



By Erik Runkle



# Dealing with Nonuniformity

In the production of flowering ornamentals and other specialty crops, a common goal is to grow high-quality, uniform plants in a consistent and predictable manner. A population of plants that have different growth characteristics (for example, plants of different size, maturity or vigor) can be difficult to manage and often leads to a nonuniform crop when it's time to market it. If you can identify the source(s) of nonuniformity early in production, you can often manage it and then work to prevent a future recurrence.

Many of the sources of crop nonuniformity arise during propagation of the plants, whether they are from seed, cutting, or tissue culture. Without any corrective actions, starting with nonuniform plants often leads to nonuniform finish plants. Therefore, a common and important objective should be to start with the most consistent and uniform young plants as possible.

**Identify the source of nonuniformity.** The first step in dealing with nonuniformity is to identify its source. There may be more than one reason why plants are not uniform, but sometimes there is an initial source and then additional factors contribute to an even greater variation in plants as they mature. Below are some possible causes of nonuniformity during propagation:

- Young plants come from different suppliers
- Poor seed germination and/or variable germination time
- Propagules are not of consistent size (some small, some large) or vigor

- Trays have different seed sow or cutting stick dates
- Media volume of plugs/liners is inconsistent
- Number of seedlings per plug cell varies
- Irrigation overlap from booms

Growers who propagate their own plants need to identify what factors lead to variability and then attempt corrective actions. For example, trays of young plants filled with variable amounts of growing media will dry out at different rates, creating moisture management challenges. Those who purchase young plants from other growers should discuss their concerns and suspected source(s) of nonuniformity. Of course even if the source is identified, the propagator may not be able to correct or prevent it. For example, cutting size and vigor is controlled by the cutting supplier. In those instances, it's the propagator's responsibility to work with the cutting supplier to improve the consistency of future cutting harvests.

**Dealing with nonuniformity.** When you have nonuniform young plants, first you need to recognize it and then manage it, or else suffer the likely consequence of having a nonuniform finish crop. If plants in plugs or liners are of different sizes, can they be pinched so that the resulting plants are more uniform? For example, poinsettias are often pinched at a specific node number so that the number of branches per plant is more consistent. Or can larger or more vigorous propagules be treated with a plant growth retardant (such as a liner dip) a few days before transplant?

If corrective actions to improve uniformity can't be done before transplant, in many situations, the best thing to do is to separate plants based on their nonuniform characteristic(s). For example, group smaller, shorter, or less mature plants together and grow them apart from the same type of plant that is larger, taller, or more vigorous. The smaller group of plants may need less water, less plant growth retardant and/or a warmer temperature than the larger, taller, or more mature plants. Of course this strategy requires additional time to sort plants, place them in different locations and manage them differently, but the improvements at marketing can make the extra time and effort worthwhile. ☒

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