



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# Shelf Labeling of Organic Foods: Customer Response in Minnesota Grocery Stores

Marla Reicks, Patricia Splett, and Amy Fishman

In the past 10 years, growth in the organic food industry has been tremendous. Retail grocers and organic food supporters are interested in effective promotion techniques that increase sales of organic food products in mainstream grocery stores. An experimental study was designed to test the effectiveness of two levels of point-of-purchase (POP) signage to influence customer perceptions and to promote sales of organic food products in two grocery store environments in the Twin Cities metropolitan area in Minnesota. Customer intercept interviews and sales data showed that POP signage can be effective in promoting organic foods and in influencing sales but may be dependent on store environment/format. Exposure to signage and trial behavior may lead to increased attention to organic food labeling and expanded organic food purchasing.

## Introduction

Sales of organic foods have increased more than 20 percent each year for the past six years (Markle, 1997) as organic foods have become more available and affordable for conventional consumers in mainstream grocery stores. Consumer interest in and demand for organic food products has expanded to the mainstream supermarket, with conventional supermarkets accounting for about \$210 million in sales of organic food in 1995 (Mergentime, 1996). Continued industry growth is expected to be supported by the implementation of the Organic Foods Production Act (OFPA, 1990), which will establish national standards for organic foods, a system of mandatory certification, and Federal oversight to ensure truth in labeling. Producers and consumers will benefit from the implementation of the OFPA, and markets are expected to expand.

The growth in the organic food industry has been attributed to consumers' growing interest in environmental concerns, especially in avoiding agrichemicals and pesticide residues (*FMI/Prevention*, 1994; *Public Voice*, 1993). The manner in which consumer interest in environmental issues translates into food purchasing decisions is of particular interest to retailers, providing an opportunity to increase existing customers' loyalty, to attract new customers, and to generate additional

revenue. Several recent studies have increased the understanding of consumers' underlying motivations, attitudes, and preferences for organic foods. A range of attitudinal groups representing portions of the U.S. population in relation to their concern about the environment was identified in a recent survey (FMI/Hartman Group, 1997). Willingness to purchase organically produced foods and beverages was higher in the attitudinal groups that demonstrated a high level of concern for the environment and a commitment to environmentally sound products as a part of their lifestyle. In general, consumers buy organic products because they perceive them as having many positive attributes, such as growth with fewer pesticides, more nutritional value, better taste, and more environmental health benefits (Jolly et al., 1989; Jolly and Norris, 1991; Goldman and Clancy, 1992; Smith, 1995). Concern about pesticide residues and other food-related environmental concerns was a significant explanatory variable for organic food preference for a group of Washington state food cooperative members as well as for residents from the same geographical region (Wilkins and Hillers, 1994). Focus group participants identified a need for more information to correct misperceptions, to present organics as a choice, and to provide positive reasons to make the organic choice (Smith, 1995).

The Midwest Organic Alliance, a non-profit organization, was founded in 1995 to make a measurable impact on production and sales of organic food products. The Alliance was focusing on the development of the supply of certified organic products in a five-state Midwest region and consumer demand for organic foods in the Minneapolis and St. Paul market. The Alliance had

---

Authors are associate professor, evaluation consultant, and nutrition graduate student, respectively, Department of Food Science and Nutrition, University of Minnesota. This manuscript was prepared as a University of Minnesota Agricultural Experiment Station (AES) publication # 981180005.

developed an Earth-Friendly Organic logo to highlight organic products on grocery shelves in the Twin Cities market. Mainstream retail grocers were encouraged to carry the Earth-Friendly Organic logo-identified products, but retailers requested that data be collected to assess the effectiveness of the POP shelf-labeling on sales of organic food products.

In general, it appears that special retail displays and increases in normal shelf space increase sales in some situations and have little or no effect in others (Areni, Duhan, and Kiecker, 1996; Phillips and Bradshaw, 1993; Janiszewski, 1996). The results of a national consumer study (A.C. Nielsen) examining factors driving grocery shoppers' decisions indicated that almost 80 percent of the survey respondents noticed special displays when grocery shopping. Promotions represent a significant percentage of the marketing-mix budget and are known to have a significant positive impact on sales. The marketing-mix may involve many different types of promotional activities, including displays, feature advertising, and price discounts (Blattberg and Neslin, 1990). The effectiveness of each type of promotional activity alone or in synergy with another is not well-known. Sales effectiveness research and awareness or recall measurements are important in assessing the overall effectiveness of various POP techniques. The purpose of this study was to examine the effect of POP signage (Earth-Friendly Organic logo identification) on customer perceptions and purchasing behavior.

## Methods

An experimental study was designed to be replicated in two grocery environments, upscale and discount/warehouse. Six upscale stores from one chain and four discount/warehouse stores from another chain were involved. Different companies owned each chain. In the six upscale stores, two served as control; two were assigned to a moderate level of POP signage; and two were assigned to a high level of POP signage. In the four discount/warehouse stores, two were designated as high level of signage, and two served as control. Stores were matched by characteristics of size and the demographics of their service area and customers, and then assigned to an intervention or control condition for the study.

Fourteen organic food items were selected for labeling by Midwest Organic Alliance to represent the range of product lines in which organic products are available including: dairy (skim milk, eggs, and butter); breakfast cereal (whole grain flake cereal); baby food (pureed fruit blend); snack foods (chips and salsa or dip); canned and bottled goods (pinto beans, fruit juice or nectar, and spaghetti sauce); pasta (whole wheat spaghetti); produce (peeled baby carrots); bakery products (deli bread); and coffee (whole bean coffee). Midwest Organic Alliance and study personnel encouraged store managers to expand their offerings to include a wide variety of organic items; however, they were required, at a minimum, to carry the 14 selected organic products. Within each chain, all stores charged the same price for food items.

After the products were in place, organic foods were identified according to the study design. Control stores had no new signage added. In stores with a moderate level of signage, Organic Earth Friendly channel strip labels (labels on the facing of grocery shelves typically used to describe product and to provide price information) with the Midwest Organic Alliance logo were placed beside the UPC channel strip for all organic products throughout the store; in addition, 3- x 5-inch fact cards with information defining "organic" were placed by 10 items, and a plastic holder with a take-home brochure on organic foods was placed in one location at the front of the stores. In the high signage condition, channel strip labels were used to identify all organic products. In addition, fact cards were placed by all 14 selected organic product items, plus six to eight other organic products, and displaying eight to 10 4- x 8-inch Earth-Friendly Organic logo signs and brochure holders at five to seven locations throughout the stores. In the discount/warehouse chain, only the high level of signage was used because the organic signs had to compete with heavy signage routinely in use in that environment. In contrast, the upscale chain had a policy limiting the use of signage.

Quality control procedures that were implemented to assure the ongoing integrity of the intervention included a Monday morning store "walk-through" by the pricing coordinator at each store to verify that the products were in stock and that appropriate signage was in place. Approxi-

mately two weeks after the intervention was in place, customer intercept interviews were conducted by trained interviewers.

Interview questions were designed to assess customers' past and current organic food-purchasing behavior and future intent to purchase organic foods; to assess their recall of POP signage about organics and their reaction to signage; and to determine if they could discriminate between the Earth-Friendly Organic logo used in signage, a fictitious logo, and the widely disseminated Five-A Day for Better Health logo.

Intercept survey procedures and questions were pilot-tested at a non-study upscale store to assess customers' ability to answer questions, interviewers' training needs, length of time needed to conduct survey, and store mechanics. Following the pilot test, the survey and interviewing procedure were revised slightly. Interviews were conducted by trained interviewers who were recruited from University students and trained by investigators. Customer intercept interviews took less than two minutes and were completed while customers waited for grocery checkout. Interviewing continued in scheduled time periods at each store until 100 interviews were completed or until the scheduled interview period (usually two hours) came to an end. Interviewing time periods were scheduled to occur on varied days of the week at varied times to assure representation from different types of customers.

The effect of signage on sales of organic foods was tracked for a period of six weeks, beginning one week after all stores had foods and signage in place. The pricing coordinator at each store recorded sales data for selected organic products, designated by UPC number using computer reports generated from scanner data.

### *Statistical Analysis*

Survey forms were coded and keyed for analysis using SAS, developed by SAS Institute, Inc., Cary, NC. Descriptive variables were summarized for each store and each intervention level (high, moderate, control). Chi square analysis was used to determine the association between the intervention level and the responses to survey items. The number of units of each selected food item sold each week in each store during the six-week data collection period was entered for analysis. Average weekly sales by store and signage level within grocery chain were

computed. Repeated measures analysis of variance was used to determine the effect of signage level, store, and week for each food product and for food categories, including dairy foods, snack foods, same aisle foods, and total foods. Separate analyses were done for each grocery chain environment. Thus, ANOVA controlled for the potential effect of store variation and weekly variation on sales results.

Contrasts were examined to determine significant differences between control and signed stores in the upscale and discount environments and between high and moderate level signage in the upscale environment.

For the upscale chain, an adjusted analysis—in which average weekly sales for each food at each store were adjusted for the average weekly total sales of the store—was done. This analysis used the figure produced by dividing the number of units of each food item sold by the total dollar sales of the store. This adjusted analysis was not conducted for the discount/warehouse chain because total sales figures were not made available. A critical level of .05 was used to determine significance of all statistical tests.

## **Results and Discussion**

### *Intercept Interview Results*

A total of 3,807 customers were interviewed while in the checkout lines of upscale (n=2,272) or discount/warehouse (n=1,535) grocery stores. Customers were interviewed on various days at various time periods during a two-week period of time, so it was likely that respondents represented each store's customers. Only about 5 percent of approached individuals declined to participate.

Most of the customers interviewed in the study were women (78 percent). The majority of those interviewed were estimated to be in their 30s to 60s, with a somewhat younger clientele in the discount stores. Most of those interviewed reported being in households that had 2–3 or more members, with larger household size reported for customers interviewed at the discount stores compared to those interviewed at the upscale stores.

In all stores, between 21 percent and 28 percent of customers reported that had they observed shelf labels identifying organic foods on the day of the interview (Table 1a). In upscale stores with shelf labels, customers were more likely to report

**Table 1a. Customer Reactions to Shelf Labels Identifying Organic Foods.<sup>a</sup>**

	Upscale Stores		Discount Stores	
	Control	Intervention (moderate and high signage)	Control	Intervention (high signage)
<i>When you were shopping today, did you see any signs on shelves identifying organic foods?</i>				
Yes	22.5 (180)	28.0 (444)	21.2 (170)	22.4 (180)
No	77.5 (620)	72.0 (1,143)	78.8 (633)	77.6 (624)
		p<.004		p<.554
<i>(Those who responded no to Question 1) Have you ever seen anything in this store to call your attention to organic foods?</i>				
Yes	31.2 (194)	37.4 (432)	27.0 (171)	37.9 (240)
No	68.8 (428)	62.6 (724)	73.0 (463)	62.2 (394)
		p<.009		p<.000
<i>(Those who reported seeing signs on shelves) Did seeing signs on shelves about organic foods cause any change in your shopping behavior?</i>				
Yes	21.0 (77)	22.4 (179)	17.4 (58)	18.8 (77)
No	79.0 (289)	77.7 (622)	82.6 (275)	81.2 (332)
		p<.616		p<.621

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.

observing signs on shelves identifying organic foods than were customers in stores without signage (28 percent vs. 23 percent). About one-fifth of the customers in control stores reported seeing signs on shelves identifying organic foods. They may have been referring to product labels on organic foods or to signs observed in other stores, or they may have been remembering signage from an earlier time in the year when Earth-Friendly Organic shelf labels were used during a short roll-out period. When asked to describe what they had observed, customers most often reported seeing signs identifying organic foods in the produce area, even though only one of the 14 selected organic items labeled with Earth-Friendly Organic signage was a produce item (peeled baby carrots). This finding is not surprising when considering the fact that 80 percent of grocery store customers pass through the produce department (*POPAI News*, 1991). In the upscale stores, increasing the level of signage caused an increase in the number of customers who said that they observed signs identifying organic foods (Table 1b).

Those customers who said that they did not see signs on shelves identifying organic foods on the day of the interview were asked if they had ever observed anything in the store that called their attention to organic foods. About 27–40 percent

of customers reported having seen something in the store that called their attention to organic foods at some point in time (Table 1a). The presence of the Earth-Friendly Organic signage increased the percentage of those customers who reported ever having seen anything that called their attention to organic foods. A range of 17–22 percent of those customers who indicated that they had observed signage identifying organic foods responded positively when asked if seeing the signage caused a change in their shopping behavior. The most common responses were that the signage caused them to notice, examine, or purchase the product.

The participating discount/warehouse stores were part of a chain, which featured a large natural food section in some stores. While such stores were not included in the study, it could be that discount/warehouse chain customers were not consciously aware that numerous organic foods were distributed throughout the large facility. People interested in organics may shop in the natural food section (not being fully aware of the distinction between “natural” and “organic”) and may “tune out” awareness of organic products and messages in the rest of the store. In the discount/warehouse stores, shoppers were asked if they thought that there was a difference between

**Table 1b. Reactions to Shelf Labels in Upscale Stores With Three Levels of Signage.<sup>a</sup>**

	Control	Intervention	
	No signage	Moderate Signage	High Signage
<i>When you were shopping today, did you see any signs on shelves identifying organic foods?</i>			
Yes	22.5 (180)	26.0 (205)	30.0 (239)
No	77.5 (620)	74.0 (584)	70.1 (559)
			p<.003
<i>(Those who responded no to Question 1) Have you ever seen anything in this store to call your attention to organic foods?</i>			
Yes	31.2 (194)	36.2 (213)	38.6 (219)
No	68.8 (428)	63.8 (375)	61.4 (349)
			p<.024
<i>(Those who reported seeing signs on shelves) Did seeing signs on shelves about organic foods cause any change in your shopping behavior?</i>			
Yes	21.0 (77)	26.0 (95)	19.3 (84)
No	79.0 (289)	74.0 (271)	80.1 (351)
			p<.068

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.

the terms “organic” and natural.” Sixty percent of respondents did not think that there was a difference, indicating that most shoppers do not make the distinction between “organic” and “natural.” Most customers correctly reported that the term “organic” meant that the food was produced without using pesticides, chemicals/sprays, or additives/preservatives.

During the intercept interviews, customers were asked whether they had observed any of three product logos—the 5-a-Day for Better Health logo, the Earth-Friendly Organic logo, and/or a logo for a fictitious product line called Fresh Country. Overall, 11–17 percent of customers indicated that they had seen the Earth-Friendly Organic logo (Table 2a). In discount stores with signage, there were a higher percentage of customers recognizing the Earth-Friendly Organic logo than there was in stores without signage (Table 2a). The Earth-Friendly Organic logo had only been in existence for about a year at the time of the interviews. The percentage of customers recognizing the logo (15–17 percent) in the stores with signage is considered impressive compared to the recognition rate for the 5-a-Day for Better Health logo (48–60 percent) (FMI/Prevention, 1996), which has had a presence nationwide in many grocery stores for about five years. Very few customers reported seeing the fictitious logo (2–3 percent). When these respondents were deleted from the statistical analysis, the percentages of respondents reporting having seen the Earth-Friendly Organic logo did not change. In upscale

stores, recognition of the Earth-Friendly Organic logo was not related to level of signage (Table 2b).

Fewer customers reported recognizing the logo in the discount/warehouse type of stores compared to the upscale stores. This may be explained by the competition for attention by a large amount of other shelf labeling and signage that was present in the discount stores while the upscale stores typically did not use shelf labeling or used limited signage for customer promotions.

In addition to questions concerning observation of signage identifying organic foods, customers were also asked about purchasing organic food products. At the beginning of the interview, customers were asked if they ever buy organic foods. At the end of the interview, customers were asked whether they had purchased organic foods that day and if they expected to buy organic foods in the future (Table 3a). About 5–9 percent of customers reported buying organic products on the day of the interview, with significantly more customers in upscale stores with signage than customers in upscale stores without signage reporting the purchase of organic products. Overall, a range of 36–51 percent of customers reported that they expected to purchase organic foods in the future. There was a small but statistically significant increase in percentage of customers reporting intentions to buy organic foods in the future in stores with signage identifying organic

**Table 2a. Customer Recognition of Logos.<sup>a</sup>**

	Upscale Stores		Discount Stores	
	Control	Intervention (moderate and high signage)	Control	Intervention (high signage)
<i>5-a-Day logo</i>				
Yes	51.0 (408)	47.7 (757)	59.6 (478)	49.1 (396)
No	49.0 (392)	52.3 (829)	40.4 (324)	50.9 (410)
		p<.131		p<.000
<i>Earth-Friendly Organic logo</i>				
Yes	14.9 (119)	17.0 (270)	10.6 (85)	14.9 (120)
No	85.1 (682)	83.0 (1,318)	89.4 (716)	85.2 (688)
		p<.180		p<.011
<i>Fictitious logo</i>				
Yes	2.9 (23)	2.8 (44)	3.3 (26)	2.1 (17)
No	97.1 (779)	97.2 (1,539)	96.8 (775)	97.9 (788)
		p<.902		p<.159

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.

**Table 2b. Recognition of Logos in Upscale Stores With Three Levels of Signage.<sup>a</sup>**

	Control		Intervention	
	No Signage	Moderate Signage	High Signage	
<i>5-a-Day logo</i>				
Yes	51.0 (408)	46.4 (367)	49.1 (390)	
No	49.0 (392)	53.6 (424)	50.9 (405)	
				p<.183
<i>Earth Friendly Organic Logo</i>				
Yes	14.9 (119)	16.5 (131)	17.5 (139)	
No	85.1 (682)	83.5 (661)	82.5 (657)	
				p<.359
<i>Fictitious logo</i>				
Yes	2.9 (23)	2.5 (20)	3.0 (24)	
No	97.1 (779)	97.5 (769)	97.0 (770)	
				p<.835

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.

**Table 3a. Customers' Reported Organic Food Purchasing Behavior.<sup>a</sup>**

	Upscale Stores		Discount Stores	
	Control	Intervention (moderate and high signage)	Control	Intervention (high signage)
<i>Do you ever buy organic foods?</i>				
Yes	42.1 (338)	48.7 (773)	31.3 (251)	35.9 (286)
No	57.9 (465)	51.3 (813)	68.0 (545)	63.4 (505)
		p<.002		p<.052
<i>Did you buy any organic products today?</i>				
Yes	6.6 (53)	9.3 (147)	6.5 (52)	5.1 (41)
No	93.0 (745)	89.9 (1,427)	87.8 (705)	94.2 (761)
		p<.025		p<.000
<i>Do you expect to buy organic foods in the future?</i>				
Yes	47.6 (378)	50.7 (801)	36.4 (289)	39.0 (314)
No	20.8 (165)	22.9 (362)	25.2 (200)	25.6 (206)
Maybe	31.5 (250)	26.4 (418)	36.5 (290)	30.2 (243)
		p<.033		p<.000

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.

foods compared to stores without signage (39 percent vs. 36 percent in discount stores and 51 percent vs. 48 percent in upscale stores).

The percentage of customers reporting ever buying organic foods significantly increased with signage (Table 3b). The number who reported buying organic foods on the day of the interview was also higher in signed stores as compared to control stores. Level of signage was not a significant factor in responses related to intentions to buy organic foods in the future. The percentage of customers reporting ever purchasing organic foods (31–40 percent) and those reporting intentions to purchase (36–51 percent) were higher than results obtained in a nationally representative household survey (*Fresh Trends*, 1996). In the *Fresh Trends* survey, 14–33 percent of households said that they purchased organic produce in the six months prior to the survey, and 20 percent reported being extremely or very likely to purchase organic produce in the six months following the survey. While the *Fresh Trends* survey was concerned only with organic produce, the current study attempted to measure purchasing behavior and intentions to purchase many types of organic products, which may account for the higher percentages reported in the current study.

There were significant differences in customer reactions to shelf labels when the two store environments were compared (Table 4). In stores with signage, upscale customers were significantly more likely than discount customers to report seeing organic signage. In general, more

customers in the upscale stores, regardless of signage, reported ever buying or planning to buy organic foods. In signed stores, an upscale store environment accounted for a greater proportion of customers reporting buying organic foods on the day of the interview. More total customers (those from stores with and without signage combined) in the upscale stores reported recognizing the Earth-Friendly Organic logo than did customers in discount stores. The two chains had different store environments, merchandising philosophies, and shopper profiles. The profile of the typical shopper in the upscale stores is generally a well-educated shopper who may be less cost-conscious and may have more discretionary income, which allows for the purchase of more expensive foods. A nationwide phone survey (*Fresh Trends*, 1996) showed that consumers with higher household income levels purchased organic foods more often than did those with lower incomes and that 60 percent of organic food shoppers are college-educated.

#### Sales Results

The study was initiated in four discount/warehouse stores—two designated as high-level signage stores and two as control stores. One of the signed stores was unable to consistently stock the selected organic food products during the study period and was eliminated from the analysis. Data reported in Table 5 reflect weekly product sales for the remaining three stores.

**Table 3b. Reported Organic Food Purchasing Behavior in Upscale Stores With Three Levels of Signage.<sup>a</sup>**

	Control	Intervention	
	No Signage	Moderate Signage	High Signage
<i>Do you ever buy organic foods?</i>			
Yes	42.1 (338)	48.5 (382)	49.3 (391)
No	57.9 (465)	51.4 (404)	50.7 (402)
			p<.006
<i>Did you buy any organic products today?</i>			
Yes	6.6 (53)	9.9 (78)	8.8 (69)
No	93.4 (745)	90.1 (710)	91.2 (717)
			p<.094
<i>Do you expect to buy organic foods in the future?</i>			
Yes	47.7 (378)	51.3 (407)	49.9 (394)
No	20.8 (165)	23.0 (182)	22.8 (180)
Maybe	31.5 (250)	25.6 (203)	27.2 (215)
			p<.142

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.



**Table 4. Customer Reactions to Shelf Labels by Store Environment.<sup>a</sup>**

	No Signage		With Signage		Total	
	Discount	Upscale	Discount	Upscale	Discount	Upscale
<i>When you were shopping today, did you see any signs on shelves identifying organic foods?</i>						
Yes	21.2 (170)	22.5 (180)	22.4 (180)	28.0 (444)	21.9 (343)	25.7 (597)
No	78.8 (631)	77.5 (620)	77.6 (624)	72.0 (1,142)	78.1 (1,223)	74.3 (1,726)
		p<.677		p<.009		p<.007
<i>(Those who responded no to Question 1) Have you ever seen anything in this store to call your attention to organic foods?</i>						
Yes	27.0 (171)	31.2 (194)	37.9 (240)	37.4 (432)	32.3 (398)	35.1 (610)
No	73.0 (633)	68.8 (428)	62.1 (393)	62.6 (723)	67.7 (834)	64.9 (1,128)
		p<.124		p<.929		p<.119
<i>Recognize Earth-Friendly logo</i>						
Yes	10.6 (85)	14.9 (119)	14.9 (120)	17.0 (270)	12.7 (199)	15.8 (367)
No	89.4 (717)	85.1 (680)	85.1 (685)	83.0 (1,318)	87.3 (1,368)	84.2 (1,955)
		p<.034		p<.231		p<.007
<i>Do you ever buy organic foods?</i>						
Yes	31.3 (251)	42.1 (338)	35.9 (286)	48.7 (773)	33.4 (516)	46.5 (1,076)
No	68.7 (551)	57.9 (465)	64.1 (511)	51.3 (814)	66.6 (1,029)	53.5 (1,238)
		p<.000		p<.000		p<.000
<i>Did you buy any organic products today?</i>						
Yes	6.5 (52)	6.6 (53)	5.1 (41)	9.3 (147)	6.0 (91)	8.4 (193)
No	93.5 (748)	93.4 (750)	94.9 (763)	90.7 (1,434)	94.0 (1,426)	91.6 (2,105)
		p<.843		p<.000		p<.006
<i>Do you expect to buy organic foods in the future?</i>						
Yes	36.5 (289)	47.6 (378)	39.0 (314)	50.7 (801)	38.0 (584)	49.1 (1,134)
No	26.9 (213)	20.9 (166)	30.8 (248)	22.9 (362)	27.4 (421)	22.6 (522)
Maybe	36.5 (290)	31.5 (250)	30.2 (243)	26.4 (418)	34.6 (520)	28.3 (654)
		p<.000		p<.000		p<.000

<sup>a</sup> Values are percentages. The number in parentheses is the number of customers interviewed.

Signage appears to have a significant effect on sales of organic food products in the discount/warehouse grocery store environment (Table 5). However, analysis by individual food product and groups of foods indicates that the effect is not uniform across the 14 organic foods tracked. Signage in the dairy section appears to positively influence volume of sales of skim milk, butter, and eggs. The number of units sold per week in the signed store was approximately two times greater than the control stores for milk and butter, and more than six times higher than the control stores for organic eggs. Deli bread and carrots were dramatically higher in the signed store compared to the control stores. Because of problems stocking organic carrots, the result for carrots should be applied with caution. (Carrots

were not available in week 6 in one control store and in weeks 4–6 in the other control store—the reported mean is the average of sales for the weeks that carrots were available.) No differences were observed for the volume of chips and salsa sold. Among other grocery items there was a significant effect attributed to signage for flake cereal and spaghetti. However, very low volume of sales makes interpretation of the data for these two products questionable. Sales were equally low in the signed and control stores.

There was a significant study-week effect for butter. No other food in the discount environment had significant differences in the number of units sold in a week over the six-week period of data collection. A significant store effect, independent from presence of signage, was found for chips,

**Table 5. Organic Food Sales and Effects of Signage in a Discount/Warehouse Grocery Store Environment.**

Organic Food Item	Mean Units Sold /Week		Effect of Signage
	Control Stores	High Signage	Control vs. Signage (p value)
Skim milk	10.2 ± 5.6	18.7 ± 6.9	.0172*
Butter	1.4 ± 1.0	3.3 ± 2.5	.0099*
Eggs	4.3 ± 2.4	28.2 ± 10.9	.0001*
Dairy foods	15.9 ± 6.6	50.2 ± 16.1	.0002*
Chips	17.4 ± 10.9	17.2 ± 3.3	.9522
Bean dip	2.1 ± 2.8	0.5 ± 0.8	.1379
Snack foods	19.5 ± 11.1	17.7 ± 3.9	.6464
Canned pinto beans	4.7 ± 4.4	4.8 ± 2.9	.9035
Spaghetti	0.7 ± 0.9	1.8 ± 1.6	.0522*
Marinara sauce	0.3 ± 0.5	0.5 ± 0.6	.4608
Same aisle foods	5.7 ± 5.5	7.2 ± 4.3	.4010
Deli bread	0.5 ± 1.7	11.8 ± 3.3	.0001*
Apple juice	1.8 ± 5.5	1.5 ± 0.8	.9147
Flake cereal	0.3 ± 0.5	1.0 ± 0.9	.0459*
Coffee	0.3 ± 0.6	0.5 ± 0.6	.4956
Pureed baby food	3.6 ± 3.5	5.3 ± 2.6	.3237
Fresh carrots	2.6 ± 3.8	34.5 ± 24.6	.0053* <sup>†</sup>
Total (no carrots)	47.4 ± 12.9	95.2 ± 21.7	.0001*
Total (with carrots)	49.2 ± 13.8	129.7 ± 37.8	.0001*

\* Significant difference between signed store and control stores.

<sup>†</sup> Based on 14 observations; all other analyses based on 18 observations.

canned pinto beans, and pasta sauce. This reflects differences in volume of sales for these products between the two control stores. One control store sold more than two times the volume of chips and pasta sauce while the other store sold four times the amount of pinto beans. Since all stores charged the same price for each food item, price is excluded as an explanation for store differences.

Six upscale stores participated in the study—two as control and four as stores with POP signage. In the upscale environment, there was a trend toward increased sales of skim milk and butter in the presence of signage, but these effects were not significant (Table 6). There was a statistically significant effect of signage compared to control for eggs and deli bread; however, the effect was in a negative direction. A similar negative trend was observed for salsa. The inconsistent effects (milk and carrots increased in intervention stores while sales dropped for deli bread and eggs) may also be indicative of mixed reactions to the attribute of being “organic.” Areni et al. (1996) noted that POP can increase the salience of normally

non-salient attributes. When this occurs, sales may diminish. When the attribute of “organic” is brought to the attention of customers, some customers could react negatively and select an alternate choice. This could explain the negative effect of signage for some foods.

Of the 14 tracked organic foods, milk, eggs, chips, and carrots had the greatest volume of sales. An analysis was conducted in which the weekly average volume of sales for each item at each store was adjusted for the store’s overall sales volume. The adjusted analysis produced changes in the above findings; a highly significant effect of signage on skim milk sales was found while the effects for eggs and flake cereal were lost. POP labeling of carrots became highly significant. A significant effect was also identified for spaghetti and peach nectar. After volume adjustment, the analysis for the effect of signage on total sales became stronger but still failed to reach statistical significance.

ANOVA, including store and study week as factors, revealed a significant study-week effect

**Table 6. Organic Food Sales and Effect of Signage in an Upscale Grocery Store Environment.**

Organic Food Item	Mean Units Sold/Week			Effect of Signage on Units Sold		Effect With Adjusted \$ Volume	
	Control Stores	Moderate Signage	High Signage	Mod. vs. High (p value)	Sign vs. Control (p value)	Mod. vs. High (p value)	Sign vs. Control (p value)
Skim milk	22.3 ± 7.8	25.6 ± 8.3	26.3 ± 9.1	.7956	.1088	.0056*	.0005*
Butter	2.4 ± 1.6	4.1 ± 4.0	3.8 ± 3.2	.8261	.1264	.1804	.0993
Eggs	18.2 ± 9.8	14.3 ± 8.6	10.7 ± 7.9	.1875	.0197*	.8167	.7090
Dairy foods	42.8 ± 16.6	43.9 ± 18.6	40.8 ± 16.0	.5057	.9030	.0710	.0225*
Chips	11.1 ± 10.0	14.3 ± 17.9	5.8 ± 2.7	.0447*	.7764	.1981	.1908
Salsa	1.6 ± 2.3	0.4 ± 0.7	0.8 ± 1.2	.6212	.0954	.2061	.9665
Snack foods	12.7 ± 9.8	14.8 ± 17.9	6.6 ± 3.3	.0553	.5747	.2870	.1923
Canned pinto beans	6.0 ± 3.6	8.8 ± 10.1	10.3 ± 14.0	.6852	.2995	.3693	.1536
Spaghetti	0.6 ± 1.4	0.5 ± 0.8	1.3 ± 1.2	.0506*	.3519	.8911	.0020*
Pasta sauce	1.7 ± 2.4	1.0 ± 1.5	1.3 ± 1.0	.6520	.4366	.6322	.4297
Same aisle foods	8.3 ± 5.3	10.3 ± 10.1	13.0 ± 14.4	.2495	.0126*	.5837	.2943
Deli bread	8.2 ± 5.8	5.8 ± 3.8	4.3 ± 4.7	.2495	.0126*	.5837	.2943
Peach nectar	0.8 ± 1.3	0.3 ± 0.6	1.3 ± 1.4	.0413*	.9246	.5271	.0316 *
Flake cereal	1.7 ± 1.6	1.9 ± 0.9	0.9 ± 1.2	.0401*	.5376	.1285	.1801
Coffee	0.7 ± 1.2	0.3 ± 0.5	0.6 ± 0.7	.2912	.3593	.2524	.1693
Pureed baby food	6.2 ± 8.0	6.5 ± 6.4	4.8 ± 4.7	.5151	.8209	.8960	.4989
Fresh carrots	16.3 ± 6.0	4.6 ± 8.2	20.3 ± 18.5	.0023*	.3440	.0712	.0015*
Total (no carrots)	81.3 ± 35.1	83.7 ± 46.2	72.3 ± 26.0	.2886	.9647	.3651	.0008*
Total (w/ carrots)	97.6 ± 35.3	88.3 ± 47.6	92.6 ± 31.8	.2599	.7044	.0845	.1257

for milk only after an adjustment for volume of sales. A significant store effect (independent from signage effect) was found for skim milk, butter, eggs, chips, spaghetti, deli bread, flake cereal, and carrots. After adjustment for overall volume of sales, pureed baby food was added, and milk and butter were deleted from the list of foods with significant store differences. These findings substantiate different sales patterns for organic products among stores after taking into account signage level. Since all stores charged prices set by the corporate office, price was eliminated as a potential explanatory factor for store differences.

To answer the question regarding the possibility of a threshold effect of POP signage, sales effects were compared in the upscale stores between the moderate level and high level of signage. These results are shown under the moderate versus high columns on Table 6. Before adjustment, significant differences were found for five foods, but

the direction of effect was mixed. More chips and flake cereal were sold in stores with moderate level signage while more carrots, spaghetti, and peach nectar were sold in high signage stores. After adjustment for overall sales volume of store, the only significant effect found was for milk, where the high signage stores had greater adjusted sales than did the moderate level signage stores.

Based on the sales data, we conclude that, in the discount/warehouse grocery environment, POP signage of organic food products has a positive impact on sales of dairy products—specifically, skim milk, butter, and eggs as well as spaghetti, deli bread, flake cereal, and fresh carrots. While a positive trend was observed for all other tracked foods except chips and salsa, a statistically significant effect was not found. Additional study in more stores, over a longer time period and including more food items, is recommended to confirm and possibly extend the list of food

items for which signage has an effect in the discount/warehouse grocery environment.

On the other hand, in an upscale grocery environment, where customers are not accustomed to seeing signage used, organic food labeling appeared to have a mixed effect. Although, after adjustment for the overall volume of sales, significant effects attributed to POP signage did emerge for milk, spaghetti, peach nectar, and carrots. Before adjustment, no positive advantage could be attributed to the presence of signage near organic food products. For the two foods—eggs and deli bread, where there was a significant difference between the control and signed stores, signage appeared to reduce sales. The comparison between moderate- and high-level signage failed to produce a pattern. Five items were significantly different—two (chips and flake cereal) showed an advantage for moderate-level signage, and three (spaghetti, peach nectar, and carrots) showed an advantage for high-level signage. It is possible that the duration of the intervention was too short and that the number of signed organic food items was too few to impact the purchasing habits of upscale grocery store customers who are unaccustomed to POP signage. While some foods (milk, eggs, bread) are staples that are purchased on “stock-up,” “routine,” and “fill-in” shopping trips (POPPI, 1994), many of the tracked organic products could be purchased only occasionally by shoppers. A longer list of foods or a different selection of items could produce different results.

POP information can change the lift index (measurement of promotional effectiveness by comparing daily unit sales over a seven-day period, with the forecasted baseline established for the specific item) (Gogos, 1996). This study compared intervention stores to control stores since most products were new additions and had no established in-store baseline.

The nine stores that provided sales data seemed committed to proper implementation of the study. Spot checks by study personnel verified the presence of products and signage. However, the difficulty of locating items in the large grocery stores underscored the fact that the “high” POP intervention was actually very minimal. Customers would need to be very attentive shoppers who traveled the whole store to be sufficiently exposed to the POP signage on organic products. According to the Food Marketing Insti-

tute, consumers spend an average of 24 minutes in the supermarket on each trip and shop, on average, 41 percent of the store (POPPI News, 1991). Given this, the low recall of the Earth-Friendly Organic logo and its minimal effect on sales is not surprising.

## Summary and Conclusions

Contrasting both customer perceptions and organic food sales in grocery chains that represent two very different retail grocery store environments provided interesting results. The sales data reflect the behavior of all customers during a six-week period while the intercept interviews represent a subsample of each store’s customers. Striking differences were identified in customer perceptions, intent to purchase organic products, and the effect of shelf labels and information signage (POP) on sales in the two environments. Compared to discount/warehouse grocery store customers, higher proportions of customers at the upscale stores reported buying organic foods in the past and planned to purchase them in the future. In contrast to reported behavior, actual sales data showed a stronger positive effect of POP signage in the discount/warehouse chain.

Our intervention was limited to printed signs and take-home brochures. Additional POP technologies—including displays, tasting booths, videos, price incentives, and other strategies—may be necessary to increase awareness and to trigger a trial behavior of purchasing organic products. There may be a “learning curve” by which customers need repeated exposures to organic food signage and the opportunities to purchase organic products and personally assess the benefits experienced. Applying the adoption of innovations theory (Rogers, 1983), such exposure and trial behavior can lead to increased attention to organic food labeling and expanded organic food purchases in future shopping trips.

When behavior change is a goal (that is, purchasing and eating organic foods), interventions may be most effective if matched to the receptivity and motivation of the consumer. Since we know that the percentage of customers buying or planning to buy organic products is relatively small, it seems likely that many consumers may be in the early stages related to purchasing organic products. The Hartman Report FMI/Hartman Group, 1997)

classified about 30 percent of survey respondents as Overwhelmed, not interested in sustainable food production or modifying their diet, and another 18 percent as Unconcerned, not socially or environmentally conscious. Respondents in these categories may be unaffected by organic shelf labeling. However, the New Green Mainstream (23 percent) could be very receptive to POP signage about organic products. Shelf-labeling will be most effective if it catches receptive customers' attention, makes them aware of organic foods, and triggers them to recognize action options (for example, the selection of organic milk rather than the traditional product). Movement toward behavioral change is facilitated by an increase in awareness and an attitude change.

Day (1976) has proposed a hierarchy of effects model in which awareness and knowledge levels increase, along with goodwill, while sales impacts follow later. It could be that prior sensitization to organic and natural foods, along with new signage, triggers purchase behavior while customers still at the awareness and knowledge level would not be inclined to purchase in response to new signage.

This study underscores differences between retail grocery environments and verifies the expanding interest of a range of consumers in organics. Simple POP technology—low-cost shelf labels—appeared to increase sales of one-half of the tracked products in the discount/warehouse environment, but it had mixed effects in the upscale environment. To be effective, POP must be available at the point of decision and must include information that is important to customers and is easily assimilated (Carsky and Fern, 1994). POP information about organics could simplify decision-making for those aware of and interested in organics and could increase awareness among other segments.

Surveys indicate that retailers have a high level of interest in POP technology, including shelf-talkers and signs (*POP & Sign Design Editors*, 1995; Shimp, 1997). However, their follow-through is key to POP effectiveness. Retailers must assemble and maintain signs and displays and must assure proper location of products that match the POP promotion. Retailers should be cautioned that sales increases will not immediately follow POP signage. Consumers need time to become aware of information and to perceive it

as useful. Then they will begin to use it in purchase decisions.

Promotion of organic food products offers a significant opportunity for retailers who want to stay at the forefront of consumer trends. A significant portion of customers is interested in organics, and many have purchased organic foods. While availability of organics is currently an unlikely factor influencing store selection for many people (FMI/Hartman Group, 1997), customers' perceptions of goodwill can be an important impact of carrying organics. This goodwill may help increase sales of organics and other product lines. Consumer interest is present in both the discount/warehouse and upscale grocery environments. POP technology, including signs and information brochures, can aid customers who are searching for organic food alternatives. Additional use of complementary POP strategies, such as display and price incentives, may be necessary to stimulate awareness and interest among other customers. Interest in organics could translate into increased sales with time.

The challenge in this study was to use POP to promote an attribute—organic—rather than a brand or a specific product. This was accomplished using a simple, relatively low-cost POP strategy (shelf labels, signs, and take-home informational brochure). In view of the challenge, the results are very encouraging.

## References

- Areni, C.S., D.F. Duhan, and P.L. Kiecker. 1996. "Product Organization, Attribute Salience, and Brand Choice: Interpreting Positive and Negative Sales Effects of Point-Of-Purchase Displays," pp. 1-27. Working Paper, Department of Marketing, College of Business Administration, Texas Tech University, Lubbock, TX.
- Blattberg, R.C., and S.A. Neslin. 1990. *Sales Promotion: Concepts, Methods, and Strategies*, pp. 347-348. Englewood Cliffs, NJ: Prentice Hall.
- Carsky, M.L., and E.F. Fern. 1994. "In-Store Information Programs: A Route to Increasing Product Purchasing and Consumer Satisfaction." *Journal of Food Products Marketing*. February 2:15-39.
- Day, G.S. 1976. "Assessing the Effects of Information Disclosure Requirements." *Journal of Marketing*. 40:42-52.
- FMI/Prevention (*Food Marketing Institute/Prevention Magazine*). 1994. "Eating in America: Perception and Reality, Shopping for Health 1994." FMI/Prevention survey. Washington, DC.
- FMI/Prevention (*Food Marketing Institute/Prevention Magazine*). "Shopping for Health 1996." FMI/Prevention survey. Washington, DC.

- FMI/Hartman Group (Food Marketing Institute/The Hartman Group). 1997. "The Greening of Consumers: A Food Retailer's Guide." Washington, DC.
- Fresh Trends*. 1996. "The Packer, A Profile of the Fresh Produce Consumer," pp. 72-80.
- Gogos, P. 1996. "Display Drama." *Food & Beverage Marketing*. May:53.
- Goldman, B.J., and K.L. Clancy. 1992. "A Survey of Organic Produce Purchases and Related Attitudes of Food Cooperative Shoppers." *American Journal of Alternative Agriculture*. 6:89-96.
- Janiszewski, C. 1996. "The Influence of Display Characteristics on Visual Exploratory Search Behavior." Working Paper, University of Florida, Gainesville, FL.
- Jolly, D., and K. Norris. 1991. "Marketing Prospects for Organic and Pesticide-Free Produce." *American Journal of Alternative Agriculture*. 6:174-179.
- Jolly, D., H. Schutz, K. Diaz-Knauf, and J. Johal. 1989. "Organic Foods: Consumer Attitudes and Use." *Food Technology*. November (43):60-66.
- Markle, S. 1997. "Consumer Demand Growing for Organic, Local Foods." *Community Nutrition Institute Newsletter*. February:4-6.
- Mergentime, K., and M. Emerich. 1996. "Widening Market Carries Organic Sales to \$2.8 Billion in 1995." *Natural Foods Merchandiser*. June:36-38.
- Organic Foods Production Act of 1990 (Title XXI of the Food, Agriculture, Conservation, and Trade Act, Public Law 101-624). 1990 (as amended).
- Phillips, H., and R. Bradshaw. 1993. "How Consumers Actually Shop: Customer Interaction With Point of Sale." *Journal of the Market Research Society*. 35:51-62.
- POPAL News (Point-of-Purchase Advertising Institute Association News). 1991. "Study Finds That Consumers Shop Less Than Half the Store." June/July(15):23-25.
- POPAL (Point-of-Purchase Advertising Institute Association). 1994. *In-Store Marketing Guidebook: Research Methodologies for the In-Store Marketing Industry*. Englewood, NJ.
- Point-of-Purchase & Sign Design Editors. 1995. "1996 P-O-P Trends Surveys Highlight the Role of Retailers: Tracking the Bottom Line." November/ December(2):28-35.
- Public Voice*. 1993. "What Americans Think about Ag-richemicals." Washington, DC.
- Rogers, E.M. 1983. *Diffusion of Innovations, Third Edition*. New York, NY: Free Press.
- Shimp, R.A. 1997. *Advertising, Promotion, and Supplemental Aspects of Integrated Marketing Communications*. Fort Worth, TX: The Dryden Press.
- Smith, T. 1995. "Talking to Consumers about Organic Products, Focus Groups Conducted for Midwest Organic Alliance." Minneapolis, MN: MacWilliams, Cosgrove, Snider, Smith, Robinson. July.
- Wilkins, J.L., and V.N. Hillers. 1994. "Influences of Pesticide Residue and Environmental Concerns on Organic Food Preference Among Food Cooperative Members and Non-Members in Washington State." *Journal Nutrition Education*. 26:26-33.