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Growing Gardenias in Florida[1]

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General Description

For newcomers to the Sunshine State, gardenias are frequently one of the first plants selected to become part of the home landscape. Gardenias are evergreen shrubs that grow in height from 2 - 15 feet (depending on the cultivar), forming mounds of glossy, dark-green foliage. Leaves are oval shaped, and flowers vary in color -- from pale yellow with purple mottling to creamy white. Probably the most distinguishing characteristic of the gardenia is its sweet scent. All gardenia blossoms possess a wax-like appearance and can be either single or double, depending on the cultivar. Most gardenias flower from late March to mid-June. Faded blossoms are followed by the appearance of a large, yellowish-red, bitter-tasting berry.

Gardenias are frequently used in Florida landscapes as screens, hedges, borders or groundcover. Gardenias also may be used as free-standing specimens or in mass plantings.

A Brief History

Gardenias grown in Florida are all cultivars of *Gardenia augusta* (formerly known as *Gardenia jasminoides*). Gardenia originated in China, where the Chinese cultivated the plant for more than 1,000 years. In 1761 British naturalist John Ellis received a specimen of this plant from China and named the plant after his friend Dr. Alexander Garden, a noted botanist and physician in Charleston, South Carolina.

Due to the gardenia flower's elegant form, pure-white color and fragrance, gardenias soon became immensely popular in both Europe and in the British colonies in North America. In the 1920s and 1930s, gardenias became highly prized as a cut flower for corsages and arrangement. Today gardenias are a favorite shrub in the Florida landscape and are acclaimed for their creamy-white blossoms and unique fragrance of vanilla, jasmine, and nutmeg, a fragrance that becomes spicier as the gardenia blooms age.

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The Right Plant . . . Right Place: Site Selection and Placement

Prior to making any plant selection, review your site conditions (soil, light, space, and temperature) to determine whether your landscape is suitable for growing gardenias.

Soil

Gardenias grow in a variety of soil conditions in Florida, but gardenias will do best in well drained soil that is improved with organic matter. Where practical, consider amending a planting bed with compost, peat moss or manures to improve the nutrient and moisture-holding capacity.

Soil pH is an important consideration for gardenias. Soil pH determines the availability of mineral elements and should be between 5.0 and 6.5 for gardenias. Where soil pH is above 7.0 (usually due to naturally occurring limestone, marl, or sea shells), a constant effort will be required to avoid micronutrient deficiencies, most notably iron. Since no practical way is available to permanently lower the pH of such soils, selecting an alternative shrub more tolerant of these conditions is recommended. If you wish to grow gardenia despite soil limitations, consider growing one or more in containers; gardenia is well adapted to container culture.

Be sure to have your soil analyzed prior to selecting plants for your landscape. Your county's Extension Office can provide information on how to take a soil sample and have it analyzed.

Light and Spacing Requirements

Gardenias are semi-tropical plants that perform well in a mild, humid climate. Gardenias can be grown throughout Florida, but can be severely injured when temperatures drop to freezing. Gardenias are not salt tolerant, so planting along coastal areas is not advised.

Because gardenias are primarily grown for their fragrant blossom and handsome foliage, plant gardenias in a location with good air circulation and near patios or windows, where the fragrance can be enjoyed and the flower and foliage observed.

To achieve maximum flowering, plant gardenias in full sun or light shade in an open flower bed away from house foundations, pools and walkways. Because gardenias are “acid-loving” plants, they should not be planted near concrete, where soil alkalinity almost guarantees a gardenia will have nutritional problems.

Gardenia cultivars vary in size; some grow to a height of 6 feet. To allow for maximum growth, gardenias should not be planted close to doorways or in other trafficked areas.

Figure 1. Watering saucer created from surplus soil removed in planting

Planting Gardenias

Once an appropriate location has been selected, dig a planting hole two times the diameter of the container that the plant is in. The hole should be as deep as the root ball.

- Remove the plant from the container while being careful not to disturb the roots or root ball.
- Place the plant in the hole, making sure the top of the root ball is even with or slightly above ground level. Adjust the plant so it is level and properly faced.
- Fill soil around the plant until the hole is half full. Fill the hole with water and allow this to settle, then finish filling the hole with soil.

- The surplus soil removed from the planting can be used to build a dam 2 - 3 inches high around the outside edge of the hole, forming a saucer that will help retain water. (See Figure 1.)
- Apply a 2 - 3 inch layer of mulch around the plant. Be sure to keep the mulch a few inches away from the base of the plant to prevent fungal problems. Replenish mulch as needed.
- Water a minimum of twice a week during the first six weeks of establishment.

Florida Friendly Maintenance Practices

Irrigate Efficiently

Watering during dry periods is necessary for healthy gardenias and is important because water determines the number of flower buds that remain on a plant to maturity. If water stress occurs in a heavily budded plant, many buds will fall before opening. Therefore, while the plant is in bud, large variations in soil moisture should be avoided. Establishing and maintaining a layer of mulch 2 - 3 inches deep around the plant will help maintain consistent soil moisture.

Fertilization

Proper fertilization is important for gardenia growth and flower production. Most established gardenias grow well with two or three applications per year. One application is normally scheduled around February (South Florida) or March (North Florida) and another in September (North Florida) or October (South Florida). A third fertilizer application may be made during the summer.

A granular fertilizer formulated for landscape plants or an “acid-forming” product is suitable. Follow label directions. Ideally, 30 - 50 percent of the nitrogen should be water insoluble or slow-release. In Central Florida and South Florida, or where soil potassium is frequently inadequate, use a fertilizer containing 30 - 50 percent slow-release potassium.

Frequently plants will become yellow (chlorotic) due to a deficiency of one or more micronutrients, but typically iron is the limiting element. Foliar applications of iron are effective. Follow the directions on the product label.

Yellowing of leaves may also be due to a number of other causes, such as insufficient light, over watering or poor drainage, soil temperature that is too low, nematode damage or disease. Some yellowing on older leaves is normal and may occur during the fall and winter months before new growth appears.

Pruning

Pruning keeps plants shapely and in scale with the landscape. Pruning should be done just after the plant finishes blooming. Research in Florida suggests that a combination of long nights, low temperatures, and age of wood aid in bud initiation and development. Pruning should be early enough to allow new growth to be at least 4 - 6 inches long by October 1. Pruning after October 1st decreases next year's blooms. Young plants, growing vigorously during their first year, may be pinched once in June and again in August to encourage heavy branching.

Pests and Other Problems

Insects

One of the biggest complaints gardeners have about gardenias is their propensity to attract certain insects. Mealybugs, aphids, scales and whiteflies are all problematic on gardenias. Mealybugs are one of the most prevalent gardenia pests and are easily identified as white, cottony masses found in the leaf axils and other protected areas of the plant. Aphids can also be challenging on gardenias. Be on the lookout for a soft-bodied, tear-shaped insect, typically clustered around newer growth and/or on the underside of leaves. Another pest on gardenia is scale which appears as raised brown bumps on the stems and underside of leaves. Whiteflies are tiny pests that can become a big problem on gardenias. Whiteflies are small winged insects which look more like moths than flies. Whiteflies can be prolific and seem to come out of nowhere in what appears to be an instant snowstorm of minute dust-like particles. Not only does whitefly feeding damage plants, whiteflies can also transmit plant viruses.

Inspect your plants regularly and apply control measures when pests appear. Contact your local UF/IFAS Extension office for current pest-management recommendations. Always read the label carefully and apply only as directed on the label.

Diseases

"Sooty mold," an organism that looks like a disease, often occurs on gardenia foliage, turning it black. This black, smut-like substance does not injure foliage, but prevents sunlight from reaching the leaf, thereby reducing photosynthesis. The organism is not parasitic, but lives on honeydew secreted by sucking insects, such as aphids, scales, mealybugs and whiteflies. Sooty mold can be managed best by controlling these insects.

Probably the most serious gardenia disease is stem canker, which occurs on the main stem at the soil line. Fortunately, this disease is not common in Florida. Stem canker is distinguished by rough, cracked areas that form cankerous growths near the soil line. To prevent infection of other gardenias, destroy any plants infected with stem canker.

Bud Drop

One of the most difficult and frustrating problems in gardenia culture is bud drop or bloom failure. Causes of bud drop include root injury, insect damage, and unfavorable weather conditions. Insects, such as aphids and thrips, damage unopened buds, causing them to drop. Pear-shaped aphids are visible, but tiny thrips can go undetected until they have caused considerable damage.

During excessively hot, dry weather, bud drop is prevalent because the plant cannot absorb water rapidly enough to compensate for water lost through its leaves. Gardenias may also experience bud drop following a rapid drop in temperature.

Nematodes

Nematodes are among the most serious gardenia pests in Florida. Nematodes are microscopic, parasitic roundworms that feed on gardenia roots. Although many kinds of nematodes may affect gardenias, root-knot nematodes (*Meloidogyne* species) are the most common. Fortunately, the symptoms they cause are readily recognized -- premature wilting, low vigor, thin canopy, and leaf and/or bloom loss under relatively mild stress. Roots infected by root-knot nematodes are swollen and gnarled (the overgrown tissues are usually called galls or knots). Weak, damaged roots often succumb to disease attack.

In South Florida and Central Florida, select gardenias that are grafted on *Gardenia thunbergia* rootstock, which resists root-knot nematode attacks. This rootstock is cold tender, so gardenias grown for North Florida landscapes should be propagated from cuttings, and not grafted.

No chemical treatments are available for nematode control in landscape plantings. The best practices to minimize effects of root-knot nematodes are to use grafted gardenias in locations where they are adapted and apply organic matter liberally to the soil. The latter encourages natural enemies of the nematodes and provides gardenia roots with a better physical and chemical environment.

Cultivars

Gardenias are a member of the family Rubiaceae and belong to the genus *Gardenia*. There are more than 200 species of Gardenias. In Florida, two species are of primary importance -- *Gardenia augusta*, containing many cultivars, and *Gardenia thunbergia*, grown primarily as a rootstock. While *Gardenia augusta* is native to China, most named cultivars have arisen in cultivation. *Gardenia thunbergia*, named for C. P. Thunberg, an eighteenth century Swedish botanist, is native to South Africa. This latter species is valuable due to its nematode resistance and the vigor it imparts to species grafted on its rootstock.

A wide variety of cultivars are commercially available in Florida. These gardenia cultivars have considerable variation in flower size and form, blooming time and duration, and plant growth, as indicated in the chart below.

A Comparison of Some Popular Gardenia Cultivars

Cultivar	Leaf Color	Flower Size	Flower Season	Height	Flowering Times per Year	Growth & Speed
 Miami Supreme	medium to dark green foliage	3 - 5"	Early	4 - 15'	2	Fast
 Aimee Yoshioka or "First Love"	brilliant dark green foliage	3 - 5"	Middle	4 - 12'	2	Fast
 Glazerii	medium green foliage	3 - 4"	Early	3-12'	2	Medium
 Coral Gables	dark green foliage	3 - 5"	Middle	4 - 15'	2	Fast
 Belmont	dark green foliage	3 - 4"	Middle	3 - 12'	2	Medium
 Veitchii	lush, shiny green foliage	2 - 3"	Early	3 - 12'	2 - 4	Slow
 Mystery	glossy green foliage	3 - 4"	Late	4 - 12'	2	Fast
 Radicans	Small, lustrous leaves	1"	Late	2'	1'	Slow
 Mary Ann	brilliant dark green foliage	3 - 4"	Late	4 - 12'	2	Fast

Propagation

Cultivars of *Gardenia augusta* grown in Florida can be propagated by cuttings or grafting. Plant production for North Florida should be restricted to "own root" because plants grafted on *Gardenia thunbergia* rootstock are not hardy in outdoor planting areas at temperatures below 28°F. Gardenias produced for South Florida should be grafted because plants grafted onto Gardenia thunbergia are superior to "own root" plants.

Cuttings can be taken any time during the year, but are most successful in June, July, and August. *Gardenia thunbergia* can be propagated from seeds or cuttings.

Tip or midsection cuttings with wood 6 - 8 weeks old should be cut 4 - 5 inches long with at least two or three sets of leaves. Cuttings can be taken at or between nodes as they root from the cut end. Leaf removal is unnecessary and undesirable because it results in a longer rooting period.

Rooting of cuttings is best under intermittent mist or in a closed-case propagating device, such as an old aquarium or clear plastic bag. Rooting media should be a 50:50 combination of clean, sharp builders' sand and peat moss; or a 50:50 combination of peat moss and perlite.

In Central Florida and South Florida, propagation should be by grafting a short length of stem (known as a scion) from a desired cultivar to a seedling rootstock of *Gardenia thunbergia*. Rootstock seedlings, however, are difficult to obtain. If collecting seed yourself (see Figure 2, seed pod), sow the seeds from pods into flats or pots containing a 50:50 combination of peat moss and perlite or a 50:50 combination of peat moss and sand.

Seeds germinate slowly and erratically. Seedlings should be removed when they form their second true leaf. By waiting until they produce their second true leaf you may increase their survival rate by 20 percent.

When seedling rootstocks are approximately 6 inches in height or taller and approximately a pencil's thickness in stem diameter, they are ready to be

Figure 2. Gardenia Seed Pod

grafted. Don't graft too low on the plant because branches that droop to the ground may root and become infested with root knot nematodes. Grafting high or pruning lower branches prevents this problem.

The most successful grafts are the splice-graft and inverted saddle graft. For the splice-graft (Figure 3), remove the top of the rootstock and any branches. Select a scion from a desired cultivar that has a diameter similar to the rootstock and cut with a similar sloping cut.

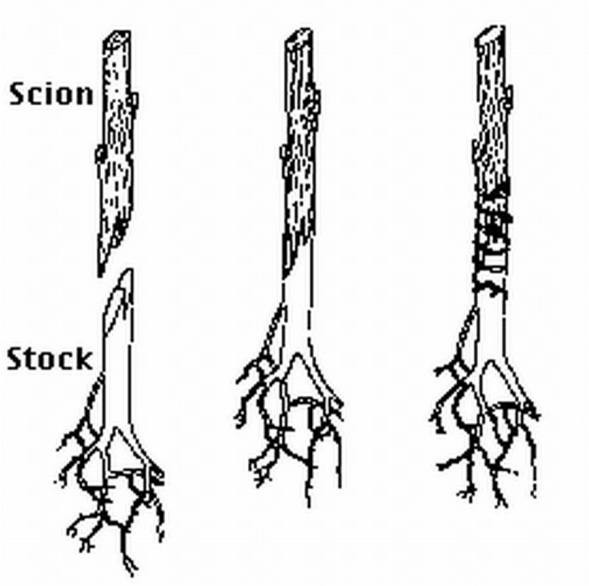

Figure 3. The Splice Graft

Join scion and rootstock so cambial layers are aligned on at least one side. The cambium is a thin, green, actively growing layer of cells located between the bark and wood of a plant. Bind scion and rootstock together with a thick rubberband and wrap with a plastic tie strip. The joined area should be completely covered to prevent drying and water entry.

The inverted saddle graft (Figure 4) is easier to make and stronger than the splice-graft. Remove the top from the rootstock with a horizontal cut at a point where the stem diameter is equal to or slightly less than that of a pencil. Split the top half-inch of the rootstock. Select a scion from the desired cultivar with a similar diameter. Cut the scion base in a wedge shape and insert it into the split top of the rootstock with cambial layers aligned. Bind and wrap the joined area the same as with the splice-graft.

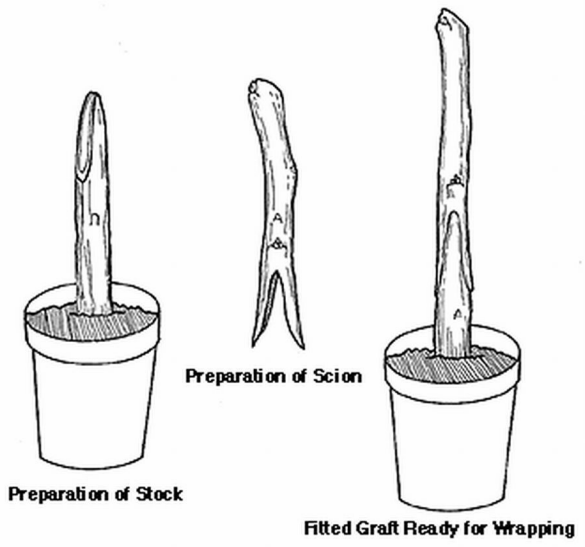

Figure 4. Inverted Saddle Graft

After grafting, place the plant in a shaded spot and maintain the humidity as close to 100 percent as possible to prevent the scion's wilting. Mist plants throughout the day to prevent wilting or place plants inside a plastic enclosure in a shaded area to maintain necessary humidity. Grafts should begin to callus within two weeks and be self-supporting within a month.

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