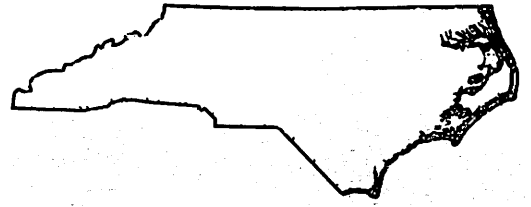


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Your Poinsettias Don't Have to be Too Tall

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Poinsettias which are too tall most likely have plagued growers ever since the plants became a florist crop. Photographs and articles in old trade journal issues indicate that height often was greater than desired. Substantial improvements in plant appearance have been made, but too many plants still are produced which are taller than needed or wanted.

A description of the poinsettia which is "the perfect height" could be hard to write. A ratio of pot size to plant height is used in judging, and that criterion makes sense, but plant diameter also is important in evaluation of appearance. Some growers who ship in boxes would probably consider the height to be ideal if the plants fit in the specially designed boxes they purchased. A florist might consider the plant to be of the perfect height if it didn't tip over during delivery. The market, purpose, supply and demand all help determine what height is or is not acceptable.

Our goal is to find and report ways to achieve height control, and to let growers manipulate conditions so they can realize that "perfect height", whatever it might be. Results reported in this article are from our 1985 experiments, with additional comments about research which was conducted at some other universities in 1985.

Cycocel. This growth regulator has a long history of success in controlling height, either with drench or spray applications (Figures 1,2,3, Table 1), but sometimes growers have wished that the stems had ceased elongating more quickly than they did, after Cycocel was applied. Early research prompted recommendations of approximately 3000 ppm (1:40) Cycocel as a single drench, or 1500 to 2000 ppm when applied twice as a foliar spray. A recent trend is to spray several times at very weak concentrations, but the validity of that approach is not as proven as other approaches. In summary, one could state that Cycocel works, and the satisfied grower could go to the next article in this issue, rather than "fix something which isn't broken".

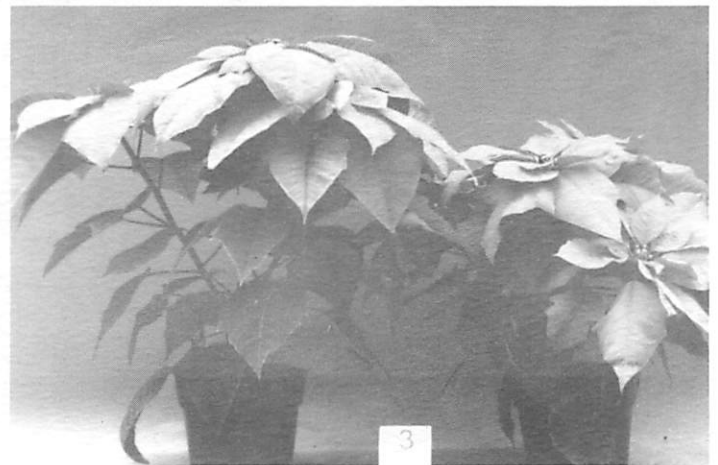
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Your Poinsettias Don't Have to be Too Tall—(continued from page 1)



14"
Control

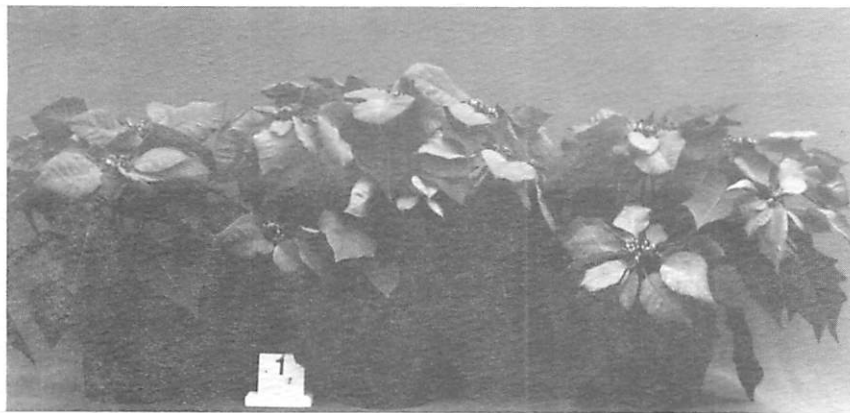
11"
Cycocel



14"
Control

11"
Cycocel

Figure 1. "Annette Hegg Dark Red" and "V-14 Glory" (right) plants treated with a 3000 ppm Cycocel drench (1:40), compared to untreated plants. Average heights are given beneath each plant.

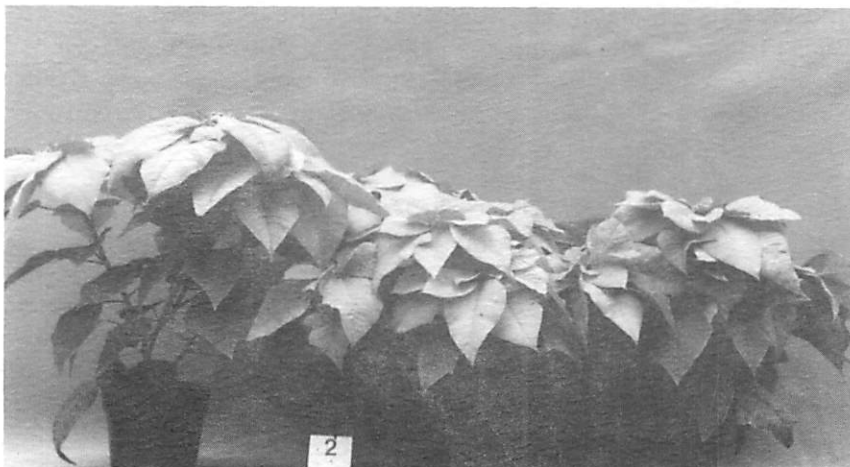


11"

12"

11"

Figure 2. "Annette Hegg Dark Red". Left to right: Cycocel drench once at 1:40; Cycocel spray once at 1:60. Average heights are given beneath each plant.



14"

12"

12"

Figure 3. "V-14 Glory" plants. Left to right: untreated plant; Cycocel spray twice at 1:60. Average heights are given beneath each plant.

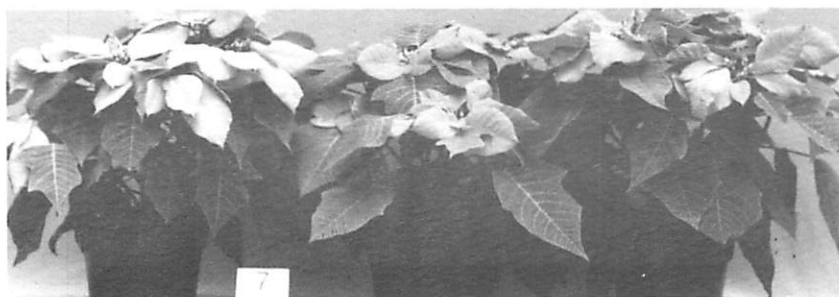
Your Poinsettias Don't Have to be Too Tall—(continued from page 2)**Table 1. Responses of poinsettia plants to different growth regulator treatments in 1985 research at N.C. State University**

Retardant	Method	Rate	Plant height, inches	Bract diameter, inches	Date of anthesis ^Z	
"ANNETTE HEGG DARK RED"						
1.	Cycocel	Drench, once	1:40	11	10 x 10	Nov 25
2.	Cycocel	Spray, once	1:60	12	11 x 10	Nov 25
3.	Cycocel	Spray, twice	1:60	11	10 x 9	Nov 25
4.	B-9 SP	Spray, once	3000 ppm	12	11 x 11	Nov 25
5.	B-9 SP	Spray, twice	3000 ppm	12	10 x 10	Nov 25
6.	B-9 SP 3000 ppm + Cycocel 1500 ppm			10	10 x 11	Nov 25
7.	B-9 SP 2000 ppm + Cycocel 1500 ppm			9	9 x 10	Nov 25
8.	B-9 SP 1000 ppm + Cycocel 1500 ppm			10	10 x 10	Nov 25
9.	Bay RSW 0411	Spray	66 ppm	12	10 x 11	Nov 25
10.	Bay RSW 0411	Drench	0.5 mg/pot	10	10 x 10	Nov 25
11.	A-Rest	Spray	66 ppm	14	11 x 11	Nov 25
12.	A-Rest	Drench	0.5 mg/pot	13	11 x 11	Nov 25
13.	Bonzi	Spray	100 ppm	9	9 x 10	Nov 25
14.	Bonzi	Drench	0.25 mg/pot	7	8 x 8	Dec 5
15.	Water	Spray + Tween 20		15	12 x 12	Dec 1
16.	Water	Drench		14	11 x 12	Dec 1
" V-14 GLORY"						
1.	Cycocel	Drench, once	1:40	11	12 x 13	Nov 25
2.	Cycocel	Spray, once	1:60	12	13 x 14	Nov 25
3.	Cycocel	Spray, twice	1:60	12	12 x 14	Nov 22
4.	B-9 SP	Spray, once	3000 ppm	12	12 x 14	Nov 25
5.	B-9 SP	Spray, twice	3000 ppm	12	12 x 14	Nov 25
6.	B-9 SP 3000 ppm + Cycocel 1500 ppm			11	-	Nov 28
7.	B-9 SP 2000 ppm + Cycocel 1500 ppm			11	13 x 13	Nov 25
8.	B-9 SP 1000 ppm + Cycocel 1500 ppm			11	12 x 13	Nov 25
9.	Bay RSW 0411	Spray	66 ppm	11	14 x 14	Nov 22
10.	Bay RSW 0411	Drench	0.5 mg/pot	12	13 x 14	Nov 25
11.	A-Rest	Spray	66 ppm	14	14 x 15	Nov 25
12.	A-Rest	Drench	0.5 mg/pot	14	14 x 15	Nov 25
13.	Bonzi	Spray	100 ppm	10	-	Nov 25
14.	Bonzi	Drench	0.25 mg/pot	8	-	Nov 25
15.	Water	Spray + Tween 20		14	16 x 16	Nov 25
16.	Water	Drench		14	16 x 17	Nov 25

^ZWhen over half of the plants had pollen showing.

Height measured from pot rim to uppermost portion of plant.

Cycocel + B-Nine. This technique for controlling height is not new. Research at the University of Maryland and N.C. State University in the 1960s showed that the method worked but we dropped the idea when tank mixes were frowned upon by the Environmental Protection Agency. We couldn't recommend the treatment no matter how successful it might be. Tank mixes now are allowed, so this treatment was a logical one in our 1985 experiments. We used one rate of Cycocel (1500 ppm) and 3 rates of B-Nine (1000, 2000 and 3000 ppm). Heights were about the same for the 3 B-Nine rates (Table 1, Figures 4 and 5).



10"

9"

11"

Figure 4. "Annette Hegg Dark Red" plants treated with combination sprays of Cycocel and B-Nine. Left to right = B-Nine rates of 3000, 2000 and 1000 ppm, with 1500 ppm Cycocel. Average heights are shown beneath each plant.

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Your Poinsettias Don't Have to be Too Tall—(continued from page 3)



Figure 5. "V-14 Glory" plants treated with B-Nine rates of 2000 and 1000 ppm, in combination with 1500 ppm Cycocel. Average heights are shown beneath each plant.

11"

11"

Florida growers are particularly challenged in height control and Jim Barrett and Terril Nell at the University of Florida are investigating the feasibility of using combination sprays. In their experiments the 2 chemicals together have been much more effective than either one alone. Yellowing of foliage caused by Cycocel sprays is minimized with the addition of B-Nine.

A-Rest. One of the most prominent growth regulators used in floricultural experiments internationally is A-Rest, but it is not a widely used chemical in the commercial production of poinsettias. Its lack of effectiveness when used as a drench in a bark medium has limited its usage in areas where pine bark is a popular potting medium. Its application as a spray solution is more expensive than with Bonzi, B-Nine or Cycocel. Allen Hammer at Purdue University has computerized cost analysis data on growth regulators and the cost to treat a pot of poinsettias with 66 ppm of A-Rest as a spray is about 30 cents. The cost of a 100 ppm Bonzi spray application is about 6 cents, Cycocel at 1500 ppm is less than 2 cents, and B-Nine costs even less. Drench solution cost per pot is about 9 cents for 0.5 mg A-Rest, one-half cent for 0.25 mg Bonzi, and 16 cents for a 1:40 Cycocel drench. A-Rest in our 1985 experiments probably was not used at high enough rates, because untreated and treated plants were similar in size (Table 1, Figure 6).



14"

14"

13"

Figure 6. Upper photo: "Annette Hegg Dark Red". Lower photo: "V-14 Glory". Left to right: control; 66 ppm A-Rest spray; 0.5 mg A-Rest/pot drench. Average heights are shown beneath each plant.

Your Poinsettias Don't Have to be Too Tall—(continued from page 4)



14"

14"

14"

Bonzi. This growth regulator was obtained by many growers just prior to the start of the 1985 poinsettia season. Inadequate information prevented some growers from trying Bonzi, or using it effectively. Additional knowledge has been gained by researchers and growers. The chemical is very active, so it is important that proper rates be used. Another trait of Bonzi is that it is not readily translocated from leaves to shoot tips, so spray applications should be directed towards the stems. Spraying the foliage to run-off means very little with Bonzi, in contrast to Cycocel, B-Nine or A-Rest. It is not always easy to spray stems of pinched plants, or closely spaced plants. A complaint about Bonzi is the uneven response that occurs when the material is applied as a spray, but that irregularity is usually caused by improper spray application, rather than by a lack of activity by the growth regulator. A 0.25 mg drench/pot or a 100 ppm spray did control stem elongation in our 1985 research, for both "Annette Hegg Dark Red" and "V-14 Glory". (Table 1, Figure 7).



12"

9"

Figure 7. "Annette Hegg Dark Red" plants. Left to right: 1:60 Cycocel spray; 100 ppm Bonzi spray. The cost of Cycocel was about 2 cents/pot, and Bonzi would have been 5 cents. Heights are shown beneath each plant.

Sumagic. We have controlled the growth of 6 tall pot mum varieties with this very new growth regulator but we have not used it on poinsettias. Allen Hammer has used it with very positive results on the "Annette Hegg" and "V-14" series. Spray applications at 15 or 20 ppm (Figure 8), or drench applications at 0.5 mg/pot (Figure 9) have resulted in short plants. We

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will have Sumagic in our experiments this Fall. The chemical also has been shown to control growth of impatiens, fibrous begonias, Salvia and Easter lilies.



Figure 8. "V-14 White" plants sprayed with 5, 10, 15 and 20 ppm Sumagic.

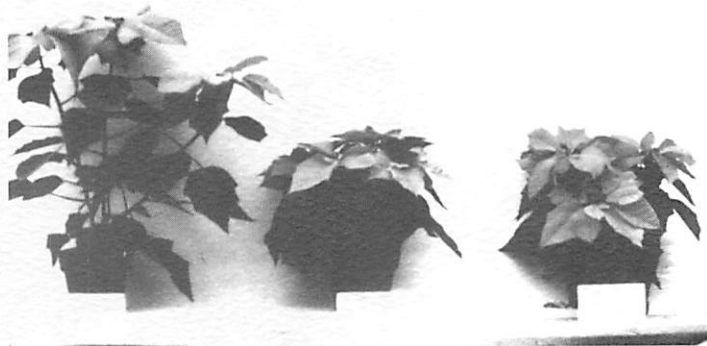


Figure 9. "Annette Hegg Dark Red" plants treated with 0, 0.5, and 1.0 mg Sumagic drench/pot.

(Original slides courtesy of Allen Hammer, Purdue University.)

Growth regulators should not be the first line of defense used by growers when they want to combat excessive height. Optimum propagation and pinching dates could lessen the need for drastic control measures. Clean glass or plastic and other efforts to assure adequate light intensity will also help. Growth regulators can be almost miraculous in what they can achieve but they should not be considered as substitutes for other sensible cultural practices. Fortunately chemicals and knowledge are available so plants which had to be started earlier than ideal can be just what the customers wanted.

The mention of chemicals in this article does not imply endorsement of those materials. Omission of chemicals does not imply criticism.