

Michigan State Research Reported:

## GROWTH RETARDANTS IMPROVE POINSETTIA ROOTING

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For more than fifty years, commercial growers have looked for measures which would improve the root formation of poinsettia cuttings. Applications of sugars, organic salts or acids were found to have little value. In 1935 several synthetic hormones which encouraged better and faster rooting of cuttings were discovered. Since then, many chemicals have been found which affect plant growth.

Within the last several years, commercial growers have made use of plant growth-retarding chemicals for controlling the height of their plants. These chemicals also affect rooting. Dipping cuttings of chrysanthemum, dahlia, and geranium into solutions 1000 to 5000 parts per million B-Nine (Alar) for 10 to 15 seconds before planting stimulates root formation.

Drs. Carlson and Carpenter of Michigan State University reported their findings with drenches of plant growth regulators to improve poinsettia rooting. The purpose of their experiments was: (1) compare the effects of plant growth-regulating chemicals on the rooting of cuttings and (2) determine if rooting hormones and growth-regulating chemicals used together would improve rooting more than the chemical alone.

Terminal cuttings were taken of poinsettia varieties Eckespoint C-1, Red D-1 and D-3 from stock plants in late August. Half the cuttings of each type were dipped

in 0.1% IBA (Hormone No. 1) and placed in "sterile" sand under an intermittent mist system. All cuttings were treated with growth regulators applied as a single drench on the sand immediately after sticking. After four weeks the cuttings were removed. Root count and the fresh weight of the roots were determined.

Table I. Plant growth regulators' effect on the rooting of cuttings of three poinsettia cultivars.

Chemical	Roots per cutting*		Average fresh wt. of roots per cutting (in grams)	
	0.1% IBA	No IBA	0.1% IBA	No IBA
100 ppm CCC	27.13	9.53	4.3	1.2
1250 ppm B-nine	19.53	10.73	2.5	1.6
625 ppm B-Nine	14.53	15.47	2.4	2.5
Check	8.67	6.07	1.3	.8

\*25 cuttings per treatment

As shown in Table 1, the plant growth-retarding chemicals produced more roots per cutting and increased the average fresh weight for roots. The experiments also show that these chemicals and rooting hormones worked together to improve root formation. Cuttings treated with 0.1% IBA plus a growth-retarding chemical had greater root numbers and length than growth-retardant treatment alone, except in the 625 ppm B-Nine treatment.

A Cycocel (CCC) drench at 100 ppm on 0.1% IBA-treated poinsettia cuttings gave the largest number of roots per cutting with the largest root weight. Therefore, Carlson and Carpenter conclude that the growth retardant most effective in controlling

a plant species' height is also best in increasing its rooting providing the proper concentration for rooting is used.

Among the cultivars, C1 Red had more and heavier roots than did D1 or D3.

These experiments suggest that commercial growers might make use of plant growth-retarding chemicals to improve the rooting of greenhouse crops. Growers will in most instances get better results by combining rooting hormones with a drench of a plant growth-retarding chemical.

Commercial growers interested in improving the root formation of cuttings should conduct small scale experimental plots to determine the optimum levels of plant growth-retarding chemicals and to make comparisons with and without rooting hormones. The grower's own experiments will give the best indication of concentration and specific growth-retarding chemical to be used with or without hormones to improve the root formation of his cuttings.