

North Carolina Flower Growers' Bulletin

\$4.00



Volume 51, Number 6a
December 2006

Official Publication of the North Carolina Commercial Flower Growers' Association

Controlling Easter Lily Growth With Topflor Pre-Plant Bulb Soaks and Drenches

Brian E. Whipker, Ingram McCall, and Brian A. Krug
North Carolina State University, Raleigh, North Carolina

Several plant growth regulators (PGRs) are currently commercially recommended to control growth of Easter lilies. Sumagic has been recommended as a substrate drench (0.03 to 0.06 mg/pot) or as a foliar spray (3 to 15 ppm) when the shoots are 3 in tall. Researchers in the 1980's investigated the effectiveness of A-Rest as a pre-plant bulb soak, but the practice was not adopted commercially because of inconsistent results. Pre-plant Sumagic soaks to Asiatic hybrid lilies have been reported to be more effective than substrate drenches. Sumagic pre-plant bulb soaks of 0.25 to 10 ppm ranging from 1 to 30 min, with lower concentrations soaked for longer durations were found to be effective in controlling excessive plant growth of Easter lilies and hybrid lilies. Topflor is a new PGR being introduced by the SePRO. We have conducted extensive testing of the product at North Carolina State University over the past 5 years. It has excellent substrate activity and we wanted to test the efficacy of Topflor as pre-plant bulb soaks and substrate drenches on Easter lilies for height control.

Experimental Methods

The Fred C. Gloeckner & Company donated the pre-cooled Nellie White Easter lily bulbs. On 13 Dec. 2005, pre-plant bulb soaks of 0.38% Topflor at 1.25, 2.5, 5, 7.5, 10, or 20 ppm were applied for 5 min. The bulbs were allowed to air-dry overnight prior to potting. The treated 9/10 cm bulbs and another group of bulbs to receive substrate drenches were potted, 1 bulb per pot, in 6 inch diameter standard pots on 14

Dec. 2005. A peat-based substrate Berger BM 6 was used. Plants were placed in a greenhouse under natural day lengths after potting with day/night temperature set points of 68/65° F. Plants were fertilized weekly with 150 ppm using 15-0-15. Substrate drenches were applied on 12 Jan. 2006 when shoots were 3 to 4 inches tall. Substrate drenches (in mg active ingredient per pot) were applied with 4 oz solution per pot at 0.02, 0.04, 0.08, 0.16, or 0.24 Topflor; or as a comparison 0.03 or 0.06 mg/pot Sumagic.

Study Results

Substrate drenches. Topflor substrate drenches >0.04 mg/pot (18.9 inches) resulted in plants 28% shorter than the untreated control at 26.1 inches tall (Figure 1.) With the use of >0.04 mg Topflor, flowering date was not delayed and the bud count was similar to the untreated control. The 0.02 mg/pot concentration was not significantly different than the untreated control because of the plant-to-plant variation. Plants treated with 0.08 mg/pot of Topflor were 15.6 inches tall, which was 40% shorter than the untreated controls. This rate may be too high.

Pre-plant soaks. Topflor pre-plant bulb soaks were extremely effective in controlling plant growth of Easter lilies (Figure 2). Topflor soaks of 1.25 ppm resulted in plants, which were 28% shorter than the untreated control. With 1.25 ppm soaks, the shoot emergence and flowering date were not delayed, and flower bud count was the same as the untreated control. ▶

(Continued on page 2)

Increasing the rate to 2.5 ppm delayed flowering by a week. Rates higher than 2.5 ppm were excessive.

Summary

Topflor is suitable as a substrate drench at 0.04 mg/pot or a pre-plant bulb soak at 1.25 ppm with Easter lilies. Both treatments provided comparable control, with the plants being 28% shorter than the untreated control. Rates were similar to those recommended for Sumagic as either a substrate drench or pre-plant bulb soak. Given the price difference between Sumagic and Topflor, the use of Topflor will result in about 60% savings of the PGR costs. For growers using foliar sprays, Sumagic still appears to be the most feasible option. The results reported here should be considered as preliminary rates. We will be confirming these rates in the upcoming year by repeating the study. You may wish to conduct your own small trial to determine the effects of Topflor substrate drenches or pre-plant bulb soaks under your growing conditions.