



MINIPOT POINSETTIAS¹

K. L. Goldsberry & Doreen Schmidt²

Poinsettia cultivars of today provide the grower, retailer and customer with a totally new approach to growing, handling and enjoying this famous Christmas plant. The introduction of the Mikkelsen cultivars in the early 1960's and Hegg and Eckespoint lines in the mid 1960's required new emphasis on poinsettia culture and research. Mikkelsen (1967) outlined procedures and gave a schedule for pinching his varieties to facilitate branching and create a fuller and more aesthetically desirable plant. He recommended potting cuttings on August 20, and pinching September 1 in order to obtain branches 24-30 inches long at sale time. The schedule also indicated 9 to 12 inch branches could be obtained from a September 15 planting and a September 30 pinching.

Ecke (1971) noted that the Hegg varieties were being used by several growers as pinched four inch plants for Christmas sale. University of Maryland research (Shanks, 1972) indicated that the latest pinching date for the development of short plants in Maryland is September 23. The first rule for developing a poinsettia flowering schedule, according to Shanks (1971), is to not pinch after September 25.

Payne and Wiggins (1962) conducted studies on the effects of reduced light intensity on poinsettia growth and found that shading retarded plant growth, resulting in less fresh weight accumulation, smaller bract areas, shorter plants and a three day delay in maturity.

In 1975, the floriculture research committee of Rutgers University made recommendations based on their studies involving the production of 4-inch pinched poinsettias using both a peat-lite and a soil-peat-perlite mix. Hegg varieties were propagated directly in pots between August 25 and September 3. Mist and a medium temperature of 70°F or higher were suggested. After potting, greenhouse temperatures of 75°F day and 70°F night were recommended for the first three to four weeks, then a night temperature of 65°F when the lateral branches are one-half inch long. Pinching should be accomplished when the roots reach the edge of the pot, (usually 3-4 weeks after sticking), leaving four leaves so that four breaks can develop.

When the new laterals are about one inch long, they recommended an application of A-Rest[®] drench at .25 mg per pot. (Made by mixing 2 oz. of A-Rest[®] per gallon of water and applying 2 oz. of the solution per four inch pot.) Other recommendations included fertilization, disease and insect control and spacing. Final spacing was 2.5, four inch pots per sq. ft.

Studies on the production of mini pot poinsettias began at CSU during the 1973 poinsettia season. Most of the Mikkelsen, Hegg and Ecke varieties have been evaluated through the years and the results presented during short course and workshop presentations. A study conducted in 1975 and recently re-evaluated provides information that should be shared with poinsettia growers.

Materials and Methods

Cultivars of 'Mikkel Improved Rochford'; white Rochford and pink Rochford and 'Dark Red Annette Hegg' plus

¹A portion of a senior project report.

²Associate Professor & Senior student, Department of Horticulture, Colorado State University. (Ms. Schmidt is presently a graduate student at Purdue Univ.)

'Annette Hegg' pink and white were planted in 4-inch azalea pots on September 7, 1975. They were placed on raised benches identically positioned in two glass covered greenhouses; each, house under different night temperature treatments throughout the growing period (Fig 1).

Treatment 1		Treatment 2	
Heat	51 - 54°F Night	Heat	60 - 62°F Night
	60 - 62°F Day		60 - 62°F Day
Cool	70 - 72°F Day	Cool	70 - 72°F Day

A saran shade cloth was installed over one-half of the plants grown in each temperature treatment (Fig 1). The shade treatment reduced the insolation available to the plants by 42 percent, compared to the non-shaded treatment.

One "pinch" treatment was pinched on September 17, 1975, and a second treatment was pinched on September 27. A third treatment was left unpinched. The pinch treatment on all cultivars was replicated twice. Pinches were made leaving four visible nodes on the plant.

A minimum level of 500 ppm carbon dioxide was maintained throughout the growing period, during daylight hours. The fertilization program used during the evaluation was based on the recommendations by Ecke (1976). Watering was accomplished by hand.

Results

Breaks: The number of breaks created by the pinch was affected by both the temperature and shade treatments (Fig 2). Significantly more "breaks" were obtained when the plants are grown in "full sun" and warmer night temperatures. There were no significant differences in the number of breaks developed due to the pinching dates or cultivars.

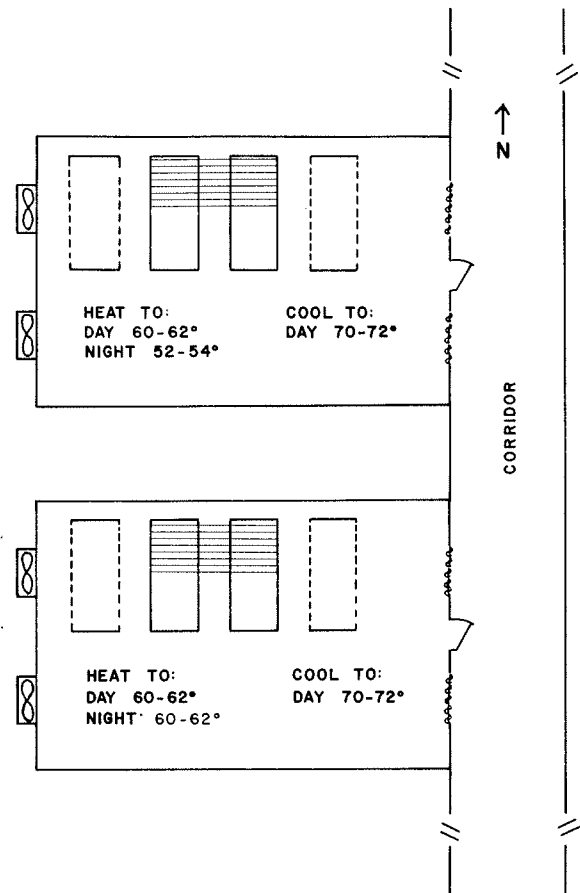


Fig. 1: Graphic representation of facilities used to evaluate the growth responses of mini poinsettias.

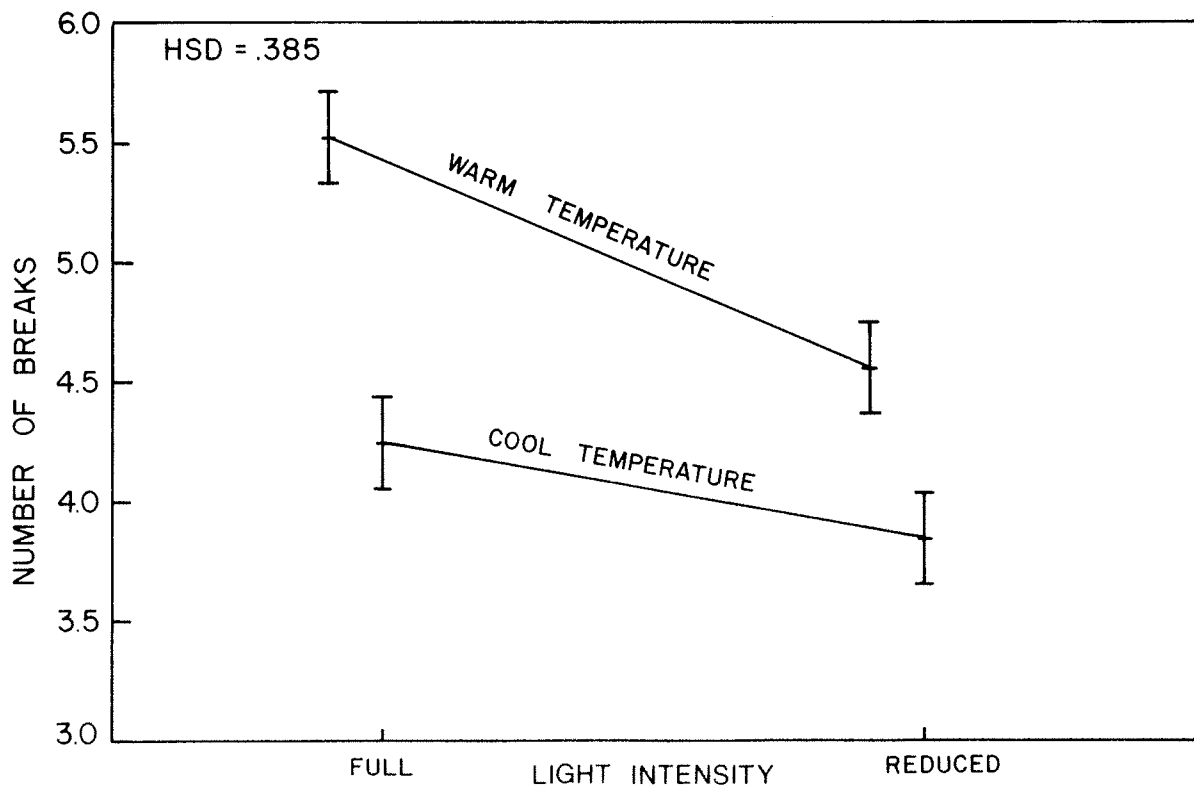


Fig. 2: The total number of breaks produced by all pinched poinsettia cultivars when grown in two light and temperature regimes. Four visible nodes were left on the established cutting.

The Mikkel cultivars responded more favorably to the temperature and pinching treatments than the Hegg varieties. They produced 1.5 more breaks per plant from the first pinch and one more on the second. Mikkel cultivars also produced 1.4 more breaks in the warmer temperature treatment and 1.1 in the cool treatment, compared to the Hegg varieties.

Plant height: There was no significant differences in plant heights due to the two pinching dates. However, a pinch later than September 27 would probably contribute to shorter plants due to the interaction with photoperiod requirements.

Significantly taller plants were produced in the warmer temperature treatment (Fig 3). A similar response was also attributed to the reduced light treatment.

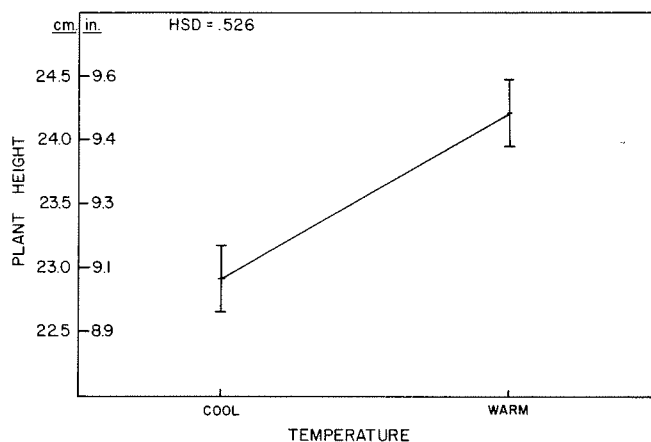


Fig. 3: The mean height of all pinched mini poinsettia plants as influenced by the growing temperature. Height was measured from the bottom of the pot to top of the plant.

There was no significant differences in the heights of the Mikkel or Hegg cultivars due to the treatments. The red plants of each source were significantly taller than the white cultivars, but not the pink varieties.

Bract diameter: Temperature was the only factor that significantly affected the diameter of the bracts (Fig 4).

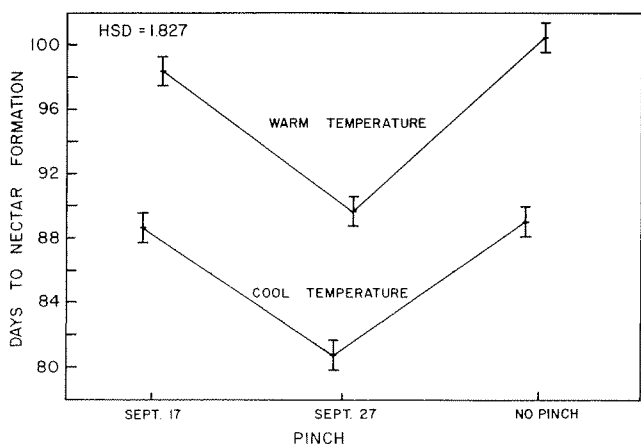


Fig. 4: The average number of days from planting until the nectar cups of pinched mini poinsettias are full as influenced by temperature and pinching date. Potting occurred on September 7, 1975.

Warmer temperatures produced larger bracts. Light levels, pinching dates or varieties did not influence the diameter significantly.

Nectar Formation: Growing temperatures had the greatest influence on nectar formation (Fig 5). All the other treatments had no direct relationship. Delayed nectar development was noted when the following conditions existed: reduced insolation; cool night temperatures; late pinch; use of Mikkel varieties and red cultivars.

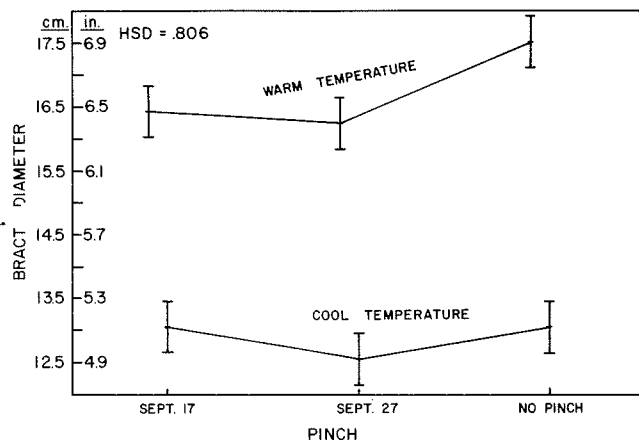


Fig. 5: The average diameter of the bracts developed on mini poinsettias grown in two temperatures and pinched on two different dates.

Discussion & Conclusions

Mini pot poinsettias can be effectively grown in greenhouses where light is reduced, but delay in development must be expected. If adequate light is not available, planting should not occur later than September 1-5 and pinching 10 days later.

The bract diameter obtained in both the 52-54°F and 60-62°F night temperatures was adequate. The nectar development was the most uniform in the warmer temperature treatment; maturity at the lower temperature occurred over a period of 7-10 days.

The bract size, plant height and compactness should all be proportioned to the pot used to produce a mini poinsettia. Many growers start their mini poinsettias the last of August and grow them using the same cultural conditions used for the production of the large pinched or single stemmed plants. A mini poinsettia requires a slightly different culture.

A poinsettia grown in a 5 or 6 inch pot and over treated with a growth regulator, is not a mini-pot type. Excellent mini pot poinsettias can be obtained in 4 inch pots, by pinching established cuttings 90 days before the required sale date. A night growing temperature of 60-62°F throughout the growth of the crop is adequate. If a 54-56° temperature is used, start the plants one week earlier. Plants produced at lower temperatures were more symmetrical (Fig 6).

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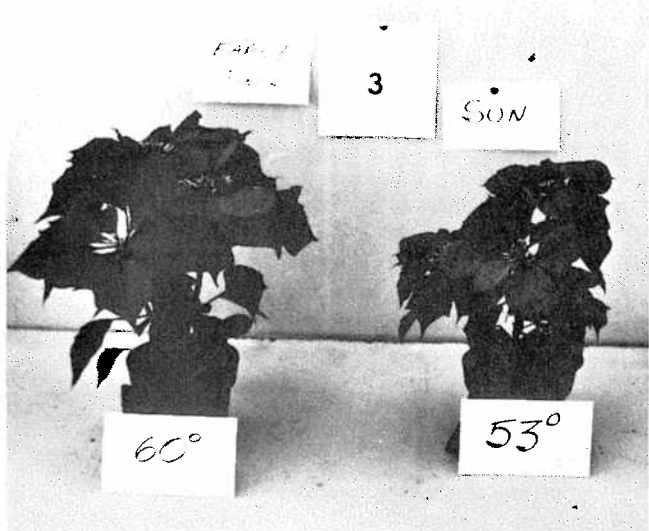


Fig. 6: 'Dk. Red Annette Hegg' grown in full light. Potted September 7, pinched September 17 and grown at 53°F and 60°F temperatures. The plants grown at the lower temperatures were more symmetrical.

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