Evaluation of Piccolo and Concise on Herbaceous Perennials

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A PROPOSAL SUBMITTED TO KEVIN FORNEY, FINE AMERICAS, INC.

Objectives: To determine the efficacy of the plant growth retardants Piccolo (paclobutrazol) and Concise (uniconazole) on several popular herbaceous perennials, and to compare the response of plants treated with sprays, drenches, and liner dips.

Plant Species

Five aggressive herbaceous perennial species were selected for study based on the need for height control and the volume of plants sold in the United States:

1. Delphinium
2. Echinacea
3. Gaura
4. Nepeta
5. Rudbeckia

PGR Treatments

	Piccolo						Concise	
Species	Spray rates (ppm) (2 applications each; 1st when bolting/elongation begins and second 10-20 days later)		Drench rates (ppm) (1 application on date 1st spray is applied)		Liner dip rates (ppm) (Applied 1 day before transplant to slightly moist media)		Spray rates (ppm) (2 applications each, same timing as Piccolo sprays)	
Rudbeckia 'Goldsturm'	50	100	5	10	10	20	10	20
Echinacea 'Magnus'	50	100	5	10	10	20	10	20
Nepeta 'Walker's Low'	50	100	5	10	10	20	10	20
Gaura 'Whirling Butterflies'	50	100	5	10	10	20	10	20
Delphinium (cultivar TBD)	50	100	5	10	10	20	10	20

Plug trays will be obtained from a commercial grower and grown at Michigan State University until deemed ready for transplant. Ninety plants of each species will be transplanted into 5.5" square jumbo pots. PGR applications will be made as described above and below, with 10 plants per treatment per species. An additional 10 plants will be grown without any PGR application to

serve as the control. Plants will be grown at a constant 68 °F temperature setpoint with a 16-hour photoperiod delivered from high-pressure sodium lamps.

PGR Application Guidelines

Foliar sprays

- Volume: 2 quarts per 100 sq. ft.
- Two spray applications will be made. The first application will occur when plants begin to elongate or bolt and second spray 10-20 days later, depending on plant responses
- No additional surfactant will be incorporated into PGR solution

Drenches

- Volume: 4 ounces per pot
- Drench will be applied when the first foliar spray is applied

Liner dips

- Media will be slightly moist when liner dips are made. Plants will be dipped into the solution for 15-20 seconds, then transplanted on the following day.

Plant Requirements

8 treatments + 1 control H 10 plants/treatment = 90 plants per species
= 450 total plants in experiment

Data Collection

- Measurements
  1. Plant height on date of transplant, date of PGR application, and 2, 4, and 6 weeks after first spray application.
  2. Final plant height at flower
  3. Date of flower
  4. Flower number at flowering

- Evaluations
  Phytotoxicity: Adverse effects of either chemical will be evaluated if necessary. A subjective rating scale may be developed (rating 0 to 4) and plants will be evaluated for symptoms of phytotoxicity 7 days after spray applications.

- Photographs
  Photographs will be taken as appropriate to document treatment effects.

Report

A written report will be submitted to Fine Americas, Inc. within 3 months of the end of the experiment, unless otherwise mutually agreed upon. The report will consist of:

1. A brief introduction
2. An overview of the experimental protocol
3. Results of data, including treatment means
4. Brief conclusions
5. Photographs documenting treatment effects