POINSETTIA PROPAGATION-CUTTING SIZE[1]

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The poinsettia (euphorbia pulcherrima) is propagated from cuttings in the summer and early fall. Post (5) recommended taking cuttings 4 to 6 inches long. Biekart (1) found that thick vigorous cuttings were most satisfactory for late September propagation. Miller (4) and Ecke (2) suggested using 4-inch cuttings and Miller added that cuttings taken in late September can be up to 6 inches long. Mikkelsen (3) advocated taking short (2½-inch) cuttings of good caliber. He stated that such cuttings take less space in the propagating bed, are less liable to rot, are easier to handle at potting time, and that more usable cuttings could be produced per square foot of stock plant area. He also pointed out that "the technique becomes one of growing the plant at the maximum rate, rather than trying to hold it back.

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Recently several new varieties of poinsettias became popular with commercial growers. Growth habits and characteristics of these varieties frequently differ. Therefore, a study was initiated in 1966 to compare the rooting and subsequent growth of plants started from small (2½-inch) and large (5-inch) cuttings.

Materials and Methods

Plants were propagated by placing them in a special soil mixture in 2½-inch clay pots under intermittant mist, as has been reported previously (6). A minimum night temperature of 70° F. was maintained when the plants were under mist, and 60° F. was maintained thereafter (weather permitting). Cutting of the varieties Barbara Ecke Supreme, Elisabeth Ecke, and Paul Mikkelsen were taken on July 13, August 1, and September 15, 1966. Measurements and observations were made at periodic intervals.

Results

July 13 Propagation. Table 1 shows that large cuttings of Barbara Ecke Supreme and Elisabeth Ecke rooted quicker than the small ones. No significant difference in rooting time was noted for the small and large cuttings of Paul Mikkelsen. By August 23, plants from small cuttings of Barbara Ecke Supreme and Elisabeth Ecke had made very little top growth. Some of the plants from large cuttings of these two varieties had made considerable top growth, as had plants from cuttings of both sizes of Paul Mikkelsen.

Height of plants from large cuttings was greater for all three varieties on September 13. Differences in height between plants from small and large cuttings was in proportion to the speed of rooting. Average increases in height from September 13 to December 19 and average bract diameter were similar in all instances, indicating original cutting size had little effect on growth of the plants following rooting.

August 1 Propagation. Plants from small cuttings were appreciably shorter than plants from large cuttings of all varieties on September 13 (table 2). Increases in plant height from September 13 to October 17 were greater for plants from small cuttings of each variety. The quickest rooting variety, Paul Mikkelsen, showed the greatest difference in growth by cutting size for this period. For the period from October 17 to December 9, differences in increases in plant height as classified by cutting size were slight.

Final plant height was greater in all instances for plants from the larger cuttings. The difference was slight for plants of Paul Mikkelsen and greatest for plants of the slowest rooting variety, Elisabeth Ecke. Diameter of the infloresence was greater for plants from larger cuttings of the varieties Barbara Ecke Supreme and Elisabeth Ecke while plants of Paul Mikkelsen showed no difference.

September 15 Propagation. Water for the mist line was shut off without notice on the morning of September 20. The day was sunny and excessive wilting occurred before the lack of mist was discovered. Plant loss was appreciably greater for small than for large cuttings.

Plant height, as shown in table 3, was greater for plants from larger cuttings of all varieties, but the difference was insignificant for Elisabeth Ecke. Diameter of the bract cluster was approximately 1 inch greater for plants from larger cuttings of Barbara Ecke Supreme and Paul Mikkelsen.

Table 1. Comparison of poinsettia plants propagated from two sizes of cuttings on July 13, 1966. Plants were shifted to three plants per 6-inch pan on November 14, 1966.

Treatment Variety	Cutting size (inch)	Number of cuttings	Percentage of cuttings rooted on 8/1	Average plant height (inch)[1] 9/13	12/19	Increase in height (inch) 9/13 to 12/19	Average diam. bract cluster (inch) 12/19
Barbara Ecke Supreme	2½	45	18	6.8	15.0	8.2	11.0
Barbara Ecke Supreme	5	45	58	10.4	18.7	8.3	10.4
Elisabeth Ecke	2½	34	12	4.8	13.3	8.5	9.5
Elisabeth Ecke	5	34	44	10.4	19.0	8.6	9.2
Paul Mikkelsen	2½	37	97	11.6	22.2	10.6	10.9
Paul Mikkelsen	5	37	100	12.8	22.2	9.4	11.1

[1] Measured from pot rim.

Table 2. Comparison of poinsettia plants propagated from two sizes of cuttings on August 1, 1966. Plants were shifted to three per 6-inch pan on October 7, 1966.

Treatment		Number of cuttings	Average plant height(inch)[1]			Increase in height(inch)		Average diam. bract cluster 12/9
Variety	Cutting size(inch)		9/13	10/17	12/9	9/13 10/17	10/17 12/9	
Barbara Ecke Supreme	2½	54	2.0	7.4	17.5	5.4	10.1	12.8
Barbara Ecke Supreme	5	54	4.5	8.9	19.5	4.4	10.6	14.1
Elisabeth Ecke	2½	34	1.8	6.3	12.8	4.5	6.5	9.6
Elisabeth Ecke	5	34	4.5	8.5	16.1	4.0	7.6	10.9
Paul Mikkelsen	2½	41	3.4	8.9	16.5	5.5	7.6	10.2
Paul Mikkelsen	5	41	5.7	9.2	17.4	3.5	8.2	10.2

[1] Measured from pot rim.

Table 3. Comparison of poinsettia plants propagated from two sizes of cuttings on September 15, 1966. Plants were shifted to 6-inch pans on November 10, 1966.

Treatment		Number of cuttings[1]	Average plant height(inch)[2] 12/28	Average diameter bract cluster (inch) 12/28
Variety	Cuttings size(inch)			
Barbara Ecke Supreme	2½	25	4.7	9.3
Barbara Ecke Supreme	5	26	7.6	10.4
Elisabeth Ecke	2½	9	6.8	10.1
Elisabeth Ecke	5	16	7.2	9.5
Paul Mikkelsen	2½	29	5.9	8.8
Paul Mikkelsen	5	34	7.9	9.7

[1] A larger number of cuttings was originally included, but loss from lack of mist on September 20 decreased the number that survived (for all varieties).

[2] Measured from pot rim.

Discussion

In some instances, plants from small cuttings increased more in height during the month following rooting than did plants from large cuttings. However, final plant height was usually greater for plants from large cuttings of Barbara Ecke Supreme and Elisabeth Ecke. Naturally, the date after which large cuttings would be preferable could conceivably vary with geographical area and weather conditions.

Diameter of the bract cluster indicated a tendency toward larger size from large cuttings. This tendency might be most significant for late propagation of Paul Mikkelsen plants because this variety has the smallest bract cluster of the three varieties studied. The irregularity of the tendency might indicate that other factors also influenced size of the bract cluster.

In this study, plant response attributed to differences in cutting size appeared to relate largely to speed of rooting. Theoretically, the findings reported herein might also apply to the other varieties not included in the study. The implication would be that size of the cutting is a significant factor for slower rooting varieties, but an insignificant factor for fast rooting varieties. Further study is necessary to prove or disprove the theory.

Summary

1. Large (5-inch) cuttings of the varieties Barbara Ecke Supreme and Elisabeth Ecke rooted quicker than did small (2½-inch) cuttings.

2. Final plant height was directly related to cutting size for the varieties Barbara Ecke Supreme and Elisabeth Ecke, but was not affected by cutting size for the variety Paul Mikkelsen, except for late cuttings.

3. Bract clusters tended toward greater size from large cuttings, but differences were not consistently significant.

4. Large cuttings suffered less loss when the mist went off unexpectedly.

5. Under good conditions, cutting size for the varieties Barbara Ecke Supreme and Elisabeth Ecke should be determined by the final plant size desired. Cutting size for the variety Paul Mikkelsen was not a significant factor except for late propagation where a large cutting was preferable. In general, short cuttings, which produce short plants, might be preferable for propagation prior to early or mid-September.

Literature cited

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