

WORKS LIKE MAGIC

Research shows a preplanting bulb dip in Sumagic can control the height of oriental lilies.

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H EIGHT control of lilies is almost always difficult. Most oriental lilies and the recently introduced Asi-florum lilies (*Lilium longiflorum* crossed with Asiatic lilies, sometimes called LA Hybrids) naturally grow tall, easily exceeding the optimum market height if unchecked by growth regulators. Bulb size determines final height as well: the larger the bulb, the taller the plant will grow.

While postplanting drenches and foliar sprays of growth retardants are common height control methods, they seldom control the initial elongation of oriental lily shoots after planting: stems elongate rapidly on emergence, bulbs have few (if any) roots to soak up growth regulators, and immature leaves are furled too tightly to allow a spray to be absorbed readily.

Before conducting our trials, we speculated that a preplanting bulb dip might deliver growth regulators more efficiently to the plant just after planting without delaying time to flower or the number of flower buds. We also **wanted to determine** what effect a dip treatment might have on bulbs of different sizes.

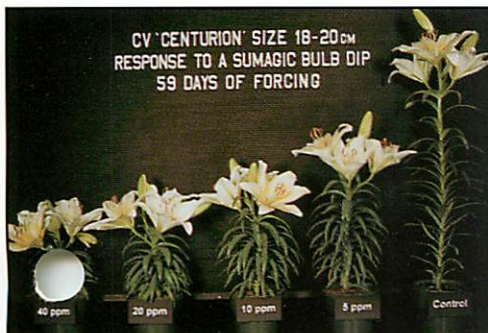


Figure 1. Effect of Sumagic bulb dip concentration on 'Centurion' lilies after 59 days of forcing at 68°F.

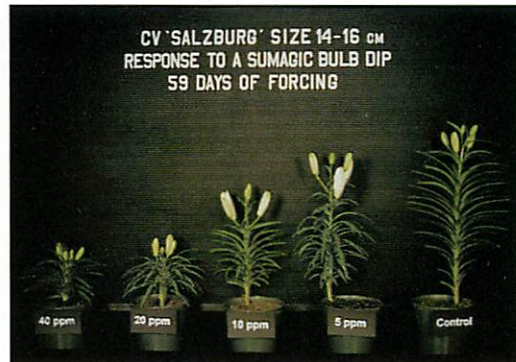


Figure 2. Effect of Sumagic bulb dip concentration on 'Salzburg' lilies after 59 days of forcing at 68°F.

Nip Growth In The Bulb

In our experiment, bulbs of oriental ('Stargazer' and 'Mona Lisa') and Asi-florum ('Centurion,' 'LA-87,' 'Non-stop,' 'Salmon Queen,' and 'Salzburg') lilies were dipped in Sumagic solutions of 5, 10, 20, or 40 ppm or pure water (0 ppm) for 1 minute. The treated bulbs were potted individually in 6-inch standard pots, with five plants per treatment and bulb size, and grown in a 68°F greenhouse under natural light and photoperiods.

Data taken were day of emergence, visible bud, and anthesis, as well as flower bud and leaf number. From these data, we calculated days from planting to emergence, visible bud, and anthesis, and from emergence to visible bud and anthesis.

The Sumagic Solution

The results showed the highest Sumagic bulb dip concentration produced the shortest plants at flower (Figures 1 - 4). At lower concentrations (0, 5, and 10 ppm), the Asi-florum cultivars (Figures 1 and 2) were more responsive to Sumagic than the oriental lily cultivars (Figures 3 and 4).

All Asi-florum plants from bulbs dipped in 5 ppm of Sumagic were significantly shorter than controls, while Sumagic concentrations of 10 ppm or more were required to keep 'Stargazer' and 'Mona Lisa' significantly shorter than controls.

Dip concentrations of 20 ppm or lower did not affect time to emergence or flower for any cultivar, but some plants from bulbs dipped in the 40 ppm solution exhibited delayed emergence and flowering.

An Effective Alternative

Regardless of concentration, Sumagic had no effect on the number



Figure 3. Effect of Sumagic bulb dip concentration on 'Stargazer' lilies (bulb size 12-14 centimeters) after 110 days of forcing at 68°F.



Figure 4. Effect of Sumagic bulb dip concentration on 'Stargazer' lilies (bulb size 14-16 centimeters) after 110 days of forcing at 68°F.

of flower buds, flowers that aborted, or leaves at flowering. Bulb size did affect the final height of the plant, and within a cultivar, height of plants from smaller bulbs was suppressed more than that from larger bulbs (compare Figures 3 and 4).

We found that dipping oriental and Asi-florum lily bulbs in Sumagic at 20 ppm or lower was an effective alternative to postplanting drenches or sprays to reduce stem elongation and final height.

The dip treatments did not compromise the number of flowers and leaves produced, and they reduced the need for postemergence growth regulator sprays. Since cultivars responded differently to similar dip concentrations, any bulb dip treatment should be at 10 ppm or lower to avoid excessive reduction in stem elongation.

We are working with Valent U.S.A. to obtain labeling for Sumagic as a lily bulb dip. Preliminary results show Easter lily is much more sensitive to

Sumagic dips, so until further research is conducted, Easter lily bulb dip treatment are not recommended.



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