GrowerFacts

Begonia Vegetative Cherry Blossom

(*Begonia semperflorens*)

Propagation

STAGE 1 - Harvesting of cuttings to sticking

- Harvest uniform diameter cuttings to ensure uniform rooting.
- Make multiple passes over the stock to collect uniform diameter cuttings.
- Harvest cuttings at the correct stage of maturity.
- Harvest cuttings in the early morning or late afternoon when ambient temperatures are below 90°F (32°C).
- Place cuttings in carriers either base up or base down.
- Avoid crushing the cuttings when harvesting to decrease botrytis problems.
- Cover the carrier with a damp towel to prevent desiccation of the cuttings.
- Store the cuttings for at least 2 hours at 48°F (9°C) to reduce cutting temperature.
- Maintain 75-90% RH in the cooler to prevent desiccation of the cuttings.
- If planting is going to be delayed, store the cuttings at 50-60°F (10-15°C) for 24 hours maximum.

STAGE 2 - Callus formation (5-7 days)

- Callus formation occurs in 4 steps:
  1. Swelling of the tissue without any color change
  2. Swollen area begins to turn white
  3. White areas begin to crack open (epidermis ruptur
  4. Rough callus areas begin differentiating root initials.
- Soil temperature 68-70°F (18-21°C)
- Air temperature 65-70°F (18-21°C) nights, 68-72°F (20-22°C) days.
- To guarantee uniform rooting, the media should be sufficiently moist so that water is easily squeezed out of rooting media.
- Keep RH 75-90% at the base of the cutting.
- Use tempered water, 70°F (21°C), in the mist lines since cold water will lower the soil temperature during the day.
- Maintain high relative humidity in the air surrounding the cutting, 75-90%, to minimize evapotranspiration.
- Prevent leaf wilting by applying overhead mist or fog.
- The mist frequency should increase and decrease as the light and ambient temperatures change during the course of the day.
- During the first 3-5 days frequent night misting may be required.
- Each wilting episode during stage 2 adds at least one day to the rooting program.
- Light intensity should be 500-1000 foot-candles.
- Light intensity above 1000 will increase plant stress due to plant warming.
- Use retractable shade so that the light intensity can be increased as the cuttings mature.
- Begin foliar feeding with 50-75 ppm of 20-10-20 as soon as there is any loss in foliage color.
- Soil pH should be 5.6-5.8 with an EC < 0.5.
- Maintain pH of media leachate at 6.0-6.2.
- If growth regulators were used during stock plant growth, no growth regulators are used during stage 2.
- If growth regulators were not used during stock plant growth then start applying appropriate growth regulators as soon as cuttings are turgid.
- B-Nine can be used to control height if needed.
- Once 50% of the cuttings begin differentiating root initials, the cuttings are ready to transfer to stage 3.

STAGE 3 - Root development (9-11 days)

- Soil temperature 65-68°F (18-20°C).
- Air temperature 65-70°F (18-20°C) nights, 68-72°F (18-22°C) days.
- Once the cuttings begin to form root initials, it is critical to begin drying out the soil.
- Avoid drying out the air since this will increase evapotranspiration which will reduce root zone temperature.
- To reduce soil moisture.
- Reduce the mist application during the dark period.
- Reduce the duration and frequency of the mist.
- Reduce the amount of water applied per day by delaying the start of the mist period until 9:30 to 11:00 AM and end the mist period earlier than 4:00-5:00 PM.
- Begin increasing light intensity to 1000-1500 ftc as the cuttings begin to root out.
- Apply growth regulators as needed.
- Foliar feed at 100 ppm nitrogen from 15-0-15 alternating with 20-10-20 then increase rapidly to 200 ppm. Increase the frequency and rate at each application to prevent salt problems.
- The majority of fertilizer should be in the nitrate form (15-0-15).
- The soil pH should be 5.6-5.8.
- Soil EC should be below 1.0
- Monitor the pH and EC of the leachate on a daily basis. The pH should be 6.5 and the EC should stay below 1.0

STAGE 4 - Plants ready for transplanting or shipping (7 days)

- Air temperatures 65-70°F (18-20°C) nights, 68-72° F (20-22°C) days.
- Move the liners form the mist area into an area of lower RH, lower temperatures, and higher light intensity.
- Attempt to duplicate the RH levels found in the production area.
- A zero DIF is desired.
- Use growth regulators if DIF is positive.
- Increase the light intensity to 1500-2500 ftc.
- Provide shade during the mid point of the day to reduce temperature stress on the crop.
- Maintain soil pH 5.6-5.8 and EC less than 1.0 mmhos/cm.
- Fertilize at 150-200 ppm nitrogen from 15-0-15 alternating with 20-10-20 once per week.

Growing On to Finish

TEMPERATURE

Night: 65-68°F (18-20°C)

Day: 68-75°F (18-24°C)

Temperature controls rate of development with temperatures above 68°F required for optimum growth. Avoid temperatures below 50° F.

LIGHT

- Keep light intensities at 1500-2500 for variegated varieties while maintaining moderate temperatures.
- Upright varieties tolerate higher light conditions.
- Vegetative begonias are day neutral, but are affected by the total amount of light.
- During the winter when light is reduced, flowering is reduced.
- HID (ftc) for 18 hours per day can reduce crop time.

MEDIA

- Use a well-drained, disease-free soil-less medium with a medium initial nutrient charge and a pH 5.6-5.8.
- Combinations of peat, bark, or perlite are best.

FERTILIZATION

- Vegetative begonias have a low fertilizer requirement, similar to impatiens.
- Fertilize 2X week irrigation with 15-0-15 alternating with 20-10-20.
- As the plants mature the rate can be increased to 150-200 ppm.
- Maintain medium electrical conductivity around 1.0 mmhos/cm (using 1:2 extraction).
- Excessive application of ammonia will promote large leaves which exhibit foliar necrosis.

WATER

- Keep soil moist.
- Water with clear water every third watering to prevent high soluble salts problems.

PINCHING

- Pinch plants once plants are rooted to the edge of the container (1-2 weeks).
- Pinch above the 5th or 6th set of leaves about 1-1.5-inches (2.5-3.8-cm.) above the soil.

CONTROLLING HEIGHT

- Once plants are rooted to the sides of the containers they can be allowed to wilt prior to irrigation to provide some height control.
- Height can also be controlled by withholding fertilizer, especially phosphorous and ammonium-form nitrogen.
- Vegetative begonias are responsive to day/night temperature differential (DIF).
- Florel and B-Nine are effective in increasing lateral branching and reducing height.

POST PRODUCTION CARE

TEMPERATURE

Optimum temperatures for common name:

Night: 65-68°F (18-20°C)

Day: 68-75°F (20-24°C)

Using a negative DIF will help keep the plants short and of high quality.

Avoid temperatures below 50°F.

LIGHT

Vegetative begonias do best in shade.

WATER

Keep soil moist.

COMMON PROBLEMS:

INSECTS: Whitefly, Thrips, Mealy bugs

DISEASES: Botrytis, Powdery Mildew, Rhizoctonia, Pythium, Poty Virus
Impatiens Necrotic Spot Virus (INSV)

Ball Horticultural Company
622 Town Road, West Chicago, Illinois, USA, 60185-2698
630 879-BALL www.ballseed.com