

Poinsettia Propagation Tips

SANITATION

To reduce the chance of fungal and bacterial infections, it is important that the propagation area is cleaned and sanitized before cuttings arrive. Weeds should be removed and algae infected areas scrubbed and cleaned. All benches and floors should be thoroughly cleaned and disinfected using greenhouse disinfectants containing quaternary ammonium compounds (e.g., KleenGrow, MicroBLOC® Greenhouse Disinfectant, GreenClean® Granular Algaecide, Green-Shield® II Disinfectant & Algaecide, Physan 20™). When poinsettias are in the greenhouse, no herbicides should be applied as poinsettias are very sensitive to herbicides. Hang yellow sticky cards above the floor to monitor for any presence of fungus gnats or other pests before using the propagation house. A drench with Nematodes significantly reduces potential fungus gnat infestation in propagation.

Make sure sanitation protocols are in place before the greenhouse receives cuttings. Foot baths containing disinfectant should be placed at all entrance ways into the propagation area. These baths should be renewed daily with fresh disinfectant. Managers and workers should wash hands with a disinfectant or anti-bacterial soap before entering the propagation area after lunch and breaks.

ARRIVAL OF CUTTINGS

Have propagation trays ready and watered-in in advance of cutting arrival to facilitate quicker sticking. For direct stick programs and those where cuttings are handled in sticking lines, workers should be prepared for the day's shipment and the equipment should be pre-checked.

Store opened boxes at 50–55 °F (10–13 °C) for no more than 24 hours and prevent cutting dehydration during storage by maintaining 90% relative humidity in coolers. Do not open the individual bags of cuttings until ready to stick as this helps maintain high humidity around the cuttings.

Stick the cuttings immediately if possible. For relatively large shipments, pull out only enough cuttings for each worker to stick within an hour before replenishing with another fresh box of cuttings from the cooler. If cuttings can't be stored in a cooler, then try to store in the coolest area of the facility and monitor closely for humidity and cutting dehydration.

Some growers without cooler space also lay opened bags on the propagation bench and begin misting. **Do not leave opened, unstuck cuttings on the propagation bench for more than a few hours or they can become twisted and curled.**



TEMPERATURE

Warm temperatures and humid conditions are needed for successful poinsettia propagation. **Bottom heat is needed, especially in northern areas where night temperatures are relatively cool.** Try to maintain media temperatures between 75–77 °F (24–25 °C) until the cuttings are fully rooted. Avoid night temperatures below 73 °F (23 °C) and day temperatures above 85 °F (29 °C). Apply extra shade if needed. After good root development, temperature and humidity can be reduced and the cuttings acclimated to higher light intensities. The ideal media temperature is 70–72 °F (21–22 °C). Most varieties are generally well rooted in four weeks using these recommended temperatures.

ROOTING HORMONE

Many growers feel they do not need rooting hormones if they have good bottom heat and healthy cuttings. The use of rooting hormones slightly reduces rooting time and evens out rooting across the bench. Hormones, both in powder or liquid form (e.g., Dip 'N' Grow®, Hortus IBA water soluble salts, or Rhizophon™ AA water soluble tablets) work well. When applying, use 0.1%–0.2% IBA or a combination of IBA + NAA applied only at the base of the cutting. Trials are recommended before using new rooting compounds or concentrations. Heavy sprays of liquid K-IBA at 50 ppm within a day after sticking can encourage faster root formation but can lead to leaf deformation and curling so perform trials first before implementation.

RELATIVE HUMIDITY

High humidity, especially for the first five days, is critical to reduce stress on the cuttings and to help them recover from wilting and flagging. Many growers use fog systems to maintain humidity above 90% in the poinsettia propagation area. High humidity should be combined with heavy shade and minimal air movement. This helps reduce the amount of misting that is needed and reduces the chances of Botrytis and other diseases.

MISTING

Use a fine mist, applying enough to wet the foliage but not to the point of drip. Short and more frequent bursts of mist are better than long mist cycles with less frequency. Adjust mist daily according to weather and the condition of cuttings. Avoid standing water on the leaves. Puddles of standing water on young leaves for lengthy periods of time can cause tissue breakdown, water-soaked areas, and eventual disease.

It will take 1-2 days for the unrooted cuttings to become completely rehydrated and turgid after sticking. Avoid excess air movement across the leaf surface, especially in the first week. Apply mist so that the leaves do not roll or severely flag after becoming rehydrated following sticking. Severely flagged cuttings in the early morning indicate that inadequate mist was applied during the night. Keeping cuttings too dry causes leaf scorch, delays in rooting, and possible leaf loss. If the cuttings look stressed on sunny days, additional shade is highly recommended rather than additional mist.

MISTING (continued)

Use a spreader-sticker (like CapSil[®], at a rate of 2–4 ounces/100 gallons) on cuttings as soon as possible after sticking to reduce leaf surface tension and improve moisture uptake into the leaves. CapSil[®] causes the water to spread more evenly across the leaf surface. A spray on the day after sticking of Mural[®] or Heritage[®] is recommended for Botrytis control and enhanced rooting. Reapply whenever water droplets are forming on the leaves and the moisture is not evenly distributed across the leaf surface. CapSil[®] can also be used as a prestick spray or dip on cuttings. Avoid dipping the cut end if possible when using prestick dips. When CapSil[®] is used in propagation, mist levels and frequency can normally be reduced. Avoid over misting cuttings when using CapSil[®] or water soaked young foliage might occur. Other adjuvants (e.g., Uptake[™] or Suffusion[®] liquid) can also be used instead of CapSil[®], but these should be trialed extensively before implementing.

SHADE

Provide heavy shading until the cuttings develop a good callus. Try to keep maximum light levels at 1,100 f.c. ($220 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ or 12 klux) or a maximum daily light integral (DLI) of 4–6 $\text{mols}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$. It is critical to pull enough shade under bright sunny conditions to help reduce stress and heat load on the plants. This will also help reduce the amount of misting needed which leads to less Botrytis and bleached foliage.

Once roots begin to form (after 10–12 days for most varieties), light levels can be gradually increased to 1,500–2,000 f.c. ($300\text{--}400 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ or 16–21.5 klux) to achieve a target DLI of 6–8 $\text{mols}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$. When the plants are well rooted (after around three weeks), light intensities can be increased to 3,500 f.c. ($700 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ or 38 klux) or a minimum DLI of 12–15 $\text{mols}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$.

FERTILIZER

Start the fertilization program early. Poinsettias have relatively long requirements for misting during propagation and leaves can get heavily leached of nutrients. Fertilization can start with 100 ppm N and K of a 15–0–15, 14–0–14 or similar fertilizers after 6–8 days, when callus is developing. Once the roots start to grow, the rates can be increased to 150 ppm N and K, and 2 to 2.5 weeks after sticking to 200 ppm N and K, if needed. No phosphorus should be in the feed, as it can very easily lead to distortions and hard growth. Rinse fertilizer off the leaves with clean water after feeding to avoid burn.

PLANT GROWTH REGULATORS

Cycocel[®] (chlormequat chloride) plant growth regulator sprays at 750–1,000 ppm once, or more often as needed, depending on temperatures. Cycocel[®] at 750–1,000 ppm + B-Nine[®] WSG (daminozide at 1,000–1,500 ppm) can be used once under hot conditions. Sprays generally can begin 15–18 days after sticking, once the cuttings show good new growth. Bonzi[®] ornamental plant growth regulator (paclobutrazol) or Sumagic[®] (uniconazole) plant growth regulator sprays are not recommended, as these chemicals get into the root zone and can cause stunting.



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