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Poinsettia Tech: From Stick to Finish

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Tackling the ins and outs of poinsettia production throughout all stages in one article is a tall task and probably impossible. So let's start by giving a shout out to the three-part GrowerTalks webinar series that ran during the summer of 2020. This series featured experts from Selecta One and covered key stages from stick through pinch; pinch to bract development; and final bract development to finishing and shipping. You can find all of these webinars by selecting archived topics from 2020 at growertalks.com/Webinars.

For this feature, we'll reference information presented by James Doukas, Jason Twaddell and Gary Vollmer, three members of the Selecta One poinsettia team who've also grown thousands of poinsettias over the course of their careers and helped growers of all sizes produce top-notch crops. Here are their tips and tricks so you can achieve the same level of success and avoid common pitfalls with the most popular holiday crop our industry has to offer.

Propagation: Stick through pinch

The key factors to remember in early stages of poinsettia production are sanitation, URC management, media, and disease and insect control. Let's address these critical topics one at a time.

Sanitation begins before your cuttings arrive, like any crop. Disinfecting all surfaces in cutting-handling areas and prop zones is first and foremost. Don't forget benches, floors and even ceilings. Growers have found success with quaternary ammonium-based disinfectants, peroxide, chlorine dioxide and other oxidizing agents.

Establishing protocols within your team is the best way to manage sanitation throughout the process. From worker's hands to feet, cleanliness is so important. Make sure you have new footbaths each season and keep them wet with disinfectant. Growers who create written sanitation protocols will be in the best shape.

When it's time to receive cuttings, be sure to also have a clear process. One of the first steps when you open your boxes is to check the temperature of those cuttings. Purchase a few infrared thermometers to aid in this process and be sure to check temps both near the outside of the box, as well as in the center near the ice pack. Warm temps (64F/18C) indicate the cuttings may need to be cooled overnight. Temperatures closer to 50F (10C) indicates heating occurred late in the delivery and any damage is unlikely, but if practical, you should store these cuttings in

the cooler overnight anyway. Before cooling poinsettias, remove them from the bags to disperse ethylene and add water to moisten them, if needed. Remember, your cuttings should be firm and crisp when they come out of the cooler to be stuck.

For media, growers have the best success with loose-filled liner trays (avoid plug mixes), stabilized media like Ellepots and Oasis, or direct sticking. Be sure to trial new media types before moving into full-scale production.

Stage 1: Prop time

Once cuttings are stuck, propagation begins and your processes need to be dialed in. Our experts offer tips such as sticking under mist to avoid wilt, applying rooting hormone and keeping mist high for the first four days until that cutting starts forming roots. Try not to overmist and avoid water pooling on the leaves.

Moisture management continues to be a priority during early stages. Soil moisture is most critical from days five through eight as the cutting is callusing and starting to initiate roots. Try to maintain a “level four” moisture level—wet, but not dripping out of the tray.

Fertility is critical for poinsettia production, but more so in later stages. Media EC will be low at the time of initiation due to leaching, but needs to be built back up by day seven. Stay on top of your phosphorous in this stage. Too much (especially applied over the top) can cause damage to your plants' growing tips, but too little can result in deficiencies that will need to be addressed later.

In terms of insects, keep your eyes open for fungus gnats early on. Your best way to avoid them is to have an algae-free propagation zone. Monitor with sticky cards and follow moisture management protocols. If you run into fungus gnats, there are plenty of ways to battle them, from chemicals to biologicals.

Your primary disease pressures will come from Botrytis and Erwinia, but preventative controls are available, so be sure to take them into consideration. Like with insects, be sure to keep your mist balanced so nothing pops up that will impact your crop as it's starting to take root.

Stage 2: Rooting out

Once roots are actively growing, it's time to begin fertilizing in earnest and really managing moisture. You should have visible roots by day 10 and you'll want to be off mist completely by day 14. You should have a strong focus on your greenhouse environment and begin increasing light levels if possible. Also increase air exchanges and start reducing relative humidity in these zones.

In Stage 2, you should be building media EC back up using a well-balanced, neutral cal/mag fertilizer with a full array of micronutrients at 100 to 150 ppm. Know your media pH when your plants come out of propagation, especially when direct sticking.

Stage 3: Finished propagation

At this point in the game, you'll change your environment by increasing light levels and fertility, and reducing temperature and humidity. Continue to build media EC with a balanced fertilizer program and begin PGR applications. Your first application will be around day 16 and again at day 22.

Maintain your insect and disease control in Stage 3. Treat for fungus gnats and whiteflies if they're present. Weekly scouting is a must. For disease, your monitoring shifts from stems and leaves to roots, with the potential for Pythium and Rhizoctonia increasing. Protect your roots with attention to moisture management.

Moving to finished containers

It's now time to move those liners into their next home. Basics tips include planting into moist media (both the

rooting media and finished container media). Shade and elevated humidity can help reduce the risk of transplant shock.

Your greenhouse environment will also be important as you move to finishing. You'll want the same low night temps (61 to 72F/16 to 22C) and your daytime range should ideally be 75 to 86F (24 to 30C). Keep your high humidity strategies in place and consider moving to drip irrigation for the best results. The most common environmental challenge is high temperatures in this phase of production.

Finished media should be porous and pH-adjusted with limestone to stay below 6.6 in the media. Maintain a media pH of 5.7 to 6.3 for best results. Your crop should be grown with a constant liquid feed program and cal/mag is recommended since poinsettias need a good source of calcium. The better you know your water quality, the better chance you have of choosing the best fertilizer for your specific situation.

PGRs and pinching are key to producing a top-quality crop. Growth regulators are a complete topic in their own right and many articles and research studies are available to help you dial in the best plan. Our experts recommend an application of PGRs in late propagation and after transplant to reduce internode length and help with even branching.

Pinching is as much an art as a science, but here are some tips: Pinch the plants about 12 to 14 days after transplant when they're rooting out into the pot. Pinch to a leaf count based on your finished specs. Leave six to seven leaves after the pinch to produce a plant with six primary bracts. Try not to leave too many leaves, though, as this will create a wide plant with small bracts.

Pinch to bract development

As your plants continue to progress, many of the same topics should remain top of mind. Moisture management, fertility, media EC and pH, disease control and environment are daily topics to address. And now you need to add in setting targets for height, tracking growth, spacing, flower initiation and PGR needs.

Pests and diseases to watch out for as your crops move along are Rhizoctonia (which attacks at or above the soil line), Botrytis (usually starts with leaves, but can also attack stems), Pythium (often following fungus gnat infestations), powdery mildew (increasingly common) and different species of whitefly. Scout and monitor for these pests and diseases daily.

As we already mentioned, your greenhouse environment is changing now as you move to the finishing stages. Light levels and fertility are increasing, as temperature and humidity are decreasing. You need to pay particular attention to average daily temperature (ADT) and the difference between day and night temperatures (DIF).

Average daily temperature is highly critical for poinsettia production, with leaves unfolding at the highest rate around 75F ADT, while development slows as you get toward 80F. Our experts recommend maintaining 68 to 73F ADT as a target. Avoid reaching the dew point to avoid issues. Humidity will naturally increase as you get closer to your finish dates, so be sure to have a plan for humidity control.

Know your specs

Be sure to have a firm grasp on your finished specs before you move to finish stages. These specs should include the number of blooms, finished height and finished width. Keep in mind, you might have different specs for different customers. A lot of this comes down to knowing your varieties and selecting the best ones to meet your specs. Getting the correct number of blooms goes back to the pinch; correct height and width are impacted by the number of days from pinch to short days. Too much time means you'll be over spec and too little leaves under spec. Space on time, track the height every week, monitor ADT, DIF and night temps weekly, and use a well-thought-out PGR and fertilizer strategy to manipulate growth as needed.

Bract development to final stages

Your day temperatures should ideally stay between 70 to 78F (21 to 26C) with night temps between 66 and 70F (19 and 21C). Keep in mind, night temperatures above 72F (22C) will delay flowering. This late in the game you really need to maintain an ADT between 68 to 73F, while remembering that the crop's bract temperatures are more important than the air temperature when you make calculations.

Particularly for those of you growing in Northern climates, light levels and daylength will be decreasing rapidly, so be sure to take this into consideration when managing light. Think about not glazing your greenhouse roof to combat this and remember the last weeks of poinsettia production can often be the darkest weeks of the year.

This time of year also brings some of the lowest humidity you'll get during production. High transpiration rates result and actually give you a great opportunity to put a lot of calcium and fertilizer into your crop. But as humidity increases late in the crop cycle, disease pressure and reduced transpiration will be factors to consider.

Finished poinsettia diseases and pests are similar to the ones you want to watch out for in the previous stage.

When considering PGR strategies for your finished poinsettias, our experts recommend using only spray applications until shoots are 2 in. (5 cm) in length. After that, drenches are quite effective. There are multiple drench techniques, but growers have found the best success via drip irrigation. There can be factors to consider with this method, such as lag time in your drip lines over a long distance. Be sure your injector is calibrated properly and use extreme caution if you have high-volume drippers.

Last, but not least

As you send your poinsettias to market, there are a few tips from our experts for improving shelf life, which will benefit your retailers and end users. Cool down your crops toward the end since they'll no doubt have a chilly trip from the greenhouse to retail and on to someone's home. A late PGR drench will help avoid stretching at retail and be sure to feed them until the end, but reduce fertilizer concentrations. **GT**