

CCC - An Aid To Height Control of Red Poinsettias

W. A. ROSENAU, *Research Assistant Professor*
University of Massachusetts
Waltham Field Station

For the first time, CCC, a growth regulator that reduces stem elongation, is commercially available. This new product can aid the poinsettia grower in controlling the height of his plants and may find use when applied to early propagations or where normal "stretch" is not desired. Over the last two years, this material has been the subject of extensive testing and has received considerable publicity in the trade journals. Although CCC has not been adequately researched to provide recommendations or precise schedules for a wide variety of plants, it has shown so much promise on red poinsettias that it has been released by American Cyanamid for use specifically on that crop. It is available through commercial sources under the trade name "Cycocel".

Methods

CCC is one of a number of compounds such as AMO-1618 and Phosfon that will cause certain plants to be partially dwarfed. CCC is particularly effective on poinsettias. It is applied as a solution to the soil in which the plant is growing, and results in a reduction in distance between leaf nodes.

In an experiment conducted at the University of Massachusetts' Waltham Field Station last fall, four rates of CCC were applied to poinsettias in single pots and in pans. Rooted cuttings of the variety Barbara Ecke Supreme were planted (one cutting per 4 in. pot, three cuttings per 6 in. pan) on September 15th and treatments were applied on October 2nd. The pots received 0, 0.15, 0.30, and 0.45 grams of CCC and pans received twice these amounts. Plants were lighted until October 6th, then shaded until November 1st. Measurements were made on December 22nd. Data from single plants in 4 in. pots are presented in Table 1. Similar results were obtained from plants in pans, but are not presented here.

Table 1. Influence of increasing rates of CCC on poinsettia plant development. Single plants were planted in 4 in. pots on September 15th, treated on October 2nd, and measured on December 22nd, 1961.

(Continued on Page 3)

CCC – Aid to Height (Continued)

| Grams of CCC per Pot | Plant Height* (inches) | Bract Diam. (inches) | No. of Nodes* |
|----------------------|------------------------|----------------------|---------------|
| 0 | 18.2 | 14.4 | 15.5 |
| 0.15 | 13.4 | 13.9 | 17.0 |
| 0.30 | 11.6 | 13.1 | 16.7 |
| 0.45 | 10.2 | 12.4 | 15.0 |

* Each value is the average of four replications.

Results

At the highest rate of treatment, some yellowing of lower leaves was observed shortly after application, but this chlorosis disappeared within a month.

As is apparent from the data, plant height was markedly reduced while bract diameter was only slightly affected. No delay in date of flowering was observed. In general, it was noted that the foliage of CCC treated plants was darker green than that of control plants and there was less leaf-drop from treated plants. While control plants had dropped 44 per cent of their leaves by December 22nd, plants of the medium CCC treatment had dropped 33 per cent of their leaves. It is believed that the shortened internodes, darker foliage, and greater leaf retention of treated plants more than compensates for any reduction in bract diameter. Some crinkling of the bracts was observed and this appeared to be in proportion to the rate of CCC applied. Whether this would influence consumer acceptance is not known.

Safety Factor

The above data and comments are derived from only one year's observations and one propagation date; however, they seem to be in accord with the published findings of similar tests at other universities. It is encouraging to consider that this is a material that can be applied at rates above or below the optimum with a degree of safety—less than optimum treatments show some effect, while treatments heavier than optimum do not cause permanent injury—which provides a latitude in application rates not available in many materials. This statement is not to be construed as a free ticket to splash CCC about at random, and no such meaning is intended. However, there is a natural safety factor involved which, within limits, allows for a degree of error.

Guide for Use

The following general comments may serve as a guide for the use of Cycocel on poinsettias in Massachusetts:

1. Treat red varieties only. Pink and white varieties are apparently sensitive to CCC and excessive distortion of the bracts may result from its use. More research is required before safe recommendations can be made for these varieties.
2. Apply only after plants are well rooted in

the growing medium. This should be ten to fourteen days after potting.

3. Apply in strict accordance with the directions as given on the label. One quart of material is to be added to ten gallons of water and then increments of the diluted solution added to each pot, depending on pot size. Increments are given in fluid ounces. For conversion purposes, 1 fluid ounce equals 2 table spoons, and 16 tablespoons equal 1 cup. Then the conversions work out as:

| Pot dia. (inches) | Fluid ozs. of dilute solution per pot | Tablespoons per pot | Cups per pot |
|-------------------|---------------------------------------|---------------------|--------------|
| 3 | 2 | 4 | 1/4 |
| 4 | 3 | 6 | 3/8 |
| 5 | 4 | 8 | 1/2 |
| 6 | 6 | 12 | 3/4 |
| 8 | 8 | 16 | 1 |

These dosage rates are very nearly equal to those used as the medium treatment of CCC shown in Table 1.

4. CCC is dissipated in the soil after six to eight weeks. Early propagations may need a repeat application to provide continuing control. Repeat applications at a six week interval or when stretch of the terminal internode is observed. (Heavier initial application will not replace multiple applications.) Do not apply Cycocel after bract formation starts, since it may severely reduce bract diameter when applied too late in the fall. The objective is early application to control stem elongation. Even CCC can't shrink plants after they have stretched!

5. When treated single plants are panned together and roots grow into fresh, untreated soil, the influence of CCC is no longer realized, so don't treat single plants just before panning. If a repeat application is called for, treat the whole pan.

6. Cycocel is not a replacement for any of the recommended cultural practices. It is an extra aid to be used in conjunction with approved growing methods.

7. Don't go all out and treat your whole crop! There is still a great deal to be learned about this material before all the possible pitfalls are known. The above recommendations are offered as the best that can be arrived at with present knowledge.

The cooperation of the Agricultural Division of American Cyanamid Company in providing basic information and CCC for trial purposes is gratefully acknowledged.

M.F.G.A. Fall Meeting
Tuesday, October 2, 1962
 University of Massachusetts
 Amherst, Mass.
