

Shorter-Stemmed Easter Lilies

blooms produced in April on shorter-stemmed plants by using variable low temperatures during portions of forcing period

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Commercial Easter lily forces frequently have finished plants that are too tall. Shorter plants can be obtained by forcing at lower than the usual night temperature of 60°F. However, such plants—forced at low temperature—need a long forcing period and bloom in June rather than during the Easter season.

Experiments set up during 1956-58 were designed to find out if forcing the plants at low temperature during part of the forcing period would result in shorter plants without an extension of the forcing time. The forcing period was divided into approximate thirds and the plants were grown at different temperatures for each third except for a check which was forced throughout at the usual 60°F. During one of the thirds the plants were forced at a normal 60°F; during one of the thirds at a lower than normal temperature; and during the remaining third at a higher than normal temperature. Each third was approximately six weeks. In this way the plants were given the same total temperature treatment with the temperatures in different order. The forcing periods were started December 21, 1956, and December 30, 1957.

The most important finding—from the standpoint of commercial forcing of Easter lilies—was that it is possible to

Growth and Development of Easter Lilies Forced With Several Different Temperature Regimens

Regi- men*	Height in centimeters ^a			Flower buds per plant ^b			Days to bloom ^c			Date of bloom		
	Ace 1956	Ace 1957	Croft 1957	Ace 1956	Ace 1957	Croft 1957	Ace 1956	Ace 1957	Croft 1957	Ace 1956	Ace 1957	Croft 1957
	-57	-58	-58	-57	-58	-58	-57	-58	-58	-57	-58	-58
HLM	55	43.6	45.5	10.3	13.3	14.2	112	115	109	4/12	4/24	4/18
LHM	65	58.6	74.7	8.2	11.4	13.7	105	110	105	4/5	4/19	4/14
MHL	62	57.3	60.5	10.0	12.0	12.2	103	114	109	4/3	4/23	4/18
MLH	42	49.3	54.3	11.8	10.9	13.0	115	115	111	4/15	4/24	4/20
HML	65	59.7	54.8	10.4	13.4	12.2	90	104	98	3/21	4/13	4/7
LMH	57	71.7	74.3	11.0	11.9	13.8	116	115	107	4/16	4/24	4/16
MMM	61	63.1	59.0	12.6	13.3	12.3	109	109	95	4/9	4/18	4/4

* H = 68°F (1956-57); 65°F (1957-58) (night temperature)

M = 60°F (night temperature)

L = Outdoors (approximately 50°F average minimum)

1st third = 12/21/56-2/5/57 or 12/30/57-2/10/58

2nd third = 2/5/57-3/18/57 or 2/10/58-3/24/58

3rd third = 3/18/57 to bloom or 3/24/58 to bloom

Minimum mean differences for significance: ^a5% = 6.31 ^b5% = 1.80 ^c5% = 5.55
1% = 8.31 1% = 2.37 1% = 7.48

finish shorter lilies if they are forced at a lower temperature during the middle third of the forcing period, when the flower buds are initiated and start their development. The middle third low-temperature treatments averaged only 80% of the height of the normally forced plants. This shortening was accomplished with no significant differences in total bud count and with only a week or two longer forcing period than that for the check plants. By using slightly higher temperatures during the warm forcing

period—or possibly by shortening the low temperature forcing period—it should be possible to reduce the forcing period enough so there would be no difference between the date of bloom of plants forced with a middle third low temperature period and the bloom-date of plants forced constantly at 60°F.

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Difference in height late in the forcing season for Croft lilies forced at—from left to right—High-Low-Medium; High-Medium-Low; and Low-High-Medium temperatures.



Difference in height late in the forcing season for Ace lilies forced at—from left to right—High-Low-Medium; High-Medium-Low; and Low-High-Medium temperatures.

