SUMAGIC ON EASTER LILIES

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Height control of Easter lilies has been a concern of growers since Easter lily forcing began. Growers are encouraged to maximize environmental factors that help prevent excessive stretch—avoidance of overcrowding, proper temperature control, use of DIF, when possible—as the first line of defense in lily height control and to then use chemical height control as needed. Sumagic has been shown to be an effective height control chemical for Easter lilies, and we commented on the use of Sumagic for Easter lilies in the December, 1991 issue of the Bulletin (Consider sumagic for your Easter lilies, N.C. Commercial Flower Growers' Bul. 36(6):12–13). For the past two years, we have conducted chemical height control studies on Easter lilies in a commercial greenhouse to help "fine-tune" rate recommendations for North Carolina conditions. For the sake of space, we will only discuss the results from our 1993 tests.

Materials and Methods

'Nellie White' (9/10's) bulbs were potted into 6" pots in Fafard lily special on 23 October 1992 and grown following commercial CTF procedures (allowed to root in 63 °F greenhouse, placed into a 40 °F cooler on 9 November 1992, then placed in the greenhouse for forcing on 21 December 1992). Each pot was subjected to one of eight height control treatments: 1) untreated control; 2–3) sprayed once or twice with 50 ppm A-Rest; 4) sprayed once with 10 ppm Sumagic; 5) sprayed once with 10 ppm then with 20 ppm Sumagic; 6–7) sprayed once or twice with 20 ppm Sumagic; or 8) drenched once with 0.09 mg a.i. Sumagic. All spray treatments were applied using 2 quarts of spray solution per 100 ft^2 of bench area. The drench treatment was applied in a 4 fluid ounce solution per 6" pot. The first treatments were made on 15 January 1993. Plants averaged a shoot length of 3.5 ± 0.4 inches at the time of first application. On 2 February 1993, shoot length was measured for all plants, and plants slated to receive two sprays were given a second application of growth retardant. Plants were forced into flower for the Easter holiday, and final data was taken on shoot length (from the top rim of the pot to the top of the inflorescence), date of anthesis (when pollen was first shed), and total number of flower buds per plant.

Results

There were already significant differences in plant height by 2 February 1993, when second applications were made for treatments 3, 5, and 7 (Table 1). By the second treatment date, Sumagic-treated plants had less elongation than A-Rest treated plants. There was no significant difference in flowering date; 1 April 1993 was the average date of anthesis for the first flower per plant. Treatments did not affect the number of flower buds per plant, and plants averaged 7.5 ± 1.2 buds. Final plant height measurements were made 8 April 1993, and treatments did affect shoot elongation (Table 1). The untreated controls; 1× and 2× 50 ppm A-Rest; and 1× 10 and 1×20 ppm Sumagic spray-treated plants did not differ statistically in shoot elongation, though the 1×20 ppm Sumagic-treated plants tended to be shorter than the other treatments in the list. The 10 ppm + 20 ppm Sumagic spray, 2×20 ppm Sumagic spray, and the 0.09 mg a.i. Sumagic drench treatments all resulted in plants

Table 1. Effects of A-Rest and Sumagic on Easter lilies.*

Treatment	Plant height on 2/2/93** (inches)	Plant height on 4/8/93** (inches)
Control	6.0 ab	20.7 a
1× 50 ppm A-Rest spray	6.2 a	20.6 a
2× 50 ppm A-Rest spray	6.3 a	20.8 a
1× 10 ppm Sumagic spray	5.5 bc	20.8 a
10 ppm + 20 ppm Sumagic spray	5.2 c	15.0 c
1× 20 ppm Sumagic spray	4.9 c	18.9 ab
2× 20 ppm Sumagic spray	5.3 c	14.4 c
1× 0.09 mg a.i. Sumagic drench	5.4 bc	16.9 bc

*Mean separations within columns by SNK at the 1% level.
**Plant height was measured from the top rim of the pot to the top of the infloresence.

significantly shorter than the controls or A-Rest-treated plants. The 10 ppm + 20 ppm Sumagic treatment was originally intended to be a 2× 10 ppm Sumagic treatment. The second application at the higher concentration was due to "operator error" on our part. Still, this treatment did not result in excessively short lilies (nor did any other treatment we used in this study).

Conclusions

The desired height for your lily crop should be based on customer preference. We advocate growing plants to the height that will sell best in your market. If past experience indicates your Easter lilies require chemical height control, you may want to consider using Sumagic in place of A-Rest. Based on average costs for the two chemicals ($46/quart for A-Rest and $80/quart for Sumagic) and pot-to-pot spacing, your chemical cost per plant for two 50 ppm A-Rest sprays (which was not very effective in our study) would be 8.71¢ and would be 3.20¢ for two 20 ppm Sumagic sprays (the most effective treatment in our experiment).

The amount of Sumagic or A-Rest you will need will be dependent on your growing conditions, the amount of bark in the substrate, and your targeted plant height. A good starting rate for Sumagic sprays under our growing conditions and with a high percentage of bark in the substrate would be 15 ppm, applied when plants average 3 inches in shoot length. Make the decision about a second application when plants average 6 inches. Adjust the rate up or down as needed. If your substrate has little or no bark, use a starting rate of about 8 ppm for a Sumagic spray. Our experiences and those of other researchers suggest that multiple applications at lower rates result in a more attractive product (and offer more flexibility in height control) than a single application at a higher rate. The 0.09 mg a.i. rate would be a good drench rate to use for Sumagic on Easter lilies. Using the Sumagic price given previously, the chemical cost per pot for this treatment would be 1.52¢. Again, the target height for your crop will vary, and we are not suggesting you need to grow 20.4" (plant + pot height) lilies. Grow what will sell for you! One final note: if you decide to trial Sumagic as a chemical growth retardant treatment this year, make sure you include an untreated control to serve as a check.