An Analysis of the Impact of Price on Consumer Purchase Interest in Organic Grapes and a Profile of Organic Purchasers*

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Abstract

This research uses simulated test marketing methodology to examine the consumer purchase interest in organic grapes and price sensitivity. A profile of the target organic food purchaser is identified and consumer perceptions of organic grapes are compared to their perceptions of regular (conventionally grown) grapes. The research uses a survey instrument and a concept exposure that were administered through the use of a personal interview of 342 randomly selected respondents at food stores in May 2001 in San Luis Obispo County, California. Comparisons of nominal and ordinal variables were generated through the use of chi-square tests. The statistical tests used to examine interval and ratio variables are t-tests, one-way analysis of variance, and multivariate analysis of variance.

Introduction

According to an FMI study, annual sales of organic foods in the United States increased by 20% from $6.5 billion in 1999 to $7.8 billion in 2000 (Offner, 2002). Organic refers, not to the food itself, but how it is produced. Organic food production is based on a system of farming that maintains and replenishes the fertility of the soil. Organic foods are produced without the use of genetic modification, synthetic pesticides and fertilizers. Organic foods are also minimally processed to maintain the integrity of the food without artificial ingredients, preservatives, or irradiation.

The "Fresh Trends 2000 Profile of the Fresh Produce Consumer" indicated that vegetables are the top organic item that consumers buy. The majority of consumers who have purchased organic fresh produce, 82%, have purchased one or more organic vegetables, while 35% have purchased one or more organic fruits. One third of consumers have purchased fresh organic produce items in the past six months. The "Fresh Trends 1997 Profile of the Fresh Produce Consumer" indicates that the number one reason consumers purchased organics is because they "liked appearance/looked good, 24%." The other reasons consumers purchased organics are: "Looked fresher/riper, 17%," "wanted to try/see if there's a difference, 16%," "healthier/better for you, 16%," "taste good/flavorful, 15%," and "only thing available, 15%." Only 12% of the "Fresh Trends" respondents indicated "no pesticides/fertilizers/insecticides" as a reason for purchasing organic produce.

This research uses simulated test marketing methodology to examine the consumer purchase interest in organic grapes and price sensitivity. A profile of the target organic food purchaser is identified, factors affecting the purchase interest in organic grapes are identified, and consumer perceptions of organic grapes are compared to their perceptions of regular (conventionally grown) grapes.

Methodology

This research uses a survey instrument and a concept exposure that were administered through the use of a personal interview of 342 randomly selected respondents at food stores in May 2001 in San Luis Obispo County, California. All respondents were screened to have purchased grapes in the past year. San Luis Obispo County was designated the best test market in the United States by *Demographics Daily* (Thomas, 2001). San Luis Obispo was found to be the best of 3,141 counties to represent a microcosm of the United States based on 33 statistical indicators. Comparisons of nominal and ordinal variables are generated through the use of chi-square tests. The statistical tests used to examine interval and ratio variables are t-tests, one-way analysis of variance, and multivariate analysis of variance.

This research uses the laboratory experiment component of simulated test marketing in a three cell study design to test the impact of price on purchase interest in organic grapes. One cell is the control cell and examines the purchase interest of 118 consumers in regular grapes priced at $1.99, the existing market price. The second cell examines the purchase interest of 116 consumers in organic grapes priced at $2.99, a price that reflects the production cost for organic grapes. Cell three examines the purchase interest of 108 consumers in organic grapes priced at a premium, $4.99.

Simulated Test Marketing

Simulated test marketing technology has evolved over time through a combination of methodologies for generating market response and mathematical models that simulate the marketing environment. The result of this combination is a reliable and valid methodology for forecasting awareness, penetration, share, and volume for new and repositioned products and services.

There are a number of simulated test marketing systems that are used by marketing research companies. BASES , LITMUS^{R}, DESIGNATOR, and FYI are such systems (Clancy, 1994). They are

branded research methodologies. All simulated test marketing systems provide the option of generating volumetric forecasts for year one sales. Year one sales is a function of the awareness of the new product generated by the marketing plan, the distribution of the product in the market place, and consumer response to the new product. The validation history for year one projections is very strong for the forecasting systems using simulated test marketing methodology. For 250 cases reported by BASES, in-market sales have been within 10% of predicted sales (Clancy, 1994). In-market sales generated by products tested using the DESIGNATOR system have been within 9% (Clancy, 1994). The LITMUS^{R} system uses two types of laboratory experiments. One uses behaviorally generated market response and the other uses attitudinally generated market response. Over 2,600 cases have been tested using behaviorally generated purchase interest data. More than 700 of these cases have been available for validation and in 92% of the cases the forecasts were within 10% of the actuals (Clancy, 1994). Among the 287 cases that have been tested using attitudinally generated trial, 49 were available for validation. In 85% of the cases the forecasts were within 14% of the actuals (Clancy, 1994).

To accurately forecast the launch of a new product or the repositioning of an existing brand through a simulated test market methodology, the actual marketing environment that will exist at the time of the launch/restage is modelled. Most systems use three categories of model input: category data, market response, and marketing plans (Clancy, 1994). Market response is the consumers' response to the test product generated by laboratory experiment. The purchase probability, the repurchase probability, and the purchase cycle for the new or repositioned product are the key components of consumer response. The category data and marketing plans provide the competitive environment that will exist during the launch or restage.

Market Response and Concept Exposure

This research is conducted through the use of a concept exposure phase only. Purchase interest in this research uses an eleven-point purchase intent scale similar to the one used by the LITMUS^{R} system . Each of the eleven points is coupled with a verbal anchor from: "Certain will buy--99 chances in 100" to "No chance will buy--zero chances in 100." The eleven-point behavior probability scale was developed by Dr. Thomas Juster and published in different forms during the 1960's (Clancy, 1994).

This research uses the laboratory component of simulated test marketing methodology to examine the impact the organic positioning has on consumer purchase interest in grapes. In addition, the impact of premium pricing is examined. There are three different independent research cells. Cell 1 exposes consumers to regular table grapes at the market price of $1.99/lb. Cell 2 exposes consumers to organic table grapes at the market price of $2.99/lb. Cell 3 exposes consumers to organic table grapes at a premium price of $4.99/lb. In order to simulate the market environment, consumers in all cells are shown the same competitive board. A competitive board is used to remind respondents of competitive commodities; apples, strawberries, and bananas at their market prices.

Consumer Purchase Interest in Regular and Organic Grapes

The eleven-point purchase interest scale is used to determine purchase interest in the regular and organic grapes. Respondents that indicated a 90% chance or higher probability are designated likely purchasers of the product. Respondents with lower than a 90% probability of purchasing the product are designated non-purchasers. Table 1 shows that both the price and the organic positioning had an impact on purchase interest. The increase in price from $1.99 to $2.99 and the organic positioning generated a reduction in likely purchasers from 43.2% to 30.2%. The increase in price from $2.99 to $4.99 for the organic concept reduced likely purchasers from 30.2% to 16.7%.

Table 1

Proportion 90% Purchase Interest –Likely Purchasers

	Regular Grapes Price $1.99 (N=118)	***Organic Grapes Price $2.99 (N=116)***	***Organic Grapes Price $4.99 (N=108)***	***Chi-Square***
Likely Purchasers	43.2%	30.2%	16.7%	18.79**
Non-Purchasers	56.8%	69.8%	83.3%	

** Significance at the .05 level

Using one-way analysis of variance with the Tukey post-hoc test of the ratio purchase interest data shows significant differences between cells. The purchase interest values range from 0 for the purchase interest response, *no chance you will buy*, to 99 for the purchase interest response, *certain will buy*. Table 2 and Table 3 show significant differences in purchase interest between cells.

Table 2

Mean Likelihood to Purchase Grapes in the next Year

	Regular Grapes Price $1.99 (N=118)	***Organic Grapes Price $2.99 (N=116)***	***Organic Grapes Price $4.99 (N=108)***	***F Statistic***
Mean Purchase Likelihood	69.0%	52.2%	38.5%	19.208**

** Significance at the .05 level

Table 3

Mean Likelihood to Purchase Grapes in the next Year

N=341		**Mean Difference**
Regular Grapes Price $1.99	Organic Grapes Price $2.99	16.8**
	Organic Grapes Price $4.99	30.6**
Organic Grapes Price $2.99	Regular Grapes Price $1.99	-16.8**
	Organic Grapes Price $4.99	13.8**
Organic Grapes Price $4.99	Regular Grapes Price $1.99	-30.6**
	Organic Grapes Price $2.99	-13.8**

** Significant difference at the .05 level Tukey Post Hoc

Impact of Price on Purchase Interest

In order to examine the impact of price on the purchase interest, respondents answered two questions concerning the price of the concept after they responded to the purchase interest question. First, respondents were asked if they thought the price was just right, too high, or too low. The second price question was answered among nineteen attributes that described grapes that they saw in the concept. They rated the grapes on the attribute, reasonably priced, on a five point scale where 5 = Describes completely; 4 = Describes very well; 3 = Describes somewhat; 2 = Describes slightly; 1 = Does not describe at all.

Tables 4 shows that respondents indicated that the $4.99 price for organic grapes was perceived to be too high relative to the $1.99 price for regular grapes and the $2.99 price for organic grapes. The $1.99 price for regular grapes and the $2.99 price for organic grapes were perceived similarly on the too low, too high, and just right scale.

Table 4

Price of Grapes Shown

	Regular Grapes Price $1.99 (N=118)	*Organic Grapes Price $2.99 (N=116)*	*Organic Grapes Price $4.99 (N=108)*	*Chi-Square*
Too low	0.9%	0%	0%	6.11
Too high	65.8%	63.7%	75.9%	
Just right	33.3%	36.3%	24.1%	

Too low	0.9%	0%		1.15
Too high	65.8%	63.7%		
Just right	33.3%	36.3%		
Too low		0%	0%	3.90**
Too high		63.7%	75.9%	
Just right		36.3%	24.1%	

** Significance at the .05 level

Analysis of the interval rating scale for the attribute, reasonably priced, indicates that the $1.99 price for regular grapes and the $2.99 price for organic grapes were perceived similarly. However, the $4.99 premium for the organic grapes generated a lower rating in reasonably priced. Thus, the 50% premium for the organic grapes was perceived similar to the market price of regular grapes. However, the 151% premium for the $4.99 organic grapes compared to the $1.99 regular grapes and the 67% premium for the $4.99 organic grapes compared to the $2.99 organic grapes were perceived by consumers as too high.

Table 5

Mean Rating Reasonably Priced

	Regular Grapes Price $1.99 (N=118)	*Organic Grapes Price $2.99 (N=116)*	*Organic Grapes Price $4.99 (N=108)*	*F Statistic*
Mean Rating	3.35	3.18	2.48	13.57**

** Significance at the .05 level

Table 6

Mean Rating Reasonably Priced

N=341		Mean Difference
Regular Grapes Price $1.99	Organic Grapes Price $2.99 Organic Grapes Price $4.99	.190 .8941**
Organic Grapes Price $2.99	Regular Grapes Price $1.99 Organic Grapes Price $4.99	-.1905 .7035**
Organic Grapes Price $4.99	Regular Grapes Price $1.99 Organic Grapes Price $2.99	-.8941** -.7035**

** Significant difference at the .05 level Tukey Post Hoc

Knowledge of Organic Grapes and the Organic Positioning

In research concerning organic lettuce, Wolf has shown that there appears to be confusion in consumers' understanding of the properties of organic food. For example in the examination of organic lettuce, it was found that consumers value the organic characteristics of lettuce such as environmentally friendly as somewhat to very desirable, while they rate organically grown and certified as only slightly to somewhat desirable. Thus, Wolf hypothesized that consumers do not understand organics (Wolf, 2002). This research has attempted to address the misconceptions of consumers by examining their responses to the question: "How strongly do you agree or disagree that all produce sold at a farmers' market is organic?" The farmers' markets in the research region were observed to sell primarily conventionally grown produce. Therefore, respondents that either agree or strongly agree are consumers that are likely confused about the attributes of organic produce. Almost a third of grape consumers agree that all produce sold at farmers' market is organic.

Table 7

All Produce sold at a Farmers' Market is Organic

	Percent N = 342
Strongly Agree	1.2%
Agree	28.9%
Disagree	51.3%
Strongly Disagree	18.6%

Consumers were asked to describe the perceived benefits of organic produce. Most consumers indicated that they perceived that organic produce is healthier to eat. Healthier is one of the top reasons given by respondents in the "1997 Fresh Trends" for trying organic produce. Offner indicates that consumer perceptions about the health benefits of organic foods may be overstated (Offner, 2002)

Table 8

Benefits of Organic Produce

	Percent N = 342
Good for the environment	12.3%
Healthy to eat	8.8%
Both	68.7%
Neither	2.6%
Don't know	7.6%

Positioning Research for Grapes

Positioning research reveals the factors that motivate consumers to purchase one product versus other products. The competitive products examined here are conventionally grown grapes and organically grown grapes. In order to develop a successful positioning for either conventionally grown or organic

grapes, the characteristics that are desirable to consumers when they shop for grapes must be identified. The characteristics that consumers want when they purchase grapes were examined by desirability ratings of nineteen characteristics. The most desirable characteristics are those that should be used in the development of a product positioning.

The product positioning for organically grown grapes should also stress the characteristics that the consumers perceive organically grown grapes to have relative to the competition. In order to understand how consumers perceive the organically grown grapes and conventionally grown grapes, each product was rated on the nineteen characteristics that were evaluated for desirability. It is important to note that consumers develop perceptions about products, in this case, organically grown grapes and conventionally grown grapes through experience, seeing the products in the store, advertisements, word of mouth, public relations, and the media. The perceptions about a product provide the consumer with the information they use to decide to purchase a product.

Desirability Ratings and Product Ratings of Grape Characteristics

Respondents rated nineteen characteristics that describe grapes on a five point desirability scale to examine the characteristics of grapes that impact a consumer's purchase decision [1]. Characteristics of grapes concerning freshness, quality, price, and impact on the environment were rated. Consumers were asked the following question: "Please rate the following characteristics you look for when shopping for grapes where: 5 = Extremely Desirable; 4 = Very Desirable; 3 = Somewhat Desirable; 2 = Slightly Desirable; 1 = Not At All Desirable."

Analysis of the mean ratings of the interval data indicates that the characteristics are divided into four groups: very to extremely desirable characteristics, somewhat to very desirable characteristics, slightly to somewhat desirable characteristics, and not very desirable characteristics. The attributes that are very to extremely desirable to grape consumers are fresh looking, fresh tasting, high quality, seedless, good value, reasonably priced, healthy for me, high in nutrition, looks sweet, free of insects, sale priced, and free of pesticides. The somewhat to very desirable characteristics of grapes are safe for the

workman, earth friendly, and environmentally safe. The characteristics of grapes that are slightly to somewhat desirable are: grown in a way that is good for the soil, air, and ground water, organically grown, and organically certified. The characteristic that is not desirable is grown with the aid of chemicals. The findings for grapes are very similar to Wolf's findings for lettuce, freshness and price are more important than environmental factors (Wolf, 2002). In addition, environmental factors are rated higher than the organic factors. These findings are also similar to those in "Fresh Trends." Consumers are more likely to purchase organics because of their freshness, taste, health, and price than due to a lack of pesticides. Therefore, it appears that there is confusion among the consumers concerning the benefits of organic produce.

In order to understand how consumers perceive organically grown grapes and conventionally grown grapes, respondents rated them on the characteristics that had been rated for desirability. Respondents answered the following question: "Based on your perceptions, please use the following scale to describe how these characteristics describe organic and conventionally grown grapes where: 5 = Describes completely; 4 = Describes very well; 3 = Describes somewhat; 2 = Describes slightly; 1 = Does not describe at all."

The mean product ratings show that consumers rate organic grapes higher on the environmental characteristics: free of pesticides, safe for the workman, earth friendly, environmentally safe, grown in a way that is good for the soil, air, and ground water, organically grown, and organically certified. The positive environmental characteristics describe organic grapes very well. Organic grapes were rated lower on grown with the aid of chemicals. Therefore, it appears that while environmental characteristics are more important than the designation, organic, consumers understand that organic grapes are more likely to have the environmental characteristics than the regular grapes. Consumers rate regular grapes higher on five of the top six characteristics. Regular grapes are perceived to be fresher looking and higher quality. While organic gapes are expected to be healthier for the respondent, similar to the "Fresh Trends" finding, they are perceived to have the same level of nutrition as regular grapes. Since both the

$2.99 concept and $4.99 concepts were included in this analysis, the organic grapes rate lower on price and value characteristics.

Table 9

Mean Desirability Ratings for Characteristics of Grapes

and Mean Ratings of Organic and Regular Grapes on Characteristics

	Desirability Rating (N=316)	**Organic Grapes $2.99 and $4.99 (N=314)**	**Regular Grapes $1.99 (N=314)**	**Paired t-statistic**
Very to extremely desirability				
Fresh Looking	4.7661	4.08	4.55	-7.22**
Fresh Tasting	4.7155	4.23	4.33	-.080
High Quality	4.5191	4.14	4.31	-2.66**
Seedless	4.4618	4.13	4.25	-1.83*
Good Value	4.4357	3.08	4.09	-10.59**
Reasonably Priced	4.3596	3.04	4.14	-11.93**
Healthy For Me	4.3392	4.37	4.20	2.63**
High Nutrition	4.3012	4.27	4.25	0.23
Looks Sweet	4.2485	4.09	4.26	-2.28**
Free of Insects	4.1941	3.34	4.19	-5.44**
Sale Price	4.1637	2.72	3.48	-3.97**
Free of Pesticides	4.0704	4.19	3.36	11.82**
Somewhat to very desirable				
Safe for the workman	3.7105	3.90	3.09	7.93**
Earth Friendly	3.6745	4.13	2.87	11.83**
Environmentally Safe	3.6287	4.20	3.08	11.10**

Grown in a way that is good for the soil, earth and ground water	3.4500	4.01	2.74	12.25**
Somewhat desirable				
Organically grown	2.9032	4.21	2.28	10.40**
Organically certified	2.8275	4.02	2.25	16.87**
Slightly desirable				
Grown with the aid of chemicals	2.1725	2.02	3.34	-5.02**

** Significant difference at the .05 level

Factors Affecting Purchase Interest

Analysis of variance is used to examine the factors impacting purchase interest in both organic grapes and regular grapes in Table 10. Table 11 examines the factors impacting purchase interest in organic grapes only. Table 10 shows that the cell is an important factor in purchase interest because it contributes the most to the sum of squares. Thus, the combined effects of price and organic versus conventional growing methods are important factors impacting purchase interest. The second through fourth most important factors contributing to the sum of squares are the desirability of earth friendliness and the two price factors. After price, desirability of grown with the aid of chemicals and purchased organic in past are important contributors to purchase interest in regular and organic grapes. The demographic characteristics, education and gender, are important factors affecting purchase interest. The number of bunches purchased in the past impact purchase interest as well as desirability of free of insects and free of pesticides.

Table 10

Analysis of Variance Purchase Interest Regular and Organic Concepts

Dependent Variable: Purchase Interest			
Variable	**Type III Sum of Squares**	**Mean Square**	**F**
Corrected Model	151,966.59	8939.211	8.493**

Intercept	1,973.90	1973.896	1.875
Cell	18,567.41	18567.41	17.64**
Desirability earth friendly	13,528.15	13528.15	12.853**
Price high, low, just right	12,747.09	12747.09	12.111**
Price Rating (5 point scale)	11,901.72	11901.72	11.307**
Desirability of grown with the aid of chemicals	9,376.32	9376.315	8.908**
Purchased organic in past	8,786.28	8786.28	8.348**
Education	7,665.18	7665.18	7.282**
Number of bunches purchased	7,544.88	7544.879	7.168**
Gender	6,106.73	6106.725	5.802**
Desirability of Free of Insects	3,707.50	3707.502	3.522*
Desirability of Free of pesticides	2,880.66	2880.662	2.737*
Household size	1,975.85	1975.847	1.877
Children in the household	1,757.58	1757.583	1.67
Age	661.99	661.992	0.629
Employment	335.17	335.168	0.318
Income	201.16	201.158	0.191
Marital status	176.31	176.313	0.168
Error	303,135.66	1052.554	
Total	1,411,473.00		
Corrected Total	455,102.25		

** Significant difference at the .05 level * Significant difference at the .10 level

Table 11 shows that the top six factors impacting purchase interest in the two organic concepts are desirability earth friendly, the two price ratings, purchased organic in past, education, number of

bunches purchased in the past, and gender. The desirability ratings of free of insects and free of pesticides are also factors impacting purchase interest in organic grapes.

Table 11

Multivariate Analysis of Variance Purchase Interest Organic Concepts

Dependent Variable: Purchase Interest			
Variable	**Type III Sum of Squares**	**Mean Square**	**F**
Corrected Model	139125.071	8183.828	8.712**
Intercept	65.308	65.308	0.07
Price high, low, just right	16853.124	16853.12	17.941**
Purchased organic in past	14438.803	14438.8	15.371**
Desirability of earth friendly	13141.078	13141.08	13.989**
Price Rating (5 point scale)	10223.03	10223.03	10.883**
Desirability of grown with the aid of chemicals	6769.097	6769.097	7.206**
Number of bunches purchased	5718.365	5718.365	6.087**
Education	4417.602	4417.602	4.703**
Desirability of free of Insects	3657.912	3657.912	3.894**
Gender	3253.279	3253.279	3.463*
Cell	1793.225	1793.225	1.909
Desirability of free of pesticides	1239.522	1239.522	1.32
Age	1218.672	1218.672	1.297
Household size	1185.548	1185.548	1.262
Children in the household	1093.098	1093.098	1.164
Income	93.448	93.448	0.099
Marital status	61.081	61.081	0.065

Employment	1.185	1.185	0.001
Error	173783.117	939.368	
Total	775737		
Corrected Total	312908.187		
R Squared = .445 (Adjusted R Squared = .394)			

** Significant difference at the .05 level * Significant difference at the .10 level

Knowledgeable Organic Buyers

A potential target for organic grapes was identified as *knowledgeable organic buyers*. The target consumers have purchased an organic produce product within the last month. In addition, they disagree or strongly disagree with the statement that "all produce sold at a farmers' market is organic." These consumers are identified as *knowledgeable organic buyers* (N= 70). Consumers that did not buy organic produce or strongly agree or agree that all produce sold at a farmers' market is organic are labeled *non-buyers* (N=272). *Non-buyers* purchase regular grapes at supermarkets. While knowledgeable organic buyers also purchase regular grapes at supermarkets, they are more likely to purchase regular grapes at health stores. *Knowledgeable organic buyers* are more likely to not shop for regular grapes. *Knowledgeable organic buyers* are more likely to purchase organic grapes at supermarkets, health stores, farmers' market, or specialty markets. Over half of non-buyers do not purchase organic grapes.

Table 12

Purchase Location

	Knowledgeable Organic Buyers (N=70)	**Non-Buyers (N=272)**	**Chi-square**
Regular Grapes			
Supermarket	74.3%	94.1%	24.46**
Health Stores	25.7%	10.7%	10.64**
Farmers Market	47.1%	44.4%	1.21

Farm Stand	7.1%	8.5%	0.13
Specialty Markets	7.1%	3.3%	0.149
Other	--	0.7%	0.472
Do not shop	17.1%	0.7%	38.18**
Organic Grapes			
Supermarket	**31.4%**	11.4%	**17.06****
Health Stores	**61.4%**	21.0%	**44.08****
Farmers Market	**47.1%**	26.1%	**11.65****
Farm Stand	8.6%	4.4%	1.93
Specialty Markets	**41.4%**	9.6%	**41.90****
Other	--	1.8%	1.31
Do not shop	1.4%	**53.7%**	**62.01**

** Significant difference at the .05 level * Significant difference at the .10 level

Knowledgeable organic buyers spend more on table grapes than *non-buyers* in the past month.

Table 13

Dollars Spent on Grapes

Knowledgeable Organic Buyers	Non-Buyers	t-statistic
$10.39*	$7.45	2.99**

** Significant difference at the .05 level

The *knowledgeable organic buyers* are more likely to think that organic produce was both good for the environment and healthier to eat.

Table 14

Benefits of Organic Produce

	Knowledgeable Organic Buyers	Non-Buyers	Chi-square
Good for the environment	2.9%	14.7%	**15.88****

Healthier to eat	7.1%	9.2%
Both	**87.1%**	64.0%
Neither	1.4%	2.9%
Don't know	1.4%	9.2%

** Significant difference at the .05 level

Media usage is higher among *knowledgeable buyers*. *Knowledgeable buyers* are more likely to read newspapers and use both email and the internet.

Table 15

Newspaper Readership and Internet Usage

	Knowledgeable Organic Buyers	**Non-Buyers**	**P-Value**
Read the newspaper	89.6%	76.8%	**5.30****
Internet	1.5%	4.4%	**9.41***
Email	6.0%	2.8%	
None of the above	17.9%	33.3%	
Both	74.6%	59.5%	

** Significant difference at the .05 level * Significant difference at the .10 level

Examination of demographics indicates that the only differences *between knowledgeable buyers* and *non-buyers* are in age and education. *Knowledgeable buyers* are more likely to be younger and higher educated than *non-buyers*.

Table 16

Age

Age	**Knowledgeable Organic Buyers**	**Non-Buyers**	**P-Value**
18-21	2.9%	6.3%	24.97**
22-24	7.4%	7.9%	

25-29	19.1%	8.3%	
30-34	10.3%	12.6%	
35-39	8.8%	11.8%	
40-44	8.8%	15.4%	
45-49	7.4%	13.4%	
50-54	16.2%	5.5%	
55-59	8.8%	2.8%	
60+	10.3%	16.1%	

** Significant difference at the .05 level

Table 17

Education

	Knowledgeable Organic Buyers	**Non-Buyers**	**P-Value**
Grade school or less	--	--	**8.13***
Some high school	2.9%	2.0%	
High school grad	4.4%	18.1%	
Some college	**42.6%**	38.6%	
College grad	**42.6%**	34.3%	
Post grad work	7.4%	7.1%	

* Significant difference at the .10 level

Summary

Price is a key factor driving purchase interest in grapes. Both the price and the organic positioning had an impact on purchase interest in grapes. The increase in price from $1.99 for regular grapes to $2.99 for the organic positioning generated a reduction in likely purchasers, those with a 90% purchase interest and higher, from 43.2% to 30.2%. The increase in price from $2.99 to $4.99 for the organic concept reduced likely purchasers from 30.2% to 16.7%. Respondents indicated that the $4.99

price for organic grapes was perceived to be too high relative to the $1.99 price for regular grapes and the $2.99 price for organic grapes. The $1.99 price for regular grapes and the $2.99 price for organic grapes were perceived similarly on the too low, too high, and just right scale. Analysis of the interval rating scale for the attribute, reasonably priced, indicates that the 50% premium for the organic grapes was perceived as similar to the market price of regular grapes. However, the 151% premium for the $4.99 organic grapes compared to the $1.99 regular grapes and the 67% premium for the $4.99 organic grapes compared to the $2.99 organic grapes were perceived by consumers as too high.

There appears to be consumer confusion concerning the characteristics and benefits of organic produce since almost one-third of respondents agree that all produce sold at farmers' markets is organic. Consumers also indicate that specific positive environmental factors are more desirable than the organic designation. However, the mean product ratings show that consumers rate organic grapes higher on the environmental characteristics: free of pesticides, safe for the workman, earth friendly, environmentally safe, grown in a way that is good for the soil, air, and ground water, organically grown, and organically certified. Therefore, it appears that while environmental characteristics are more important than the designation, organic, consumers understand that organic grapes are more likely to have the environmental characteristics than the regular grapes.

Analysis of variance indicates that price is a key factor impacting purchase interest in organic grapes. In addition, the desirability of earth friendly, past organic purchasing, and number of bunches purchased in the past impact purchase interest. The demographic factors impacting purchase interest are gender and education. The desirability ratings of free of insects and free of pesticides are also factors impacting purchase interest in organic grapes.

An analysis of a potential target for organic grapes, *knowledgeable buyers*, indicates that they are likely to shop at more outlets, such as health food stores, than *non-buyers* and they spend more on grapes. The *knowledgeable buyers* are more likely to be younger and higher educated than the *non-buyers.*

Further, *knowledgeable* buyers read newspapers more often and are more likely to use the internet than the *non-buyers*.

BIBLIOGRAPHY

1. Armata, Kevin. "The Future of Food." Windsor Marketing Group May, 1998.
2. Firfer, Holly. "Grocery Industry Finds New Room for Organics on its Shelves." CNN: In-Depth Food October, 1996.
3. California Table Grape Commission.Data and Research. Trade Research. www.tablegrape.com
4. "Fresh Trends." The Packer. Vol. CII No. 54 1996.
5. "Fresh Trends." The Packer. Vol. CIII No. 54 1997.
6. "Fresh Trends." The Packer. Vol. CVI No. 54 2000.
7. Greene, Catherine. "U.S. Organic Agriculture Gaining Ground." Economic Research Service/USDA. April 2000
8. Hartman and Wright. "marketing Group Tracks Trends." Health Products Business November 2000.
9. Media mark Research Inc. "Soup, Fruit and Vegetables Report" Spring, 1998.
10. Mutel, Glen. "Do Up market Stores Own Organic?" Marketing Magazine September, 2000.
11. Offner, Jim. "Organics Feast on Increased Food Safety Concern." The Packer January 14, 2002 pp. A1 – A2.
12. O'Neill, Carolyn. "Organic Produce Business Skyrocketing, Lots of Room for Growth." CNN: In-Depth Food November,1996.
13. Produce Business. Vol. 16 No. 6 pp. 42-46. Produce Marketing Association. Internet Site. www.pma.com . May 20th, 2001.
14. Swientek, Bob. "Forces of Nature." New Products Conference (June, 2000).

15. Wolf, Marianne McGarry, Brady Johnston, Kerry Cochran, Lynn Hamilton. "Consumer Attitudes Toward Organically Grown Lettuce," Journal of Food Distribution Research. Volume 32, Number 1, March 2002

16. www.fas.usda.gov/info/agexporter/2000/june/organic/htm