

'ARAI' LILY GROWTH AS AFFECTED BY A-REST

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Many varieties of Easter lilies have higher bud counts and cost less than Ace, Nellie White and other short growing varieties. Their principal fault is a tall growth habit. Growth regulators now make it possible to grow varieties such as the old Gig, Georgia, Harrisii and others as pot plants.

In pursuit of this goal, *Lilium longiflorum* 'Arai' bulbs were treated with A-Rest (ancymidol, a new growth regulator formerly called Quel or EL-531) and/or Phosphon (Figure 1). There were 33 treatments with 5 selected pots per treatment (from 200 pots, 165 were selected for uniformity, subgraded to 5 blocks, then assigned to treatments) to remove some of the variability inherent in the variety.



Figure 1. Reduction in height of 'Arai' lilies due to applications of A-Rest and/or Phosfon.

Unfortunately, it appears that the bulbs had been excessively precooled. The tallest plants were only 25" (61 cm) tall and had an average bud count of 3.0.

This indicates that the low bud count is only partially due to excessive growth regulator application early in the forcing period. In 18 treatments that were of acceptable height, the bud count was 3.28. In the 15 treatments with excessive height reduction, the bud count was only 2.68.

Lima beans are dwarfed when Phosfon dust is applied to the seed. To test this technique for lily bulbs, Phosfon-D (200 mg 10%/bulb) was shaken onto the bulb in a plastic bag, then bulb and any extra dust in the bag were planted. This rate was not sufficient to induce shorter growth of 'Arai'.

Phosfon L was applied on January 10 to 6 treatments at 150 mg ai/pot (1 1/3 fl. oz./gal., 5 oz. solution/5" pot). This treatment resulted in a 25% reduction in height.

A-Rest was applied as a spray from 1 to 4 times at 100 ppm with Phosfon D or L. It was also applied alone from 1 to 3 times at 150 ppm. At both 100 and 150 ppm, some burning of the foliage occurred (Figure 2). This was not immediately obvious since it apparently happened in the whorl of leaves at the growing point where excessive spray collected. The burn would indicate that much caution is needed in this manner of application.

A-Rest was also applied as a drench at .04, .075, .15 and .30 mg ai/pot at 1, 2 and 3 times. The height summary is given in Figure 3 along with the total quantity of A-Rest applied. It would appear that, in this experiment, a drench of .15 to .30 mg A-Rest/5" pot gave acceptable height reduction (Figure 4). It should be emphasized that these lilies were abnormally short and the higher rate might be more appropriate



Figure 2. Foliar burn due to 100 ppm A-Rest spray. This burn occurred when spray accumulated in the tight whorl of leaves at the growing tip.

for more normal bulbs. There is no apparent advantage to split applications.

Early applications of A-Rest may delay flowering along with the dwarfing effect. Figure 3 shows flowering delay at excessive rates of A-Rest. The applications were made when some plants were less than 2" tall. A later treatment date would have reduced the flowering delay.

For growers wishing to try tall growing varieties as pot plants, these results would suggest using .2 to .3 mg ai A-Rest per 5" pot. The amount of water is not critical provided leaching does not occur. These treatments were applied by diluting one ounce of 0.026% A-Rest per gallon of water to provide 0.3 mg in 5 fluid ounces of water per 5" pot. The suggested height for treatment is 4" while 2" is a minimum and over 6" is likely to result in a "palm tree effect."

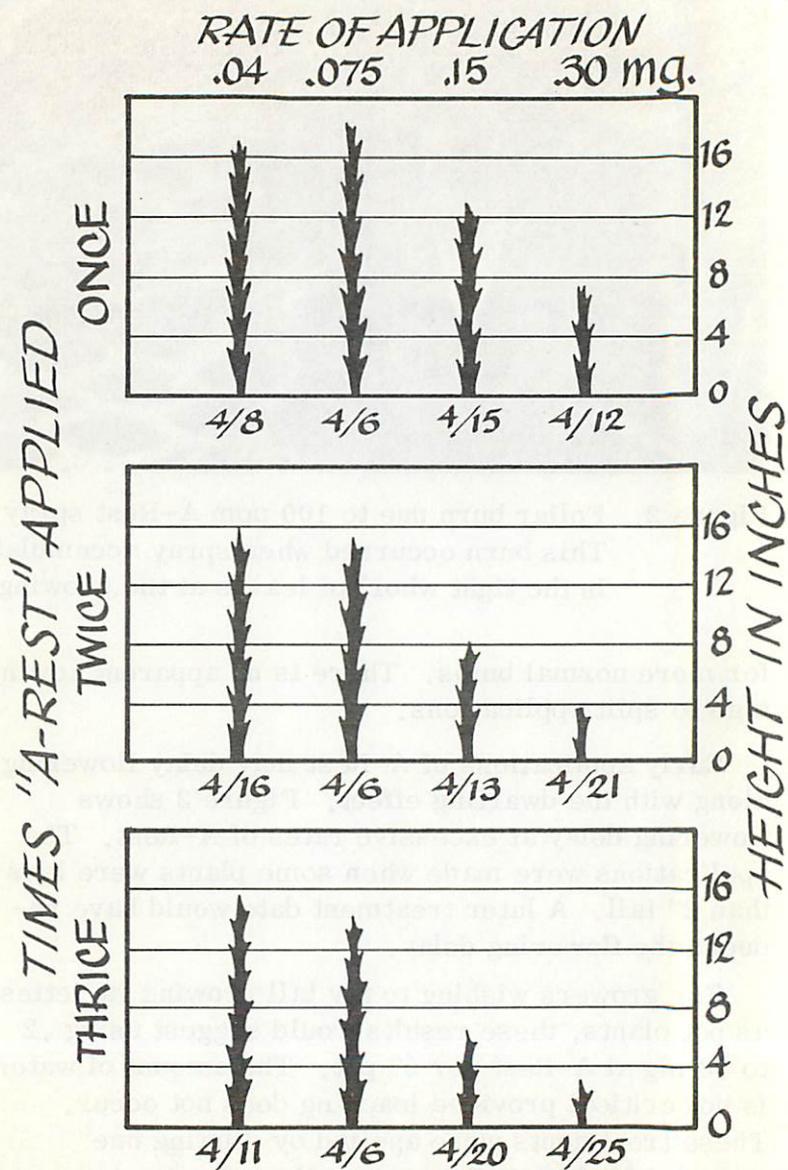


Figure 3. Effect of A-Rest drenches on height and date of flowering of *Lilium longiflorum* 'Arai' grown in 5-inch pots. The low rates of application did not differ from the control.



Figure 4. 'Arai' lilies treated with 0.4, 0.75, 1.5 and 3.0 mg. A-Rest.



Figure 5. Severe height reduction and flowering delay accompanies excessive application of A-Rest on 'Arai' lilies.