space new plants far enough apart to allow for good air circulation.

Use fungicide sprays to control black spot effectively, even on resistant varieties. A rigorous fungicide program must be followed during conditions that favor disease development for susceptible cultivars. Select one of the following fungicide sprays, if disease is severe enough to warrant control: captan, chlorothalonil, mancozeb, myclobutanil, propiconazole, triforine or copper fungicides. See Table 1 for examples of products. Apply all chemicals according to directions on the label.

## Powdery Mildew

Powdery mildew is another widespread and serious disease problem of roses. It is caused by the fungus, *Sphaerotheca pannosa* var. *rosae* and produces a grayish-white powdery substance on the surfaces of young leaves, shoots and buds. Infected leaves may be distorted, and some leaf drop may occur. Flower buds may fail to open, and those that do may produce poor-quality flowers. It can occur almost anytime during the growing season when temperatures are mild (70 to 80 °F), and the relative humidity is high at night and low during the day. It is most severe in shady areas and during cooler periods.

**Prevention & Treatment:** Rose varieties differ in their susceptibility to powdery mildew, thus resistant varieties are the best defense against this disease. A film of water inhibits infection, so in years when rainfall is high during spring and summer, control measures may not be needed until the drier months of late summer. Remove and destroy diseased leaves and canes during the growing season. Rake up and destroy leaves under the plant in the fall.

If the disease is severe enough to warrant chemical control, select a fungicide that controls both black spot and powdery mildew. Fungicide sprays recommended for use in the home garden include: propiconazole, thiophanate-methyl, myclobutanil, triadimefon, triforine, sulfur, neem oil (clarified hydrophobic extract), or baking soda mixed with horticultural oil. See Table 1 for examples of products. Apply all chemicals according to directions on the label.

The following roses have some disease resistance;

### Black Spot - Resistant:

- *Hybrid tea*: 'Pride N Joy'
- *Floribunda*: 'Sexy Remy'
- *Grandiflora*: 'Prima Donna'

### Black Spot & Powdery Mildew - Moderately Resistant:

- *Hybrid tea*: 'Duet,' 'Eiffel Tower,' 'Grand Slam,' 'Jamaica,' 'Matterhorn'
- *Floribunda*: 'Golden Slipper,' 'Saratoga'

- *Grandiflora*: 'Camelot,' 'John S. Armstrong,' 'Pink Parfait,' 'Queen Elizabeth'
- *Shrub roses*: 'All That Jazz,' 'Carefree Wonder'

### Black Spot, Powdery Mildew & Cercospora Leaf Spot - Resistant

- *Rugosa roses*: 'Blanc Double de Coubert,' 'Fru Dagmar Hastrup' ('Frau Dagmar Hartopp') 'Rugosa Alba,' 'Topaz Jewel'
- *Alba rose*: 'Alba Semi-Plena'

## Stem Canker & Dieback

Cankers usually appear as dead or discolored areas on rose canes and vary in color from light tan to dark purplish brown. They are caused by various species of fungi, including *Botryosphaeria*, *Leptosphaeria*, *Coniothyrium* and *Cryptosporella*. These fungi enter healthy canes through wounds caused by winter injury, improper pruning, wind, hail damage, or flower cutting. Cankers can enlarge until they entirely surround the cane, and/or reach the base (crown) of the plant spreading to other canes or killing the plant. They commonly occur on roses that have been weakened by black spot, poor nutrition or winter injury.

**Prevention & Treatment:** There are no fungicides specifically available to control stem canker. Keep plants healthy by controlling black spot, powdery mildew and insects. The following cultural methods can help minimize disease development.

- ***Avoid Injury to the Plant During Transplanting, Cultivating, Pruning, & Flower - Cutting:*** Wounds are a major way the fungus enters the plant.
- ***Prune Properly:*** To prune an outward facing bud. This will help to avoid too many branches growing into the center of the plant that may cross and rub together.
- ***Remove & Destroy all Infected or Dead Portions of Canes Immediately:*** Make all pruning cuts well below the diseased areas, and prune about one-fourth inch above an outward-facing bud node, without cutting the nodal tissue, at a 45-degree angle. Prune live canes in the spring, not fall. Disinfect cutting tools after use on a diseased plant in a solution of 1 part household bleach to 9 parts water.

## Rust

Rose rust is a disease caused by the fungi *Phragmidium* species. It causes orange-colored spots to appear on stems and leaves. When rust is severe, an orange dust-like substance may be present on the plant surface and on the ground below the plant. Rose rust attacks all plant parts except the roots and petals. Severely diseased leaves of highly susceptible cultivars may turn yellow or brown and drop.

**Prevention & Treatment:** Provide good air circulation. Do not plant roses in crowded areas and prune plants to keep the centers open. Water plants before noon and avoid getting the leaves wet. Remove and destroy diseased leaves and plants. Fungicides containing myclobutanil, mancozeb or propiconazole are recommended for homeowner use. See Table 1 for examples of products. Apply all chemicals according to directions on the label.

## Botrytis Blight

Rose flowers and buds are often infected with the gray-brown fuzzy growth of the gray mold fungus *Botrytis cinerea*. The fungus is most active when temperatures are 62 to 72 °F and conditions are moist. Infected canes have discolored sunken areas (cankers) and dieback that can extend down the stem from the flowers. Diseased flower petals have small, light-colored spots surrounded by reddish halos, which can quickly expand into large, irregular blotches. Buds fail to open and often droop. Thrips can cause similar damage to half-open buds, so inspect plants carefully.

**Prevention & Treatment:** Keeping the area clean is more important than anything else. Collect and discard all fading flower blossoms and leaves. Provide good air circulation, and avoid wetting the leaves when watering. Disease easily develops on canes that have been damaged, on canes that are kept too wet by the use of manure mulch, or on wet leaves. If chemical control is necessary, fungicides containing captan, chlorothalonil or neem oil (clarified hydrophobic extract) are available for homeowner use. Use neem oil on a trial basis, especially on open blooms and during hot weather. On dormant bushes copper sulfate fungicides can be used. See Table 1 for examples of products. Apply all chemicals according to directions on the label.

## Rose Rosette Disease

Rose rosette disease is an untreatable rose disease caused by the *Rose rosette virus* (RRV), and is spread and introduced into the rose during feeding by the rose leaf curl mite (*Phyllocoptes fructiplilus*). This extremely small eriophyid mite feeds on cell sap of the tender stems and leaf petioles. The rose leaf curl mite alone causes little damage while feeding, but if it is a carrier of RRV, symptoms begin to appear in the rose typically within one to three months.

Roses exhibit reddened terminal growth on infected branches, and the stems become thicker and more succulent than those on unaffected parts of the plant. These stems exhibit an abnormally high number of pliable thorns, which may be either green or red. Rose leaves that develop on infected branches are smaller than normal and may be deformed similarly to herbicide injury by 2,4-D. Lateral branches may grow excessively from main stems and create a witch's broom symptom quite like glyphosate (Roundup™) injury on roses. Flowering is reduced, and the petals may be distorted and fewer in number.



Rose with Rose Rosette Disease showing symptoms of reddened new growth, thicker stem, excessive thorns, and smaller leaves.

Meg Williamson, Plant Problem Clinic, Clemson University

These symptoms generally become evident in the late spring to early summer and progress during the growing season. Once the rose becomes infected, RRV moves throughout the plant and the entire plant is infectious. By the time symptoms are evident in a rose, it already may have spread to

adjacent plants by the movement of the eriophyid mites. Infected plants typically die within a couple of years.

**Prevention & Treatment:** The wild multiflora rose is very susceptible to the rose rosette disease, so any nearby wild plants should be removed and promptly disposed. Any infected, cultivated roses should be immediately removed, then burned or bagged. Also remove any roots, which might re-sprout later. Do not leave an uprooted infected plant in the garden, as the mites may leave this rose for other nearby plants. Always space rose plants so they do not touch.

Because RRV is systemic within the infected rose plants, grafting asymptomatic stems onto other rose plants will transmit the virus. Pruners used on diseased plants must be disinfested with rubbing alcohol or a dilute bleach solution before being used on uninfected plants, as sap on the pruners is contaminated with the virus.

To reduce the spread of the eriophyid mites from the site of an infected rose, nearby roses can be treated with a bifenthrin spray every two weeks between April and September. This may prevent additional plants from becoming diseased. Examples of products containing bifenthrin are Hi-Yield Bug Blaster Bifenthrin 2.4 Concentrate or Ready-to-Spray, Hi-Yield Bug Blaster II Turf Termite & Ornamental Insect Control Concentrate, and Ortho Bug-B-Gon Max Lawn & Garden Insect Killer Concentrate. Check product labels for the correct active ingredient. Follow label directions for use.

### **Rose Mosaic**

The symptoms associated with *Rose mosaic virus* (RMV) are highly variable. Yellow wavy line patterns, ring spots and mottles in leaves will occur on some varieties of roses sometime during the growing season. In general, symptoms are most

evident in the spring. Yellow net and mosaic symptoms on the leaves are also associated with RMV and detract from the overall quality of the plant. Infected plants become weakened and are more sensitive to damage caused by other stresses, such as drought or low temperatures.

**Prevention & Treatment:** Virus-infected plants cannot be saved. Rose mosaic spreads slowly, if at all, in established rose plantings through root grafts. Infected plants should be removed from highly prized plantings and destroyed. Buy only healthy plants from a reputable dealer; especially avoid purchasing plants showing any mosaic symptoms.

### **Crown Gall**

This disease is caused by a soil-inhabiting bacterium, *Agrobacterium tumefaciens*, which infects many ornamentals in the home garden. The symptoms are rounded galls, or swellings, that occur at or just below the soil surface on stems or roots. The galls are light green or nearly white when young. As they age, the galls darken and become woody, ranging in size from small swellings to areas several inches across. The galls disrupt the flow of water and nutrients traveling up from the roots and stems, thus weakening and stunting the top of the plant.

**Prevention & Treatment:** To prevent crown gall, select disease-free roses. Once a plant is infected, nothing can be done since there are no chemical controls available for crown gall. Avoid injury to the roots and crown of the plant during planting and cultivating because the bacteria enter through fresh wounds. Remove infected plants as soon as galls are observed. If possible, remove and discard the soil from the area where the infected plant was located. Disinfect all cutting and pruning tools that have been used near crown gall. To disinfect tools, dip them for several minutes in a solution of 0.5 percent sodium hypochlorite (household bleach).

**Table 1. Fungicides for Rose Disease Control**

<b>Pesticide Active Ingredient (Label Signal Word)</b>	<b>Brand Names &amp; Products</b>
Captan (Danger)	<ul style="list-style-type: none"> <li>• Southern Ag Captan Fungicide WP</li> <li>• Bonide Captan 50% WP</li> <li>• Drexel Captan 50W</li> <li>• Arysta Captan 50% WP</li> <li>• Hi-Yield Captan 50W Fungicide</li> </ul>
Chlorothalonil (Warning)	<ul style="list-style-type: none"> <li>• Hi-Yield Vegetable, Flower, Fruit &amp; Ornamental Fungicide Concentrate</li> <li>• Ferti-lome Broad Spectrum Landscape &amp; Garden Fungicide Concentrate</li> <li>• Ortho MAX Garden Disease Control Concentrate</li> <li>• Ortho Disease-B-Gon Garden Fungicide (Conc.)</li> <li>• Bonide Fungonil Concentrate</li> <li>• Tiger Brand Daconil (Conc.)</li> <li>• Southern Ag Liquid Ornamental &amp; Vegetable Fungicide (Conc.)</li> </ul>
Copper Fungicides	<ul style="list-style-type: none"> <li>• Natural Guard Copper Soap Liquid Fungicide Conc.; &amp; RTU<sup>1</sup></li> <li>• Bonide Liquid Copper Concentrate (a copper soap); &amp; RTU<sup>1</sup></li> <li>• Lilly Miller Worry Free Copper Soap Fungicide RTU<sup>1</sup></li> <li>• Camelot Fungicide/ Bactericide Concentrate (a copper soap)</li> <li>• Ortho Disease-B-Gon Copper Fungicide (a copper soap) RTU<sup>1</sup></li> <li>• Bonide Copper Fungicide (copper sulfate); &amp; RTU<sup>1</sup></li> <li>• Hi-Yield Bordeaux Mix Fungicide (basic copper sulfate)</li> <li>• Monterey Liqui-Cop Fungicide Conc. (a copper ammonium complex)</li> <li>• Lilly Miller Kop-R-Spray Concentrate (a copper ammonium complex)</li> <li>• Southern Ag Liquid Copper Fungicide (a copper ammonium complex)</li> </ul>
Horticultural oil <sup>3</sup>	<ul style="list-style-type: none"> <li>• Ferti-lome Horticultural Oil Spray Concentrate; &amp; RTS<sup>2</sup></li> <li>• Green Light Horticultural Oil Spray Concentrate</li> <li>• Ortho Volck Oil Spray Concentrate</li> <li>• Bonide All Seasons Spray Oil Concentrate; &amp; RTU<sup>1</sup></li> <li>• Southern Ag ParaFine Horticultural Oil</li> <li>• Lilly Miller Superior Type Spray Oil Concentrate</li> <li>• Monterey Saf-T-Side Concentrate</li> </ul>
Mancozeb	<ul style="list-style-type: none"> <li>• Bonide Mancozeb Flowable</li> <li>• Southern Ag Dithane M-45</li> </ul>
Myclobutanil	<ul style="list-style-type: none"> <li>• Spectracide Immunox Multi-Purpose Fungicide Concentrate; &amp; RTS<sup>2</sup></li> </ul>
Neem oil	<ul style="list-style-type: none"> <li>• Southern Ag Triple Action Neem Oil Concentrate</li> <li>• Ferti-lome Rose, Flower &amp; Vegetable Spray Concentrate</li> <li>• Green Light Rose Defense Concentrate</li> <li>• Green Light Neem Concentrate</li> <li>• Garden Safe Fungicide 3 Concentrate; &amp; RTU<sup>3</sup></li> <li>• Safer Brand Concern Garden Defense Multi-Purpose Spray Concentrate</li> <li>• Monterey 70% Neem Oil Fungicide/Insecticide/Miticide</li> <li>• Natural Guard Neem Concentrate</li> <li>• Bonide Neem Oil Fungicide, Miticide &amp; Insecticide Concentrate</li> </ul>

Propiconazole (Warning)	<ul style="list-style-type: none"> <li>• Ferti-lome Liquid Systemic Fungicide</li> <li>• Bonide Infuse Fungicide Concentrate; &amp; RTS<sup>2</sup></li> <li>• Monterey Fungi-Fighter Fungicide Concentrate</li> <li>• Maxide Dual Action Disease Killer RTS<sup>2</sup></li> <li>• Bonide Fung-onil Lawn &amp; Garden Disease Control RTS<sup>2</sup></li> </ul>
Sulfur <sup>3</sup>	<ul style="list-style-type: none"> <li>• Southern Ag Wettable or Dusting Sulfur</li> <li>• Bonide Sulfur Plant Fungicide (also wettable for spray)</li> <li>• Lilly Miller Sulfur Dust (also wettable for spray)</li> <li>• Hi-Yield Wettable Dusting Sulfur</li> <li>• Safer Brand Garden Fungicide Concentrate; &amp; RTU<sup>1</sup></li> <li>• Ortho EcoSense 3-in-1 Rose &amp; Flower Care RTU<sup>1</sup></li> </ul>
Thiophanate-methyl	<ul style="list-style-type: none"> <li>• Cleary's 3336 WP Turf &amp; Ornamental Fungicide</li> <li>• Ferti-lome Halt Systemic Fungicide</li> <li>• Southern Ag Thiomyl Systemic Fungicide</li> </ul>
Triadimefon	<ul style="list-style-type: none"> <li>• Green Light Fung-away Systemic Fungicide Spray RTS<sup>2</sup></li> <li>• Southern Ag Systemic Fungicide for Turf &amp; Ornamentals Concentrate</li> </ul>
Triforine (Danger)	<ul style="list-style-type: none"> <li>• Ortho RosePride Disease Control Concentrate</li> </ul>
<sup>1</sup> RTU = Ready to Use (pre-mixed spray bottle) <sup>2</sup> RTS = Ready to Spray (hose-end applicator) <sup>3</sup> Never apply a horticultural oil spray within 2 weeks of a sulfur spray, and do not apply horticultural oils or sulfur when the temperature is above 90 °F or to drought-stressed plants. <b>With all pesticides, read and follow all label instructions and precautions.</b>	

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Revised by Joey Williamson, HGIC Horticulture Extension Agent, Clemson University, 11/11. Originally prepared by Nancy Doubrava, HGIC Information Specialist, and James H. Blake, Extension Plant Pathologist, Clemson University, 01/00.

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