



A1573

## *How to Grow* TUBEROUS-ROOTED BEGONIAS & GLOXINIAS

H.C. Harrison, P.J. Pellitteri, and M.F. Heimann

**T**uberous-rooted begonias and gloxinias are showy summer-flowering plants that generally have been thought difficult to grow. But newer cultivars of these plants make it easier to grow these flowers at home with great success.

However, tuberous-rooted begonias and gloxinias do have certain growth requirements. Since the ancestors of these plants grew in dense tropical forests, tuberous-rooted begonias and gloxinias need shade, warm temperatures, soil rich in organic matter, and plenty of moisture.

### Starting plants from seeds

Soil for seeding and for transplanting should be pasteurized to control insects and diseases. Soil mixtures at garden supply stores frequently have not been pasteurized. Check the label.

You can also pasteurize your home-prepared soil mixture by putting it in your oven. Place the soil mixture in a metal or heat-resistant container, cover and heat it in the oven for 30 minutes at 180°F. The soil mixture should be uniformly moist before placing it in the oven to allow heat to penetrate evenly. This heating process kills all soil insects, soil-borne diseases, and weed seeds.

To produce tuberous-rooted begonias and gloxinias that flower in May, sow seeds in December. Start by putting a layer of gravel or broken pottery pieces in the bottom of a container for drainage. Then add a soil mixture consisting of equal amounts of organic matter (screened peat moss or well-rotted leaf compost) and sandy loam soil.

Leave at least 1 inch of space at the top of the container so water can be added without spilling over the edge. Sift the top one-half inch of soil through a fine mesh screen. This allows the tender roots of the seedlings to push easily through the soil as they germinate.

To plant, press the small seeds into the soil but do not cover. After the seeds have been sown, water the

container either from the bottom until the soil surface is moist, or from the top using an atomizer which will not wash the seeds away.

Begonia and gloxinia seeds germinate in 8 to 10 days. Place a pane of glass over the container to keep the conditions humid, and put the container in a shaded spot. The temperature should be about 70°F. Lower temperatures slow germination and result in a poor stand of plants.

About three or four days after the seeds germinate, prop up a corner of the glass to allow some air exchange. Two to three days later, remove the pane of glass to prevent the seedlings from becoming spindly. Do not allow the soil to dry out at any stage of seedling growth. Even a slight drying of the soil surface will kill the young plants since their roots develop near the soil surface.

Although tuberous-rooted begonias and gloxinias need little direct sunlight, they should have good light beginning with germination.

### Transplanting

When the third set of leaves appears on your begonia or gloxinia seedlings, transplant them to another container. Use the same soil mixture used to start the plants, but you don't need to sift any of this soil.

When the leaves of adjacent plants begin to overlap, transplant again, this time spacing plants about 2 inches apart in each direction.

When the plants again start to crowd each other, shift them into 4- to 6-inch pots, or transplant them directly to a shaded spot in the garden if danger of frost is past. One point to remember as you transplant, the flowers will face in the direction in which the leaves point.

Water your begonias and gloxinias regularly, and apply a complete fertilizer once a month during the summer to produce large, beautiful flowers continuously.

## Starting plants from tubers

You can start tuberous-rooted begonias and gloxinias from tubers, as well as seeds. You can buy tubers from your local florist, garden centers, or some seed companies.

In February, place tubers (round-end down) in moist peat moss in open trays. Space the tubers 3 to 4 inches apart, with the top of the tubers about one-half inch below the surface. Allow indirect sunlight during this time, and keep the temperature about 70°F. Water sparingly until new growth appears, because the tubers rot easily.

In four or five weeks, there should be enough new growth to shift the tubers from open trays into 5- or 6-inch pots.

Place pieces of broken pottery or a bottle cap concave side down over the drainage hole in the bottom of the pot before filling it with soil. Then add a soil mixture consisting of equal volumes of sandy loam soil and peat moss. Also mix in a heaping teaspoonful of 0-20-0 fertilizer (super-phosphate) for each gallon of soil.

Put the plants in an east window where they will receive a lot of light but little direct sun. Make sure the temperature doesn't drop below 65°F at night.

## Starting plants from leaf and stem cuttings

You can grow gloxinias from leaf cuttings, much like African violets. Select a partially mature leaf and insert it in mason's sand, vermiculite, perlite, or a 50-50 mixture of mason's sand and peat moss. Some people start gloxinias by just sticking a leaf in water. Keep the media moist but never soggy. Once the tuber forms, plant your gloxinia in a pot using a soil mixture of equal volumes of peat moss and sandy loam soil.

Tuberous-rooted begonias also can be propagated by stem cuttings. If more than one sprout appears from a tuber, remove the extra sprouts when they are about 3 inches high. Put the sprouts in mason's sand, vermiculite, perlite, or a 50-50 mixture of mason's sand and peat moss. Keep the media moist and put a clear plastic bag over the top of the container to block out drafts and help keep the humidity high. Humid conditions reduce wilting and promote faster rooting.

When the roots are about an inch long, pot the young plants using a soil mixture consisting of equal volumes of peat moss and sandy loam soil.

## Caring for your begonias and gloxinias

After the last frost in the spring, you can move your begonias outside. First, knock the soil ball out of the pot and transplant each begonia to the same depth as it was planted in the pot. Deeper planting can result in disease organisms entering the stem.

A northern exposure or a location under shade trees is ideal for growing begonias. Although begonias should be protected from full sun during most of the day, it's good to locate them where they will get a little early morning sun and very late afternoon sun. The plants will grow tall and spindly if it is too shady.

Unlike begonias, you should not move gloxinias outdoors—these plants are extremely susceptible to leaf and stem rot diseases. Water and fertilize both types of plants regularly during the summer, though, to produce more flowers.

To fertilize, dissolve one teaspoonful of 10-10-10 fertilizer in 1 gallon of water. Apply the solution liberally to the soil surrounding each plant every two weeks. Keep the fertilizer solution away from foliage to prevent fertilizer burn.

Instead of a fertilizer solution, you can apply 5-10-5 fertilizer dry. Add one-quarter teaspoonful per plant once every two weeks. Keep the fertilizer 4 to 6 inches away from the stems to avoid fertilizer burn.

## Storing tubers

Tuberous-rooted begonias stop growing after the first medium frost in fall. When the tops are injured by frost, cut the stem off at the soil line. Then, carefully dig the tubers and remove the soil and old roots. Store the tubers in dry peat moss, sand, or vermiculite at 50°F until the following February.

Gloxinias often stop flowering in early fall. As the leaves turn yellow, gradually diminish their water supply; then carefully dig the tubers, remove old soil and roots, and store them like begonia tubers.

If you have only a few begonia or gloxinia tubers, put them in a jar filled with dry peat moss, sand, or vermiculite. If you have a large number of tubers, place a thick layer of dry sand, peat moss, or vermiculite in the bottom of a cardboard or wooden box. Put the tubers on the medium, and cover the tubers with a deep layer of the peat moss, sand, or vermiculite.

## Controlling disease

**Powdery mildew** can be a problem for tuberous-rooted begonias and gloxinias. Mildew first appears as a soft, gray, hairy covering on the leaves. In later stages, the leaves turn a soft, dark brown.

To control mildew, treat your plants with a powdery mildew fungicide such as Cleary's 3336, dinocap (Karathane), triforine (Funginex) or wettable sulfur. Follow label directions.

**Stem rot** often occurs because plants are overwatered and the soil is unsterilized. Methods that minimize bacterial disease problems also help prevent stem rot. Use pasteurized soil. Commercial growing mixtures may need to be pasteurized also since they are not necessarily free of disease-causing organisms. Drenching the soil with captan or similar products will also reduce chances of stem rot. Again, follow label directions.

Tuberous-rooted begonias are especially susceptible to **bacterial disease**. Such infections usually appear as dark spots and blotches on the leaves and stems. In severe cases, the plants collapse and die.

While copper-containing fungicides can help prevent bacterial infections, the best way to avoid bacterial disease is to keep foliage dry, don't overwater, and provide good soil aeration. Pick off all diseased plant parts while the plants are dry.

## Controlling insects

Tuberous-rooted begonias and gloxinias are not usually attacked by **aphids, thrips, mealy bugs,** or **whiteflies**. However, if your plants are infested with any of these insects, use an approved houseplant insecticide such as insecticidal soap. Two to three applications at *weekly* intervals are required for good control. To control thrips, use a resmethrin aerosol spray once each week for three weeks.

**Cyclamen mites** feed on new plant tissue, stunting young leaves and buds. The small center leaves become excessively hairy, then turn gray-green and brittle, and finally turn brown. The undersides of the outer leaves turn shiny brown.

To control cyclamen mites on begonias and gloxinias, apply Pentac or Thiodan. An easy way to apply this miticide is to put on rubber gloves, hold the plant upside down, and immerse the plant in the solution.

Thiodan is effective against cyclamen mites and insects. Two or more applications at two-week intervals may be necessary for either treatment.

## Avoiding common troubles

Tuberous-rooted begonias and gloxinias have several problems in common that can be prevented or controlled when identified. These include:

**Buds dropping off**—Buds may dry, turn brown, and drop off tuberous-rooted begonias and gloxinias for several reasons, but especially if the surrounding temperature is too high—both tuberous-rooted begonias and gloxinias require temperatures between 65° and 75°F. Newly transplanted plants with poorly developed root systems are also susceptible.

Poor drainage can also cause buds to drop. In this case, the center buds usually drop first. Dried-out soil can also result in bud loss.

Botrytis blight results in buds turning brown, drying out, and dropping off. Cyclamen mites often spread this disease. You can control botrytis blight by applying Cleary's 3336 every 7 to 10 days.

**Few flowers**—Few flowers often result if plants don't get enough light or you let too many shoots remain on the tuber. Leave only one shoot per tuber, and break off all remaining shoots before they are 2 to 3 inches high.

Overfeeding can also result in few flowers, especially when plants receive too much nitrogen which keeps them in a vegetative state, producing more leaves, not flowers.

**Spindly plants**—Spindly plants result from too little light. Both tuberous-rooted begonias and gloxinias need full light but not direct sunlight.

**Plants rotting**—Rotting of plants is sometimes caused by decayed matter. Gloxinias and tuberous-rooted begonias are sensitive to decaying materials, especially manure. Do not allow decaying matter to come in contact with these plants. Also, remove flowers when they begin to wilt.

**Yellowish spots on gloxinia leaves**—Gloxinia leaves, like the leaves of African violets, are sensitive to water that is too cold or too warm. This results in yellowish spots on leaves. Avoid this problem by using water that is the same temperature as the foliage, or by carefully watering the soil to prevent any splashing on the leaves.



---

**Authors:** H.C. Harrison is professor of horticulture; P.J. Pellitteri is distinguished outreach specialist for the department of entomology; and M.F. Heimann is distinguished outreach specialist for the department of plant pathology, College of Agricultural and Life Sciences, University of Wisconsin-Madison and University of Wisconsin-Extension, Cooperative Extension. The authors wish to thank G.E. Beck, L.C. Berg, and G.L. Worf for their work on previous editions. Produced by Cooperative Extension Publications, University of Wisconsin-Extension.

**University of Wisconsin-Extension.** Cooperative Extension, in cooperation with the U.S. Department of Agriculture and Wisconsin counties, publishes this information to further the purpose of the May 8 and June 30, 1914 Acts of Congress; and provides equal opportunities and affirmative action in employment and programming. If you need this material in an alternative format, contact Cooperative Extension Publications at (608) 262-2655 or the UWEX Affirmative Action office.

**This publication is available** from your Wisconsin county Extension office or from Cooperative Extension Publications, Rm. 170, 630 W. Mifflin St., Madison, Wisconsin 53703. Phone (608) 262-3346.

**A1573 How to Grow Tuberous-Rooted Begonias and Gloxinias**

SR-11-96-2.5M-40