

GROWERTALKS

Columns

8/27/2014

Poinsettia Flower Initiation

Dr. Ruth Kobayashi

Growers often ask me: What's the natural flower initiation date of various poinsettia varieties? This is a reasonable question because poinsettias are short-day (SD) response plants. My first reaction is that this is a tricky question because flower initiation is a process that starts with a signal(s) to the plant that it should start making flowers instead of leaves. One of these signals is the critical length of day or calendar date and shortening of the day lengths, but the processes of flower initiation and flower development is also significantly influenced by other inputs, such as temperature. There's no simple answer to this question because it depends on how, and if, other influences on the process are controlled.

So my answer is: It depends on where you live and what you do. If you live in the northern hemisphere, the critical day length signal for most poinsettia varieties to set bud or initiate their flowers occurs some time during the month of September. Not all commercial varieties have the same critical day length, but a rule of thumb has been that when night length reaches 11 hours and 40 minutes or more, poinsettia flowers will initiate. So the date when 11 hours and 40 minutes of darkness happens is a little different if you live in Florida as opposed to Maine. In some SD response plants, such as kalanchoe, flower initiation process can start after only one day of SD signal. For poinsettias, it takes about two to three days of SD signal for the initiation process to start.



Pictured: Normal flower initiation (left) and delayed flower initiation of Prestige Early Red (right) ADT 65F in October.



Since the flower initiation process can be influenced by temperature, what you do or don't do about the temperatures in the greenhouse impacts the "date of initiation." High average daily temperatures (ADT) above 79F (26C) around the time of SD signal can delay flower initiation. Keeping your greenhouse cooler during this time will help ensure that flowers initiate as expected. ADT of 70F (21C) with night temperatures around 60 to 65F (15 to 18C) are ideal. For some growing areas, high temperatures in September are the norm and achieving 70F ADT isn't possible. This means that for those growers, initiation of flowering is always somewhat

delayed. Heat delay of flowering becomes a problem when the high temperatures extend over a longer period

of time than usual. Unusually cool temperatures can strengthen the SD signal, starting the flower initiation process sooner than normal, so keep track of greenhouse ADTs during the month of September.

Delayed or early flower initiation doesn't necessarily mean significantly delayed or early finish time because, just like flower initiation, the flower development process is also influenced by temperature, light and variety (response time). Knowing early on that you may have a heat-delayed or cool-enhanced signal to your crop gives you the opportunity to still finish a quality crop on time.

I always recommend that growers track plant height from the beginning of the crop to help schedule plant growth regulator applications. When faced with heat delay situations, it's even more important to apply PGRs early because late applications can further delay finish. In a heat-delayed crop situation, I bring the night temperatures down to 60 to 65F for 5 to 7 days as soon as possible to ensure bud set. Some growers have used slight water stress to help ensure bud set with some good results, but that can vary by variety. After bud set, you'll want to have optimal growth temperatures of ADT around 70 to 72F with night temperatures of 65 to 68F and light levels around 4,000 foot candles (43 klux) to catch up from the delay.

Conversely, when faced with cool-enhanced flower initiation situations, plants don't stretch as much as normal, so use of fertilizers with higher phosphorus content can help you reach the finished height you want to achieve. If your plant height is on track, finishing at cooler temperatures is a good approach to slowing flower development. Temperatures below 70F ADT with night temperatures not below 55F while still keeping light levels around 3,000 to 3,500 foot candles (32 to 38 klux) will help slow flower development so you don't finish too early and not compromise finish quality.

Perhaps more important than flower initiation date of a variety is response time to the finishing of SD-response plants like poinsettias. Among current commercial varieties, response times can vary by 2 to 3 weeks. Careful selection of which varieties to grow depending upon needed finished date is always recommended. **GT**

Dr. Ruth Kobayashi is a Plant Breeder for the Dümmer Group.