

EVALUATION OF EASTER-LILY, *LILIUM LONGIFLORUM*, AS A PERENNIAL IN SOUTH FLORIDA

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Abstract. The Easter-lily, *Lilium longiflorum* Thumb. (L.), is reported to be a perennial by South Florida gardeners, but data are lacking to support this claim. Local nurseries do not force (induce flowering) Easter-lilies, mainly because daily temperatures of 75°F or higher are common during the winter production period. High temperatures are reported to reduce the number of flowers per bulb, promote uneven flowering, and delay flowering, making it difficult, if not impossible, to time the crop for Easter bloom. During December 2003, bulbs of 'Nellie White', one of the most commonly-forced cultivars, were planted. These were grown in Holland, size 7-8 inches in circumference, and were pre-chilled in moist sphagnum peat. Bulbs were planted in pots and grown to determine if they would flower under local conditions; no attempt was made to time them for Easter of 2004. All of the bulbs bloomed, producing an impressive display. In December 2004, new 'Nellie White' bulbs were planted, sizes 7-8 and 9-10 (inches in circumference). Data were collected on days from planting to bloom, flower count per bulb, and height. Fifty of the 2003 bulbs were evaluated for repeat bloom. Results indicate that Easter-lilies are easy to flower in South Florida as a garden crop the first year, and that many will re-bloom the second year, though performance is only fair. Protection from bulb-rotting organisms is essential. Additional research is required to determine if long-term survival is possible.

The Easter-lily, *Lilium longiflorum*, is indigenous to Japan, and is known to require chilling to bloom well. It is one of the most valuable flowering plants forced (induce flowering) by growers (Reese, 1992). It is perennial in north Florida, where it blooms and multiplies well. In north Florida, 500 to 650 chilling-hours accumulate during an average winter; in south Florida, only 50 to 100 chilling-hours accumulate. Easter-lily is reported by some South Florida residents to perform as a true perennial in their gardens, re-blooming for years. However, data are lacking which would prove or disprove this claim. Local nurseries do not force Easter-lilies in South Florida, mainly because daily temperatures tend to be 75°F or higher during the winter production period. On the boxes in which the bulbs are shipped is the message: "Do not expose to temperatures above 70°F". In 2005, the day the first bulbs arrived, the high temperature was of 82°F. High temperatures are reported to reduce the number of florets per bulb, promote uneven flowering, and delay flowering, which make it

difficult, if not impossible, to time the crop for Easter bloom (Evans and Beck, 1992; Huxley, 1999; Reese, 1992). The present study was initiated to determine if Easter-lilies will flower well in South Florida and if they will perennialize.

Materials and Methods

During the first week of Dec. 2003, 150 bulbs of 'Nellie White' were planted, one of the two most commonly-grown cultivars for pot-plant and cut-flower production, the other cultivar being 'Ace'. These were bulbs produced in Holland, size 7-8 (inches in circumference), which were shipped pre-chilled in wooden boxes, packed in moist sphagnum peat. This treatment is common in pot-plant production for the Easter season, the pre-chilling reducing the production time for the grower.

Most of the bulbs had produced two to three inches of stem growth, and two to four inches of root growth. One hundred bulbs were planted in three-gallon pots, four bulbs per pot, and grown to establish that they would flower under local conditions, but no attempt was made to time flowering for Easter of 2004. For comparison, five pots each were planted two per pot and one per pot, and twenty-five bulbs were planted in ground beds in private gardens in Hollywood, Kendall, Homestead, and Key Largo, Fla. The private gardens cover about seventy-five miles, north to south; and are in Plant Hardiness Zones 9b, 10a, 10b, and 11. Of the bulbs planted, two had damaged stems, which were broken during planting.

In Dec. 2004, 250 new 'Nellie White' bulbs were planted, 150 size 7-8 and 100 size 9-10. As in 2003, all the bulbs were sprouting in the boxes when they arrived. The 150 size 7-8 bulbs were planted in three-gallon pots, four bulbs per pot; but the 100 bulbs size 9-10 were planted three per pot because four would not fit without excessive crowding. The bulbs size 7-8 arrived the second week of December; the bulbs size 9-10 arrived two weeks later. Both lots were planted immediately after they arrived. Data were collected on days from planting to bloom (the day the first bud opened), plant height at bloom, and the number of flowers per bulb.

Results and Discussion

All of the bulbs planted in December, 2003, bloomed during the spring of 2004, except for one which was dug and destroyed because the foliage showed symptoms of virus infection, and another the two bulbs which were broken during planting. The pots with four bulbs per pot produced an impressive display of flowers, three to four weeks after Easter, 2004. The number of florets per bulb ranged from one to five, and averaged three. Though the number of florets per bulb was low, the pots were of top quality, since the four bulbs together produced pots full of blooms. The pots with one and two bulbs per pot also bloomed, but because they produced fewer florets per pot, they were considered unsaleable as pot-plants. All of the bulbs planted in the ground bloomed.

In 2005, though they were planted two weeks later, the larger bulbs bloomed 20 d earlier than the smaller bulbs. The

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larger bulbs averaged 84 d from planting to bloom, and the smaller bulbs averaged 104 d. Though no effort was made to flower any of the bulbs for Easter, it happened that both groups were at peak bloom just before Easter of 2005.

Height for both bulb sizes ranged from 19 to 28 inches, averaging 22 inches; so height appears not to have been related to bulb size. Both groups of bulbs showed lower leaf browning, probably due to pot spacing rather than bulb size. The number of florets per plant was also the same for both groups, ranging from two to eight, and averaging 4.5 (Fig. 1). Easter-lilies, 2005, uneven bloom and low bud-count.) Uneven bloom was pronounced in some pots (Fig. 2). Easter-lilies, showing uneven bloom.) The later in the season when individual florets opened, the more likely they were to abort or be deformed.

Fifty of the bulbs planted in 2003 were evaluated during 2005, the second year after planting. Of the 30 bulbs planted in garden beds, 16 (53%) did not sprout the second year, and were found to have rotted. Of the 20 bulbs planted in pots, 6 (30%) rotted. Bulb-rot is one of the factors limiting lilies, gladiolus and several other geophytes as landscape plants in Florida. The 28 bulbs that survived to the second year bloomed seven to ten weeks later than the new bulbs, (May 10 to June 15) and 30% of the florets were either aborted or deformed, probably due to higher temperatures during development.

The results of this study indicate that Easter-lilies are easy to flower in South Florida as a garden crop and that many will re-bloom the second year. Protection from bulb-rotting organisms is essential, and planting the bulbs in containers with



Fig. 2. Easter-lilies, showing uneven bloom.



Fig. 1. Easter-lilies, 2005, uneven bloom and low bud-count.

clean substrate improves second-year performance. It appears that the Easter-lily behaves as a short-lived perennial in South Florida gardens, but additional research is required to determine if survival beyond the second year is possible.

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