Gardenia Diseases & Other Problems

With their wonderfully fragrant blossoms and lustrous, dark green leaves, gardenias (Gardenia angusta, previously known as G. jasminoides) are popular shrubs with many southern gardeners. Their positive qualities compensate to a large extent for the fact that gardenias are somewhat high-maintenance plants with fairly specific cultural requirements. To learn more about growing healthy gardenias, see HGIC 1065, Gardenia. In addition to problems resulting from improper growing conditions, gardenias are also susceptible to several diseases, insect pests and other problems. For information on insects and related pests that attack gardenias, see HGIC 2059, Gardenia Insects & Related Pests.

Diseases

**Root Rots:** Various fungi, including Phytophthora species, Rhizoctonia species and Pythium species, cause root rots in gardenias. In South Carolina, Phytophthora is identified most often as the pathogen. As the disease name indicates, root rots are characterized by a decay of some portion of the roots.

Above-ground symptoms of root rot include leaf yellowing (oldest leaves first), leaf drop and wilting. Depending on how extensively the roots are affected as well as which roots are affected, the plant may appear generally unhealthy for an extended period of time, or wilt suddenly and die. In addition, the symptoms may be present on only one side of the plant or may affect the plant as a whole.

When above-ground symptoms indicate root rot, roots should be examined as soon as possible. A healthy root system will have white feeder (non-woody) roots present. With root rots, the feeder roots may be brown and rotting, or missing completely. The outer tissue (cortex) of rotting roots can be easily removed by pulling, leaving behind the threadlike core or stele (conducting tissue).

![Gardenia (Gardenia angusta) exhibiting above-ground symptoms of root rot.](image)

Steve Jeffers, ©2009 Clemson Extension

Disease development is favored by any factor that encourages wet soil conditions, including poor drainage and over irrigation. Planting too deeply also contributes to the problem.

**Control:** The best management practice for root rot problems is prevention. Check the roots of nursery stock before purchasing. Make sure there is adequate drainage in the area where you want to plant. If the area drains poorly, creating a raised bed can help.

If a plant has already died from Phytophthora root rot and a replacement is wanted for the same
location in the landscape, it is best to choose a plant that is known to have resistance.

**Powdery Mildew:** The fungus, *Erysiphe polygoni*, causes powdery mildew on gardenias. Fungi that cause powdery mildew typically grow on the surface of a plant sending only their haustoria (specialized organs for absorbing nutrients and water) into the plant cells.

Signs of infection include a whitish to grayish colored, powdery, fungal growth that can occur in spots or patches, which sometimes enlarge to cover the entire leaf or other plant structure. The fungus is mostly found on the upper leaf surface, but also may be found on the lower leaf surface. The disease typically appears in the summer and reaches its peak in late summer. Over time, these patches of fungal growth may darken and form small, rounded, reproductive structures called cleistothecia. They begin as pinhead-sized, round structures that are whitish and then darken to yellow-brown and finally to a brown or black color.

Powdery mildew of gardenia primarily affects young leaves and shoots, and symptoms of infection typically include deformed leaves and buds, leaf yellowing, and leaf drop.

**Control:** Properly space plants to allow for good air circulation which reduces the humidity level needed by the fungus to infect. Prune out diseased tissue, and rake up and destroy fallen leaves.

If needed, apply fungicides as a preventative against powdery mildew. Fungicides are most effective against powdery mildew when used early in the disease development process. Recommended fungicides include myclobutanil, thiophanate-methyl, chlorothalonil, propiconazole, triforine and horticultural oil with baking soda. Some control may also be obtained by applying sulfur or neem oil. See Table 1 for products.

**Stem Canker:** In general, cankers are dark, oval or elongated stem lesions that may be sunken with a raised edge. With time, the canker may develop into a gall (a swollen area resulting from infection). Cankers are most often found on stems (especially near soil level) of a gardenia; however, leaves and roots are also susceptible. They are caused by the fungus, *Phomopsis gardeniae*, which gains access to the plant through wounds. The fungus remains localized near the canker and with high humidity will produce spores that are easily spread by rain or overhead irrigation. The fungus survives the winter within the canker.

Canker on main stem of gardenia (*Gardenia angusta*). Joey Williamson, ©2010 HGIC, Clemson Extension

Depending on where the canker develops, the first symptom that often is noticed is wilting of the leaves on part or all of the plant. Leaves on affected branches often become a duller green color, may yellow and then drop. Flower buds on affected branches may drop without opening. Overall stunting of the plant is common.

**Control:** The most important aspect of controlling this disease is to prevent injury to the gardenia. Infected stems should be pruned out, taking care to disinfect pruners in a 10% bleach solution (1 part bleach to 9 parts water) or 70% alcohol solution between cuts. Avoid stressing an affected gardenia further by over- or under-fertilizing, or over- or under-watering. Irrigate at the base of the plant to minimize moisture on plant surfaces as well as spread of spores. Affected plants that are growing poorly should be removed and destroyed. Any new gardenias should be planted in a different location. In a home landscape, fungicides are generally not practical or effective control options.

**Nematodes:** Various nematodes (microscopic roundworms) feed on the roots of gardenias. Aboveground symptoms of root damage resulting from nematode feeding include wilting during hot, dry weather, oftentimes with recovery at night. Leaves may show yellow mottling and other indications of a nutritional deficiency. Over time the plant may become stunted and exhibit dieback of branches.
Below-ground symptoms depend on which nematode species are feeding as well as how many are feeding. Root damage can include stunting, discoloration, excessive branching and/or the presence of galls (small swellings of plant tissue).

**Control:** To confirm the presence of nematode damage, root and soil samples should be tested. Depending on the amount of root damage, gardenias may benefit from more frequent applications of water and fertilizer. In addition, mulching is helpful. Severely affected gardenias should be removed and destroyed.

There are no nematicides available to homeowners for treating the soil to control nematodes. If nematodes are a problem in a particular area, plant in a different location or choose a plant that is resistant to the nematodes present.

**Other Problems**

**Sooty Mold:** A charcoal-black, powdery or velvety coating on leaves and other plant parts is the result of growth of one of the commonly occurring sooty mold fungi. The good news is that despite its appearance, the fungus is not infecting plant tissue and is not causing disease. It grows on the surface of the plant and gets its nourishment from honeydew that is excreted by sap-sucking insects such as aphids, some scales, whiteflies, leafhoppers, mealybugs and others. As these insects suck plant sap, they are unable to digest all of the sugar that they ingest. The excess is excreted as sugary liquid called honeydew. For information on controlling the insect pests whose feeding habits result in sooty mold problems, see [HGIC 2059, Gardenia Insects & Related Pests](#).

![Sooty mold present primarily on previous year’s foliage.](image)

Diagnosis of sooty mold is made simple by the fact that the black fungal growth can be removed by wiping with a moist paper towel, or in some cases, by peeling it off to reveal an undamaged plant surface.

While mainly a cosmetic problem, when sooty mold is severe it can reduce the vigor of plants by blocking sunlight necessary for photosynthesis (food production). On the other hand, insect feeding can seriously damage a plant. Between insect feeding and reduced photosynthesis, the plant may be more susceptible to other insect, disease, and environmental problems.

**Control:** Since the cause of the problem is insect activity, control measures should be directed at the insects rather than the fungus. Important first steps include identifying the plant that is infested and the insect that is causing the problem. When identifying the infested plant, always look at plants growing above the gardenia as well as the gardenia itself. With a sufficiently heavy infestation of sap-sucking insects, the sticky honeydew may drip from an infested plant to non-infested plants growing below (as well as onto objects such as lawn furniture, decks, cars, etc.).
Bud Drop: When a gardenia is stressed, unopened flower buds may drop from the plant. Potential stressors include infestations of thrips or aphids, root feeding by nematodes, too much fertilizer, over-watering, under-watering, poor soil drainage, insufficient light, unusually cool weather, rapid drops in temperature or very hot, dry weather.

Yellowing Leaves: As an evergreen shrub, it is normal for older leaves of a gardenia to turn yellow and drop. This typically occurs during early spring before new growth appears. If chlorosis (leaf yellowing) occurs at other times of the year and there is no evidence of insect pests or disease, and the remaining leaves look healthy, then there may be an environmental or cultural factor causing yellow foliage. As with bud drop, several stressors, including insect infestations, nematode feeding, over-watering, under-watering, poor soil drainage, insufficient light, soil temperatures below 70 °F and poor nutrition may cause leaf yellowing and drop.

Iron Chlorosis: Gardenias are acid-loving plants that grow best in a soil with a pH of 5.0 to 6.0. Iron is an essential nutrient that plants use to produce the green pigment, chlorophyll. While iron is rarely deficient in soil, if the soil pH is above 7.0, the iron may be in a form that is not available to the plant.

When a gardenia does not get the iron it needs, its leaves generally turn pale green to yellow. Young leaves may turn completely yellow except for the veins and nearby tissue which remain green. Older leaves may only be yellow along the edges. Overall, the plant may become stunted.

Control: Ideally, soil pH problems are corrected prior to planting. Since this option is often not available, the first step for solving a suspected iron deficiency problem is to take a soil test to determine the soil pH. If the existing pH is identified as being too high, instructions are provided in HGIC 1650, Changing the pH of Your Soil on how to lower soil pH as needed.

In cases where the soil pH was raised above 7.0 due to the application of lime, water soluble sulfur or aluminum sulfate can be applied to the soil beneath the shrub. However, in soils with a naturally high pH, applications of these materials may not result in a permanent lowering of the soil pH.

In lieu of changing the soil pH, annual applications of chelated iron can be applied to the soil or directly to gardenia leaves to provide the necessary iron. Another iron source that can be used for foliar applications is ferrous sulfate (FeSO₄·2H₂O). When foliar applications are used, the addition of a couple of drops of dishwashing soap per gallon of water will help wet leaves and aid absorption. These soil or foliar applications will have to be applied multiple times during the growing season if the underlying soil pH problem is not resolved. Reapplication time should be determined by observing the leaves for the reappearance of symptoms. See Table 2 for brands of iron-containing products.

Once the soil pH has been corrected, it can be maintained by using a slow-release fertilizer that is designed for acid-loving plants, such as Vigoro Premium Azalea, Camellia & Rhododendron Food (10-8-8); Scotts Evergreen Flower, Tree & Shrub Continuous Release Plant Food (11-7-7); Lilly Miller Azalea, Camellia & Rhododendron Food (10-5-4); Hi-Yield Azalea, Camellia, Gardenia & Evergreen Fertilizer (4-8-8); or Espoma Holly-tone (4-3-4). Also, be sure not to apply lime near a gardenia. Keep in mind that lime can leach from cement and brick mortar and affect the pH of the surrounding soil.
<table>
<thead>
<tr>
<th>Pesticide Active Ingredient</th>
<th>Brand Names &amp; Products</th>
</tr>
</thead>
</table>
| Chlorothalonil              | Hi-Yield Vegetable, Flower, Fruit & Ornamental Fungicide Concentrate  
Ferti-lome Broad Spectrum Landscape & Garden Fungicide Concentrate  
Ortho MAX Garden Disease Control Concentrate  
Bonide Fung-onil Concentrate  
Tiger Brand Daconil  
Southern Ag Liquid Ornamental & Vegetable Fungicide  
GardenTech Daconil Fungicide Concentrate  
Monterey Fruit Tree, Vegetable & Ornamental Fungicide |
| Horticultural oil\(^1,2\)  | Ferti-lome Horticultural Oil Spray Concentrate  
Bonide All Seasons Spray Oil  
Southern Ag ParaFine Horticultural Oil  
Monterey Horticultural Oil Concentrate |
| Myclobutanol                | Spectracide Immunox Multi-Purpose Fungicide Concentrate; & RTS\(^3\) |
| Neem oil                    | Southern Ag Triple Action Neem Oil Concentrate  
Ferti-lome Rose, Flower & Vegetable Spray Concentrate  
Garden Safe Fungicide 3 Concentrate  
Garden Safe Neem Oil Extract Concentrate  
Monterey 70% Neem Oil Fungicide/Insecticide/Miticide  
Bonide Neem Oil Concentrate  
Natural Guard Neem Concentrate |
| Propiconazole               | Ferti-lome Liquid Systemic Fungicide II Concentrate; & RTS\(^3\)  
Bonide Infuse Fungicide Concentrate; & RTS\(^3\)  
Bonide Fung-onil Lawn & Garden Disease Control RTS\(^3\)  
Banner Maxx Fungicide  
Martin’s Systemic Fungicide RTS\(^3\) |
| Sulfur\(^2\)                | Southern Ag Wettable or Dusting Sulfur  
Bonide Sulfur Plant Fungicide (also wettable for spray)  
Hi-Yield Wettable Dusting Sulfur  
Safer Brand Garden Fungicide Concentrate |
| Thiophanate-methyl          | Cleary’s 3336 WP Turf & Ornamental Fungicide  
Southern Ag Thiomyl Systemic Fungicide |

\(^1\)Add 3 tablespoons of horticultural oil to a gallon of water with 3 tablespoons of baking soda for powdery mildew control.  
\(^2\)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.  
\(^3\)RTS = Ready to Spray (hose-end applicator)  
**With all pesticides, read and follow all label instructions and precautions.**
Table 2. Iron-containing Products to Correct Iron Chlorosis in Gardenia.

<table>
<thead>
<tr>
<th>Brand Names &amp; Products Containing Iron</th>
<th>Percent Iron &amp; Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ironite Mineral Supplement (1-0-1)</td>
<td>4.5% iron, plus 6 other trace elements; granules</td>
</tr>
<tr>
<td>Southern Ag Iron Granules</td>
<td>20% iron from ferrous sulfate; granules</td>
</tr>
<tr>
<td>Hi-Yield Copperas</td>
<td>19% iron from ferrous sulfate; granules</td>
</tr>
<tr>
<td>Southern Ag Essential Minor Elements</td>
<td>5% iron from ferrous sulfate &amp; chelated iron, plus 7 other trace elements; granules</td>
</tr>
<tr>
<td>Southern Ag Chelated Liquid Iron</td>
<td>5% iron (chelated) for soil application or foliar spray</td>
</tr>
<tr>
<td>Hi-Yield Liquid Iron &amp; Other Micronutrients</td>
<td>2.5% iron from ferrous sulfate for soil application or foliar spray, plus 3 other trace elements</td>
</tr>
</tbody>
</table>


This information is supplied with the understanding that no discrimination is intended and no endorsement of brand names or registered trademarks by the Clemson University Cooperative Extension Service is implied, nor is any discrimination intended by the exclusion of products or manufacturers not named. All recommendations are for South Carolina conditions and may not apply to other areas. Use pesticides only according to the directions on the label. All recommendations for pesticide use are for South Carolina only and were legal at the time of publication, but the status of registration and use patterns are subject to change by action of state and federal regulatory agencies. Follow all directions, precautions and restrictions that are listed.