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By Jim Masilak
Too soon. Too late. Too little. Too much. Growers face a number of potential pitfalls when applying plant growth regulators (PGRs) to their crops, and the ramifications of getting an application even marginally wrong can be especially harsh.

"You can completely stunt the crop to the point where it will not grow again," says Chris Fifo, technical services advisor at Swift Greenhouses in Gilman, Iowa. "With some crops, you can excessively delay flowering if you apply too much, too early - and you'll miss the target window for sales. Then, it ends up in the compost pile. It can be very costly."

It's all too easy to slip up when applying PGRs, and the price for doing so increases exponentially in a tough economic environment like the one facing growers today. A little attention to detail, however, can help growers avoid costly missteps and get the most out of their PGRs.

"The key to PGR use is consistency," says Jason Fausey, regional field development manager for Valent Professional Products.

Consistency

Consistency means ensuring the correct volumes and rates are calculated each time an application is made. It means practicing over and over again to hone application techniques. Consistency also means knowing your crops and understanding the environment in which they're growing so the application timing is right.

"Growers are familiar enough with PGRs now to give them the respect they deserve," says Joyce Latimer, a professor of horticulture at Virginia Tech. "We don't have as many issues with overdoses or severely stunted plants as we used to. The biggest issue is not having uniformity in crop size."

In the greenhouse, the goal is for all plants to be of the same height. Inconsistency in height will leave the impression that growers are sloppy and the product is inferior. But in order to achieve this desired uniformity, PGRs must be applied in such a way that coverage is consistent throughout the greenhouse.

PGR Do's and Don'ts

Do - Ensure proper rate and volume. Calibrate equipment before application.

Don't - Use too high a rate. It's better to make two low-rate applications than one high-rate application.

Do - Be proactive instead of reactive when it comes to applying.

Don't - Wait too long to make an application.

Do - Read the product label carefully for dilution ratios and other key info.
Don't - Restrict plant size so it compromises product quality.

Do - Take notes and document actions that can be repeated season after season.

Don't - Rely on guesswork.

Do - Practice application technique with water in non-crop areas.

Don't - Let the process become overcomplicated. Limit the number of people involved in application and decision-making.

Do - Consult university researchers for up-to-date PGR performance data.

Don't - Use a PGR if a crop is weak or showing signs of disease.

"If you put twice the spray volume on the plants growing in the front section compared to the plants growing in the back, you're not going to achieve consistency," Fausey said. "You're going to see waviness in your crops. You need to maintain a certain, specific size if you want your entire crop to sell."

Both Fausey and Latimer recommend practicing application techniques with water in a non-crop area. This way, the proper walking speed, rate and volume can be worked out, helping to produce a more uniform response to the actual application.

Latimer also advises growers to employ as few people as possible in the application of PGRs. The fewer people involved, the more likely crops will be uniform and consistent in appearance.

"It's best if there is a single person or limited number of people who apply PGRs and who make the decisions about when PGRs are applied," Latimer says.

Timing

The timing of a PGR application is critical to its success, as well. Unfortunately, as Michigan State University's Erik Runkle says, growers tend to wait too long to apply a PGR. He recommends growers apply PGRs at the first sign of vigorous growth.

"Watch the plants, use past experience and anticipate the crop growing vigorously," Runkle says. "Don't wait until the bitter end to try to stop it."

Swift Greenhouses' Fifo echoes Runkle's assessment: "The number one thing with PGRs is you've got to have the timing right. You've got to hit things with the PGR preventively just as the plant is beginning to stretch or the flower stalk is starting to come up. Hit them early."

At the same time, however, Fifo cautions not to use PGRs too harshly.

"Always watch the rate; don't overdo it," he says. "It's better to do things twice, a week apart with a low rate, than once at a high rate. You don't want to stop it dead in its tracks."

Know Your Plants & Products

Complicating matters further for growers is the sheer number of PGR products now available for use on particular types of crops.
"One thing we've learned over the last couple years is the value of finding the right product for the right crop," says Matt Mohrfeld, owner and manager of Matt's Greenhouse in Fort Madison, Iowa. "Everybody would love to say there's one gun in your arsenal but it's not like that anymore. There are a lot of options. There are some shotgun products out there but it's becoming very specific."

Mohrfeld, for example, says Sumagic PGR from Valent Professional Products is his PGR of choice on perennials. He is also high on Florel brand growth regulator. "One thing we're using more than anything right now is Sumagic," Mohrfeld says. "When it got labeled for (some) veggies, it gave us a whole new tool."

While a multitude of product options exists and there is a temptation to use them all, Latimer suggests growers identify a few products they are comfortable and confident with and work with them.

"Growers should limit the number of products to those they understand and can use consistently, depending on the diversity of the plants they're growing," she says.

While growers work with researchers to develop that understanding, Fifo says it's incumbent upon growers to do their homework. For instance, Fifo knows that a crop being grown in lower light and high humidity is likely to experience excessive growth unless properly checked by a PGR. He also knows he needs to keep a close eye on that crop and try to predict when that growth will occur.

"It's practice. It's trial and error," Fifo says. "You need to be informed about the crop and how it grows in the environmental conditions you have."

Prepare To Succeed

There are a number of other ways in which growers can help set themselves up for success with regard to their PGR program. In addition to implementing a program, Fausey says it's a good idea to take notes and document your actions from one season so you can consult them the next. This helps save valuable time and can serve as an important reminder of what worked and what didn't.

It's also important to make sure plants are healthy enough to endure a PGR application. "A PGR should not be used as a front-line defense for a bad crop," Fausey says.

Before making an application, take the time to ensure the rate and volume calculations are correct. Consult the product label. Double check the math. Review notes from the previous year.

For Mohrfeld, the two most important factors in PGR use are 1) making sure the desired application rate yields good results and 2) achieving "latent coverage."

"It's about quality control," Mohrfeld says. "If we need 10 parts per million and we're putting out five parts per million, that's probably not where we need to be."

The more adventurous a grower gets with a PGR, Mohrfeld adds, the more important it is to nail those calculations. "At one rate you're giving the consumer a great product, and at another you're hampering the consumer performance," he says. "As growers, we have to continue to be responsible so we don't put focus on holding plant size down at the expense of consumer performance."

In the end, Latimer says success with PGRs comes down to incorporating them into production
"PGRs need to be treated like tools - like water, fertilizer and light levels," she says. "Each grower needs to practice with their tools and crops to determine how they're going to work in their environmental conditions, both in terms of how they apply PGRs and how they grow their plants.

"PGR use is a combination of art and science. We (researchers) give growers the science, but they have to develop the art."

Jim Masilak is an account executive at archer>malmo PR. You can reach him at jmasilak@archermalmo.com.