POINSETTIA STUDY

In 1974, a study was conducted to evaluate the effect of nitrogen on leaf retention of Eckespoint C-1 red poinsettia with and without application of the growth retardant, Cycocel. These studies were conducted in the glasshouses of the UHM campus with automatic irrigation, natural day-lengths after October 4, and a day/night temperature regime of 100/80 in October, 90/75 in November and early December.

The soil mix used was of equal parts soil, peat and perlite with amendments: 2 oz. treble superphosphate, 6 oz. lime, and ½ oz. Soil Minel trace elements per cubic foot. Nitrogen from IBDU (31–0–0) was added at the rate of ½, 1, or 2 grams per 6" pot as a top dressing. There were 1, 2 or 3 cuttings per pot which were grown single stem. Cycocel was applied as a soil drench (1:40 dilution) on October 2nd, 3 weeks after potting. The automatic irrigation provided a pint of water twice a day with 5.2 ppm N and 6.8 ppm K.

The data were collected December 17: height, inflorescence diameter, maturity as reflected by No. open cyathea, and leaf retention (0 = good retention to 3 = poor leaf retention).

Results

Table 1 shows the average measurements for the 18 combinations of treatments. The chief points are:

1. The tallest plants are those grown singly; 2 or 3 plants per pot produced a shorter overall pot.
2. The Cycocel treatment was effective in reducing plant height.
3. One gram N per pot was apparently the best level.
4. The inflorescence diameter was greater with fewer plants per pot.
5. There was no clear reduction in diameter with the use of Cycocel.
6. Nitrogen did not markedly alter bract diameters except there seemed to be a slight decrease with increased N on single plants.
7. Maturity was enhanced (earlier) with fewer plants per pot.
8. Cycocel hastened maturity and this effect was greater on 1 and 2 plant pots.
9. Increasing nitrogen also hastened maturity within the limits of this experiment.
10. Crowding increased leaf drop so that best leaf retention occurred with 1 or 2 plants per pot.
11. Leaf retention was better on all Cycocel treatments except one.
12. The 1 gram/pot level of nitrogen gave slightly better leaf retention overall with 2 grams poorest.

Table 1. Effects of plant density, nitrogen and Cycocel (ccc) on height, diameter, maturity and leaf retention.

No. Cuttings/pot	gN/pot	Height (cm)		Diameter (cm)		Maturity*		Leaf Retention**	
		-ccc	+ccc	-ccc	+ccc	-ccc	+ccc	-ccc	+ccc
1	½	33.7	26.7	20.2	18.0	3.4	6.8	1.0	0.4
	1	31.8	25.1	17.1	17.3	5.4	7.6	1.2	0.4
	2	31.1	27.0	18.1	16.8	7.0	9.8	1.2	0.8
2	½	24.9	25.8	11.9	15.3	1.1	3.3	1.0	0.5
	1	29.9	25.0	14.8	13.9	3.5	4.7	0.8	1.1
	2	28.0	27.4	14.4	16.3	5.1	6.0	1.5	0.6
3	½	33.6	22.5	10.6	11.0	0.8	0.7	2.1	0.8
	1	28.0	27.3	14.0	14.0	3.2	1.6	1.8	0.1
	2	29.6	26.8	10.8	10.8	2.2	2.1	1.6	1.1

* Maturity is determined by a count of open, pollen-shedding cyathea.
**0 = good leaf retention; 3 about 2/3 defoliated.

Conclusion

Plant density had the greatest effect on height with the tallest plants grown singly and 3 plants/pot being shortest. Cycocel shortened stem height and hastened maturity but retarded leaf drop. One gram N/pot from IBDU gave the best results considering the 4 factors evaluated.

Richard A. Criley
Associate Horticulturist