Some Observations on the Effect of Growth-Retardant Chemicals on Ace Lily Plants

HAROLD E. WHITE, *Department of Horticulture*
University of Massachusetts, Amherst, Mass.

This past year two growth retardant chemicals were used on Ace lily plants. The two chemicals were: CC (2-chloroethyl-trimethyl ammonium chloride, 50% aqueous solution) and phosphon-D (2-4-dichlorobenzyl-tributyl phosphorium chloride, one form being a 10% powder and the other technical phosphon-D).

The CC was applied at rates of 4, 10, and 20 grams per cubic foot of soil, whereas, the technical phosphon-D was applied at rates of 1½, 2¼, and 3 grams per six-inch pot of soil. The 10 per cent phosphon-D was applied at rates of 1, 1½, and 2 ounces per cubic foot of soil. The rate of application of technical phosphon-D should supply approximately the same quantity of active chemical as that applied at the ounce rate for 10 per cent phosphon-D. All chemicals were applied in a liquid form to each six-inch potted lily plant.

Treatments were made to the lily plants when they were about 6 inches high. Two plants were used in each treatment and replicated four times, making a total of eight plants per treatment. The soil was moist at time of treatment and a light watering followed application of the chemicals. The cultural temperature ranged from 60 to 65°F. Plant height measurements were made at time of treatment.

A week to ten days following treatment it was observed that all treatments with technical phosphon-D caused the plants to turn bright yellow color and growth became stunted. The roots of the plants showed some injury in form of browning but in most instances it did not appear to be very severe. Dissection of the stems of injured plants showed the vascular portions to have turned brown all the way to the tip of the plant. Some of the plants which showed less injury than others, never made any normal growth. Even though buds formed they did not develop to the opening stage.

Plants treated with the 10 per cent phosphon-D at same active material rates as with the technical phosphon-D showed no injury at all.

(Continued on Page 2)

Some Observations *(Continued)*

Although only one application of all the chemicals was made, no reduction in plant height was observed in plants treated with 10 per cent phosphon-D and the CC when compared to untreated plants.

Research workers at Beltsville have reported treatment of Georgia Easter lily plants with phosphon-D at rates used here, but indicate that some injury occurred only at the highest rate of application; 3 grams and 2 ounces per cubic foot soil.

One might attribute the injury from phosphon-D treatments at Amherst to some variation in cultural conditions, varietal differences or other factors. However, personal reports from several Extension workers in our area revealed that a number of growers who used the phosphon-D experimentally, fortunately, on a few Croft lily plants only, experienced similar type of injury to plants they treated.