



By Erik Runkle



Effective Use of PGRs

Application of plant growth retardants (PGRs) is the most common technique used by greenhouse growers to control crop height. When used at an appropriate rate and volume, PGRs can elicit desirable results, such as improving crop quality. However, PGRs are sometimes not used to their potential; they are sometimes applied too late or at an inappropriate rate. Here are some important considerations for getting the most out of your PGRs.



Figure 1. During cool weather, too much paclobutrazol was applied to the impatiens on the right, which delayed flowering.

Plan and adjust your PGR applications.


The most frequent “problem” I encounter is growers wait too long to make a PGR application. When things get busy, sometimes these applications are delayed until it’s too late for the most desired response. On aggressive crops, early sponches or drenches with paclobutrazol (Bonzi, Piccolo, Paczol, etc.), uniconazole (Concise and Sumagic), or flurprimidol (Topflor) at low to moderate rates can

have a long-lasting, desirable response. When scheduling a crop, plan when PGR applications should be made, including a suggested chemical, method and rate range. It’s important to adjust the rate based on environmental conditions. For example, we had a fairly cool spring this year in Michigan and so the typical paclobutrazol rate applied to impatiens was too high and flowering was delayed (Figure 1). In contrast, rates may need to be increased during unseasonably warm conditions. In other words, what was used successfully last year may not necessarily be what should be used on the current crop.

Avoid late sprays and drenches — try sponches instead. There are several potential problems with late PGR applications. A late spray can delay flowering or reduce flower size of some crops, and late drenches can result in a plant not growing out after trans-

plant, either by the grower or consumer. When a late PGR application is required, consider a sponch at a rate that’s typically used as a drench. This rate will be lower than what’s usually used as a spray, reducing potential flowering delays, and the lower volume shouldn’t have an undesirable long-term response. Try a sponch volume that is typically $\frac{1}{4}$ of that typically used as a drench.

Use the right rate. Choosing what rate to use is the most important decision when making a PGR application. Unfortunately there’s no simple formula to decide what rate to use, as multiple factors should be considered simultaneously when deciding what to apply. Some of the factors that can influence what PGR rate to use include the crop, pot size, fertility program, temperature and light conditions, previous PGR applications, and of course, the magnitude of response desired. Situations in which the rate may need to increase include warm temperatures, small container size, tight crop spacing, moderate to high fertility (especially for phosphorus), and a warmer day than night temperature. Don’t hesitate to consult with other growers, technical specialists from PGR companies, university extension educators and breeding companies for input on which products and rates to use on a particular crop.

With PGRs, $2 \times \frac{1}{2} > 1 \times 1$. Two applications at half the PGR rate often produce better crop results than one PGR application at the full rate. The best quality crops I often see are those that receive multiple PGR applications at relatively low rates. Yes, this strategy requires more labor, but it also prevents problems that can arise when too much PGR is applied. Applications every week or two allow multiple decision points during the crop period, to decide whether a PGR application is needed or not. As growers, you have to weigh the tradeoff between additional time/labor and the increased probability of producing a high-quality crop at the desired height, without flowering delay or stunting. As always, conduct your own small-scale trials to determine appropriate rates and volumes for your growing conditions and desired results. 

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