CIR344

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Rose Culture[1]

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The rose continues to be one of the world's most popular flowers. For centuries, roses have been cultivated for garden landscaping and as plants supplying cut flowers for the home. Improved cultivars available today have increased this long standing appreciation of roses as flowering shrubs.

In Florida's year-round gardening climate, the rose is an evergreen shrub that will continue to increase its flower production for at least five years. Roses grow and bloom all year in southern and central Florida. They bloom at least nine months of the year in northern Florida, keeping some foliage through the winter months.

A rose bush can supply more blooms suitable for cutting than any other flowering shrub. Each year plants produce from five to seven cycles or "flushes" of bloom--of one to two week's duration--and a few flowers between cycles.

In Florida roses are high-maintenance plants. Plentiful supplies of high quality roses can be obtained only when the plants are cared for properly and allowed to reach mature size. Plants require grooming over a long blooming period and they require weekly applications of fungicide to control the leaf disease blackspot. But, for those who like to spend time in the garden each week, growing roses can be a rewarding hobby.

Leaves manufacture food for growth. Preventing early loss of foliage means controlling mites and the fungus that causes blackspot. Producing high-quality flowers means using seasonal control practices for thrips and for the fungus that causes powdery mildew.

While most features of Florida rose culture are the same as in other regions, there are some differences. Plants grow larger here and should be given more space than those in colder climates. Winter protection practices such as deep planting or covering the tops are not necessary, but it is necessary to anchor taller varieties to reduce wind injury. Here, as elsewhere, success depends upon the selection of varieties and rootstock suited to local conditions. Everblooming varieties grafted on *Rosa fortuniana* rootstock are recommended, but ever-blooming varieties with other kinds of root systems can be grown successfully.

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Selection and Use of Roses

Selecting Rose Cultivars

Indoor display in cut flower arrangements and outdoor display in garden landscape plantings are two distinct uses of roses. Some rose cultivars (cvs) are equally suitable for either use, but most rose cvs serve in one of these uses better than the other. Consider your intended use of roses when choosing plant material.

Preference for roses with a special trait may guide your selection. Some gardeners will prefer roses with a particular flower color, form or scent. Those interested in history of gardening may want to include older cvs in their planting. Even on small properties, or within a small, sunny patio, there may be enough space to grow miniature roses.

Only a few climbing roses produce enough flowers here in Florida to justify weekly care, but these few are appreciated. In locations where support can be provided by a trellis, fence, the trunk of a palm or the trunk of a tall pine, you may choose to plant and train a climbing rose specimen.

Many of the roses that flower only in the spring months need colder winters to bloom satisfactorily; even in northern Florida these flower profusely only after an unusually cold winter. Choose recurrent or everblooming cvs in place of seasonal flower cvs, as a general rule. There are a few exceptional ones that do bloom reliably each year.

Newer roses, those with 17-year plant patents still in effect, are propagated by nurseries with large volume production. Plants of these cvs are more readily available from nursery distributors than those of cvs introduced at an earlier date. They are often more expensive than the non-patented cvs that continue to be propagated for sale.

Cultivars producing cut flowers that open slowly and keep a pointed high center of firm petals are valued by flower show exhibitors. These qualities make best sellers of certain cvs among rose hobbyists.

Placement and Spacing

Except when featured as specimen plants, rose bushes are usually grouped in the same area rather than in scattered plantings. Grouping roses in beds makes a more attractive display of flowers and simplifies soil preparation and maintenance. These beds can be rectangular in outline or curved to conform to landscape contours. The gardener may curb or flag edges to maintain well-defined bed areas.

Beds four to six feet wide are recommended for single and two-row plantings with the plants spaced alternately, so that both sides can be reached easily.

Cultivated areas wider than six feet can be prepared for a rose planting, but it is best to group rosebushes in one-row or two-row units within the clean cultivated area. Beds or units with three or more closely spaced rows are difficult to maintain after the first year. Leave at least a three-foot aisle between beds or units.

Roses grow much larger in Florida than in states where the average temperature, light intensity and humidity are lower. Therefore, recommended spacing intervals are wider in Florida than those in other states.

The bed space required by each rosebush is related to its growth habit. The surface space allowed for different plant growth habits ranges from a circle of one foot diameter for the smallest shrubs, to a circle eight feet in diameter for the largest.

The height attained by each bush cv needs to be considered in choosing its planting location. Placement of taller cvs on the northside of lower cvs prevents shading of the smaller plant. In garden displays, taller cvs should be used as background for lower cvs, so that the small plants can be seen.

All in-line plantings of rosebushes to form borders or hedges should be in open locations that provide access on both sides of the row for ease of maintenance.

Buying Plants

Before buying a rose, it's important to consider its root system. Florida cooperative experiment stations tests have determined that roses grafted on *Rosa fortuniana* rootstock grow larger and more vigorously, produce more flowers and live several years longer than plants grown on any other rootstock.

Grafted plants are composed of two different roses; one forms the root system (rootstock) and the other the top (scion). Most rose plants sold have been grafted on one of three different rootstocks. Of the three standard rootstocks, Fortuniana (*Rosa fortuniana*, Double White Cherokee or Evergreen Cherokee) gives the best results. Dr. Huey (Shafter) is second best. Multiflora (*Rosa multiflora*) is the least satisfactory rootstock because it is the shortest-lived under Florida conditions. Plants referred to as "tree roses" are grafted on one- to three-foot stem lengths of the rootstock variety rather than on the six-inch lengths used to produce bush-form plants.

Plants on their own roots--tops and roots from the same cutting--are on the market and are satisfactory for the older shrub varieties. Dwarf cvs are frequently sold on their own root, but perform better when grafted. With the exception of the older shrub cvs, plants grafted on any of the standard rootstocks live longer and produce more flowers than when grown on their own roots.

Rose bushes sold in Florida come from two main sources: locally propagated plants grafted on *Rosa fortuniana* rootstock, and field-grown plants shipped in from other states, which are grafted on one of the less desirable rootstocks.

Locally propagated plants in containers are now available from some Florida nurseries. These plants are marketed in bloom seven to nine months after propagation, and they are usually smaller than older field-grown plants. The customer benefits by receiving a young plant that forms most of its main root branches after it is transplanted.

Field-grown plants, one to two years old, are available from out-of-state sources between October and March. They are marketed either by mail order, as dormant, bare-root plants, or by local nurseries and sales yards as container-grown plants. Nurseries transplant dormant plants into containers, maintain them for about three months, then market them in bloom. Much of the risk involved in early handling of dormant field-grown plants is absorbed by these nurseries.

Rose plants marketed from one source are not all equally well formed. Grading serves to distinguish the better plants from poorly developed ones. The superior-grade plants give better results than inferior grades. Dormant rose plants are graded Florida Fancy, Florida Number 1 and Florida Number 2, based on size and number of canes.

Container-grown roses should be grown in the container in which they are marketed for a minimum of one month of the active growing season and for a maximum of two growing seasons. They should be sold by rose grade as specified above and the containers should be at least three gallons in capacity.

Site Selection and Soil Preparation

Plant roses where they will get direct sunlight for at least six hours during the day. Where some shading cannot be avoided, locations that supply morning sunlight are best. Morning sun will dry dew on the leaves and thus the chances for blackspot infection lessen. Open locations are preferable because roots of nearby plants will compete with those of roses for available nutrients and moisture.

The best soil for growing roses is one that has good drainage, that allows air and water movement to and from roots, and that will hold an adequate supply of moisture and nutrients. Nutrients are most readily available to the roots in a moderately acid to slightly acid soil (pH 5.5 to 6.5). Most Florida soils do not have all the desirable properties, so they must be provided artificially.

Roses are relatively tolerant of salt spray and can be grown satisfactorily near salt water with adequate soil preparation and maintenance.

Roses should not be planted in poorly drained bog or marsh areas. Minor drainage problems of low areas can be improved by ditching or by raising the

bed level several inches. Some soils have a "clay pan" or "hard pan" layer near the soil surface that should either be dug out or broken and mixed with the other soil.

Most native sandy soils have low water- and nutrient-holding capacities, and nutrients are easily leached beyond the roots by heavy rains. As a result, plants may suffer from drought only a few days after rain or irrigation, and from nutrient deficiency only a few weeks after fertilization. Such soils can be improved with soil amendments.

Soil Amendments

Materials can be added to soil before planting that will increase the water-holding capacity, improve the nutrient balance and change the soil reaction (pH). Preplanting soil amendments not only improve plant growth and beauty but reduce the effort needed to keep plants growing well. Soil amendments can be included either in the entire bed area or in the planting hole for each plant.

Organic amendments used to increase aeration, water-holding capacity and mineral nutrient retention include compost, leafmold, peat, muck, sawdust, wood shavings and manures. As much as a four-inch layer of any of these materials or any combination of two or more will improve most soils. Mix amendments thoroughly and evenly to a depth of 12 inches. These materials are especially beneficial when added to light, sandy soils and to soils that compact easily.

Each of these amendments has some disadvantage. Compost takes time to prepare. Peat, muck and manure often have large numbers of weed seeds and should be fumigated to kill weed seed. Some native peats are very acid in reaction and require the addition of lime to raise the pH. Muck may be very alkaline in reaction and require sulfur to lower the pH. Some imported peats contain toxic levels of salts and may require leaching before use.

Undecomposed materials such as sawdust may produce temporary nitrogen deficiency unless extra nitrogen is added during the first year after the soil is amended. In addition to the maintenance fertilizer schedule, three or four applications of ammonium sulphate at the rate of 1/2 pound per 100 square feet should be made during spring and summer months.

The soil reaction should be tested after adding the above amendments. Further amendment with dolomitic limestone will be needed if the pH is less than 5.5, or with elemental sulfur if the pH is greater than 6.5 On acid sandy soils, each 100 square feet will require the addition of 6 pounds of dolomitic limestone to raise the pH one unit, or 2 pounds of elemental sulfur to lower the pH one unit. On very alkaline or very acid soils, additional applications of these materials may be needed after planting to maintain a suitable soil reaction.

Fertilization

Where need is indicated by a soil analysis, phosphorus should be mixed with the soil before planting because it moves downward slowly from surface application in all except strongly acid sandy soils. Use superphosphate at the rate of 4 pounds per 100 square feet of area.

Slow-release and natural organic fertilizers and a microelement mixture may be added at planting time if desired. Regular applications of additional fertilizer as described under "Maintenance" should be started as soon as new shoots develop.

Planting and Early Care

Dormant Plants

Dormant, bare-root plants that are available from October to March will be in bloom about 10 weeks after planting. Planting is best delayed in northern Florida until December or January because in this area repeated freeze injury to new shoots exhausts stored food and can kill plants without well-established root systems.

Most failures of healthy dormant plants result from insufficient water. Since rainfall is light during winter months, plants should be watered daily until growth starts, and weekly after growth starts. A temporary soil mound will help keep lower parts of canes moist. Dormant canes that have failed to produce shoots within two weeks after planting should be covered with burlap, Spanish moss or

transparent plastic and kept moist. Covers should be removed when new shoots start to develop.

Occasionally dormant plants fail to grow because of cold injury in storage or in transit.

Container Plants

Leafy container-grown plants can be transplanted whenever available without disturbing the roots. If wilting occurs after planting despite daily watering, either prune the plants, pick off some of the leaves, shade, or spray with a film-forming emulsion. These practices reduce water loss from the plant and aid root growth.

Protect from Wind Damage

Plants should be tied to a well-anchored stake or trellis support to protect them from wind damage. Metal stakes made from pipe sections, electrical conduit or reinforcing rods are quite satisfactory. Ties of some durable, soft material such as plastic clothesline should be used.

Maintenance

Florida's high light intensity, warm temperatures and mild winters cause roses to make some growth all year and more growth during warm months than roses in northern states. Therefore, maintenance is required during the entire year. Methods commonly used in colder regions to prevent injury to roses (like severe pruning and covering the plants) are unnecessary in Florida because winter injury to mature wood of established rose bushes rarely occurs here, even in northern Florida. More flowers are produced during summer than during cooler seasons, but during the cooler season the flower color is more intense, and there are more petals.

In Florida, average yearly rainfall is about 50 inches. Rainfall is heaviest during the warm summer months. Occasional heavy rains that cause soil flooding for two or more days leach fertilizer from the soil and interfere with soil aeration, causing plants to drop older leaves. Healthy plants, however, recover quickly.

Irrigation

Applications of water are needed, especially during the dry winter months and during drought periods, which can occur any time of year. Accumulation of water-soluble salts in the root area and the resulting injury to roots is prevented by thorough irrigation.

In most locations, roses should be irrigated with one inch of water once each week unless a similar amount of rain falls. Two applications per week may be necessary on unamended sandy soils. Watering should be scheduled the day before the weekly pesticide spray is applied, as plants well supplied with moisture are less susceptible to injury from pesticides. Water is best applied to the soil surface to avoid washing the protective coating of pesticides from the leaves. When overhead sprinkling must be used, water early enough for the leaves to dry before sundown.

Plants should be washed with water immediately after broadcasting commercial fertilizers because the chemicals will burn leaf and stem parts if left on the plant.

Fertilization

Most commercial fertilizers contain the three primary plant food elements (also called major or macro-nutrients)--nitrogen, phosphorus and potassium. The analysis numbers on a fertilizer label indicate percentages of these primary elements in the above order. For example, a 1248 fertilizer contains 12% nitrogen (N), 4% phosphorus (P_2O_5) and 8% potassium (K_2O); this approximates a 312 analysis ratio.

Regular applications of commercial fertilizers are needed to replace supplies of primary plant foods as they are used by the plant and leached from the root area. Phosphorus is likely to accumulate to toxic levels when applied as frequently as nitrogen and potassium (potash). Alternate applications of two commercial fertilizer mixtures, one containing no phosphorus, or use a fertilizer with a low level of phosphorus. A fertilizer such as 15-0-15 or one with a similar 1-0-1 analysis ratio should be used for the first two applications on soil amended with

superphosphate before planting. In routine fertilizing, each application of the 1-0-1 ratio fertilizer should be followed after 10 weeks with an application of a fertilizer such as 8-8-8 or one with a similar 1-1-1 analysis ratio. Newer fertilizer formulations with a 3-1-2 (e.g. 12-4-8) analysis ratio can be substituted for alternate use of a 1-1-1 and a 1-0-1 analysis ratio.

Apply a commercial fertilizer to rose plantings 5 to 7 times a year, (each time plants produce a flush of bloom). This program will provide plants grown in south Florida about 7 fertilizations a year and those in north Florida about 5. The amount of fertilizer applied each time to 100 square feet of surface is determined by the percentage of nitrogen (the first analysis number): two pounds for 6% to 10% nitrogen; one pound for 10% to 15%.

This fertilizing schedule may be varied depending on the season, the location, or the size of plants. Roses may be fertilized as often as once a month, but the amount of fertilizer for each application should be reduced proportionately. Apply fertilizer more frequently during summer months when it may be leached from the soil by heavy rains. Reduce the stated amount of fertilizer for small plants. In northern Florida, apply fertilizer lightly between November 1 and February 1 since tender new growth—stimulated by fertilization and warm weather—is susceptible to freeze damage in this area.

Natural organic fertilizers—such as manure, castor pomace, and sewage sludge—contain nitrogen, which is slowly available and lasts longer than soluble commercial fertilizer. These materials are often added to commercial fertilizers to supply a percentage of the total nitrogen from organic sources. Natural organic fertilizers also supply some secondary plant foods (also known as minor or micro-nutrients).

The required secondary plant foods are usually replaced by the use of organic mulches and fertilizers after planting. Maintaining a moderate to slightly acid soil reaction will ensure their availability to the plant.

In some locations a shortage of one or more primary or secondary elements will occur despite attempted soil improvements. A deficiency of any one element may result in poor growth of plants.

Persistent deficiency symptoms should be corrected as soon as they are noted. Iron deficiency symptoms often appear during the summer months on plants with Multiflora root systems, then disappear in the cool fall months.

In garden roses in Florida, the only frequently deficient element other than the three primary plant food elements is iron. Based on observations of other plants, magnesium, copper and boron may also become deficient in certain soils. Symptoms of manganese or zinc deficiencies might appear if pesticides containing these elements are not used regularly.

Be cautious in applying chemical preparations to correct the deficiency of an element, since excessive amounts are also harmful to the plant.

The choice of preparations (or materials) to correct mineral deficiencies, the method of application (spraying the foliage or applying directly to the soil), and the rates to be used are based on the nature of the soil and condition of the plants. Consult your county agent for advice on how to correct persistent nutrient deficiencies.

Mulching

Maintaining an organic mulch (soil covering) will reduce loss of soil moisture, reduce weed growth and provide some nutrients to the plants. After planting, apply a two-inch layer of compost, wood chips, pine needles, pecan shells, sugarcane bagasse or other available natural materials to the surface of the bed. Replenish it as it decomposes.

Peanut shells should not be used as a mulch unless they have been fumigated because they may contain parasitic nematodes. Leaves or grass clippings can be used as a soil covering, but are best if decomposed first; thick layers tend to form a thatch that will shed water. Compost (mixtures of partly decomposed vegetable matter) can be prepared either in open bins or in closed garbage cans.

Remove weeds in rose beds by pulling them or cutting them with a hoe. Spading may damage the roots that develop immediately under the mulch.

Pruning and Grooming

Grooming is a regular feature of rose culture. It consists of selectively trimming at monthly intervals to keep plants healthy, attractive and productive. Removing faded flowers after each flush of bloom improves plant appearance and prevents fruit development. This conserves food material for additional growth.

To produce exhibition flowers, remove the lateral flower buds as they form, allowing one bud to mature on each stem. To regulate the time of bloom for a particular variety, pinch out all flower buds as they form until 28 to 34 days before flowering is desired.

Flower buds should be removed for the first two months after planting to encourage growth and to help to establish a new plant. The first flowers allowed to develop should be cut with short stems to leave as much foliage as possible on the plant. Plants should be well established before flowers are cut with longer stems, and then only cut the length of stem needed.

Remove suckers (leafy shoots) that develop from the rootstock below the graft union by breaking them off rather than by cutting in order to remove all basal buds. Rootstock suckers can be recognized by their location and their different leaf appearance.

Remove dead wood and canes showing stem disease symptoms as soon as you notice them. Cut the affected part back to healthy wood and remove the affected part from the garden area.

Pruning should be done once each year during December or January in central and northern Florida. In southern Florida pruning may be needed twice each year to keep plants to a manageable size. These two prunings can be scheduled during March and late August to avoid interrupting winter flowering. Major yearly pruning consists of removing some healthy top growth as well as twigs and branches that are dead, diseased, injured, unsightly or thin and spindly. Shortening main canes and lateral branches, removing small twigs and some of the oldest canes improves the plant's form. It also regulates height and produces better light conditions within the plant. Leave at least half the length of each main cane that is one to three years old. The first flowers can be expected eight to nine weeks after pruning.

To avoid dieback and encourage rapid healing, pruning cuts should be made just above a dormant bud (eye). When an entire branch is removed, make a smooth cut at the point of juncture.

Cutting Flowers

When cutting flowers, consider the arrangement in which they are to be used. Larger, more open flowers to be used low in the container need less stem length than tighter buds to be used for height.

Cut buds after the green sepals fold back toward the stem and the outside petals loosen and start to unfurl. Blooms cut in tighter bud will fail to open.

Use a sharp knife or pruning shears for cutting flowers and make a clean cut just above a well-developed, five-leaflet leaf. Dieback may result from leaving a ragged cut or a long stub above the dormant bud.

Summary

A schedule of rose maintenance includes: spraying and irrigation each week, grooming and fertilizing after each flush of bloom, pruning and mulching during each winter season. This caring for the health of the rose plant can provide an abundance of blooms that extends through the growing season of many years.