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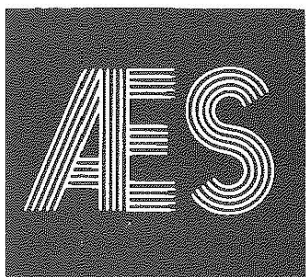
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Keeping
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99

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Pinching Poinsettia Cultivars

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Over the past few years, new poinsettia cultivars have been introduced by Paul Ecke Poinsettia Ranch (Encinitas, Calif.). Several of these were grown and evaluated in the Department of Horticulture greenhouses at Kansas State University during the 1988 poinsettia growing season.

Greenhouse Forcing

Eighteen rooted cuttings (Oasis rootcubes) of each of the poinsettia cultivars 'Eckespoint Lilo', 'Eckespoint Celebrate', 'Gross Supjibi', 'Annette Hegg Diva Starlight', and 'Gutbier Angelika' were received from Paul Ecke Poinsettia Ranch on 18 August, 1988. They were planted one cutting to a 6-inch azalea pot filled with a growing medium of 1 part soil: 2 parts sphagnum peat moss: 2 parts perlite and placed in a greenhouse at 78°/64° F day/night temperatures under natural photoperiods. The plants received constant liquid feed (Peters 15-16-17) at 300 ppm nitrogen until 14 November when they were irrigated with plain water. All plants were treated with Temik 10G at 4-week intervals and were sprayed weekly with Talstar and Mavrik for insect control. At planting, the soil was drenched with Benlate.

Plants were given either a soft pinch (removal of the growing tip and the expanding leaves) or a roll-out pinch (removal of only the terminal 1/4-inch of the growing tip and no expanding leaf-removal) on 1 September, 1988. On 22 September, all plants, except Supjibi (a very compact-growing cultivar that has the

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characteristics of a tetraploid poinsettia), were treated with Cycocel (1000 ppm) and B-Nine (0.25%) as a combination foliar spray. Short days, required for flower bud initiation, were started on 26 September by pulling black-out cloth over the greenhouse benches at 5 p.m. and removing it by 8 a.m. each day until bracts were fully developed. (Note: Black-out cloth is not always necessary for poinsettia flowering, but because of the large number of high intensity discharge lamps used by other researchers in our greenhouses, natural short days were not possible.) Night temperatures were reduced to 60° F on 20 October. When plants were at anthesis (showing pollen), data collection began.

Postharvest Evaluation

Plants from each cultivar and pinching treatment were brought into a research laboratory for postharvest evaluation under simulated home conditions. Plants were sleeved with white paper sleeves and held for 48 hours. After unsleeving, plants were held under 40 footcandles of light from cool-white fluorescent lamps until 23 December. This was about a 3-week period, depending upon when the individual plants showed pollen. Room temperature varied from 65 to 85° F during the day (average 76° F) and from 60 to 70° F during the night (average 69° F). Plants were watered with enough water to leach the soil, when the medium surface appeared dry and had a visible change in color. Water was removed from the saucers 10 minutes after the medium had drained.

Results

All five cultivars required a similar number of days to reach harvest (showing pollen and considered marketable) (Table 1). Celebrate was one of the tallest cultivars, yet produced the fewest lateral branches and fewest blooms. Literature from Ecke's indicates that this cultivar has lower cutting production from stock plants than 'Gutbier V-14' or the Hegg types. Even with the fewer number of flowering stems, Celebrate exhibited good height and width, with good sized bracts.

Plants of Angelika and Lilo showed excellent branching and inflorescence development. Some cyathia loss was a problem with Lilo prior to harvest. Lilo was very responsive to the Cycocel:B-Nine tank spray, which resulted in tight plant structure. Supjibi, the compact cultivar, did not receive any growth retardant treatment and flowered at the same height as Lilo. Both were shorter than the other cultivars that had received treatment. Supjibi also had good bract size. Annette Hegg Diva Starlight produced the largest bracts and the widest plants. Branching and number of flowering stems were comparable to those of the other cultivars.

Table 1. Differences in growth among poinsettia cultivars and between pinching treatments.

Cultivar	Days to Flower ¹	Number of Lateral Branches	No. Blooms	Plant Height (cm)	Plant Width (cm)	Bloom Diam. (cm)
Angelika	65.4	8.7a	7.1ab	18.4a	32.9b	24.2b
Celebrate	65.1	6.0c	4.5c	18.3a	34.6ab	24.4b
Lilo	64.7	8.1ab	7.7a	15.0c	27.0c	22.4c
Starlight	65.5	7.5b	6.9ab	16.8b	37.2a	26.9a
Supjibi	64.9	7.9b	6.7b	15.3c	34.9ab	24.8b
L.S.D. ²	NS	0.7	0.8	1.2	3.1	1.6
Pinching Treatment						
Roll-out	65.4	8.6	7.2	16.9	32.9	23.7
Soft	64.8	6.7	5.9	16.7	33.7	25.3
L.S.D.	0.5	0.4	0.5	NS	NS	1.0

¹Number of days to flower (pollen show in first cyathium) counted from the start of short days, 26 September, 1988.

²Means followed by the same letter within a column are not significantly different from each other using an L.S.D., 5%. NS: not significantly different.

Table 2. Petiole bending incidence, watering frequency under simulated home conditions, and cyathia loss of poinsettia cultivars.

Cultivar and Treatment	Petiole Bending (% plants)	Watering Frequency (days \pm S.E.)	Cyathia Loss	
			Plants/Total	Days \pm S.E.
Angelika				
Roll-out	0	7 \pm 1.8	0/3	—
Soft	0	6 \pm 2.4	1/4	11
Celebrate				
Roll-out	0	5 \pm 1.3	1/4	19
Soft	67	6 \pm 2.1	3/3	19 \pm 1.4
Lilo				
Roll-out	0	7 \pm 2.5	4/4	12 \pm 6.7
Soft	25	9 \pm 1.4	4/4	10 \pm 6.4
Starlight				
Roll-out	75	7 \pm 1.7	4/4	14 \pm 2.4
Soft	100	7 \pm 2.4	4/4	15 \pm 5.0
Supjibi				
Roll-out	0	6 \pm 0.7	0/3	—
Soft	25	6 \pm 1.2	0/4	—

Plants of Angelika became chlorotic after fertilization was terminated on 14 November, 1988. This cultivar may require high nitrogen levels during production to hold color through the last few weeks of forcing and into the market. Also, a different fertilizer may be needed. The fertilizer used had 53% of the nitrogen as nitrate, 21% as ammonia, and 26% as urea. The poinsettia fin-

ishers have a higher portion of the nitrate form, as do some of the other fertilizers utilized for poinsettia production. For example, one of the peat-light special fertilizers recommended for poinsettia production has 75% of the nitrogen as nitrate.

Using a roll-out pinch resulted in increased branching and number of flowering stems per plant, a reduction in

bract size, and a slight delay in the number of days to flower (Table 1). This was expected because less tissue was removed, leaving a greater number of nodes from which branches could develop. The reduction in bract size can be attributed to the greater number of inflorescences that developed, resulting in a greater demand for plant resources. The delay of one-half day, even though statistically significant, is of no importance to the grower. There was no cultivar-pinching treatment interaction, indicating that all cultivars responded to the two types of pinches in a similar manner under the given growing conditions.

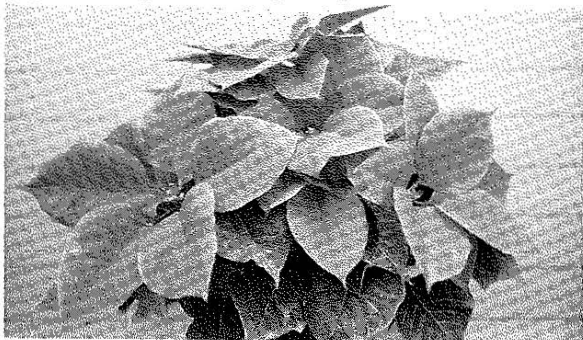
During the postharvest evaluation in the laboratory, the cultivars that exhibited petiole bending (epinasty) as a result of sleeving were Starlight, Celebrate, Lilo, and Supjibi (Table 2). There was a greater incidence of epinasty on plants that received a soft pinch than on those that received a roll-out pinch. However, no statistical analysis was conducted, since sample size was small (3 or 4 plants per cultivar per pinching treatment). After 3 weeks of simulated-home conditions, Supjibi plants still had not lost any cyathia. All cultivars required watering about every 6 to 7 days.

Conclusions

All of these new cultivars performed well in the greenhouse. Supjibi, with its high quality and long lasting display, has potential for Kansas production (Figure 1). This cultivar also does not need growth retardants, which will help reduce production costs. Further work on propagation dates and scheduling of this cultivar will be conducted.

Since Lilo appeared to be extremely responsive to the Cycocel:B-Nine tank mix foliar spray, either lower rates or perhaps no application may be needed. This would depend upon time of propagation, number of long days after the pinch, and greenhouse light levels. Further work on height control is planned for this cultivar.

Figure 1. Supjibi is a very compact cultivar.



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