



*Increasing  
Supermarket  
Floral Sales  
with Floral  
Demonstrations*



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# **Increasing Supermarket Floral Sales with Floral Demonstrations**

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## **INTRODUCTION**

**SUPERMARKETS HAVE REVOLUTIONIZED** how people buy flowers and plants. Traditionally, floral products were marketed through the local florist. However, in the last two decades, supermarkets and other mass-market retailers have introduced many Americans to various flowers and flowering plants. Estimates now show that mass-merchandise outlets have 30% or more of the market for floral products. One concern of floral product suppliers is how to encourage shoppers to buy the floral products available in supermarkets.

An Alabama Agricultural Experiment Station study was initiated to better understand how to increase floral sales in supermarket floral departments. The objective of this study was to determine the effect of eight weeks of demonstrations on floral sales in supermarkets during a ten-week period. Underlying this objective was the hypothesis that if consumers' floral knowledge increased, so would floral purchases. Therefore, if any improvement in the amount or quality of floral knowledge was noticed, this secondary objective would be achieved.

Columbus, Ohio, was selected as the testing location due to its previously successful use as a test market in other studies and its Northern climate, which would likely reduce consumers' use of fresh cut flowers from outdoor gardens in the fall. September through November were selected as demonstration months because floral sales are relatively low and stable when compared with other times of the year. Floral sales should slowly increase up to Thanksgiving, when Christmas sales begin. Few significant national holidays fall in these months, making them suitable for testing. The exception to the absence of holidays was Sweetest Day (Oct. 17), which is a widely celebrated holiday in the Columbus market area and is similar to St. Valentine's Day (Feb. 14) in meaning and floral symbolism. September through November provided an extended period with a stable market for testing with a minimum of interference from outside events.

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## METHODS

One supermarket chain in the Columbus market area was recruited to participate in the study. The floral coordinator for this chain was asked to select eight stores from the 77 she oversees as potential participants in the study. Selected stores were as similar as possible in terms of their floral department size and sales. The eight stores were randomly divided into two categories: stores where demonstrations were conducted; and control or comparison stores where demonstrations were not conducted.

The supermarket chain would not release weekly store sales data. Therefore, weekly fresh flower inventory was substituted for floral sales. Weekly fresh flower inventory was tabulated at the corporate office. The purchases from a distribution center and independent purchases were added to yield weekly fresh flower inventory for each store.

Remarks Food Marketers, a Columbus-based marketing firm, was subcontracted to provide the demonstrators. Demonstrators were asked to participate in the same store over the eight-week test period and attend the four two-hour training sessions.

Distribution of flowers was an important part of the demonstrations. Free carnations were given away in the first and second weeks, and roses were given away in the seventh and eighth weeks.

Other sample products were distributed, including fresh flower food and floral care literature. Both five- and 10-gram packets of floral food were donated, and an additional 5,000 packets were purchased. Atlantic Bouquet donated 5,000 color pamphlets that were distributed in the first two weeks.

A letter of introduction was sent from Auburn University to the demonstration and control stores two weeks prior to the initiation of the study. Identical letters were sent to each store manager and floral department manager participating in a test or control store. The letter outlined the purpose of the study and the information to be collected. It indicated that project personnel would visit them in the near future to solidify plans and relay details of the study.

The eight weeks of demonstrations were divided into four two-week segments. Each segment consisted of one fresh flower topic that was repeated on Thursday and Friday for two consecutive weeks. The four segment topics included, in order, (1) care and handling of fresh flowers, (2) using floral food to extend vase life, (3) selecting fresh flowers, and (4) care of fresh roses. The topics were selected to repeat similar information in a different manner to encourage learning and recall by interested shoppers. For each segment, the demonstrator set up a table that consisted of a video tape player, fresh flowers in a green glass vase, two to four display cards accentuating one of the topic points, and items for distribution (including fresh flower literature, floral food, and fresh flowers).

Project personnel visited the four demonstration stores prior to the training session for the first segment to familiarize themselves with the store layout, meet the floral department and/or store manager, and agree on where the demonstrator would be located. The physical measurements of the departments were 750, 800, 650, and 880 square feet, respectively. Researchers noted the location and availability of the public address system and requested hourly access to it. All floral managers and most store managers were cooperative and had received and read the correspondence sent to them alerting them of the study.

One training session was held for each demonstration segment. At each training session, a written lesson outline was distributed and reviewed. A videotape was shown and some "hands-on" experience was given to the demonstrators to encourage them to use their new information. In successive training sessions, a short discussion of the previous two weeks' results was conducted. This discussion was especially helpful for understanding the consumer comments reported by the demonstrators. Comments provided valuable feedback that indicated the success in conveying the lesson information to the demonstrators and the demonstrators' success in conveying information to the consumers. Comments were formally submitted in weekly reports that were compiled (see appendix).

## **RESULTS FOR SEGMENT 1 (WEEKS 1 AND 2)**

The topic for the first segment was basic flower care and handling. The primary "take home message" emphasized was the importance of cutting fresh flower stem ends underwater. Basic flower care was demonstrated in stores on Sept. 11-12 and 18-19. All of the demonstrators had expressed an interest in flowers, but none had any formal horticultural training.

The initial discussion included identifying the sponsors of the study, the objectives and goals for the study, and the demonstrator's important role as the consumer's "teacher." Demonstrators viewed the Roses, Inc., videotape on the care of fresh roses. This exposed them to the amount of preparation involved in producing, harvesting, and shipping fresh flowers, along with basic care and handling information. They were instructed to apply this new information to all flowers, not just to roses. The rose, an economically important and highly recognized flower, was used as the example to show proper care and handling techniques. A question and answer session followed.

Demonstration materials were distributed, including a pair of floral shears, three green glass 12-inch vases, one basin in which to cut stems underwater, a pair of scissors to separate care tags, Atlantic Bouquet pamphlets, floral food packets, and ribbon to tie the care tag to the free carnation. Each demonstrator received a videotape excerpt from the Roses, Inc., video to show during the demonstration hours. The videotape showed how water moves up the stem of a flower and explained why the stem should be cut underwater. The lesson outline, public address announcement, and care tags were also distrib-

uted. Researchers demonstrated how flowers (carnations) should be cut under water and then provided each demonstrator with an opportunity to do so; it was the first time for all of them. Researchers also prompted demonstrators to discuss their newly learned care techniques with them as though they were customers.

During the first segment, a total of 3,685 personal contacts were made, 1,500 carnations were distributed, and 3,650 packets of floral food were distributed. An average of 230 personal contacts were made, and 194 carnations and 228 packets of floral food were distributed in each store each week. A discussion of the consumer and demonstrator comments was conducted during the second training session. Comments were recorded during the training sessions and on written reports submitted weekly by each of the demonstrators. The number of personal contacts and packets and flowers distributed were also compiled from the submitted written reports. Since there was a lag in the reporting, we discussed comments from the previous topic at the training session for the next topic.

Consumer and demonstrator comments from the first demonstration segment, both of which were reported by the demonstrators, were surprising and interesting. Consumers had learned or heard inaccurate information about the care of fresh flowers. Many fables surfaced about the use of aspirin and carbonated citric beverages. It became clear that one training session was insufficient to equip the demonstrators with enough information to answer questions. They got confused on some points, primarily on why the flowers were being distributed. Researchers emphasized to the demonstrators that the purpose of the flower distribution was to educate consumers. Flowers can last if given proper care. The objective was to help consumers see just how long fresh flowers could last.

It also became evident that demonstrators would need several weeks to get all the messages across to consumers. Many consumers had little time to spend at the demonstration table. We encouraged the demonstrators to get at least one care point across in the brief encounters.

## **RESULTS FOR SEGMENT 2 (WEEKS 3 AND 4)**

The topic for the second segment was the importance of floral food in extending the life of fresh flowers. While this was one of four ideas introduced in the first set of demonstrations, it was emphasized in the second segment. The primary "take home message" for this set of demonstrations was the importance of using floral food properly. This topic was demonstrated on Sept. 25-26 and Oct. 2-3. The training session for the second segment was held on Sept. 24.

The session began with a general discussion of the results, problems, comments, and observations made by the demonstrators in the previous two weeks. Since the comments were so informative, we created a separate data sheet on which the demonstrators reported (1) their most difficult question, (2) their

most memorable exchange, and (3) the number of packets of floral food distributed. The first set of demonstrations went well, but more materials, especially floral food and pamphlets, were needed because the demand had been underestimated. Adjustments were made to provide more floral food and to develop a short, printed instruction sheet for distribution with the floral food.

The training session continued with a review of correct care and handling procedures and the viewing of the PMA Training Series Tape #2, "Basic Floral Science." The discussion centered on the proper measurement of the water in which the food is dissolved. Demonstrators were given glass measuring cups and encouraged to show consumers how much water was needed to properly dissolve a five- or 10-gram packet of floral food. Demonstrators were amazed that measuring the food was so important. More floral food was distributed, and the demonstrators were encouraged to hand no more than two packets of floral food to each customer. A short care information sheet was created, and demonstrators were asked to staple one sheet to each of the packets of floral food.

The Roses, Inc., videotape excerpt was used again in the second demonstration segment. Similar public address announcements were used to draw consumers to the demonstration area. Demonstrators were encouraged to stress the importance of floral food in fresh flower care and to reiterate the importance of cutting fresh flower stems underwater.

Each of the four stores were visited the Friday following the training session while the demonstrators were in place. This visit provided an additional opportunity to clarify points with the demonstrators and to take photographs at each location.

During the second segment, a total of 5,562 personal contacts were made, and 4,175 packets of floral food were distributed. This yielded an average of 348 customers contacted and 260 packets of floral food distributed in each store each week. While some people had been exposed to the demonstration in the previous two weeks, they learned an additional point in the care and handling practices with the second segment. Consumer and demonstrator comments were discussed during the third training session.

Consumer comments focused on the length of time the free carnations lasted. Many consumers reported their experiences to the demonstrators, and all of them were favorable. Most consumers were amazed that the carnations were still alive after following the recommended procedures. Consumers also made efforts to apply the information to other flowers, since consumers expressed interest in increasing the longevity of roses and other flowers at grave sites.

## **RESULTS FOR SEGMENT 3 (WEEKS 5 AND 6)**

The training session for the third segment was held on Thursday, Oct. 8. The topic for the third segment was how to select fresh flowers. The topic was demonstrated on Oct. 9-10 and Oct. 16-17. Training materials were dis-



tributed during the training session. Demonstrators first viewed the American Floral Services videotape on "The Proper Care and Handling of Fresh Flowers." They also viewed a new videotape, "PMA Fresh Flower Care," that was distributed for the demonstrators to play in the stores during the third segment.

Demonstrators were instructed on how to select fresh flowers and were asked to examine several samples on display. Poor quality roses were donated, as were chrysanthemums that were shattering. At first, demonstrators expressed comments as to how beautiful the flowers were. After the session was completed, however, they expressed surprise at how learning about fresh flower quality had influenced how they perceived the flowers. Flowers they first thought were beautiful were now recognized as poor quality.

During the third segment, 5,456 personal contacts were made and 3,506 packets of floral food were distributed. This figure averaged to 341 customers contacted and 219 packets of floral food distributed in each store each week.

Consumers continued to report their amazement at how long the free carnations lasted when proper care was given. Consumers appeared to recognize the demonstrators and continued to give "reports" on the flower longevity. Comments were also reported that a florist did not know to cut fresh flower stems underwater. Consumers appeared to appreciate the simple, yet effective, steps being conveyed.

## **RESULTS FOR SEGMENT 4 (WEEKS 7 AND 8)**

The fourth and final training session was held on Thursday, Oct. 22. The topic was demonstrated on Oct. 23-24 and 30-31. The topic for the final segment of the demonstrations was the care and handling of fresh roses. Following a discussion of the previous week's performance and customer comments, the new lesson was conducted.

The demonstrators again viewed the video tape produced by Roses, Inc., on the proper care and handling of fresh roses. Lesson outlines and public address announcements were distributed. Care tags and additional floral food were also distributed. After the lesson, demonstrators were requested to cut a fresh rose underwater and to discuss the four care tips as though they were talking with customers.

During the final segment, a total of 3,715 personal contacts were made, and 2,950 roses and 3,885 packets of floral food were distributed. The average was 232 customers contacted and 242 packets of floral food and 184 roses distributed in each store each week.

Comment sheets for the final two weeks of the demonstrations were sent by mail to Auburn University. Many consumers were very pleased to receive a rose and the information to make it last. Reports from the seventh to the eighth week indicated that consumers were again surprised that roses could last longer than consumers expected or had previously experienced.



**TOTAL CONTACTS AND MATERIALS DISTRIBUTED**

Over the eight weeks of demonstrations, 18,418 personal contacts were made during the 512 hours of floral demonstrations, during which 15,216 packets of floral food and 4,450 fresh flowers were distributed (Table 1). Some contacts were probably repeated, however, as the number of times the information is repeated increases, the higher the likelihood that the information will be learned.

A large number of samples was distributed, and it is likely that many consumers gleaned some information from their personal experience with the fresh flower and floral food samples. When the demonstrators were asked at the end of the study how many consumers they felt had learned something, they reported that at least 50% of their personal contacts had resulted in consumers learning something.

Weekly inventory data were collected by the supermarket chain and sent to Auburn University for analysis. While the demonstrations lasted eight weeks, data were collected for 11 weeks to determine if any residual effect would occur. The longer inventory was measured, the more likely we could measure consumers use of their new education to purchase flowers. Floral departments reported fresh flower purchases from both a distribution center and independent wholesale businesses; the total amount was rounded to the nearest whole dollar. Inventories were used to approximate sales. The four fresh flower inventories for the test stores were averaged and compared to the average inventory for the four control stores. These two averages were compared statistically.

The averages were compared using a SAS program for non-parametric data (Wilcoxon Rank Sum Test). Table 2 shows the average fresh flower inventory for the control stores compared with the average fresh flower inventory for the demonstration stores over the 11-week test period and the overall average fresh flower inventory for the entire study. The difference between the inventory averages was calculated.

**TABLE 1. TOTAL NUMBER OF FLOWERS AND FLORAL FOOD PACKETS DISTRIBUTED AND NUMBER OF PERSONAL CONTACTS MADE DURING THE FOUR DEMONSTRATION SEGMENTS**

Segment	Flowers	Floral food	Personal contacts
1 .....	1,500	3,650	3,685
2 .....	0	4,175	5,562
3 .....	0	3,506	5,456
4 .....	2,950	3,885	3,715
Total .....	4,450	15,216	18,418

**TABLE 2. WEEKLY FLORAL DEPARTMENT INVENTORY PURCHASES  
FOR CONTROL STORES AND DEMONSTRATION STORES<sup>1</sup>**

Week ending	Control store inventory	Demo store inventory	Difference	Probability level
Sept. 12 .....	\$1,443	\$1,381	\$ (62)	0.2375
Sept. 19 .....	2,450	2,164	(286)	0.3325
Sept. 26 .....	1,470	1,719	249	0.4426
Oct. 3 .....	1,609	1,804	195	0.4426
Oct. 10 .....	1,486	2,475	898	0.0152 <sup>2</sup>
Oct. 17 .....	5,124	5,234	110	0.3325
Oct. 24 .....	1,787	2,304	517	0.4426
Oct. 31 .....	1,437	2,570	1,133	0.0970 <sup>2</sup>
Nov. 7 .....	3,243	4,330	1,087	0.2353
Nov. 14 .....	1,502	2,729	1,227	0.1562
Nov. 21 .....	2,153	3,618	1,465	0.4426
Average .....	2,155	2,757	602	0.0750 <sup>2</sup>

<sup>1</sup>The dollar difference in weekly inventory was calculated, as was the probability that the difference is statistically different.

<sup>2</sup>Statistically significant difference at  $p = 0.1500$ .

Overall, the average weekly inventory for the demonstration stores was \$602 (or 28%) higher than the average weekly inventory for the control stores (reported with 92.5% confidence). The \$602 increase was for a store with an average inventory of \$2,155. This 28% increase in inventory can be attributed to the demonstrations in the stores because the "treatment" was assigned at random, and all stores were treated similarly in all other aspects.

In examining the data for differences each week, two increases were statistically significant. For the week ending Oct. 10, the increase in fresh flower inventory was measured with 98.5% confidence. For the week ending Oct. 31, the increase in inventory was also statistically significant (90% confidence). For each of the other nine weeks, no differences were detected.

Figure 1 shows the changes in weekly fresh flower inventory for control and demonstration stores over the 11 weeks of monitoring. In the first five weeks, Sept. 12 through Oct. 10, there was little fluctuation and little difference in the inventory for either type of store. The peak at the week ending on Oct. 17 represents the increase in fresh flower inventory for Sweetest Day. After this point, it becomes graphically evident that the fresh flower inventory in stores with demonstrations increased more than the fresh flower inventory for the control stores (Figure 1). The spread continued, even though the demonstrations ended on Oct. 31. These results indicate that it took at least six weeks of education to effect a change in inventory.

Since only four control and four demonstration stores were used, weekly increases in inventory needed to be substantial to be detected. Using a greater

number of stores with demonstrators, however, would have been cost prohibitive. Thus, in a similar experiment with a greater number of stores, a smaller difference in weekly inventory would likely appear statistically significant (a higher probability that they are, indeed, different).

While the effect on inventory (sales) from consumer education could have been immediate, it seemed to cause a delayed response. An increase in education should affect the long-term behavior of consumers. While consumers learned only recently about how to increase the longevity of fresh flowers, they may not have had an event or occasion arise to promote the use of their new skills in the purchase of fresh cut flowers. Ideally, they will retain the new knowledge and, over a longer period of monitoring, may use the knowledge when making future fresh flower purchases.

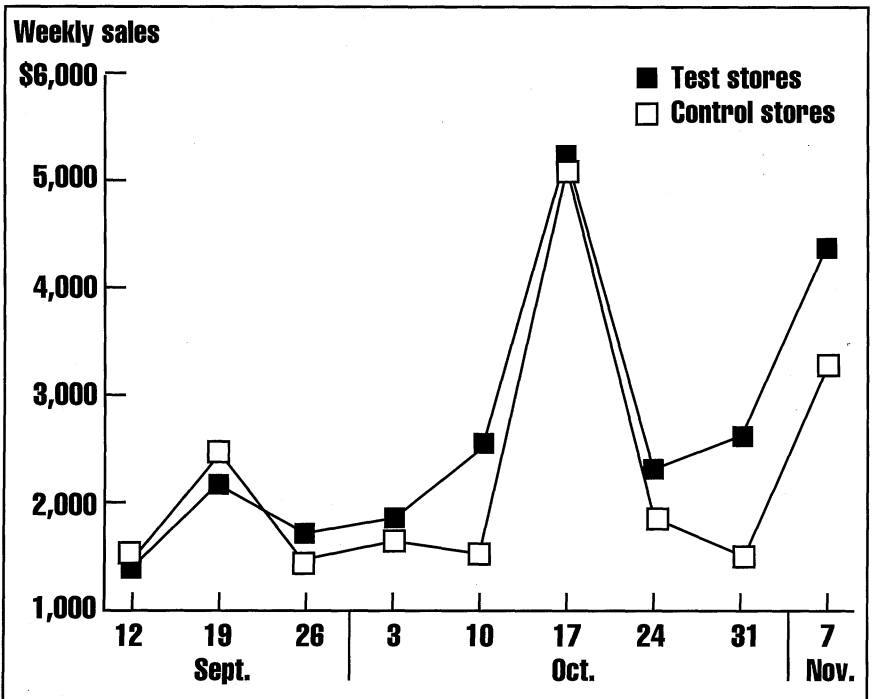


Figure 1. Changes in weekly fresh flower inventories are shown for control and demonstration stores over the 11 weeks of monitoring. From Sept. 12 to Oct. 10 there is little difference among stores. The peak at Oct. 17 represents the increase in inventories for Sweetest Day. After this point, it is evident that inventories in demonstration stores increased more than those for the control stores.

## CONCLUSIONS

Eight weeks of demonstrations resulted in a 28% average increase in fresh flower inventory over an 11-week period in supermarket floral departments (\$602 increase for \$2,155 average fresh flower inventory, reported with 93% confidence) (Table 2). Demonstrators contacted 18,418 people and distributed 15,216 packets of floral food and 4,450 fresh flowers during 512 hours of demonstrations. When researchers asked the demonstrators how many consumers they felt "learned something," they responded that at least 50% had. This figure translates to over 9,000 consumers learning something about fresh flower care. The cost per contact was \$1.81. In-store floral demonstrations were successful in increasing fresh flower inventory after six weeks. This increase probably occurred because consumers' floral knowledge was increased and/or their expectations about the longevity of fresh flowers were adjusted through **first-hand experience** of proper care and handling techniques.

The distribution of free samples contributed to the effectiveness of the project. Had consumers not taken fresh carnations and roses into their homes and used the provided floral food, it is doubtful that they would have learned as much as they indicated. Amazement at how long the flowers lasted was the single most frequently reported comment by consumers. The opportunity for consumers to gain first-hand experience with a fresh flower gave the in-store demonstrations the power they needed to educate. This important finding raises questions pertaining to consumer floral knowledge that needs to be explored.

## OTHER RELEVANT RESEARCH

In consumer research, single-variable demographic characteristics, such as age and income, are often correlated to purchase patterns. This method is used partly because of the ease of measurement of demographic characteristics. Floral purchasing increases as income increases (6, 11, 17, 20, 27, 30). Age is positively correlated with floral purchasing, but peaks near age 45 and then declines (3, 5, 6, 20). Employment outside the home, related to household income, is positively correlated with the number of floral purchases (3).

There is some evidence that gender also contributes to floral purchasing patterns. Demby (7) analyzed men and women separately without testing to determine if their behavior differed, yet differences in purchasing by men and women have been reported (4, 17, 22). Matsuo (16) showed that there are some differences by nationality.

Some research describing consumer preferences for floral products and for product attributes has been conducted. One of the first published floral consumer behavior studies was conducted at Ohio State University (27). Most consumers on the panel preferred roses over carnations or chrysanthemums and preferred red over yellow or white flowers. Hutchison and Robertson (10) determined that men preferred red roses over other colors, women preferred

colors other than red, and both groups preferred pink least. Robertson and Chatfield (26) found that the addition of non-red roses enhanced the marketability of floral arrangements. They also determined that non-homogenous color bunches of flowers were more appealing than homogeneous color bunches (25). Wolnick (29) found a consumer preference for red geraniums over other colors, but did not determine that the preference for red flowers created a demand for them or that the preference reflected the dominance of red geraniums in commercial production schedules. Herrmann and Voigt (9) showed that 46% (257 of 558) of consumer households in a Philadelphia and Washington, D.C., sample had purchased a poinsettia for Christmas 1985 and that 79% of those were red poinsettias.

In a study of factors other than flower color, Robertson and Chatfield (25) found that consumers selected fresh flower arrangements primarily by price and secondarily by composition. The container was relatively unimportant in their preference selection. When they examined preferences in style of arrangements, Robertson and Chatfield found that roses arranged informally had the greatest appeal. Consumers selected loose bunches of fresh flowers not by price but by composition. Prince (23) showed that roses merchandised in units of five and nine had greater marketability than the traditional dozen. Thompson (28) showed that, while fresh flowers in the workplace did not affect employee attitude positively or negatively, the ambivalence of employees may have been due partly to the lack of sentimental expression of the flower giver (the researcher) for the recipient (the employee).

Compared to other floral consumer groups, supermarket floral customers have been surveyed and profiled more often (1, 2, 8, 12, 13, 14, 18, 19, 21, 22, 24, 30). Rhodus (24) showed that supermarket floral bouquet purchases were price-elastic. Miller (18) investigated attitudes of supermarket floral customers concerning past purchases and future intentions and found that consumers were not patronizing one type of store exclusively. Rather, 53% of the consumers purchased from more than one retailer. His research suggested that supermarkets and traditional florists may be serving the same population of consumers. Levitt (15) suggested that consumers may belong to more than one consumer segment, depending on the situation in which they are acting.

**APPENDIX -- CONSUMER COMMENTS**

“I will buy flowers more often if I can get them to last longer than two days.”

“Love flowers and am so glad to have these tips on how I can keep my flowers longer.”

“What’s the occasion?”

“Didn’t know you should cut stem off under warm water.”

“Your presentation has certainly extended the life of my fresh cut flowers . . . Thanks!”

“The carnation you gave me last week looks as good as it did last Saturday.”

“The carnation you gave me last Saturday (9/19) is as lovely today as it was when you gave it to me.”

“Can I use this floral food on house plants?”

“What, no flowers this week?”

“The carnation you gave me last week is still going strong.”

“I’ve become addicted, I’m going to have to have cut flowers in my house all the time now that I’ve learned how to keep them longer.”

“They really cheer me up.”

“Where do these flowers come from?”

“What’s the gimmick?”

“Giving ‘free’ samples of floral food and flower manual(s) aren’t you going to ask us to buy something?”

“When are you going to give out flowers again?”

“Still have my carnation have been caring for it the way you suggested and I can’t believe how long it has lasted.”

“I am really sold on this floral food; it really works well.”

“Pleased with the flower food and reinforced information.”

“I bought a bouquet because of what I learned.”

“You made my day with this rose.”

“I love flowers, they cheer me up and I will definitely buy cut flowers more often now.”

“Why doesn’t this rose have any fragrance?”

“Does aspirin help preserve roses?”

**LITERATURE CITED**

- (1) BEHE, B.K., T.A. PRINCE, and H.K. TAYAMA. 1992a. Analysis of consumer purchases of floral products in supermarkets. *HortSci.* 27:455-459.
- (2) BEHE, B.K., T.A. PRINCE, and H.K. TAYAMA. 1992b. Market segmentation of supermarket floral customers. *HortSci.* 27:459-462.
- (3) BEHE, B.K. and D.J. WOLNICK. 1991. Type of floral product purchased and demographic characteristics and floral knowledge of consumers. *HortScience* 26:414-416.
- (4) BEHE, B.K., and D.J. WOLNICK. 1991. Market segmentation of Pennsylvania floral consumers by purchase volume and primary retail outlet. *HortScience* 26:1328-1331.
- (5) CRISPELL, D. 1991. Targeting the American floral consumer. *GrowerTalks.* 54:21-27.
- (6) DE BOON, I.H. 1990. A world perspective on more flowers for more people. *Professional Plant Growers Association News.* 21:7,10,11.
- (7) DEMBY, E. 1973. A psychographic study of the market for flowers. *American Floral Marketing Council.*
- (8) GOLDSBERRY, K.L., N. BAKER, and M. MICHAELS. 1985. Determining the desires of supermarket cut flower customers: a six year evaluation. *Colo. Agr. Expt. Sta. Res. Bul.* 421.
- (9) HERRMANN, R.O. AND A.O. VOIGT. 1988. Marketing opportunities for Pennsylvania-grown poinsettias. *Penna. Flower Growers Bul., No.* 388:1-2.
- (10) HUTCHISON, N.R. and J.L. ROBERTSON. 1979. Consumer demand analysis for roses. *J. Amer. Soc. Hort. Sci.* 104:303-308.
- (11) KELLEY, R.T., INC. 1983. *Flowers Canada Ontario. Consumer research: final results.* 57 pages.
- (12) KELLY, R.A. 1961. Floricultural sales in mass market outlets. *Univ. of Ill. Ag. Exp. Sta. Bull.* 675.
- (13) KIPLINGER, D.C., and R.W. SHERMAN. 1962. Florist crops for mass market outlets. *Ohio Agr. Exp. Sta. Res. Bul.* 928.
- (14) KRESS, J.G. 1976. Flower consumers -- what do we really know about them? Unpublished paper. College of Business, Colo. State Univ. 6 pages.
- (15) LEVITT, T. 1988. The pluralization of consumption. *Harvard Business Rev.* 88:7-8.
- (16) MATSUO, E. 1990. Analysis of flower appreciation and its international comparison contribute to progress of flower production and international flower trade. *HortScience* 25:1468-1471.
- (17) MARKET FACTS, INC. 1989. *Society of American Florists Floral Marketing Report.* Washington, D.C.



- (18) MILLER, M.N. 1977. Consumer preferences for and attitudes toward cut flower items in supermarkets. M.S. thesis, Purdue Univ., West Lafayette, Ind.
- (19) PERRY, L.P. 1990. Vermont surveys track shifts in plant buyers' preferences. *Greenhouse Manager*. 9:128.
- (20) PRINCE, T.A. and T.L. PRINCE. 1991. State demographic trends shape consumer floral buying. *Flower News*. 45:28.
- (21) PRINCE, T.A. and T.L. PRINCE. 1992. Consumers' mum-purchasing behavior revealed in tests. *Floral Mass Marketing*. 8(1):1,5,16.
- (22) PRINCE, T.A. and T.L. PRINCE. 1992. Value of mum longevity and care information revealed in Yoder tests. *Floral Mass Marketing*. 8(2):1,5,11.
- (23) PRINCE, T.L., J.L. ROBERTSON, and L.H. CHATFIELD. 1980. Factors affecting the marketability of roses. *J. Amer. Soc. Hort. Sci.* 105:388-393.
- (24) RHODUS, W.T. 1989. Estimating price elasticity for fresh flower bouquets sold in supermarkets. *HortScience*, 24:386-387.
- (25) ROBERTSON, J.L. and L.H. CHATFIELD. 1981. Analysis of fresh flower merchandising. Ohio Ag. Res. and Development Center. Res. Bull 1136. Ohio Ag. Exp. Sta., Wooster, Ohio.
- (26) ROBERTSON, J.L. and L.H. CHATFIELD. 1982. Fresh flower merchandising in loose bunches. *HortScience* 17:593-595.
- (27) SHERMAN, R.W., D.C. KIPLINGER, and H.C. WILLIAMS. 1956. Consumer preferences for cut roses, carnations, chrysanthemums. Ohio Ag. Exp. Sta. Res. Circ. 31. Ohio Ag. Exp. Sta., Wooster, Ohio.
- (28) THOMPSON, J.L. 1983. The effectiveness of flowers as a change element in the office environment on the attitudes of employees. M.S. thesis, The Ohio State Univ., Columbus, Ohio.
- (29) WOLNICK, D.J. 1983. Consumer preference studies with zonal geraniums. *Flor. Rev.* 162:31-33.
- (30) ZAWADZKI, M.I., W.E. LARMIE, and A.L. OWENS. 1960. Selling flowers in supermarkets. R.I. Agr. Expt. Sta Res. Bul. 355.

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