The influence of bulb-dips on the height of hybrid lilies grown in warm temperatures

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The purpose of this study was to test the hypothesis that hybrid lilies grown at warm temperatures (60°F) would produce short, good quality plants following bulb-dips of ancymidol (A-Rest).

It is generally recommended that "hybrid" or "Asiatic" lilies be grown at a night temperature of 50 to 55°F and maximum day temperatures of 70 to 75°F. However, the amount of 50°F greenhouse space is frequently limited during the time of the year when lilies are grown. Since 60°F space is more available, lilies were grown using this night temperature. On sunny days, day temperatures reached 80°F. These higher temperatures normally cause lilies to stretch and become too tall.

Cultural information received with the lily bulbs indicated that 'Enchantment' and 'Lemonglow' responded to ancymidol drenches. Two drenches are suggested; 1) 0.125 mg in 4 oz water, used upon shoot emergence (1-2"), and 2) 0.250 mg in 4 oz water, applied one week later. In two trials, one year apart, this sytem was ineffective in reducing plant height.

In 1982, Lewis and Lewis reported that ancymidol bulb-dips reduced the height of easter lilies.[1] Subsequently, we treated 'Ace' lilies with ancymidol and observed a dramatic reduction in height. Therefore, based on these findings, two experiments were conducted in which bulb-dips of varying concentrations were used on hybrid lilies. These lilies were then grown at a 60°F night temperature during the February to April period in botn 1984 and 1985 using one hundred each 5/6 size 'Lemonglow' lilies and 6/7 size 'Enchantment' lilies.[2] The two varieties were arranged into five groups of 20 bulbs

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[1] A. J. Lewis, and J. S. Lewis. "Do ancymidol bulb-dips affect the height of Easter lilies"? Florist's Review, No. 1, 1982, pp. 24-26.

[2] Supplied through the courtesy of the Fred C. Gloeckner Co.

each. The first group was a control and given no ancymidol drench. The second group was treated with 4.125 ppm (2 fl. oz/gal), the third with 8.25 ppm (4 oz/gal), the fourth with 16.5 ppm (8 oz/gal), and the fifth at 33 ppm (16 oz/gal).

The bulbs were dipped in their respective solutions for five seconds and allowed to drain for one minute before planting in four and one-half inch square plastic pots. The root medium was a 1:1:1 (one part composted soil, one part coarse peat, and one part coarse perlite amended with superphosphate, lime, 'Electra', and 14-14-14 Osmocote). The bulbs were planted about 3/4" above the bottom of the pot. They were then placed pot to pot on a capillary mat in a 60° F house on a raised bench and drenched with "Banrot". As the lilies emerged, they were spaced evenly on the mat according to height. The pots were capillary watered from the mat except for manual spot watering from the top when necessary. The plants were fertilized from the top every ten days with a 19-4-24[3] fertilizer at 345 ppm N until the experiment was terminated and data collected.

Ancymidol bulb-dips reduced the height of hybrid lilies grown at warm temperatures proportional to the increase in concentration of the ancymidol drench. Flowering was delayed from a few days to a week, the delay generally increasing with the concentration. Ancymidol did not affect the bud count, flower size or color. Leaves were smaller and internodes closer together with increased concentrations. The number of leaves varied only slightly. Root growth appeared to be proportional to the size and growth of the plant.

It can be concluded that ancymidol bulb-dips do produce short, good quality hybrid lilies at 60° night temperatures. The amount of ancymidol used should depend upon the desired height of the finished product and the time of the year when it is grown. In these tests the 16.5 ppm bulb-dip generally produced the most desirable plants. It is suggested that if higher temperatures are used, higher concentrations of ancymidol will have to be used to counteract those higher temperatures.

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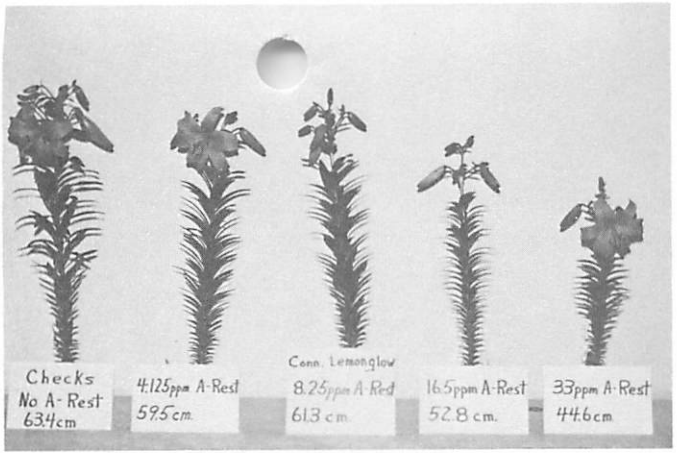
[3]See UConn mix in Bul. #85-2, Nutrition of Greenhouse Crops.



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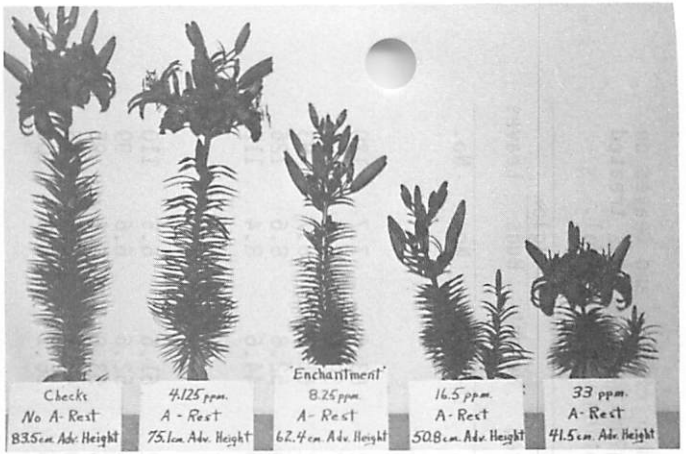

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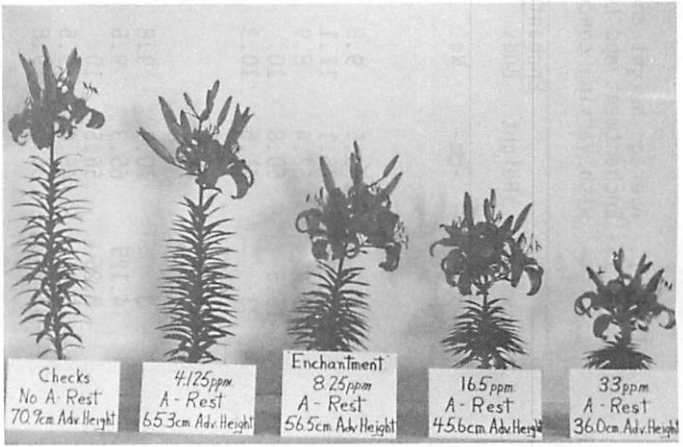

1985

Table 1. Average height and number of buds and leaves on Enchantment and Lemonglow hybrid lilies treated with varying concentrations of ancymidol.

Ancymidol	Enchantment			Lemonglow		
	Height	Buds	Leaves	Height	Buds	Leaves
-ppm-	-cm-	No.	No.	-cm-	No.	No.
			1984			
0	83.5	9.8	192	63.4	7.7	120
4.125	75.1	11.1	187	59.5	8.6	99
8.25	62.4	8.9	172	61.3	8.7	93
16.5	50.8	10	175	52.8	8.6	126
33	41.5	10.3	184	44.6	8.4	112
			1985			
0	70.9	9.8	182	61.6	6.5	110
4.125	65.3	9.5	179	52.6	6.6	99
8.25	56.5	10	165	53.8	6.5	95
16.5	45.6	9.5	170	42.1	6.5	116
33	36.0	9.8	175	36.2	6.0	100

Humates for greenhouse soils

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Don't bother!

You may think this is an unusual way to begin a note. It is. But humates have been suggested as a soil treatment with glorious glamour.

Humates are defined as "oxidized lignites" according to Larry J. Cihacek, Extension Plant Nutritionist, New Mexico State University. Why New Mexico? This is an area where humates are mined and extensive beds of "oxidized lignite" occur. Formations in the La Venta-Cuba area of New Mexico range from 460 to 820 feet thick! This seems to be a vast resource. Is it valuable?

"The mined product is crushed, pulverized and usually fortified with commercial fertilizer", according to Cihacek. It doesn't contain significant amounts of nutrients necessary for plant growth.

Humates are related, roughly speaking, to the humic acids which are the residues of organic materials which may have passed through the pathways of microbial degradation of organic matter. Commercial humates appear to be less efficacious than the humic acids which occur naturally in greenhouse root media.

According to Cihacek, humates have been sold as soil amendments at a rate of 600 lbs. per acre. This is about 0.2 ounces per square foot. Since they contain only 1.2 to 1.5% nitrogen and only 2 to 3% probably becomes available each year, this is negligible. Most water used in irrigating greenhouse crops contributes far more nitrogen than this.

Humic acids have been shown to stimulate plant growth under certain circumstances, usually in hydroponic culture studies. This may be due to the chelating properties of humic acids. It is estimated that 600 lbs. of humates applied per acre might produce 18 lbs. (600 x 3%) of low molecular weight bioactive compounds. Cihacek compares this with the residue of a corn crop which would contribute 2500 lbs. Remember that 1% organic matter in a soil is equivalent to 20,000 lbs.

Mined lignite humates are relatively inert. They are higher in carbon and lower in oxygen than naturally occuring