

## GROWTH RETARDANT NOTES

### *Euphorbia leucocephala*

*Euphorbia leucocephala* offers some promise as pot plant if its tendency to form a tall, columnar plant can be controlled. Cultural practices such as pinching and growth retardants can improve the spread and compactness of this plant. In this trial, retardants were applied to reduce plant height.

Seed was sown July 8, 1975, and the seedlings transplanted, 3 per 5½" pot (volcanite-woodshavings, 1:1), on September 16. There were 4 pots per treatment. A week after transplanting, the plants were pinched to a height of 4". As the new growth reached an inch in length (October 9), retardants were applied as follows: Cycocel as a 200 ml drench at dilutions of 1:40 and 1:20 of the 11.8% stock, B-nine as a 1% a.i. spray (repeated again 10 days later), and Arest as a drench of 1 or 2 mg a.i. per pot. Data were taken on December 17. Only the 4 longest shoots per pot were measured, and all the other data were from these same shoots. The length was determined as the distance between the origin of the break and the primary cyathium; thus, plant height was actually greater. The results are presented in Table 1.

Table 1. The effect of growth retardants on growth and flowering of *Euphorbia leucocephala*.

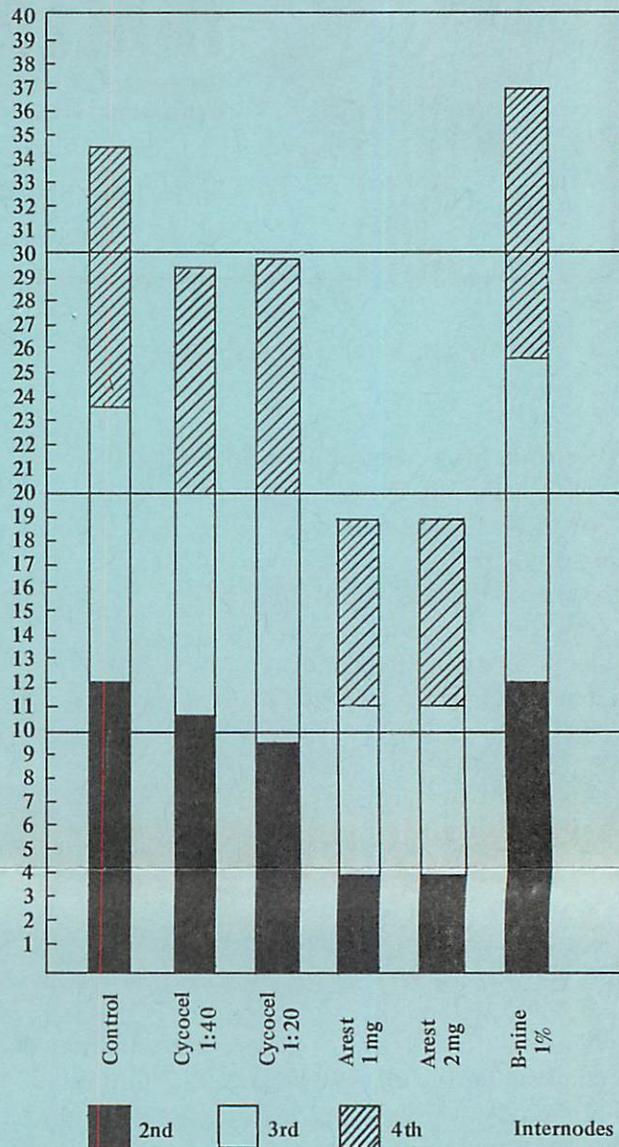
Treatment	Avg. Length of break (cm)	As % of control	Avg. No. nodes to flower	Avg. No. of most advanced cyathium+
Control	61.9		6.0	4.0
Cycocel 1:40 drench	49.0	79.2	5.4	4.1
Cycocel 1:20 drench	51.2	82.7	5.4	4.2
B-nine 1% spray (2x)	60.6	97.9	5.5	4.3
Arest 1 mg/pot drench	34.4	55.6	4.8	4.2
Arest 2 mg/pot drench	37.9	61.2	5.0	3.9

+1 = primary cyathium, 2 = secondary cyathium, 3 = tertiary cyathium, etc.

Arest at 1 or 2 mg was most effective in retarding the plants with values about 55–60% of the control. Most of this retardation occurred in the 2nd and 3rd internodes above the break (Figure 1). In all treatments the first internode was already elongating as the retardants were applied. Cycocel produced plants about 80% the size of the controls. B-nine was not effective in reducing plant height in this trial.

The retardants slightly hastened the initiation of the first cyathium. Arest-treated plants initiated the 1st flower 5 nodes above the break while Cycocel and B-nine treatments averaged about 5.5 nodes. There was little difference among the treatments as to the extent of flowering (No. of levels of cyathia produced), but there was a slight tendency towards delay at the higher Arest concentration.

Figure 1. Length of 2, 3, and 4th internodes above break of *E. leucocephala* as affected by growth retardants.



Work still needs to be done to improve *E. leucocephala* for use as a potted plant. While seed is easy to use, the elongation of the seedling, coupled with its small stem diameter (and thus fewer buds at each node), require that several plants be used per pot to create a display. It may be more desirable to use short stem cuttings from which many breaks can be stimulated or to sow the seed much earlier and allow more growth to occur prior to the pinch. The timing of the pinch will need to be determined so that adequate stem length and foliage can develop. It is also possible to delay flowering by means of lighting, but a critical time to give short days and still make a Christmas crop also needs to be determined.

## Chenille Plant (*Acalypha hispida*)

Terminal cuttings of *Acalypha hispida* were taken in late August and rooted under intermittent mist. They were potted the last week of September and one-half of the plants were pinched to induce laterals on October 8. One week later, half the single-stem and half of the pinched plants were drenched with Phosfon to retard elongation. Each treated pot received 8 fluid oz. of a Phosfon solution made up by diluting one teaspoon of 10% a.i. stock into one gallon of water. The data in Table 2 were taken on December 17. The plants were actually at their peak in terms of flower display during the third week of November.

Table 2. The effect of Phosfon on growth and flowering of Chenille Plant.

Treatment	Pinched			Single Stem	
	Height (cm)	No. Breaks	Length (cm) of breaks	Height (cm)	No. flwr. spikes
Control	28.6	5.2	26.9	47.5	16.8
Phosfon	14.0	6.2	4.6	19.5	12.2

Phosfon caused a yellowing of the veins of the leaves. This was more of a problem on the single-stem than pinched plants. On Phosfon-treated plants, the close nodes and mass of foliage contributed to a high mealybug population and many leaves and flower spikes abscised. The lengths of the flower spikes on the controls often reached 40–45 cm and were not in proportion to the plant, while on treated plants, the spikes were about 20–25 cm.

The concentration of Phosfon was apparently too high. Insufficient elongation of the stem axis occurred for well-proportioned plants. A later application of Phosfon might be better, after the laterals had elongated more. The treated single-stem plants were more attractive than the pinched because of the clubby effect. The controls were satisfactory as single-stem plants, but sprawled too much as pinched plants.

## Ethephon on poinsettias

Cycocel<sup>TM</sup> and Arest<sup>TM</sup> have been the standard retardants for poinsettias, but a recent review (1) suggested that ethephon (Ethrel<sup>TM</sup>) could be used to retard poinsettias when applied as a drench to the soil.

Pinched plants of two pink cultivars were used, 'Prof. Laurie', and 'Truly Pink'. Both cultivars tend to be too tall when grown either as pinched

or as single-stem plants. Approximately 96 mg a.i. of ethephon was applied to each 6" pot on October 8, one day after a hard cut-back. The plants had been under long days which then continued until October 17. This timing of pinch, long days, and ethephon is *not* recommended, but worked in this case. At the time data were taken on December 19, both cultivars were in bloom and even a little past marketable stage. The results appear in Table 3.

Table 3. The effect of Ethephon on growth and flowering of Poinsettia.

Cul-tivar	Treat-ment	Height (cm)	Percent of Control	Diam. (cm)	No. Breaks	No. Cyathia w. pollen
Prof. Laurie	control	47.4		29.6	5.4	2.6
	ethephon	32.6	68.7	31.3	5.3	4.4
Truly Pink	control	29.7		26.4	6.7	11.3
	ethephon	25.0	90.9	25.4	6.0	13.3

The proportions of ethephon-treated 'Prof. Laurie' plants were quite pleasing, and the plants were sturdy. 'Truly Pink' was not really satisfactory either as a control or treated plant. Ethephon did not have as great an effect on 'Truly Pink' as on 'Prof. Laurie' as treated plants were 90.9 and 68.7 percent of their respective controls. With respect to inflorescence diameter and number of breaks, ethephon caused little or no adverse effects. The treated plants did mature faster as shown by the count of pollen-bearing cyathia.

- (1) Shanks, J: B. 1975. Poinsettias and their greenhouse culture. Maryland Florist. No. 197:1-31.

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