

Poinsettia Production: Starting Off On The Right Foot

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Getting a poinsettia crop off to a good start is the best way to ensure a successful finish. Although this seems obvious, growers have found out the hard way this is tougher to do than they thought. Before you get too far into this season's production, let's review some key points to help you do a better job.

Growers are finding that poinsettias, like geraniums, can offer enhanced margins when started from unrooted cuttings purchased from licensed distributors. This system saves the grower money by eliminating the cost of producing stock plants or by saving freight associated with shipping bulkier rooted cuttings. Purchasing unrooted cuttings also generates new opportunities for spring sales in greenhouse space formerly occupied by mother plants. Because starting with good quality cuttings is so important to the success of your crop, be sure your supplier is reliable and well versed in the management of poinsettia stock.

Stock plants should be:

- * properly scheduled and managed to produce cuttings of optimum rooting maturity, resulting in quick, uniform rooting during propagation.
- * properly fertilized to produce cuttings that are not deficient in their nutrient needs and that are well toned (not too lush), ensuring adequate carbohydrate reserves to carry cuttings through propagation.
- * properly scouted and treated for insects or diseases that can attack poinsettias, minimizing problems that can carry through propagation and finishing.
- * provided good environmental and cultural conditions (i.e. space, light, air, night lighting) for health growth, resulting in cuttings that root quickly, branch well, and can be finished with minimal production problems.

Whether growing your own mother plants or purchasing cuttings from a reputable supplier, avoid stress by getting cuttings to propagation greenhouses as quickly as possible. Summer temperatures can quickly wilt and stress young cuttings, causing severe damage. Until these cuttings have developed their own root systems to provide the needs of the plant, they are at your mercy for the care and attention required to survive. Cuttings should be provided:

- * sterile, free-draining rooting media and bottom heat for rapid rooting, which creates the optimum environment for root development.

- * good space in propagation (no more than 12 cuttings per square foot) to minimize internode stretch, foliar diseases, or delayed rooting.
- * adequate mist to keep cuttings covered with a light film of water, thereby avoiding loss to dehydration or disease that results from excess moisture.
- * periodic chemical growth regulators to minimize internode stretch, which allows growers to manage the total height and size of finished crops without starting too tall.

General rooting time under summer conditions is three to four weeks. The first noticeable stage of development, callus formation, is seen within seven days of sticking. Root initials should become evident within 12 days of sticking. If not, check for excess moisture, cool media temperatures, or fungus gnat larvae that can delay or prevent root formation. Failure to correct these problems quickly reduces the likelihood that these cuttings will survive and become quality blooming plants. Once root initiation is evident, decrease misting and increase air flow/light intensities to force cuttings to acclimate to harsh greenhouse conditions. By day 21, plants should be off mist completely and approaching the transplant stage.

When cuttings are ready or received (for those who purchase rooted cuttings), transplant into the final growing media. Reduce the opportunity for disease attack by using new pots and pasteurized media, as well as sanitizing greenhouse equipment and tools. Preventative fungicide applications at the time of transplant help reduce potential disease problems later in production. Young poinsettias are the most susceptible to attack by *Rhizoctonia* or other pathogens, because of injury in transit or handling of cuttings as well as potential contamination during transplant. After this initial fungicide application, minimal follow up should be required if growers pay attention to their irrigation practices and sanitation.

Begin fertilization immediately after transplanting. Young cuttings are generally weak from the leaching of nutrients in propagation. Studies show that nitrogen and potassium are lost from leaf tissue as a result of misting in propagation. Fertilizer should be available to replenish leached nutrients as new roots penetrate into the growing media. Studies show that a light concentration of fertilizer (~150 ppm nitrogen) encourages early root development and plant growth. Once plants are established, levels can be increased to 200 to 250 ppm. High concentrations of fertilizer (300 ppm or more) promote soft growth that can lead to production problems like internode stretch, bract edge burn, and stem breakage. Throughout the crop, use

moderate levels of complete and balanced fertilizers to supply the required nutrients. No one fertilizer material can accomplish this goal, so most programs should include a rotation of poinsettia-style fertilizers and calcium fertilizers. Be sure the program you use is compatible with your water quality and growing media.

Protection from high light and temperature stress is important during the establishment period until roots are fully capable of supplying the water/ nutrient needs of the plant. High light intensities can cause damage to young plants, but can also create a positive growth response. Stem caliper and strength are increased when plants are developed under higher light intensities. During August and September, growers use shade to mitigate high temperatures and damage to young, tender transplants. If the temperature can be managed through increased air flow, syringing or other means, then light intensities should be increased to 5000+ foot candles to create stronger blooming plants. As plants take hold and are able to avoid wilting, the syringing can be discontinued.

Most poinsettias sold in north America are single-cutting, pinched plants. A serious problem with pinched poinsettias is stem breakage at the time of sale. To minimize this problem, growers need to focus on using less total fertilizer and more light and pay attention to how the crop is pinched. Excessive shoots will result in thinner, weaker stems and a greater incidence of horizontal branches in the lower shoots of the plant. These lower shoots are the most prone to breakage at the time of packing. You can reduce the amount of breakage by leaving fewer shoots per plant when pinching. No one factor is able to solve this age-old problem, but certainly doing several things the right way can reduce the likelihood of it occurring.

Once the crop is well established and pinched, new shoot development should result. By this stage, fall temperatures are warm but not as harsh as they are during the summer. Without protection from high temperatures, new shoots tips may emerge with deformed leaves. As the crop becomes acclimated, new leaves should form without abnormalities. In most cases, distorted foliage is not noticeable at the time of sale because newer leaves and bracts form under more favorable conditions. Growers need to be aware of the potential damage that rapid changes in the greenhouse environment cause. If the crop experiences a sudden change in light intensities after being grown dark, plants are likely to develop leaf scorch or dehydration. This situation is common when growers remove shade on greenhouse roofs each September.

Plants also react adversely to being spaced out, because this allows greater air circulation and light to all parts of the plant - reducing humidity around the plant. If changes are anticipated, stage activities to avoid exposing the crop

to all change factors at the same time. For example, space the crop out and wait a few days before removing shade. When shading is removed, increase air movement and syringe the crop during mid-day to cool the leaf surfaces. This will also increase humidity and reduce the total stress experienced by the crop. Using this line of thinking, growers can promote optimum plant growth while making adjustments in the growing environment.

Growers who start the crop with no spacing between pots require less syringing, because higher humidity is created by pots of moist soil close together. Be prepared to space the crop shortly after plants have been pinched and no longer wilt or show signs of stress. Although there are advantages to spacing the crop early in production, there are an equal number of reasons to keep it close together until a few weeks beyond pinch. Some of these reasons were mentioned already for mitigating stress. Another reason to keep plants together until after pinch is the upward branch presentation that results. Plants spaced out early take advantage of the space provided and shoots grow in a more horizontal position. These are the branches that become prone to breakage during shipping. It is important that plants are not crowded together too long, because this encourages stretched, weak stem growth. Growers need to watch development closely and get plants spaced on time.

If using lights to delay flowering of Freedom, Peptide, or other early blooming cultivars, be sure this has begun by September 5. For best results in manipulating crop timing, check lighting systems for proper operation and uniform light pattern early. Many growers have converted their entire crop to Freedom by using lighting to create the different maturity dates required for their market. An advantage to this approach is the simplification of crop culture through uniform growing condition, fertilizer programs, and plant responses that occur with one main series.

Once side shoots are growing, it is time to apply Marathon for whitefly control. Proper application of this systemic pesticide will yield maximum longevity and effectiveness for poinsettia crops. Whether you use the granular materials or the new soluble powder for drenching, apply the chemical to uniformly moist soil and avoid any leaching for one week. To prevent buildup of salts that cause root damage, reduce fertilizer rates and water only as required. After one week, Marathon is taken up by the plants and normal irrigation and fertilization rates can resume.

Now that your crop is off to a good start, you can focus your attention on the finer points of growth regulator applications, fertility management, and tracking the crop through its final development. It seems like a lot of work, but nothing can compete with the satisfaction (your's and your customers') of a well-grown poinsettia!