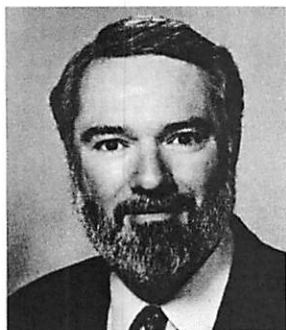


# Gloxinia Production

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**History** - The species from which florists' Gloxinias were derived came from Brazil in 1785. The name *Gloxinia speciosa* was originally assigned in honor of P.B. Gloxin of Strasburg, Germany. In 1825, the species was renamed, placing it in the correct genus, *Sinningia*. The modern Gloxinia is a hybrid between two Brazilian tropic

species: *Sinningia speciosa* and *Sinningia maxima*. It arose as a chance seedling raised by a Scottish gardener, John Fyffiana, in the nineteenth century.

## Scope of Production

Most growers produce Gloxinias on a small scale. Producers usually obtain established seedlings from wholesale distributors (Earl J. Small) for either year-round production or, more often, to meet holiday demands. Established seedlings are usually provided in 2½" pots or large cell packs. The primary holidays are Christmas, Mothers' Day and Valentine's Day.

## Cultivars

Gloxinias flowers may be single or double and come in a variety of colors from pure white to pink, lavender, red, and dark purple. Bicolors and those with petals edged in white are very popular. However, the velvet red outsells all others 10 to 1. Hybridization and selection has resulted in two groups; the large-growing types (*Sinningia speciosa*) are more suited for 5- to 6-inch pots while the compact types (*Sinningia x hybrida*) are grown in 4½- to 5-inch pots. Popular single-flowered cultivars include the 'Velvet' series, the 'Bridget's Best' series, and Earl J. Small's 'Super Compact' series.

## Propagation

Many growers today purchase established seedlings of high quality cultivars from specialized propagators. However, excellent cultivars are available for the grower to produce from seed. Seed should be sown in rows in open flats using a fine (often screened), sterile, peat-lite medium. Place the sown trays under intermittent mist in a shaded greenhouse with a 70-75°F medium temperature. Do not cover the seed. Germination should occur in 2-3 weeks. Because the seedlings are very small, water from below and begin fertilization a week after germination at a rate of 75 ppm N. Once seedlings are large enough to handle in germination flats, transplant them to 2½" pots

and space pot-to-pot. Seedlings are then transplanted into the final containers when leaves begin to touch in the 2½" pots. This may require about 2½ to 3 months from sowing for the large-growing types and six to eight weeks for the compact types.

## Growing Medium

In general, Gloxinias require a light, well-drained media high in organic matter. To mix your own, start with 50% peat and add perlite, vermiculite, coarse sand, or calcine clay for good drainage. The media should be amended with dolomitic limestone to a pH of 5.5 to 6.0. Superphosphate and trace elements may also be incorporated at a reduced rate. Many commercially available bag mixes have also been used successfully. Avoid the use of bark in gloxinia media.

## Potting

If seedlings are purchased from a specialist propagator, unpack immediately and place them in the greenhouse for a few days to acclimate. However, do not wait longer than five days to transplant. Leaving plants in small pots too long can result in premature budding. Pot the young plants so that the first set of large leaves are even with the soil surface. To do this, it may be necessary to bury the lower set of small leaves by folding them down beside the soil ball. Do not intentionally break or remove the lower leaves. Always apply a fungicide drench after potting to guard against disease. Newly potted plants



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can be held pot-to-pot for the first four weeks, then placed at a final spacing of 12-inches on center for 5-inch pots and 14-inches on center for 6-inch pots.

#### **Watering**

Gloxinias thrive best when the soil is maintained uniformly moist. Plants in small pots should never dry out. If they do, flower buds may set prematurely and the plants will flower before reaching the desirable size. In all seasons it is a good practice to water early in the morning so the foliage dries quickly. It is very important that the water temperature be close to the air temperature when overhead irrigating. If the water is too cold (below 50°F), bleached rings may appear on the leaves called 'ring spot.' Many establishments temper their water with large water heaters or heat exchangers associated with the boiler heating system. At the final spacing, many growers use microtube systems, capillary mats, or ebb-and-flow watering systems to avoid water contacting the foliage and to provide greater watering uniformity.

#### **Nutrition**

Fertilizer should be used sparingly on young plants from the seedling to 2½-inch pot stage. Apply every ten days to seedlings and constant liquid fertilization on larger plants. Alternating 15-16-17 peat-lite special and calcium nitrate each at 150-175 ppm nitrogen works well. Use the lower rate in the winter and the higher rate in the summer. Slow-release fertilizers, such as Osmocote 14-14-14, can be used at one-fourth the recommended rate. However, avoid

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20-20-20 or any fertilizer with over 40% of the total nitrogen in the ammonium form because these have resulted in foliar disorders. Twisted, cupped, or curled leaves with a general deep blue-green color are often symptoms of excess nitrogen or high ammonium. Watch for boron deficiency during periods of high light in the summer. Crown leaves will be deformed and appear eaten around the edges. The problem is easily solved using a spray of Borax at ½ ounce per 1000 gallons.

#### Light

Light intensity for seedlings and 2½" pots should be kept low, 1500 to 2000 foot-candles measured at noon on a clear day. Removable shade cloth can be used inside the greenhouse for this stage. Finished plants should receive a maximum of 2000-2500 foot candles depending on the time of year. During the winter season, higher light intensities can be used when temperatures are more controllable and the number of hours of natural light are short. In the summer, lower light intensities are best to help control heat. If plants start to stretch, remove some of the shade. If the foliage appears yellow or mottled, growth is hard, or small gray-brown spots appear on the leaves, add more shade.

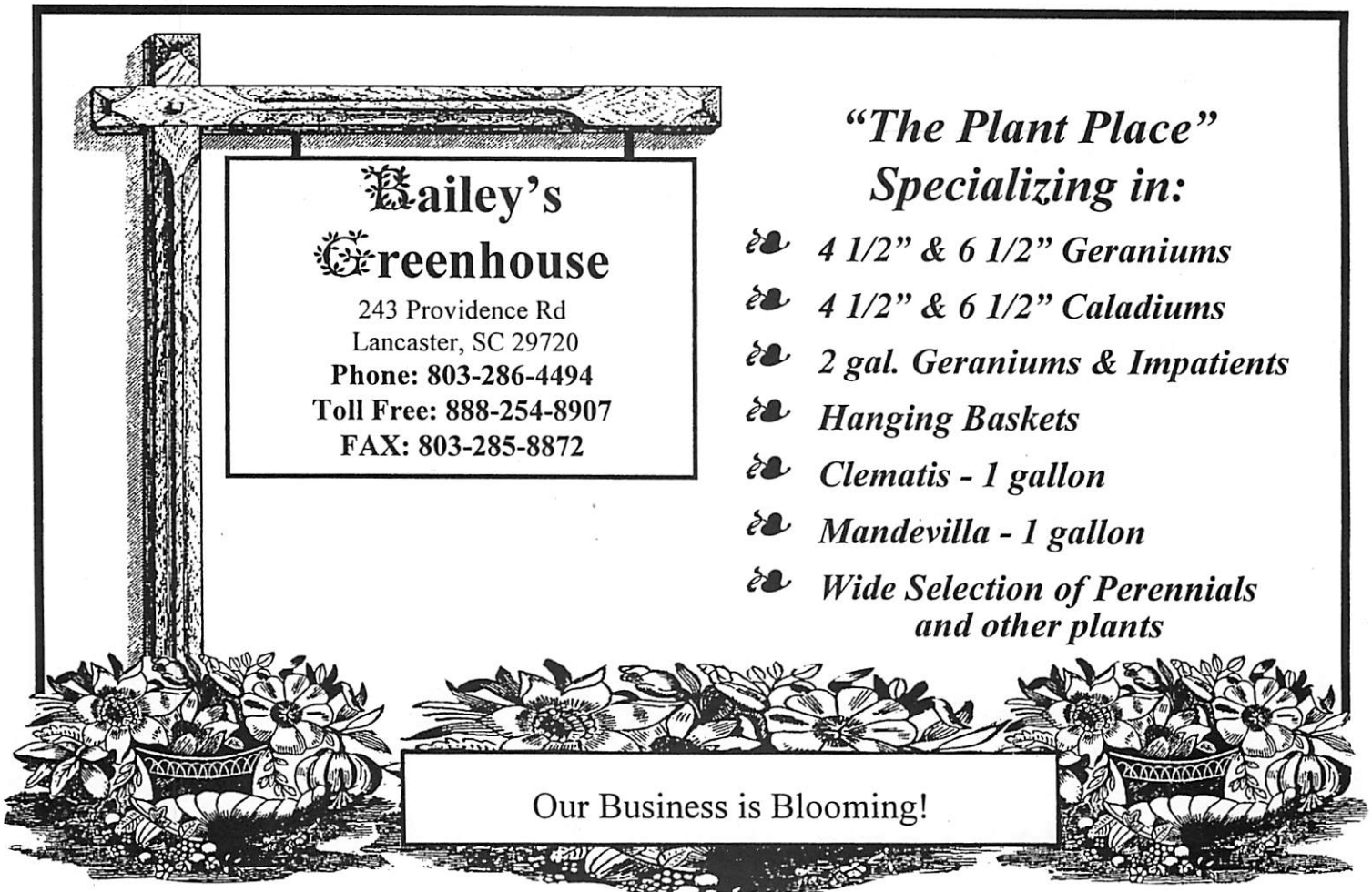
For best growth, the high temperature should be 68-70°F and not over 85°F during the day. Once flower buds are clearly visible, the night temperature can be reduced to 65°F. Careful attention should be paid to ventilation during the winter and reducing humidity to prevent diseases. High relative humidity is important during the warmer times of the year. During the summer, paths can be wet down to raise the humidity. One grower rule of thumb is to keep the relative humidity percent equal to the air temperature.

#### Growth Enhancement

Production time in the winter may be reduced by several weeks using high-intensity supplemental lighting. Lighting can be applied for four weeks at 200 foot-candles (6:00 am to 10:00 pm) to the 2½-inch pots or to finish containers in the pot-to-pot stage. Winter growth can also be improved using warmer temperatures combined with supplemental CO<sub>2</sub> at 800 to 1000 ppm.

#### Growth Regulator

B-Nine can be applied as a spray at 1000 to 1500 ppm, one to two weeks after potting or when the first set of leaves reaches the pot edge, to prevent main stem and petiole



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stretching. A second application can be applied 7 to 10 days later to the large-growing types under low light conditions. One application or no growth retardant may be needed for the compact types.

**Disbudding**

Growers often remove the first pair of dominant flower stalks that arise from the canopy. This allows a flush of 6 to 8 blooms to open at once for a more impressive display.

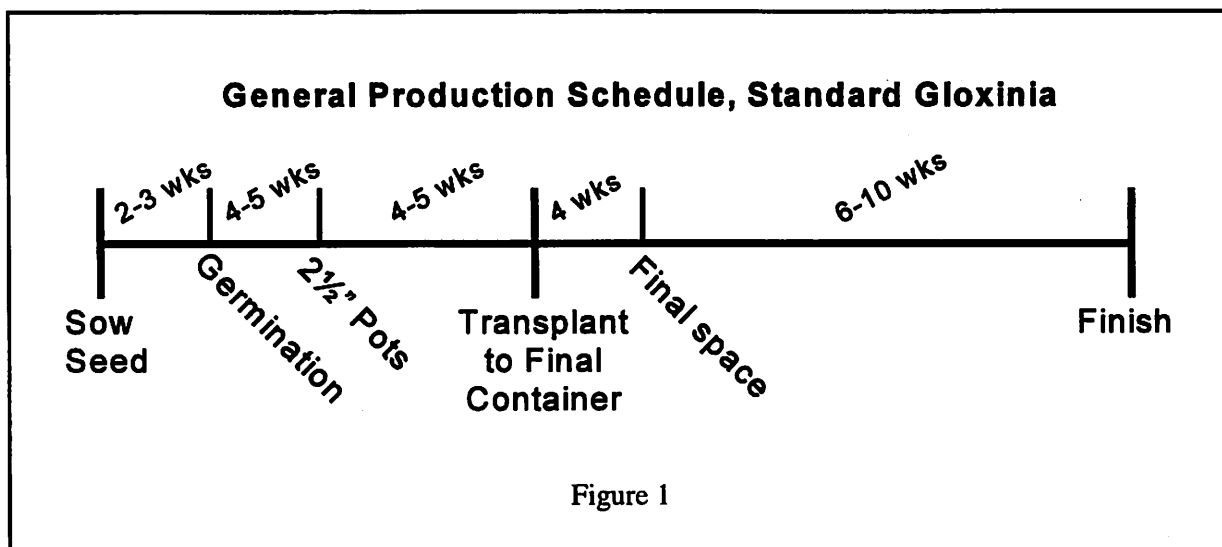
**Insects and Diseases**

Red spider mites, cyclamen mites, and thrips attacking flowers are the main insect pests of Gloxinias. In the case of thrips, the problem is worse because the delicate, open blooms of Gloxinias are very subject to damage by many insecticides. *Botrytis* can be a problem on the flowers

during cool, humid times of the year. Good air circulation and lower humidity will help. "Crown rot" caused by *Pythium* and/or *Phytophthora* can be serious problems. Use a sterile media and appropriate fungicides.

**Scheduling**

The schedule shown in Figure 1 is a generalization and individual stages may require a week less than indicated or a week more depending on the time of the year and geographic location. Starting from seed, large-growing types require 21 to 29 weeks. Seed can be sown June 1 for Christmas sales and late July for Valentine's Day. The compact types generally require 4-8 weeks less time than the large-growing types of Gloxinia. For growers who order seedlings from specialist propagators, time to finish is about 10 to 14 weeks for the large-growing types and six to 10 weeks for the compact types.



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