

STIMULATION AND RETARDATION OF ADVENTITIOUS ROOT FORMATION BY
APPLICATION OF B-NINE AND CYCOCEL

Paul E. Read¹

Abstract:

Geranium cuttings dipped momentarily in solutions of several concentrations of B-Nine produced significantly greater weight and numbers of adventitious roots than did untreated cuttings. Concentrations of 1000 ppm, 2500 ppm and 5000 ppm were effective, with 2500 ppm optimum. Conversely, similar treatments of Cycocel caused a marked depression of adventitious root production. As rate of Cycocel was increased, production of adventitious roots diminished, suggesting corroboration of research proposing Cycocel's behavior as being that of an "anti-auxin".

Research conducted at the University of Minnesota has demonstrated the potential of B-Nine for stimulation of rooting of geranium, chrysanthemum, and dahlias. Cuttings dipped for 15 to 30 seconds in 2500 ppm B-Nine rooted as much as ten days faster than untreated cuttings and 5 to 7 days faster than cuttings dipped in indolebutyric acid powder. If all cuttings were harvested at the same prescribed time, the weight of roots produced by B-Nine treated cuttings was twice that of untreated cuttings. (See Tables 1,2). This resulted because of a larger number of roots produced, together with greater root length and root branching. Rates of 5000 ppm were more effective in root promotion on cuttings from "hard" stock plants which were slow growing or not in a desirable stage of nutrition. As might be expected, resulting plants were of excellent green color and of a stocky nature, bearing high quality blooms as early or earlier than the untreated cuttings.

¹ Assistant Professor, Department of Horticultural Science, Univ. of Minnesota

Table 1. Effect of Stem Dips of B-Nine and CCC on Rooting of 'Minn White' Chrysanthemum Cuttings.

Treatment	Mean Fresh Root Wt. (gm)	Mean Dry Root Wt. (gm)	Mean No. of Roots	Mean length of Longest Root (mc)
Control	1.32	.0336	8.0	5.46
B-9 1000 ppm	2.64	.0725	12.6	6.86
B-9 2500 ppm	3.56	.0920	15.2	7.24
B-9 5000 ppm	2.76	.0816	13.2	6.73
CCC 1000 ppm	0.74	.0207	5.0	3.30
CCC 2500 ppm	0.62	.0168	5.4	2.92
LSD .05	0.47	.0085	2.5	0.74
LSD .01	0.64	.0116	3.4	1.02

Table 2. Effect of Growth Regulator Stem Dips on Rooting of 'Carefree' Geranium (Light Salmon) Cuttings.

Treatment	Mean Fresh Root Wt. (gm)	Mean Dry Root Wt. (gm)	Mean No. of Roots	Mean length of Longest Root (cm)
Control	2.10	.0672	11.00	6.60
B-9 2500 ppm	3.92	.1529	16.00	8.99
B-9 5000 ppm	4.32	.1749	17.80	9.02
CCC 1000 ppm	0.76	.0194	6.60	2.59
IBA 1000 ppm	2.84	.0881	13.60	7.49
B-9 2500 ppm and IBA 500 ppm	4.24	.1684	18.00	8.13
CCC 1000 ppm and IBA 1000 ppm	1.34	.0401	8.80	4.83
LSD .05	0.75	.0247	3.38	1.19
LSD .01	1.00	.0329	4.49	1.57

Cycocel dips, however, severely retarded rooting of cuttings, suggesting that a grower should avoid the use of Cycocel on stock plants prior to taking cuttings from such plants.

Research is presently underway to determine usefulness of B-Nine as a root promoting chemical for other plants propagated by cuttings, especially carnation, poinsettia, and certain woody plant species. In addition, experiments designed to learn more about the nature of the root-promoting ability of B-Nine, along with interaction of other growth regulating chemicals are being developed.