

Research Note

DWARFING EFFECT OF ETHREL (2-CHLOROETHYLPHOSPHONIC ACID) ON *CORDYLINE TERMINALIS* VAR. *BABY DOLL*¹

Plant growth is physiologically regulated inside the plant by the action of different hormonal growth factors working through interaction or alone.

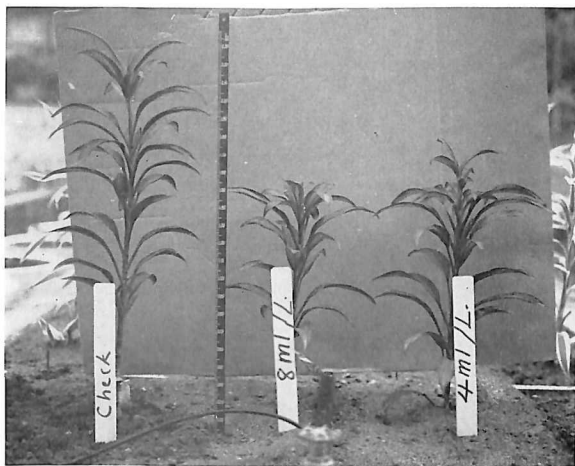


FIG. 1.—Effect of different concentrations of Ethrel on *Cordyline terminalis*, var. *Baby Doll*. Reduction in vertical growth of treated plants, center and right, is evident compared with left untreated plant.

Many of these factors exert antagonistic effects while others act synergistically. Many synthetic compounds such as “growth retardants” and “morphactins”² have been found to produce growth-modifying behavior.

Ethrel³ (2-chloroethylphosphonic acid) has been found to influence such

¹ Manuscript submitted to Editorial Board January 24, 1972.

² Schneider, G., Morphactins: Physiology and performance, *Ann. Rev. of P.R. Physiol.* 21: 499-536, 1970.

³ Ethrel is the commercial brand of 2-chloroethylphosphonic acid manufactured by Amchem Products Inc., Ambler, Pa. Trade names and names of commercial or-



FIG. 2.—Effect of approximately 4,000 p.p.m. of Ethrel solution on leaf expansion and vertical growth of *Cordyline terminalis*, var. Baby Doll. The treated plant assumed a rosette-like appearance.

plant processes as flowering, elimination of apical dominance, epinasty, fruit ripening and abscission, sex expression, dwarfism and others.⁴ The changes have taken place as a result of the acid hydrolysis of the compound generating ethylene. The ornamental plant industry offers unlimited possibilities for the practical use of plant growth-modifying compounds such as Ethrel.

organizations are used in this publication solely to provide specific information. Mention of a trade name or manufacturer does not constitute a guarantee, warranty or endorsement by the Agricultural Experiment Station, Mayagüez Campus, University of Puerto Rico.

⁴ de Wilde, R. C., Practical applications of (2-chloroethyl) phosphonic acid in agricultural production, Hort. Sci. 6(4): 364-70, 1971.

Ethrel in a water solution was applied without a sticker at two different rates plus a check to potted *Cordyline terminalis* plants var. Baby Doll. The rates were 0 for the check, and 4 ml. and 8 ml. per liter, respectively, of the ACP 250 formulation. The two rates were equivalent to 2,000 and 4,000 p.p.m., approximately.

The terminal leaves of the treated plants began to show modification in growth after 2 weeks from date of application. The first symptom was a wave-like appearance of the terminal leaves. This symptom was followed by a reduction in size and a temporary cessation of terminal growth, especially at the high concentration (figs. 1 and 2). Figure 1 shows the marked reduction in height of the treated plant as compared to the check. It can be observed that with only 4 ml./liter the reduction of terminal growth is already evident. Figure 2 shows the effect of a higher rate of application on growth. Growth was practically suppressed and the form of the leaves modified.

Further trials with Ethrel and other compounds are needed for practical application in the growth of ornamental plants, especially to modify their natural habits.

Saulo J. Rodríguez
Alejandro Santiago
Carlos Rivera López
Department of Plant Breeding