

Fibrous-Rooted Begonias for Florida¹

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If you like variety and a constant display of color throughout the season, you'll love begonias. The begonia family contains more than 1,200 species and hybrids with an infinite selection of sizes, growth habits, foliages, and flowers. The smallest begonias may be only two inches (five cm) tall with leaves smaller than a penny, while giant begonias stand 6.5 feet (two m) in height with leaves two feet (60 cm) long. Some begonias creep and crawl, some grow like a tree, and some are bushy. Many resemble other plants, with leaves like elm, palm, maple, and ivy among others.

The begonia is chiefly of tropical origin. It was first discovered in Santo Domingo in 1690 by Charles Plumier, who named the flower for his patron, Michel Begon. The popular fibrous-rooted or wax begonia (*Begonia semperflorens*) originated in Brazil. Begonias are essentially classified according to the type of roots they possess: (1) tuberous, (2) fibrous, and (3) rhizomatous. The tuberous begonias are primarily propagated from tubers, whereas the fibrous-rooted begonias possess fibrous roots and are further subdivided into the "cane stemmed" (e.g., angel wing begonia), the "hairy stemmed" (e.g., hirsute begonia), and the common "bush type" begonias (e.g. wax begonia). The rhizomatous

begonias (e.g. rex begonia) possess thick, root-like rhizomes that grow either erectly or horizontally.

The bushy, fibrous-rooted begonias are most popular with homeowners. They are frequently sold as house plants, holiday plants, or bedding plants in spring for north Florida, and in fall and early spring in central and south Florida.

Since they bloom profusely, fibrous-rooted begonias are used during the winter as pot plants to decorate windowsills and kitchen tables. Many of these may be set in shady areas of the yard in late spring either in containers or in ground beds. To be most effective in the landscape, begonias should be used in mass rather than mixed with other annuals.

Formerly, fibrous-rooted begonias were mostly non-hybrid varieties, and these old varieties did best in partial shade. However, through the recent concentrated efforts of plant breeders here and abroad, many new varieties have been introduced displaying a diversity of flower color, foliage color, and growth habit. Today's fibrous-rooted begonias require little maintenance, making them well adapted for a homeowner's use. Few other annuals can beat the fibrous-rooted begonias for hardiness and continuous bloom throughout the summer season.

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Today's hybrids are not restricted to a partial shade location; they can be grown in full sun as well. They perform better, in fact, when planted in full sun. Under Florida conditions, the fibrous-rooted begonias withstand drought and heat better than many annuals, including the popular petunia. In addition, begonias will not grow out of bounds and can be planted close together in a relatively small area, such as in a border.

Begonias grow slower than other annuals, making them suitable for use in window boxes, flower boxes, and hanging baskets. They are virtually insect free and are resistant to pesticide injury. Begonias offer many variations in flower and foliage color; green, bronze, and variegated foliage are available with a combination of white, pink, or red flowers.

Care and Culture

Begonias tend to grow somewhat larger if grown outdoors in a flower bed where root growth is not restricted. In flower pots or planters, they usually do not grow quite as large. For the best effect, plants should ordinarily be placed 8-12 inches (20-30 cm) apart in the garden and somewhat closer together in containers.

In north Florida, Begonia seedlings can be purchased in early spring, after danger of frost is past. In central and south Florida, including the Keys, they can be purchased most anytime in the fall, winter, and early spring. Seedlings can then be transplanted right away either into one-gallon pots or into flower beds. It is easier and less expensive to transplant them into pots and then move the pots to the permanent location in the yard. Sink the pot into the soil until the top surface of the pot is at soil level. Mulch with grass clippings, cypress bark, or any other mulching material. Growing plants in pots placed in the ground has the following advantages:

1. eliminates the expense of adding large volumes of top soil to the flower beds;
2. permits plants to be grown in areas with poor soils (in areas where the soil consists of thin marly materials overlying limestone, such as Dade and Monroe Counties, begonias can be

grown successfully without too much dependence on the existing sand on marl);

3. requires less fertilizer, although fertilization frequency may be increased;
4. reduces nutrient pollution because leaching of fertilizers is virtually nil;
5. minimizes soil-borne insect and nematode problems;
6. requires less watering because a good organic soil medium holds more moisture than marl or sandy soils;
7. produces excellent flowers where commonly inferior plants have grown, especially around shrubbery and trees;
8. reduces expenses because a good medium can be reused year after year;
9. keeps your neighbors wondering why you have such a magical green thumb.

For best growth of begonias in flower beds, sandy Florida soils require some amendments. Begonias thrive on light, slightly acid, well-drained organic soil. To improve the soil structure and increase the water-holding capacity, add a substantial amount (up to 50%) of organic matter such as peat moss, leaf mold, or well-rotted manure. Begonias are not heavy feeders, so fertilizer should be applied sparingly. If well-rotted manure is used to amend the soil, the addition of fertilizer is not necessary because manure contains some mineral elements needed for the plants.

The rate of fertilizer application is based on the nitrogen that is present in the fertilizer formulation. The recommended fertilization rate for begonias grown in beds is the same as for annuals. Generally, for a fertilizer that contains 5% nitrogen, the recommended rate for begonias is 2 pounds (908 g) for each 100 sq. ft. (9.3 m²). When a fertilizer containing 10% nitrogen is used instead, because it is twice as concentrated as the 5% formulation, the rate of application should be 1 pound (454 g) per 100 sq. ft. (9.3 m²) to give the equivalent of 2 pounds per 100 sq. ft. for the 5%-nitrogen-containing fertilizer. If

a 20% formulation is used, obviously the rate used should be one half pound (227 g) per 100 sq. ft. (9.3 m²).

If you know how much to apply based on the nitrogen percentage, many kinds of fertilizers can be used without dependence on only one formulation of fertilizer that may not be available in your locality.

When begonias are grown in pots, the fertilizer should be applied at one fourth the rate recommended for plants grown in ground beds. For instance, when a five percent nitrogen containing fertilizer is used, the rate for 100 sq. ft. (9.3 m²) should be one half pound (250 g), and this amount should be divided equally among the number of pots occupying 100 sq. ft. (9.3 m²) of area.

As mentioned previously, begonias are not heavy feeders, and the root systems are somewhat restricted for pot-grown plants. For these reasons, the rate of fertilizer should be further reduced to half the recommended rate for soil-grown plants, but the frequency of fertilizer application should be increased, such as biweekly rather than monthly. Thus one fourth pound (125 g) of 5%-nitrogen-containing fertilizer applied biweekly should give the best results.

Propagation

Most fibrous-rooted begonias, with the exception of the double-flowered varieties, are propagated from seed. The double-flowered varieties are sterile and have to be propagated vegetatively.

Purchasing your own seeds and germinating them is not a good practice, since good begonia seeds are expensive and they are smaller than petunia seeds. There are approximately 2,000,000 seeds per ounce, and unless you have specialized germinating chambers, the average homeowner will not be able to germinate begonia seeds to his or her satisfaction.

The fibrous-rooted double strain is somewhat of a novelty, producing about 50% doubles if sown from seed. They make excellent pot plants but are not recommended for flower beds.

The hybrid single-flowered types are commonly grown from seed. These hybrids can also be propagated vegetatively, but there are several problems. Cuttings taken from plants grown in the landscape all summer may be infested with diseases and/or insects. Also, plants propagated from cuttings will not branch freely, and will be single-stem plants. Flowers develop from axils at nodes. When flowers are produced from the axils, no other vegetative growing points are present. Therefore, when flower stems (peduncles) abort from the nodes, no branches will develop. Most fibrous-rooted begonias develop flower clusters at each axil. Consequently, cuttings taken from flowering mother plants will always result in single-stem plants. It is therefore beneficial to use plants started by commercial growers from seed free of disease and insects rather than plants from cuttings. Young plants from seed will develop branches profusely, thus making them worth the extra expense.

Begonias are often grown and sold in small plastic containers called "cell paks." When begonias are purchased in cell paks, they should be planted as soon as possible. If the plants remain in the cell paks for an extended period of time, they will become hardened, and their subsequent growth after transplanting will be impaired. Begonia plants can also be purchased in small peat containers. These peat containers can be planted without removing the plastic netting that surrounds the peat ball.

Pests and Diseases

Begonias are not attacked by many insects. The major pests that may infest begonias are snails and slugs, but these can be controlled with an appropriate bait.

There are some fungus organisms that may infest begonias. The major ones that usually present problems are the following:

- **Powdery mildew:** The symptoms are white, powdery spots on upper and lower leaf surfaces. The fungus survives on the living tissue. The disease is prevalent when temperatures are somewhat low and plants are grown in heavy shade.

- **Root and stem rot caused by *Pythium* spp.:**

Plants are usually stunted and unthrifty. The root system is small and discolored (brown); stems become water-soaked, discolored, and collapse. The disease is favored by frequent rain or overwatering.

- **Botrytis blight (*Botrytis cinerea*):** Symptoms occur as a soft brown rot of leaves, stem, and flowers. Woolly, gray fungus spores form on decayed tissues. Fungus is common on plants weakened by root rot. Botrytis may also start in powdery mildew spots and sunburned tissues. The disease is favored by high relative humidity and low temperatures.

For information on fungicides and insecticides that can be used on begonias, contact your local county extension office.