



### On Receipt of Cuttings

- Check box count against the packing list found inside one of the boxes. Report missing boxes to your customer service representative or broker representative immediately.
- Check count of cuttings against the packing list. *Report any missing items within 48 hours.*
- Open all boxes immediately and inspect cuttings for damage, e.g. dehydration, heat or freeze damage, breakage or rot. *Report any damaged items within 48 hours.*
- Do not allow boxes to remain in sun, heat or below-freezing temperatures.

### Rooting Cuttings

- Stick cuttings as soon as possible into pre-moistened, well-drained, soilless media with a pH between 5.5 and 6.5.
- If unable to stick cuttings immediately, unrooted cuttings can be held for a few days in a cooler, between 38-41°F (3-5°C). Cuttings will rapidly deteriorate in warmer temperatures.
- If possible, stick cuttings in the morning rather than the heat of the day. It is also good practice to only take small batches of cuttings out of the cooler at a time. This way, cuttings are kept in the cooler rather than allowed to wilt on the greenhouse bench waiting to be stuck.
- Some varieties will require rooting hormone, usually between 500 ppm and 1,000 ppm IBA (Indole-3-butyric acid). We recommend a non-alcohol based hormone such as IBA Soluble Salts, applied as a spray or dip. Apply hormone within 24 hours of stick for best results. Measure and mix carefully

### Keys to success

1. Stick cuttings promptly
2. Maintain high humidity environment
3. Provide 65° to 77°F (18° to 25°C) temperature
4. Use appropriate rooting hormone and rate
5. Practice good sanitation

since high rates can damage cuttings or prolong rooting.

#### Specific recommendations available upon request.

- If possible, apply hormone at the end of the day when mist is reduced.
- Stick cuttings just deep enough so that they are anchored by the soil medium, normally, ¼" to ½" (.6 to 1.3 cm) deep. You may desire to water in cuttings after they are stuck, particularly larger ones.
- Consider size of cuttings when determining plug tray size to use and avoid using too large of a cutting in a very small plug such as 128 or 200.
- Sanitize benches with bleach or other cleaning products in between crops.
- Apply mist immediately and as frequently as needed to maintain turgidity and minimize wilting while roots develop. Avoid a lot of hand watering because this will compact soil. Remember the mist is not watering the cuttings per se, but instead the mist is creating an environment of very high humidity around each cutting while it is developing roots.
- For mist systems on a timer, set your system so that it decreases mist applications during overnight hours. Too much mist at night can create standing water on plant

leaf surfaces because there is not enough light for the leaves to dry before the next mist event.

- When roots begin to appear, usually after 7-10 days for many varieties, gradually increase the interval between mist events to begin to wean the cuttings. Too high of a mist will cause a shallow, poor root system and disease problems are more likely to occur.
- Apply liquid fertilizer once or twice a week once roots have appeared. Between 50 and 125 ppm nitrogen is recommended.
- For best results, provide good air circulation, with air temperatures between 65 and 77°F (18-25°C). Bottom or root zone heat is beneficial. Know your bench temperature not just your air temperature.
- Shade to approximately 50% during high temperatures and full sun or when light levels are above 8000 foot candles.
- Most varieties root within 2-3 weeks.

### Insect and Disease Control

- Good cultural practices and a clean, well-ventilated growing space are your best defenses against disease. Botrytis is the chief fungal threat as it thrives in moist, stagnant environments. Good air circulation and adequate

light will minimize its harmful effects.

- For additional disease protection, apply a broad-spectrum fungicide within 24 hours of stick. If possible, apply at the end of the day when mist is reduced. Be sure to rotate with other chemical classes of fungicides on a regular basis. Examples of chemicals suitable for use in propagation include Decree, Heritage, Medallion, Cleary's 3336, Chipco or a biological fungicide like Companion.
- Fungus gnats and their larvae pose another threat to root development of cuttings. Fungus gnat larvae will feed on the roots and stem tissue and adults can spread bacteria and fungal spores. If you see adult fungus gnats on your yellow monitoring cards, then it is important to apply a larvicide drench to protect your cuttings. Examples of larvicides suitable for use in propagation include Citation, Safari or a biological control like Gnatrol.
- Other insect pests and disease problems can occur so it is important to scout propagation areas on a regular basis for other offenders.

***Before using any pesticides, be sure that they are registered for use in your state. Check with your local county extension agent or state university extension service. Always follow the label instructions.***



**Green Leaf Plants®**  
2369 Old Philadelphia Pike  
Lancaster, PA 17602

**p:** 800.321.9573 / 717.299.0300  
**f:** 717.299.7162  
**w:** GLplants.com

Prepared by  
Green Leaf Plants®  
Technical Services

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