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Perennials: The New Frontier

They've taken over bedding plants, and an informal survey of growers shows that plant growth regulators are starting on the perennial world.

By Joyce Latimer

Well, we don't have a banner year for the availability of new chemistry or new labels, but there are two new paclobutrazols, Paczol (Chemtura Corp.) and Downsize (Greenleaf Chemical LLC), and a new gibberellin/cytokinin product, Fresco (Fine Americas, Inc.), that have been registered. See the sidebar on page 30 for more details on these products. So what else is going on in the world of plant growth regulators (PGRs)?

PGR use in the production of annuals is a mature market area, with some exceptions in their use on new vegetative materials and more prescription use in mixed containers and baskets. However, the changing greenhouse environments also result in continuous changes in how the PGRs are used. With a trend toward more open-roof houses, it's like starting a new operation — learning the fine points all over again. The interest in using PGRs is still for the same purpose — to reduce pinching and spacing — but the need is expected to be less with "better" growing conditions.

The Open-Roof Difference

Behnke Nurseries, Lothian, Md., is working with a new glass, open-roof, Rough Brothers greenhouse along with the reconstruction of many of the older houses moved from its Largo, Md., location. Head grower Hank Doong says, "The enormous passive cooling of open roof combined with the glazing (glass) of the highest light transmission will greatly reduce our use of PGRs."

Behnke is also a different kind of operation — crops are "slow grown." Growing primarily for their own garden centers, Behnke's growers are more interested in using PGRs to help develop maximum fresh weight on robust stocky plants. They are not focused on maximum turns. Doong says that PGR cost is not an obstacle to its use, but they are focused on using the minimum number of applications — simply because they are too tired to worry about multiple applications (talk to Doong or Behnke president John Peter Thompson sometime about how *not* to move a greenhouse growing operation). In addition, Behnke uses DIF (night and day differential temperatures) to control plant growth — a practice made "practically effortless" by the current environmental control systems, according to Doong.

PGRs are used as a last resort for those difficult crops and even then on a prescription basis. As Doong explained, one group of impatiens may be treated with a PGR, while another group with the same planting date will not be treated. Doong's growers are using prescription PGRs to manage plant development — knock back flowering with B-Nine (Chemtura Corp.) for some additional growth and then put the flower back on with a little A-Rest (SePRO Corporation) when the plants are ready. This level of experience also makes these growers "comfortable" with the ability of Fascination



Corso's Perennials uses Florel at 500 ppm on their dianthus plugs to produce beautiful finished plants. (Photos courtesy of Joyce Latimer)

(Valent U.S.A. Corporation) or Fresco (Fine Americas, Inc.) to counteract growth retardant overdoses or the stunting that happened when "the weather turned strange and made the timing and strength of the last PGR application a wee bit too wicked." There are now labeled remedies for overdose problems — but use them with great caution.

What About Perennials?

The use of PGRs in herbaceous perennial production is just taking off. I had the opportunity to visit some of the major perennial production areas throughout Michigan and Northern Ohio this fall. I asked growers about their uses of and planned uses of PGRs in perennial production.

I started my visit with Paul Pilon at Sawyer Nursery, Hudsonville, Mich. As readers of this magazine and Pilon's "Perennial Solutions" (see page 59) column know, Pilon is a proponent of using PGRs on perennials to improve the quality and shipping characteristics of finished crops while reducing labor costs.

I also talked to Ed Smith who oversees the seeding side of Sawyer Nursery's plug production area. Smith is interested in using PGRs on those crops like alcea that stretch rapidly in the seedling stage. Media treatments give growth control to active hypocotyls. Rachel Miller in the vegetative plug area is also interested in growth control during sticking and throughout the production and holding process. In the PGR trials Miller conducted this summer, pruning frequency of some crops was reduced by as much as 75 percent, resulting in marked labor savings.

Plug Production

My next stop was C. Rakers & Sons in Lichtfield, Mich., where Allen Pyle, research perennial guru (according to his card), gave me the royal tour. As a major plug producer for about 5,000 greenhouse operations, Rakers custom sows and grows a huge variety of annual and perennial plugs. They ship more than 170 million plants each year. With about 35 percent of their product in perennials, more than 560 varieties, Pyle says the company is looking for ways to better program the plugs for finish performance. They are currently examining vernalization to enhance flowering and ways to minimize the use of PGRs.

Rakers currently uses PGRs early in the production cycle with a goal of no carryover effects — no "surprises" for the customer. However, they already do custom fungicide treatments of plug flats prior to shipping, and Pyle says custom PGR applications are in the realm of possibility. With their computerized inventory control, Rakers will soon be able to follow a specific flat throughout the production process, providing a fully customized product. ♦

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Perennial Plant Growers

What about the finish side of perennial production? I visited Corso's Perennials, Sandusky, Ohio. Chad Corso, his father Gus and their growers openly discussed their PGR experiences and goals with me and Claudio Pasian, floriculture extension specialist from The Ohio State University, Columbus, Ohio. If you have ever heard Chad speak about their operation, you know that Corso's Perennials grows a very wide variety of perennials, both as finished plants and plugs.

As with most growers, they rely first on good cultivar selection and good cultural control of growth followed by the use of PGRs where beneficial. Corso's growers work mostly with B-Nine or a B-Nine and Cycocel (OHP, Inc.) tank mix with some use of Sumagic (Valent U.S.A. Corporation). Corso's also uses Florel (Monterey Chemical Co.) on many of its perennial plugs, resulting in some beautiful dianthus, creeping sedums and sages. They have also been testing Atrimmec (PBI/Gordon Corporation) to improve branching and growth habit of some of the more difficult to control perennials like buddleia.

Corso's growers, Jim Hazelwood and Dan Traxler, are developing their own PGR trial protocols for in-house research this year. With more than 80 percent of their business in the wholesale supply of perennials to garden centers in a 5-state area, Corso's Perennials expects to be using more PGRs with the primary goal of reducing plant size so they can increase the number of plants shipped per truck.



Coreopsis 'Sweet Dreams' treated with Paczol liner dips (two minutes in solution) at the time of planting showed good to excessive control of plant height at six weeks after treatment with 0, 1.3, 2.7, 4.0, 5.4 or 6.7 ppm Paczol (left to right).

One of my most interesting visits was with Mike Artino, president of Art Form Nursery, Chagrin Falls, Ohio, just outside Cleveland. Artino's 32-acre nursery has about five acres of outdoor growing space and 1.6 acres of greenhouses for the production of perennials (and a few herbs) for the landscape market in Northern Ohio. Artino's market demands full pots, so bulking up and good branching is important. Artino is currently planning a major in-house evaluation of PGRs for his primary perennial crops. As with some of the other growers I met, Artino is interested in maximizing timing to reduce the number of applications, with a special interest in liner dips. Artino's overhead sprinkler system makes the use of automated applications to finished crops difficult and costly. The efficacy and ease of application of liner dips seem ideal to him.

On the other hand, Al Pavlinak, grower at Bluestone Perennials, Madison, Ohio, propagates, grows and ships excellent-quality perennials without using PGRs. Pavlinak says they have no plans to consider PGRs in their production practices. Bluestone Perennials ships primarily by mail order, so plant size is kept small with good cultural conditions and proper scheduling. That's impressive with more than 1,000 perennial and herb varieties in more than five acres of greenhouses.

Nursery Production Of Perennials

One of the largest untapped areas of PGR use (am I showing my bias?) is with nurseries that have expanded their production of perennials. For example, Willoway Nurseries' 800 acres in Avon, Ohio, now includes almost 25 acres of perennials. Nursery growers typically produce more crops outdoors or under minimal-heat houses, maintain tight spacing and do multiple shearing or mowing operations. These growers also typically have less experience with PGRs than most greenhouse operators. However, Cathy Kowalczyk at Willoway and her container grower, Jeff Lee, recognize the potential benefits in labor savings and improved quality with PGR use and are interested in testing PGRs onsite. Lee is now comfortable using B-Nine on many of his quart perennials and has tested combinations of B-Nine and Sumagic, citing the guidance of Paul Pilon's rate charts. Lee has also tested Atrimmec on buddleia and roses with a goal of reducing pruning costs.

On the Southern side, I talked to Russ Smith, the technical services manager at Carolina Nurseries, Moncks Corner, S.C. A couple of years ago, Carolina Nurseries wanted to hire a PGR manager to work with their 25



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New PGR Labels

Paczol. Paczol ornamental growth regulator has received federal EPA registration and will be distributed by Chemtura Corp. Paczol, a 0.4-percent paclobutrazol product, has a broad use label for growth control of ornamentals grown in greenhouses, nurseries and interiorscapes. The label includes chemigation guidelines.

Downsize. Downsize, a 0.4-percent paclobutrazol product manufactured by Greenleaf Chemical LLC, has received federal EPA registration. Distribution will be directly to growers. The broad use ornamental label limits treatments to drench and watering-in applications.

Fresco. Fresco has received federal EPA and state registrations for a 1.8-percent gibberellin GA₄₊₇ + 1.8-percent 6-benzyladenine product manufactured by Fine Agrochemicals, Inc. and distributed by Fine Americas, Inc. Fresco is labeled for prevention of lower leaf yellowing of lilies.

acres of perennials. They still have not filled that position so Smith is still doing most of the testing — when time allows. Smith uses B-Nine on crops grown in large quantities, like his 10 acres of hibiscus, but he prefers the stronger activity of Sumagic or Bonzi (Syngenta Professional Products) when working with smaller blocks. With large blocks, Smith has to use multiple spray applicators, which he recognizes will reduce the consistency of applications necessary to get uniform results with triazoles.

Cost-Cutting Measures

Cutting costs seemed to be the theme for my Michigan and Ohio trip, and I heard the same theme in conversations with our Virginia, Maryland and South Carolina growers. With rising fuel costs for winter heating and spring shipping, cutting costs is critical. Reducing plant growth with appropriate rates of PGRs reduces pruning and mowing costs during the bulking up and holding periods without seriously affecting root development. This is especially important for summer- and fall-planted perennials that need to put on root growth and new shoots to fill out pots prior to overwintering. Miller reduced mowing of some crops at Sawyer Nursery from once a week to once a month with weekly sprays of low rates of Sumagic. This reduces labor costs in mowing or spacing. The PGR treatments were deemed to be a cost savings.

Reduced plant size in the spring increases the number of plants that can be shipped per cart, and therefore per truck, reducing shipping costs per plant. Every grower I talked with was concerned about rising fuel costs, and they were all trying to maximize environmental control of crop growth, growing cooler and drier. This is aided by the trend toward using open-roof, naturally ventilated houses. However, most of these growers expected to be using growth regulators to maintain quality and give additional growth control where needed. Many are planning to or are already conducting their own PGR trials. They are interested in proper timing of PGR applications to reduce application frequency and chemical costs. In addition, growers are increasingly interested in plug treatments, liner dips and media sprays as ways to reduce chemical costs and complications with REI regulations.

I have to address another trend I saw on my trip — both in Michigan/Ohio and the Virginia Flower Growers Association tour of Maryland operations. That was expansion. Every place I visited was adding new growing facilities — expanding their businesses. We hear too much doom and gloom, and I know this article is not the place for this comment, but we are not losing ground. We are a growing, vibrant industry, and I am extremely pleased to be associated with such visionaries. Keep growing! And, if you need PGR help, don't forget to ask. GPN

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