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Consumer Preference for Potted Plants*

Easter Lilies and Chrysanthemums

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Potted plants with a whosesale value of $95 million were produced and sold in the United States in 1959.[1] The share produced by New York State flower growers was $7.8 million, about 50 percent more than in 1949. Reliable data on more recent total sales of potted plants are not available although fragmentary information indicates that they have increased significantly since 1959.[2]

In spite of this substanial dollar value, there remains a lack not only of statistics on production and marketing but also of information on consumer preferences for these plants. Tentative grade specifications establishing quality standards are under consideration for certain potted plants, few are actually in use.[3] This study provides information for better decisions in the marketing of potted plants through knowledge of consumer response to plant qualities. It presents consumer preference data for two potted plants, the Easter lily and the chrysanthemum, which together account for an estimated 15 percent of the value of all potted plants grown in New York State.

The objectives were to:

(a) collect and analyze responses of consumers to displays portraying different qualities of priced and unpriced potted Easter lilies and chrysanthemums, and,

(b) to compare the pricing practices of retail florists to these consumer responses.

PROCEDURE

Consumer preference information for Easter lily plants was collected at the 1967 International Flower Show in New York City. Information for potted chrysanthemums

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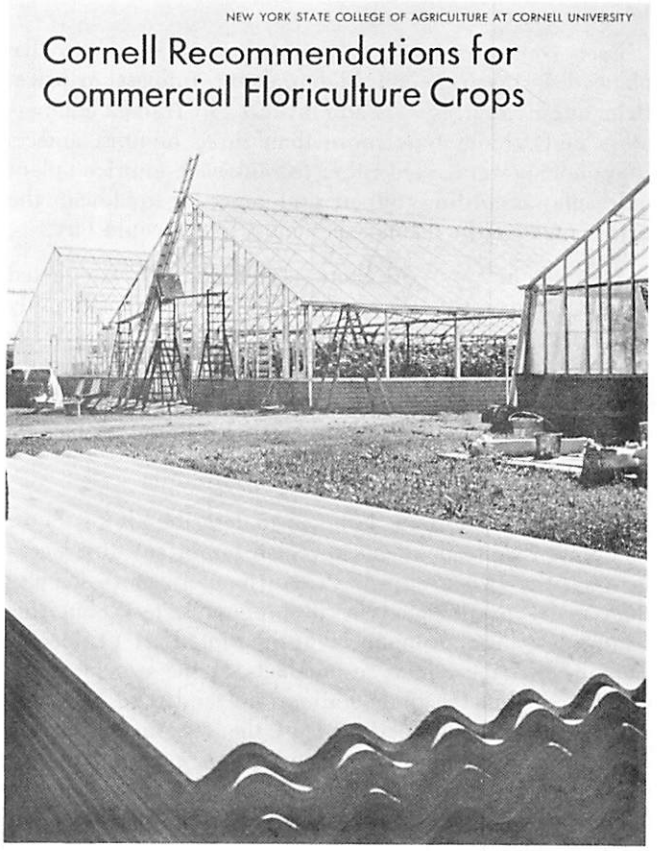
[1] U. S. Bureal of the Census, *U. S. Census of Agriculture;* 1959, Volume 5, Special Reports, Part I—*Horticultural Specialties*, Washington D. C., 1962.

[2] *Flowers and Foliage Plants*, Sp. Cr. 6-1, Crop Reporting Board, USDA, Washington, D. C. April 1968.

[3] Preliminary studies in progress under North Central Regional Marketing Project.

*Editor's note—This article will be reported in 3 parts. First, introduction and discussion of the Easter lily work, second the chrysanthemum study and third the conclusions.



Cornell Recommendations Now Available

The Department of Floriculture and Ornamental Horticulture at Cornell University announces the publication of the 1969-70 edition of *Cornell Recommendations for Commercial Floriculture Crops*. This 72-page illustrated edition is expanded in both scope and depth of subject matter treatment, and includes discussions of additional crops and topics not treated in earlier editions. Authored by Cornell University floriculturists, entomologists, plant pathologists and agricultural engineers, the publication incorporates the latest research and industry information and adapts it to commercial production programs. With this edition, *Cornell Recommendations for Commercial Floriculture Crops* will be revised on an alternate year basis with the issuance of a supplement in the interim period if considered necessary.

Cornell Recommendations for Commercial Floriculture Crops is available free of charge on a single-copy basis to residents of New York State who may obtain it from their

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was collected at the Art and Home Center of the 1967 New York State Fair at Syracuse, New York. The tests were conducted in an 8′ x 10′ booth which consisted mainly of a table for plant displays, a counter to restrict entry of respondents into the display area, and explanatory signs.

Each respondent saw only one display of two to five plants differing in height, bloom, count, fullness, or price. Brief questionnaires were administered by trained enumerators and seldom took more than three minutes apiece. Respondents were asked either to rank each unpriced plant on display according to their preference, or to indicate the priced plant in the display they most likely would buy.

A survey of New York State retail florists was conducted in the summer of 1967 to determine prices commonly charged for Easter lilies and potted chrysanthemums. The systematic sample of over 100 florist shops excluded some small or part-time florists who were not members of two major wire services.

Characteristics of Consumer Respondents

Answers to questions designed to describe Flower Show and State Fair respondents revealed important differences between the two groups.[4] Proportionately more females than males participated in all preference tests, but this feature was more pronounced at the State Fair (Table 1). The age distribution of respondents at the two locations differed in that the State Fair group tended to be somewhat older. About one-fourth of the respondents at the New York City even were members of garden clubs or similar organizations. In contrast, only six percent of the Syracuse respondents were so affiliated. Eight percent of the respondents in New York City were involved in some way with a flower business. In contrast, less than half this proportion among the Syracuse respondents were associated with the florist industry.

In summary, the respondents interviewed at the International Flower Show in New York City included proportionately fewer females, were somewhat better educated, slightly younger, and more frequently garden club members and flower purchasers than the respondents contacted at the New York State Fair in Syracuse.

Preference for Easter Lily Height

The first four tests of consumer preference for Easter lilies called for displays of three and four unpriced plants which ranged in height from 18 to 38 inches when measured from the bottom of the container. All plants had four blooms or buds. A total of 315 respondents ranked the plants in these tests from highest to lowest according to their preference.

The largest proportion of respondents in each test gave first rank to the shortest plant displayed (Table 2). Conversely, most of them gave the lowest rank to the tallest plant on display. Even though the combinations of plants of various heights were changed for each of the four tests, this general relationship held true. About three-fourths of the respondents attributed their decision specifically to the factor of plant height. Nevertheless, the same answer, height of plant, was given as well by those respondents awarding highest rank to the *tallest* lily.

Table 1 SELECTED CHARACTERISTICS OF RESPONDENTS

2409 Respondents, International Flower Show, 1967
2501 Respondents, Art and Home Center, New York State Fair, 1967

Characteristic	Site of Interview: International Flower Show	N. Y. State Fair
	(percent of respondents)	
Sex:		
Male	33	18
Female	67	82
Education:		
Attended college	60	45
Did not attend college	40	55
Estimated Age:		
Under 20 years	4	2
20–39 years	42	34
40–59 years	43	38
60 years or more	11	26
Garden club affiliation:		
Member	24	6
Non-member	76	94
Flower industry affiliation:		
Member	8	4
Non-member	92	96
Flowers purchased last two weeks:		
Yes	49	17
No	51	83

Six tests explored consumer reactions to the heights of priced rather than unpriced 4-bloom lilies. In three displays the taller plant was priced higher than the shorter plant while in three others the taller was priced lower.

A 28-inch plant was priced higher than an 18-inch plant by 10, 30, and 50 cents in the three separate tests. Respective prices were $4.00, $4.10, $4.30, and $4.50. Virtually no difference in preferences from those found with unpriced plants was registered. That is, the inverse relationship between preference and height of Easter lilies was generally unchanged by introducing these prices (Table 3). Approximately two-thirds of the respondents chose the shorter of the two plants, regardless of the price spread. Only one in twenty failed to make a selection. It

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[4] The terms "respondent" and "consumer" will hereafter be used interchangeably even though by some definitions they are not identical.

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is likely that notable shifts in basic preferences would have appeared if wider price differences between the priced plants had been adopted.

Table 2 HIGHEST AND LOWEST RANK AWARDED TO POTTED EASTER LILY PLANTS OF DIFFERENT HEIGHTS

315 Respondents, International Flower Show, New York City, 1967

Test and Ranking	Height of plant (in inches) 18	24	28	38	All plants
	(percent of respondents)				
Test 1 (61 responses)					
Highest rank	49	26	12	13	100
Lowest rank	12	8	8	70	100
Test 2 (95 responses)					
Highest rank	50	40	10	*	100
Lowest rank	23	6	71	*	100
Test 3 (87 responses)					
Highest rank	56	*	34	10	100
Lowest rank	18	*	0	82	100
Test 4 (72 responses)					
Highest rank	*	66	20	14	100
Lowest rank	*	19	10	71	100

*No plant displayed.

Table 3 SELECTION OF POTTED EASTER LILY PLANTS WITH TALLER PLANT PRICED AT PREMIUM

260 Respondents, International Flower Show, New York City, 1967

Test and price premium for taller lily	Selection 18-inch plant	28-inch plant	None	All selections
	(percent of respondents)			
Test 5, 10 cents (77 responses)	65	31	4	100
Test 6, 30 cents (85 responses)	65	29	6	100
Test 7, 50 (98 responses)	66	30	4	100

In three companion tests, the shorter lily was priced at 10-cent, 30-cent, and 50-cent premiums over the taller plant. The general relationship between preference and height again was demonstrated; that is, the majority of respondents selected the shorter plant (Table 4). Less than five percent of the respondents did not make a selection. The apparent tendency for a greater proportion of repondents to choose the shorter plant at the 50-cent premium than at the 10-cent premium was although not statistically significant.

Table 4 SELECTION OF POTTED EASTER LILY PLANTS WITH SHORTER PLANT PRICED AT PREMIUM

246 Respondents, International Flower Show, New York City, 1967

Test and price premium for shorter lily	Selection 18-inch plant	28-inch plant	None	All selections
	(percent of respondents)			
Test 8, 10 cents (59 responses)	68	25	7	100
Test 9, 30 cents (98 responses)	72	25	3	100
Test 10, 50 cents (89 responses)	82	18	0	100

Results of tests of height preference were analyzed according to selected characteristics of the respondents. No relationship was evident between any of these factors and respondents' choices or expressed preferences.

There is a risk of possible misinterpretation of these results. Responses of test consumers to priced plants were based upon what the consumers *said* they would do. These reported results might be significantly different from what customers *would* do in an actual buying situation, its members should proceed cautiously toward verification by checking selected results of this study against their own experiences.

Preference for Easter Lily Bloom Count

Plants similar in appearance except for the number of blooms or buds were displayed in several combinations. Each display consisted of three or more of the following plants: Three-bloom, four-bloom, five-bloom, six-bloom, and seven bloom lilies. In general, respondents expressed a greater preference for plants which had more blooms or buds (Table 5).

These results were confounded somewhat by the fact that the five-bloom lily often garnered a higher ranking than the six-bloom or seven-bloom plant. Efforts to standardize plant appearance on all but the test factor were not entirely successful. Comments by respondents indicated that noticeable favorable features such as foliage and stem straightness were found in the 5-bloom plant. Except for this important reservation, plants with lower bloom counts garnered fewer favorable votes than high bloom count plants in the displays.

Table 5 HIGHEST AND LOWEST RANK AWARDED TO POTTED EASTER LILY PLANTS OF DIFFERENT BLOOM COUNT

473 Respondents, International Flower Show, New York City, 1967

Test and ranking	Number of blooms per plant Three	Four	Five	Six	Seven	All plants
	(percent of respondents)					
Test 11 (116 responses)						
Highest	1	5	42	17	35	100
Lowest	53	17	10	13	7	100
Test 12 (115 responses)						
Highest	22	15	63	*	*	100
Lowest	49	34	17	*	*	100
Test 13 (102 responses)						
Highest	7	*	35	*	58	100
Lowest	64	*	24	*	12	100
Test 14 (140 responses)						
Highest	*	*	37	30	33	100
Lowest	*	*	30	45	25	100

*No plant displayed

Consumer reactions to displays of three priced lily plants varying in bloom count were recorded in three different tests. Plants in a display of 3-bloom, 4-bloom, and 5-bloom lilies were priced at $1.00 per bloom in one test, $1.50 per bloom in a second, and $2.25 per bloom in a third.[5] At the two lower price levels the plants with the

[5] Prices in the first test ($1.00 per bloom) were $3.00, $4.00, and $5.00 per plant. Prices in the second test ($1.50 per bloom) were $4.50, $6.00, and $7.50 per plant. Prices in the third test ($2.25 per bloom) were $6.50, $9.00 and $11.25 per plant.

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greatest number of blooms were selected by proportionately more consumers than were the other plants despite the price premium of as much as $3.00 per plant (Table 6). There was little difference in the proportion of respondents selecting the two plants with the fewest blooms, the great majority of reasons given in support of these selections related to the number of blooms or buds on each plant.

Table 6 SELECTION OF POTTED EASTER LILY PLANTS OF VARIOUS BLOOM COUNTS AND PRICES

301 Respondents, International Flower Show, New York City, 1967

Test and price per bloom	Selection 3-bloom plant	4-bloom plant	5-bloom plant	None	All selections
	(percent of respondents)				
Test 15, $1.00 (111 responses)	22	23	51	4	100
Test 16, $1.50 (93 responses)	28	24	41	7	100
Test 17, $2.25 (97 responses)	34	22	30	14	100

However, at the highest price of $2.25 per bloom, this general relationship was not evident. The three-bloom lily, which carried a price of $6.75, was chosen by about one-third of the respondents. The four-bloom lily priced at $9.00 was selected by one-fifth of the respondents. The third lily, the otherwise favored five-bloom plant, carried a price of $11.25 and was chosen by less than one-third of the respondents. This result demonstrated the distortion in basic preferences caused by an unusually high price. Indeed, the influence of this high price was further manifested in the fact that proportionately twice as many respondents as in the other two tests were unwilling to make a selection.

Similar tests were conducted at these same price levels but with three-bloom, five-bloom, and seven-bloom plants. The influence of price was evident in each case. The seven-bloom plant, which unpriced had been selected more frequently than the other plants, was in fact selected by a smaller proportion of respondents at the $1.50 and $2.25 level than was the case with the 3-bloom and 5-bloom lilies. Indeed, at the high rate of $2.25 per bloom, the three-bloom plant was selected most frequently. This again demonstrated the influence of price at these elevated levels in shifting selections to a lower priced plant. In addition, the proportion of respondents who were unwilling to make a selection was about twice as high at the highest rate per bloom than at the other two rates. These results were not surprising when it is considered that at $2.25 per bloom the price of the 7-bloom lily was $15.75.

Similar results were recorded when the five-bloom, six-bloom, and seven-bloom plants were displayed at the three price levels; more than twice as many respondents at the highest price than at the lower prices refused to make a selection. When consumers were asked their reasons, price was the most common factor.

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Cornell Recommends

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county or regional Cooperative Extension agent. Out-of-state persons may obtain the publication for $1.00 per copy from the Mailing Room, Building #7, Cornell Research Park, Ithaca, New York 14850. A 10% discount is given on quantity orders of 100 copies or more.

C.G.

Papers Reviewed

TIME AND MOTION SPEED-UP MUM DISBUDDING

While we still have hand disbudding of chrysanthemums, efficient use of labor is important. In a recent issue of the English trade magazine *The Grower*, they report one third of an acre of all year 'round spray chrysanthemums being looked after by one man. He completes disbudding of 1 bed of 700 plants per hour.

Disbudding is done first thing in the morning when plants are turgid and buds "snap out" easily. Both hands are used in alternate movements, starting at the edge of the bed, working up to the center then moving across 10 inches and coming back the next 2 rows. Only when 4 rows (20 plants) halfway across the bed have been disbudded are the buds dropped into a bucket.

A rhythmic movement from one plant to the next speeds up disbudding, as demonstrated at the Plant Protection's Ferhurst Research Station.

J.G.S.

GERMINATION OF BEGONIA AND NEMESIA SEED

Research by Jenny Pollard and E. H. Roberts at the University of Reading, reported in August 31 *The Grower*, showed that a temperature of 68°F with germination in the dark was best but germination was poor when given 12 hours per day of fluorescent light.

If seeds were germinated in a 0.03 percent solution of gibberellic acid, seeds in light germinated as well as in the dark.

Begonia semperflorens (Dwarf Carmen) seed germinated best at 77°F when seeds received a short exposure of room daylight every other day. Germination was still better when Begonia seeds were exposed to 12 hours of fluorescent light each day. Gibberellic acid had a beneficial effect on seeds germinating in the dark.

J.G.S.

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YOUR EDITOR,

Bob Langhans