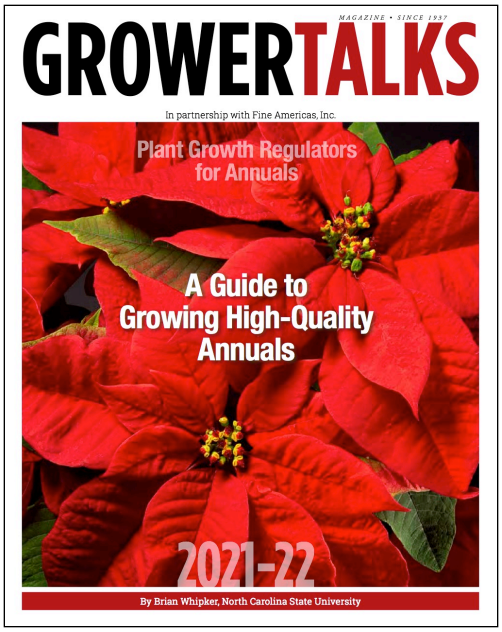
e-GRO Alert

Brian E. Whipker[1]
bwhipker@ncsu.edu

Volume 10 Number 2 January 2021

Plant Growth Regulator Guide for Annuals Update

The latest version of the Plant Growth Regulator Guide for Annuals is now available, a project sponsored by Fine Americas. GrowerTalks subscribers will receive a copy in the mail or use the link in this Alert to obtain a pdf copy.



The 72-page Plant Growth Regulator Guide for Annuals publication has been updated for the 2021-2022 season. Fine Americas has introduced a new IBA product called Advocate to help improve rooting of cuttings. A report on Advocate's effectiveness at promoting roots during propagation is the lead article in the new PGR guide.

In addition, the use of Concise (uniconazole) for the production of poinsettias grown in smaller 4.5-inch containers is also discussed. Concise substrate drenches at 0.5 to 1.0 ppm offer an alternative to the use of Piccolo 10XC (paclobutrazol). These recommendations will help you grow smaller poinsettias that are proportional to the pots size.

[1] North Carolina State University

Another new article highlights the use of Piccolo 10XC on moderating excessive vegetative growth of petunia hanging baskets. The application methods discussed in this article provides a method to eliminate long trailing vegetative branches and produce a more compact hanging basket covered with flowers.

The guide is also is the primary resource for best management practices for the use of PGRs. The bulk of the guide is the extensive listing of PGR application recommendations in the 43-page table.

Articles also provide an overview of the PGRs available to the U.S. market, additional benefits of PGRs, plus use tips for Piccolo 10XC, Collate, Fresco, and Florgib 4L, and production information for Coleus with Collate, Poinsettias with Piccolo 10XC drenches, and Configure use on sempervivium.

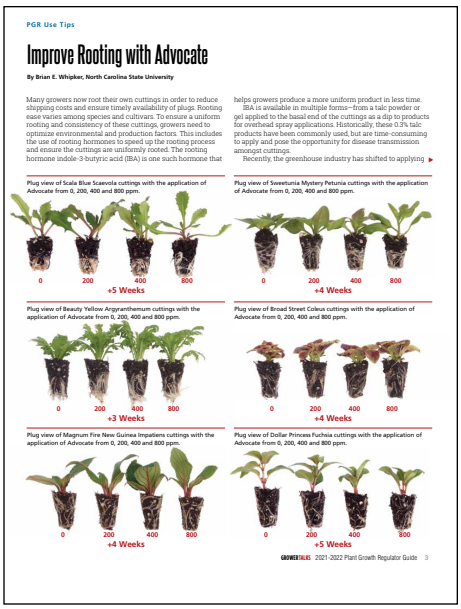
The goal for the Plant Growth Regulator Guide for Annuals is to provide a single resource of PGR information for greenhouse growers. An electronic version is available from the Fine Americas website. Subscribers to GrowerTalks magazine will also be sent a paper copy with their next issue of the magazine.

Appreciation is expressed to Fine Americas for sponsoring this publication.

Link

https://www.fine-americas.com/wp-content/uploads/2021/01/Annuals_PGR_Guide_2021.pdf

New articles in 2021



PGR Use Tips

Improve Rooting with Advocate

By Brian E. Whipker, North Carolina State University

Many growers now root their own cuttings in order to reduce shipping costs and ensure timely availability of plugs. Rooting ease varies among species and cultivars. To ensure a uniform rooting and consistency of these cuttings, growers need to optimize environmental and production factors. This includes the use of rooting hormones to speed up the rooting process and ensure the cuttings are uniformly rooted. The rooting hormone indole-3-butyric acid (IBA) is one such hormone that helps growers produce a more uniform product in less time.

IBA is available in multiple forms—from a talc powder or gel applied to the basal end of the cuttings as a dip to products for overhead spray applications. Historically, these 0.3% talc products have been commonly used, but are time-consuming to apply and pose the opportunity for disease transmission amongst cuttings.

Recently, the greenhouse industry has shifted to applying

Plug view of Scala Blue Scaevola cuttings with the application of Advocate from 0, 200, 400 and 800 ppm.

Plug view of Sweetunia Mystery Petunia cuttings with the application of Advocate from 0, 200, 400 and 800 ppm.

Plug view of Beauty Yellow Argyranthemum cuttings with the application of Advocate from 0, 200, 400 and 800 ppm.

Plug view of Broad Street Coleus cuttings with the application of Advocate from 0, 200, 400 and 800 ppm.

Plug view of Magnum Fire New Guinea Impatiens cuttings with the application of Advocate from 0, 200, 400 and 800 ppm.

Plug view of Dollar Princess Fuchsia cuttings with the application of Advocate from 0, 200, 400 and 800 ppm.

Crop Report

Concise Drenches for 4.5-in. Pot Poinsettias

By Brian Whipker, Paul Cockson, Patrick Veazie & David Logan—North Carolina State University

Excessive growth can be a challenge when producing smaller, 4.5-in. poinsettias. When using smaller pots, plants must be grown in proportion to the pot size or else a slew of issues will occur (water management, top-heavy plants, etc.). An extremely useful tool for growers when trying to balance growth of smaller potted plants are plant growth regulators (PGRs). PGRs can be applied in many different ways, however, drench applications offer a number of advantages over other methods.

- The first is consistent control because drench uptake by the roots is evenly distributed throughout the plant. This avoids missing shoots that will continue to expand and result in uneven growth, which is possible with foliar sprays.
- The second is with the utilization of optimal rates, the use of a drench results in less effect on bract development (delay or limited expansion) as compared to a foliar spray. Foliar sprays typically have to be applied later in the production season to provide growth control and this can have a detrimental effect on bract expansion.

The exact PGR to utilize is often confusing given many mixes and products exist on the market. Piccolo 10XC (paclobutrazol) is the primary go-to product; other substrate active PGRs also offer the potential of controlling plant growth. Concise (uniconazole) is also used as a drench, especially for many perennial species. This trial was conducted to evaluate the suitability of Concise for the production of 4.5-in. poinsettias.

Experimental setup

Rooted poinsettia cuttings were transplanted into 4.5-in. pots on August 9, 2019. The three cultivars evaluated were: Premium Ice Crystal from Dümmen Orange; Mars Marble from Syngenta Flowers; and Princettia Pink Queen Oasis from Suntory. The substrate used was Sunshine Mix #1, an 80% peat and 20% perlite blend (v:v). The plants were fertilized with 13-2-13 Cal-Mag at 150 ppm N. The greenhouse temperature set points were 75F days (24C)/65F nights (18 C). The plants were pinched to five nodes on August 27.

The PGR applications were applied on September 19. Concise drenches were applied at 0.5 and 1 ppm with 2 oz. (59 ml) of solution dosed per pot. There were 20 replications per treatment. Untreated controls were also grown. Plants were evaluated on December 3 and data obtained included plant height, plant diameter (taken in two directions and averaged) and bract diameter (for two of the largest bracts, taken in two directions and averaged).

Figure 5. Mars Marble Poinsettia growth control provided by Concise substrate drenches at 0, 0.5 and 1 ppm (top and side view).

Results

At the concentrations used, suitable growth control occurred with Concise substrate drenches between 0.5 to 1.0 ppm (Figures 1 to 3). These concentrations resulted in more compact plants, with greater effect occurring with plant height than plant diameter. Growth control was greatest with Princettia Pink Oasis. These plants treated with 1 ppm Concise were over 40% shorter than the untreated control, while the degree of control ranged from 24% to 28% for Premium Ice Crystal and Mars Marble, respectively.

PGR Use Tips

Enhancing Petunia Hanging Baskets with Piccolo 10XC

By Brian E. Whipker, North Carolina State University

Every greenhouse grower has the goal of producing gorgeous hanging baskets. Warmer air temperatures in the top of the greenhouse structure along with the difficulty of applying foliar sprays of plant growth regulators (PGRs) can make growth control a challenge. Substrate drenches offer a management method to keep unwanted growth at bay. Drenches applied with a sufficient quantity of water offer improved consistency of overall even control as compared with a foliar spray application.

The cultivar Bubblegum Petunia from Proven Winners is a vigorous plant with a profusion of pink flowers, but plants can quickly overwhelm a basket if growth isn't checked. We conducted a small trial at NC State University of applying Piccolo 10XC substrate drenches to evaluate growth control.

How we grew the crop

Three Bubblegum cuttings were transplanted into a 10-in. hanging basket containing Oldcastle CP20 substrate (80% peat and 20% perlite). The plants were fertilized with 150 ppm N from 13-2-13 Cal-Mag and grown at temperature set points of 72F (22C) days and 64F (17C) nights. After four weeks of growth, the leaves had extended to the side of the pot (Figure 1) and PGR drenches were applied.

Piccolo 10XC substrate drenches of 0, 2 and 4 ppm were applied with the volume of 25 fluid ounces per pot. After two additional weeks of growth, a subset of plants also received another Piccolo 10XC drench dose of 0, 2 and 4 ppm. Five replications were grown for each of the seven drench treatments. Plant growth was evaluated after five weeks of growth.

What we found

Growth control was evident even two weeks after the initial drench was applied (Figure 2). Growth of the untreated control hanging baskets continued to expand. The 2 ppm drench rate provided a small degree of control as compared with the untreated plants. Piccolo 10XC at 4 ppm slowed growth to a more noticeable degree.

FIGURE 1. Stage of development when Bubblegum hanging baskets were drenched with Piccolo 10XC.

After five weeks of growth, a single drench application of 0+2 ppm (early/late) or 0+4 ppm (early/late) provided little plant diameter control (~7% smaller, Figure 3). While growth control was minimal, the flower canopy was more compact and thus had more flower power. This late application would provide a method of checking some growth and improving the flower appeal of Bubblegum hanging baskets.

As the rate increased, so did the degree of control. Both a 2+2 ppm (early/late) along with a 2+4 ppm (early/late) drench resulted in ~12% smaller diameter plants (Figure 4). With growth control being similar, using the less PGR-intensive treatment of 2+2 ppm (early/late) should be targeted by growers who desire moderate growth control and an improvement of flower display.

A: Untreated Control

B: Treated

Figure 6. Piccolo 10XC substrate drenches of 2 to 4 ppm improved the flower canopy display of Bubblegum Petunia hanging baskets (B) as compared to the untreated control (A).

e-GRO Alert

www.e-gro.org

CONTRIBUTORS

Dr. Nora Catlin
Floriculture Specialist
Cornell Cooperative Extension
Suffolk County
nora.catlin@cornell.edu

Dr. Chris Currey
Assistant Professor of Floriculture
Iowa State University
ccurrey@iastate.edu

Dr. Ryan Dickson
Greenhouse Horticulture and
Controlled-Environment Agriculture
University of Arkansas
ryand@uark.edu

Thomas Ford
Commercial Horticulture Educator
Penn State Extension
tgf2@psu.edu

Dan Gilrein
Entomology Specialist
Cornell Cooperative Extension
Suffolk County
dog1@cornell.edu

Dr. Joyce Latimer
Floriculture Extension & Research
Virginia Tech
jlatime@vt.edu

Heidi Lindberg
Floriculture Extension Educator
Michigan State University
wolleage@anr.msu.edu

Dr. Roberto Lopez
Floriculture Extension & Research
Michigan State University
rglopez@msu.edu

Dr. Neil Mattson
Greenhouse Research & Extension
Cornell University
neil.mattson@cornell.edu

Dr. W. Garrett Owen
Greenhouse Extension & Research
University of Kentucky
wgowen@uky.edu

Dr. Rosa E. Raudales
Greenhouse Extension Specialist
University of Connecticut
rosa.raudales@uconn.edu

Dr. Beth Scheckelhoff
Extension Educator - Greenhouse Systems
The Ohio State University
scheckelhoff.11@osu.edu

Dr. Ariana Torres-Bravo
Horticulture/ Ag. Economics
Purdue University
torres2@purdue.edu

Dr. Brian Whipker
Floriculture Extension & Research
NC State University
bwhipker@ncsu.edu

Dr. Jean Williams-Woodward
Ornamental Extension Plant Pathologist
University of Georgia
jwoodwar@uga.edu

Cooperating Universities

Cornell CALS College of Agriculture and Life Sciences

Cornell Cooperative Extension Suffolk County

Iowa State University

University of Kentucky

PennState Extension

Virginia Tech

Michigan State University

UConn

College of Agricultural & Environmental Sciences University of Georgia

Purdue University

NC State University

The Ohio State University

Division of Agriculture Research & Extension University of Arkansas System

In cooperation with our local and state greenhouse organizations

Maumee Valley Growers — Choose the Very Best.

Metro Detroit Flower Growers Association

NC Flower Power

Western Michigan Greenhouse Association

Connecticut Greenhouse Growers Association

Indiana Flower Growers Association

LIFGA

Michigan Greenhouse Growers Council

NYSFI New York State Flower Industries, Inc.

Virginia Flower Growers Association Since 1954