

Cleome

Señorita Rosalita & Appleblossom

Optimizing PGR Rates

fine

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PW
PROVEN
WINNERS®



Objective

- To determine optimal preplant liner soak rates and drench rates of Piccolo (paclobutrazol) and Concise (uniconazole) for Señorita Rosalita and Appleblossom cleome.

EXPERIMENT DETAILS



Experiment Details

- Pinched 84 cell plugs (4.5 cm tall x 2.7 x 2.7 cm wide) were transplanted into round 5-inch pots containing Berger BM6 on 22 April 2011.
- Fertigation:
 - with 200 ppm N from Proven Winners Professional 14-3-14 with minors – low alkalinity formula with FeEDDHA (Greencare Fertilizers, Kankakee, IL)
- Data collect on 25 May (height, diameter in 2 directions)

Experiment Details

Liner Soaks (ppm)

(Slightly dry liners, 2 min. soak time)

- **Piccolo (Paclobutrazol)**
 - 2
 - 4
 - 8
 - 16
- **Concise (Uniconazole)**
 - 0.25
 - 0.5
 - 1
 - 2

Applied on 22 April

Substrate Drenches (mg a.i.)

(2 ounces per pot)

- **Piccolo (Paclobutrazol)**
 - 0.125 (1.41 ppm)
 - 0.25 (2.82 ppm)
 - 0.5 (5.64 ppm)
 - 1.0 (11.27 ppm)
- **Concise (Uniconazole)**
 - 0.0625 (0.70 ppm)
 - 0.125 (1.41 ppm)
 - 0.25 (2.82 ppm)
 - 0.5 (5.64 ppm)

Applied on 5 May

RESULTS



Piccolo Liner Soaks [paclobutrazol] (ppm)

Appleblossom



0

2

4

8

16

Limited control of plant height began with 8 ppm Piccolo (17% shorter, no change in diameter).

Piccolo Liner Soaks [paclobutrazol] (ppm)

Appleblossom

Concentration	Height (cm)	Diameter (cm)
0	32.8	30.2
2	31.3	28.5
4	28.0	28.1
8	27.3	29.0
16	29.2	28.3
<i>P Value</i>	0.03	ns
<i>R²</i>	0.26	-
<i>Regression Model</i>	$y=32.9-1.27x+0.065x^2$	ns
<i>Regression Model R²</i>	0.24	-

Piccolo Liner Soaks [paclobutrazol] (ppm)

Señorita Rosalita



0

2

4

8

16



No height control.

Diameter 13% smaller with ≥ 2 ppm Piccolo

Piccolo Liner Soaks [paclobutrazol] (ppm)

Señorita Rosalita

Concentration	Height (cm)	Diameter (cm)
0	30.8	37.8
2	28.3	32.9
4	28.6	32.9
8	28.4	32.3
16	28.0	32.3
<i>P Value</i>	ns	0.0001
<i>R²</i>	-	0.53
<i>Regression Model</i>	ns	$y=36.6-1.05x+0.05x^2$
<i>Regression Model R²</i>	-	0.39

Conclusions - Piccolo Liner Soaks

- Piccolo provided only marginal control of plant growth.
 - Appleblossom height was responsive to 8 ppm, but plant diameter was unaffected.
 - Señorita Rosalita plant height was not affected by any rate, only plant diameter was smaller with ≥ 2 ppm.
- Piccolo does not seem to be the product of choice for pre-plant liner soaks because of the limited control.



Concise Liner Soaks [uniconazole] (ppm)

Appleblossom



0

0.25

0.5

1

2



Height control began with 0.5 ppm Concise (17% shorter). No diameter control.

Concise Liner Soaks [uniconazole] (ppm)

Appleblossom

Concentration	Height (cm)	Diameter (cm)
0	32.8	30.2
0.25	29.2	30.0
0.5	27.3	28.5
1	28.4	29.4
2	21.4	27.4
<i>P Value</i>	0.0001	ns
<i>R²</i>	0.63	-
<i>Regression Model</i>	$y=31.5-4.87x$	ns
<i>Regression Model R²</i>	0.545	-

Concise Liner Soaks [uniconazole] (ppm)

Señorita Rosalita



0

0.25

0.5

1

2



Height control began with 0.5 ppm Concise (5% shorter and 16% smaller diameter)

Concise Liner Soaks [uniconazole] (ppm)

Señorita Rosalita

Concentration	Height (cm)	Diameter (cm)
0	30.8	37.8
0.25	28.6	33.7
0.5	29.2	31.8
1	26.9	32.2
2	26.4	32.0
<i>P Value</i>	0.0005	0.0001
<i>R²</i>	0.43	0.55
<i>Regression Model</i>	$y=29.9-1.98x$	$y=36.8-9.49x+3.6x^2$
<i>Regression Model R²</i>	0.34	0.44

Conclusions - Concise Liner Soaks

- Concise provided better control of plant growth than Piccolo.
 - Appleblossom height was responsive to 0.5 ppm, but plant diameter was unaffected. The rate of 2 ppm may higher than desired.
 - Señorita Rosalita plant height was 5% shorter with 0.5 ppm and plant diameter was 16% smaller.
- For pre-plant liner soaks, Concise at 0.5 ppm would be a target rate for mid-Atlantic growers.



Piccolo Drenches [paclobutrazol] (mg a.i.)

Appleblossom



0

0.125

0.25

0.5

1



Height control began with 0.25 mg of Piccolo (13% shorter) and 6% smaller plant diameter

Piccolo Drenches [paclobutrazol] (mg a.i.)

Appleblossom

Concentration	Height (cm)	Diameter (cm)
0	32.8	30.2
0.125	29.4	30.6
0.25	28.5	28.2
0.5	29.3	26.1
1	25.0	24.2
<i>P Value</i>	0.0001	0.0001
<i>R²</i>	0.55	0.67
<i>Regression Model</i>	$y=31.4-6.32x$	$y=30.3-6.55x$
<i>Regression Model R²</i>	0.44	0.62

Piccolo Drenches [paclobutrazol] (mg a.i.)

Señorita Rosalita



0

0.125

0.25

0.5

1



Height control began with 0.25 mg Piccolo (7% shorter) and 14% smaller in diameter

Piccolo Drenches [paclobutrazol] (mg a.i.)

Señorita Rosalita

Concentration	Height (cm)	Diameter (cm)
0	30.8	37.8
0.125	30.2	34.5
0.25	28.7	32.5
0.5	24.7	28.9
1	23.5	26.1
<i>P Value</i>	0.0001	0.0001
<i>R²</i>	0.75	0.83
<i>Regression Model</i>	$y=31.4-15.7x+7.573x^2$	$y=37.6-23.8x+12.26x^2$
<i>Regression Model R²</i>	0.72	0.83

Conclusions - Piccolo Drenches

- Piccolo drenches provided adequate control of plant growth.
 - Appleblossom height was responsive to 0.25 mg a.i. with the plants being 13% shorter and 6% smaller in diameter.
 - Señorita Rosalita plant height was 7% shorter and 14% smaller in diameter with 0.25 mg a.i. Piccolo.
- Piccolo drenches would be a suitable method of controlling excessive plant growth of both cultivars. The target rate should be 0.25 mg a.i. for mid-Atlantic growers.
 - A rate of 1 mg Piccolo was excessive.



Concise Drenches [uniconazole] (mg a.i.)

Appleblossom



0

0.0625

0.125

0.25

0.5

Height control began with 0.0625 mg Concise (16% shorter) and 8% smaller diameter

Concise Drenches [uniconazole] (ppm)

Appleblossom

Concentration	Height (cm)	Diameter (cm)
0	32.8	30.2
0.0625	27.6	27.8
0.125	24.3	24.2
0.25	20.7	19.8
0.5	21.6	16.9
<i>P Value</i>	0.0001	0.0001
<i>R²</i>	0.67	0.89
<i>Regression Model</i>	$y=32.4-75.90x+109.125x^2$	$y=30.6-57.43x+59.89x^2$
<i>Regression Model R²</i>	0.66	0.89

Concise Drenches [uniconazole] (mg a.i.)

Señorita Rosalita



0

0.0625

0.125

0.25

0.5



Height control began 0.0625 mg Concise (16% shorter) and 22% smaller diameter

Concise Drenches [uniconazole] (ppm)

Señorita Rosalita

Concentration	Height (cm)	Diameter (cm)
0	30.8	37.8
0.0625	26.0	29.5
0.125	23.7	26.0
0.25	21.4	22.8
0.5	19.3	21.1
<i>P Value</i>	0.0001	0.0001
<i>R²</i>	0.91	0.93
<i>Regression Model</i>	$Y=30.0-54.28x+66.60x^2$	$y=36.3-90.19x+120.62x^2$
<i>Regression Model R²</i>	0.88	0.89

Conclusions - Concise Drenches

- Concise drenches also provided adequate control of plant growth.
 - Appleblossom height was responsive to 0.0625 mg a.i. with the plants being 16% shorter and 8% smaller in diameter.
 - Señorita Rosalita plant height was 16% shorter and 22% smaller in diameter with 0.0625 mg a.i. Concise.
- Concise drenches would be a suitable method of controlling excessive plant growth of both cultivars. The target rate should be 0.0625 mg a.i. for mid-Atlantic growers.
 - The rates of 0.25 and 0.5 mg Concise were excessive.



Conclusions

- Pre-plant Liner Soaks
 - Piccolo provided only marginal control at the rates used, and Concise at 0.5 ppm would be a target rate for mid-Atlantic growers.
- Drenches
 - Both Piccolo at 0.25 mg a.i. and Concise at 0.0625 mg a.i. would be the target rates for mid-Atlantic growers.



-End-