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FLOWER YIELD FROM FIELD GROWN NARCISSUS BULBS AT
THREE PLANTING DENSITIES

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Narcissus, or daffodils, are among the most popular of the garden flowers which signify the beginning of spring. Many cultivars of the various classes of the genus perennialize easily in the southeastern U.S. and can be found naturalized around old homesites across east Texas. The objective of this experiment was to determine the feasibility of commercial Narcissus flower and bulb production in the east Texas area. This report is concerned with the flower yield during the first spring of the two year bulb production cycle.

MATERIALS AND METHODS

On December 19, 1985, bulbs of cultivars Carlton and Ice Follies were planted in 102 cm (40") rows in densities of 12.5, 17.5, and 22.5 metric tons/ha (5.6, 7.8, and 10.0 tons/acre). Bulbs were planted in furrows 20 cm (8") wide and 15 cm (6") deep on the top of raised beds in 102 x 152 cm (40x60") plots. The whole plot area was used for determining the weight of bulbs to plant for a particular density. Bulb stock of Carlton was 32% size 8-10 (cm circumference), 42% size 10-12, 22% size 12-14, and 4% size > 14 or double nose. Bulb stock of Ice Follies was 24% size 8-10, 48% size 10-12, 23% size 12-14, and 3% size > 14 or double nose. During the spring of 1986, flowers were removed from half of the plots. In addition to counting flowers per plot, blasted (elongated stem but dead flower bud) flowers were counted in each plot and stem length and flower diameter was measured for 20 flowers of each cultivar.

RESULTS

The flowering period for Carlton and Ice Follies was March 5 to 25, 1986. As expected, flower number increased with planting density for both cultivars. However, Carlton produced more flowers per plot than Ice Follies (see Table 1). On the average, Carlton produced the equivalent of 230,000 flowers per acre (88 flowers per plot) while Ice Follies produced the equivalent of 150,000 flowers per acre (57.3 flowers per plot). These flowers were produced from an

average of 327,571 bulbs planted per acre.

Ice Follies produced a higher number of blasted flowers per plot than Carlton (see Table 2). Also, number of blasted flowers per plot increased linearly with density for Ice Follies. However, both cultivars produced flowers with somewhat shorter stems than what has been observed in northern Europe (Table 3).

According to wholesale florists, demand for cut Narcissus through traditional retail florist channels has diminished, but is stable in the Tyler and Dallas markets. Indeed, many local florists and, of course, residents simply cut flowers from yards or the roadside for inside use. This type of familiarity indicates that a mass market approach to selling the flowers may be necessary. Sale of individual flowers for \$0.10 each wholesale would allow bunches of 12 to be sold in retail establishments such as supermarkets for under \$3.00 as a cash and carry, impulse sales item. A major cost of production would be the cost of bulbs. Based upon costs from a local supplier and a planting density of 7.8 tons per acre, bulbs costs per flower for 'Carlton' are as high as \$0.32 each when spread over two years (see Table 3). The cost analysis for English bulbs in Table 3 most closely parallels the production figures produced by 'Carlton' bulbs in this study (see Table 1). Cost of cutting and handling the flowers would no doubt double the cost per flower figures in Table 3. This would still allow a total profit of \$0.036 per flower or \$8280 per acre for the first two years based upon production of 'Carlton' (see Table 1). Bulbs should not have to be disturbed for 3 to 4 years after planting so that a profit of \$0.068 per flower or \$15,640 per acre for each year after the bulb costs are recovered could be realized. After dividing, 3 to 4 years in the ground, digging, dividing, and replanting of bulbs is recommended. The costs for this operation and other costs such as for weed control would have to be considered in a final cost analysis. Regardless, quality and market development will be critical to successful sales. Future research should emphasize 1) choice of cultivars for the best quality and a long overall marketing period, 2) further planting density studies in relation to recropping frequency needed to maintain production, and 3) the employment of special techniques such as plastic mulch and/or cover to induce early forcing for Valentine's Day sales.

Table 1. Number of flowers cut per plot during spring 1986.

Cultivar	NUMBER OF FLOWERS	Bulb Planting Density (Metric Tons/ha) (tons/acre)	Number of Flowers
Carlton	88.0	12.5 (5.6)	42.0
Ice Follies	57.3	17.5 (7.8)	60.8
		22.5 (10.0)	83.7
Protected LSD	7.8	Linear	* ^z
		Quadratic	NS
<u>Anova</u>			
Cultivar	*		
Density	*		
Cultivar X Density	NS		

^zNS=non-significant; *=significant at the 5% level.

Table 2. Number of blasted flowers per plot during spring 1986.

Cultivar	Bulb Planting Density (Metric tons/ha)	Number of Blasted Flowers		
Carlton	12.5	3.8	Linear	NS ^z
	17.5	3.3	Quadratic	NS
	22.5	3.3		
Ice Follies	12.5	11.5	Linear	*
	17.5	18.8	Quadratic	NS
	22.5	23.3		
<u>Anova</u>				
Cultivar		*		
Density		*		
Cultivar X Density		*		

^zNS=non-significant; *=significant at the 5% level.

Table 3. Flower measurements from flowers cut during spring 1986.

Cultivar	Stem Length cm	Flower Diameter cm	Characteristic Stem Length cm
Carlton	24.3±0.79	9.4±0.11	35-45
Ice Follies	23.7±0.76	9.2±0.16	<34

^zObserved in England

Table 3. Estimated cost of Narcissus 'Carlton' flower production based upon bulb costs from two sources and a planting density of 7.8 tons per acre.

Bulb Source	Cost per ton	Cost per acre	# of bulbs per acre	# of flowers per bulb year 1	# of flowers per bulb year 2	Cost per flower for the first 2 years
English Bulbs ^z	\$3516	\$27,422	243,750	1	2.5	\$0.032
Dutch Bulbs	\$2300	\$17,940	195,000	2.5	2.5	\$0.018

^zEnglish bulbs that are available in the east Texas area are smaller than the Dutch bulbs that are available. All bulbs would be various grades of double-nosed bulbs.