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## Central Coast Consumers' Interest in Food Systems Issues: Demographic and Behavioral Associations

In the summer of 2004, social science researchers from the Center for Agroecology and Sustainable Food Systems at the University of California, Santa Cruz conducted a survey to find out what Central Coast consumers wanted to know about their food.

We found that consumers were dissatisfied with the amount of information currently available. They wanted to know more about the safety and nutrition of their food, but were also interested in ethical issues, such as the treatment of animals in agriculture, environmental impacts, and the wages and working conditions of those who produce their food. They were most interested in obtaining this information through labels or in-store displays, and expressed the greatest support for labels that represented humane, local and living wage criteria.

Most respondents also indicated a willingness to pay more for a label that represented both a living wage and safe working conditions for the workers producing strawberries, particularly if this price premium was relatively small (see Research Brief #5, Winter 2005 for more details on the survey results and the methodology).

To determine whether demographic and behavioral characteristics were associated with different levels of interest in these topics, we conducted further analysis using multiple regression. This statistical technique allows us to look at the association between one variable and another, while also controlling for the influence of many others. For example, we could examine the association between level of education and interest in the topic of nutrition, while simultaneously controlling for the fact that respondents' interests may also differ according to gender, household income and/or purchasing behaviors.

This research brief reviews the demographic and behavioral findings from three parts of the survey: 1) preferences for alternative "ecolabels," 2) willingness to pay for strawberries with criteria for a living wage and safe working conditions for farmworkers, and 3) interest in food system topics, such as safety, nutrition, and workers' wages. Variables included in these analyses were gender, age, ethnicity, income, education, frequent sourc-

ing of local food, and frequent purchasing of organic food.

Also tested, and included where statistically significant ( $p < .05$ ) in at least one model, were the following variables: 1) households with children and, 2) level of agreement with the following statements: "I try to consider how my purchase(s) will affect the environment"; "There isn't much that an individual consumer can do about environmental problems"; and "Most people don't care about how their food is produced." All of these variables were dichotomous (i.e., binary choices like yes or no) with exceptions of age, which had a range of 20 to 99, and those that asked for agreement with statements above, which were measured on a scale from 1 to 7.

### PREFERENCES FOR ALTERNATIVE ECOLABELS

Organic sales have grown rapidly over the last 15 years, and many small-scale growers have expressed interest in addressing additional criteria that consumers might support. To help determine what label criteria might be most popular, we asked survey respondents to choose from among five potential options representing standards other than those embodied in the USDA Organic label. These were –

- Humane: meat, dairy products, or eggs from animals that haven't been treated cruelly
- Living wage: provides above-poverty wages to workers involved in producing the food
- Locally grown: grown within 50 miles of point of purchase
- Small-scale: supports small farms or businesses
- U.S. grown: grown in the United States

The format was a series of ten paired comparisons—for example, respondents were asked to choose between a product that was a) Humane, or b) Locally grown, assuming they were otherwise identical. We used a technique called logistic regression to analyze the variables associated with making particular choices. This technique is suitable for outcomes that are dichotomous, and compares respondents selecting one potential ecolabel to those selecting the other in the pair.

Regression analysis was conducted only for three of the five labels. These were humane,

local, and living wage (the highest ranked choice of 30.5%, 22.0%, and 16.5% of respondents respectively). Comparisons amongst the top three labels could be made with just three regression models ( $T_3, 2+1 = 3$ ) versus ten regression models for all five labels ( $T_5, 4+3+2+1=10$ ). Another reason for excluding U.S. grown and small-scale from the analyses is that they were chosen much less frequently (the highest ranked choice of 5.9% and 5.2% of respondents respectively) and therefore provided less power to detect associations with demographic or behavioral variables.

Table 1 reports the odds ratios for models comparing the likelihood of choosing one of the top three choices over another. An odds ratio of greater than 1.0 demonstrates a preference for the standard of interest (listed first) while an odds ratio of less than 1.0 demonstrates a preference for the reference standard (listed second).

*Humane vs. Local.* The first comparison was between humane and local, and the data indicate that women are almost twice as likely as men to prefer humane. Those that consider the environment when making purchases were also more likely to prefer humane; every 1 unit increase on this 7 point scale was associated with a greater than 20% increase in the odds of choosing humane. Two variables were associated with preferring local: Asian-Americans were almost twice as likely as European-Americans to choose the local option, and each additional year in a respondent's age was associated with increasing odds of choosing local.

*Local vs. Living Wage.* For the comparison between local and living wage, having children was associated with a greater than 200% increase in the odds of preferring locally produced food. Increasing age was also associated with choosing local over living wage.

Respondents who consider the environment when making purchases, or who feel like consumers can do something about environmental problems, were more likely to choose living wage over local. Those who tended not to

**Table 1. Odds ratios for logistic regression of choice of alternative ecolabels on demographic, behavioral and attitude variables (n=423).**

		Humane over Local	Local over Living Wage	Living Wage over Humane
Gender	Men (default)			
	Women	1.89**	0.68+	1.34
Age	Years	0.98*	1.02**	1.02*
Ethnicity	European-American (default)			
	Asian-American	0.51*	0.78	1.62
	Hispanic-American	0.55	0.51+	4.32**
	Other	0.59	1.15	2.20+
Income	Low income (default)			
	Middle income	0.97	0.58+	1.46
	High income	0.73	0.50+	1.92+
Education	High school or less (default)			
	Some college	1.29	1.17	1.01
	College	1.21	1.76	1.22
	Grad school	2.09+	1.07	1.43
Children	Household with children	0.78	2.05**	1.01
Purchasing behaviors	Frequent local	0.88	1.49	0.57+
	Frequent organic	1.39	1.38	0.59*
	Consider environment	1.22**	0.82**	1.10
Attitudes	Consumers can affect environment	0.95	0.85*	1.10
	People care about how food is produced	1.01	1.16*	0.89+
	-2 (log likelihood)	497.5	515.3	483.3
	Pseudo-R square	0.14	0.16	0.12

\*\* p < .01, \* p < .05, + p < .10

think that other people care about how their food is produced were also more likely to prefer living wage.

A potential explanation for this result is that people who perceive little societal interest in the food system may feel a heightened sense of responsibility for workers' wages. Alternatively, their concern could be associated with a sense of moral superiority.

Women were 68% as likely as men to choose local, and Hispanic-Americans were half as likely as European-Americans to choose local. Middle-income and upper-income respondents also tended to express a preference for living wage—both of these groups were more than twice as likely as low-income respondents to make this choice.

*Living Wage vs. Humane.* In the comparison between living wage and humane, older people were more likely to choose living wage. For example, controlling for other variables in the regression, someone who is 25 years older than an otherwise similar respondent is 60% more likely to choose living wage rather than humane. Minority ethnic groups were more likely to prefer living wage in comparison to European-Americans. Hispanic-Americans were more than 4.3 times more likely to choose living wage over humane. Other ethnic groups were more than twice as likely to select living wage, and Asian-Americans were 1.6 times more likely to choose living wage, although neither of these had

associated p values of less than .05. High-income groups were 1.9 times more likely to choose living wage over humane. As with the comparison with local, those who thought most people don't care about how their food is produced were more likely to choose living wage, with the odds of choosing this criteria over humane 10% higher for each one point change on the seven point scale. However, people who obtained food locally were 57% as likely to choose living wage over humane, and frequent organic purchasers were 58% as likely to choose living wage over humane.

In summary, humane was more likely to be preferred by women, European-Americans, younger people, frequent organic purchasers, and those who consider the environment when making purchases. Older people and households with children were more likely to choose local. Living wage was associated with a stronger preference by Hispanics, high-income households, and consumers who don't think that other people care about how their food is produced. In comparison to local, living wage is also preferred by younger people, consumers who consider the environment when making purchases, and those who think that consumers can affect the environment.

**WILLINGNESS TO PAY FOR DOMESTIC "FAIR TRADE" STRAWBERRIES**

Another section of the survey asked respondents to consider their willingness to pay for strawberries that embodied a living wage and safe working conditions for the workers involved in producing them. These criteria are included in a "Fair Trade" label, certified by Trans-Fair USA, although only for certain imported food products. To estimate the level of support for a domestic version of fair trade labels, we asked respondents if they would pay an additional amount for these criteria, assuming a typical pint of strawberries cost \$1.50. This amount was 5 cents, 25 cents, 50 cents or \$1.50 more, depending upon the version of the survey (there were four versions of the survey, differing only on this one question).

Women in the study were willing to pay 60 cents more per pint than men for strawberries produced under Fair Trade conditions, defined here as a living wage and safe working conditions. Workers at Swanton Berry Farm in Santa Cruz County (pictured here) enjoy the benefits of United Farm Workers representation.



Jered Lawson

Multilevel logistic regression, which controlled for the placement of survey respondents in four different groups of price options, was used to model the median willingness to pay (i.e., 50% willing to pay at least an additional \$1.06/pint). This method was also used to analyze the association of demographic and behavioral variables with willingness to pay, as reported in Table 2.

The results indicate that when controlling for all of the variables in the

model, only gender and considering the environment when making purchases were strongly associated with willingness to pay for domestic fair trade strawberries. Women were more than twice as likely as men to pay more for these criteria, and the model indicates that they were willing to pay 60 cents more. For every 1 unit increase on the 7 point scale that measured consideration of the environment when making purchases, willingness to pay more for

**Table 2. Multilevel logistic regression of willingness to pay for socially just strawberries on demographic and behavioral variables (n=475).**

		Odds Ratio	Cents
Intercept			70
Gender	Men (default)		
	Women	2.08**	60
Age	Years	0.99	-1
Ethnicity	European-American (default)		
	Asian-American	0.96	-4
	Hispanic-American	1.36	24
	Other	0.68	-33
Income	Low income (default)		
	Middle income	1.14	10
	High income	1.31	22
Education	High school or less (default)		
	Some college	0.96	-4
	College	0.72	-28
Purchasing behaviors	Grad school	0.74	-26
	Frequent local	1.24	18
	Frequent organic	1.18	13
	Consider environment	1.32***	24

\*\*\* p < .001, \*\*p < .01

## Consumer Interest in Food System Issues: Demographic and Behavioral Associations

socially just strawberries increased an average of 30%. Each point higher on this scale was associated with a willingness to pay an additional 24 cents above the base price, according to the model.

Frequent purchasers of organic food were 58% more likely than those who do not purchase organic food to pay more for fair trade criteria, or 40 cents more, when not controlling for any other variables ( $p < .05$ ). However, when included in the full model, the difference was much weaker, and dropped to just 13 cents extra. This is in large part due to the fact that frequent organic food purchasers are more likely to consider the environment when making purchases—these variables were moderately correlated with each other (0.24). The perception that one can make a difference through purchases, as represented by consideration of the environment when shopping, probably accounts for

much of the greater interest of frequent organic purchasers in domestic fair trade, when simply compared with those who do not frequently purchase organic food.

The results suggest that efforts to establish a domestic version of fair trade would be most effective if targeted to consumers who consider the environment when making purchases, and to women. Targeting organic consumers may be an indirect, yet effective way to reach consumers who consider the environment when making purchases.

### INTEREST IN FOOD SYSTEM TOPICS

A third section of the survey asked respondents to rate their interest in eight food system topics on a scale from 1 to 10, with 10 representing a great amount of interest and 1 representing none at all. The topics were: food safety; nutrition; treatment of animals; environmental impacts; working conditions; wages; influence

of large corporations; and how far food travels.

Associations were analyzed using ordinary least squares regression, with the rating for each topic as the dependent variable in eight separate models. Table 3 reports the standardized betas of the regression analyses, which indicate the strength of the association between each of the independent variables and level of interest in the various food systems topics, after controlling for the influence of all of the other variables in the model.

*Gender.* After controlling for other variables in the analysis, women were more interested than men in all of the topics except the highest-rated topic of safety, and the lowest-rated topic of how far food travels. The largest difference between women and men was women's greater interest in the humane treatment of animals, at nearly 1.5 points higher on a 10 point scale. This was followed by wages and work-

**Table 3. Standardized betas for ordinary least squares regression of interest in food system topics (mean score in parentheses) on demographic and behavioral variables (n=475).**

	Safety (9.4)	Nutrition (8.9)	Treatment of animals (7.4)	Environmental impacts (7.3)	Working conditions (7.2)	Wages (6.7)	Influence of large corporations (6.6)	How far food travels (5.8)
Women	0.02	0.12	0.26**	0.13**	0.22**	0.22**	0.12**	0.06
Age	-0.01	0.01	-0.03	-0.02	0.05	0.05	0.01	0.08
Asian	0.00	0.06	-0.01	0.12**	-0.03	-0.03	0.03	0.07
Hispanic	0.02	0.11*	0.11*	0.16**	0.22**	0.24**	0.09	0.10*
Other	0.00	0.05	-0.04	0.04	0.01	0.01	0.06	-0.02
Middle income	-0.03	-0.08	-0.01	-0.03	0.00	0.02	-0.08	-0.11
High income	0.01	-0.08	-0.07	-0.07	-0.01	0.04	-0.16*	-0.17*
Some college	0.15*	0.18*	-0.05	0.03	0.02	0.02	0.26*	0.10
College	0.15	0.22**	-0.12	0.02	-0.11	-0.11	0.15*	0.06
Grad school	0.10	0.20**	-0.07	0.07	-0.06	-0.06	0.12	0.02
Frequent local	0.08	0.08	0.03	0.09*	0.03	0.09*	0.06	0.12**
Frequent organic	0.04	0.03	0.12**	0.06	0.03	0.03	0.15*	0.11*
Consider environment	0.15***	0.20***	0.30***	0.44***	0.32***	0.33***	0.22***	0.23***
Model								
Adjusted R <sup>2</sup>	0.03	0.08	0.22	0.27	0.23	0.25	0.16	0.13
F	2.06	4.07	11.72	14.32	11.79	12.97	7.75	6.30

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

ing conditions: women scored these topics more than 1 point higher than men, on average.

**Age.** Age was not associated with more or less interest in any of the food systems topics.

**Ethnicity.** In comparison to white, non-Hispanic respondents, Asian-Americans and Hispanic-Americans were more interested in environmental impacts of their food. Hispanic-Americans were also more interested in nutrition, the wages and working conditions of those who produce their food, and in how far their food travels. Hispanic-American interest in wages was the largest difference observed in the survey results; they rated this topic an average of 2 points higher on a 10-point scale than white non-Hispanic respondents.

**Income.** In comparison to low-income respondents, those with the highest incomes were less interested in the influence of large corporations or how far their food travels.

**Education.** Higher levels of formal education were associated with increased interest in the topic of nutrition. Respondents with some college

or an associate's degree were more interested in the influence of large corporations than those with other levels of education.

**Frequent Local Consumer.** Frequent sourcing of local food was, not surprisingly, associated with an interest in how far food travels when compared to those who do not frequently source local food. It was also associated with a greater interest in environmental impacts of food and the wages of those who produce their food when compared with those who do not frequently source local food.

**Frequent Organic Consumer.** Frequent purchasing of organic food was associated with increased interest in the influence of large corporations, the treatment of animals, and the distance food travels, when compared to those who do not frequently purchase organic.

**Consider Environment When Purchasing.** A higher score on a scale measuring consideration of the environment when making purchases was associated with greater interest in all of the topics, and was the best or second best predictor of interest for each of these.

The results suggest that outreach and education on food systems could be targeted to specific segments of the population, based on their interests. For example, safety and nutrition have almost universal appeal, but those with higher levels of education express even greater interest in nutrition. Hispanic-Americans are more interested in wages and working conditions than other ethnic groups. Finally, ethical issues such as the treatment of animals, environmental impacts and the wages and working conditions of workers all receive more interest from women and those who consider the environment when making purchases.

#### IMPLICATIONS FOR MARKETERS, EDUCATORS, AND CONSUMERS

**Marketers.** One of the most striking differences, evident in all three sections of the survey, was women's greater interest in ethical issues surrounding food production. Advocates of humane



Women, Hispanic-Americans, and those who consider the environment when shopping may be most receptive to a domestic equivalent of the existing Fair Trade label.

and living wage ecolabels would be well served to focus their marketing efforts towards women, who are more likely to choose these labels. In addition, women were much more willing than men to state that they would pay higher prices for domestic fair trade strawberries.

Another important variable in all of the analyses was the self-reported behavior of considering the environment when making purchases. After controlling for other behaviors and demographics, these consumers were also more likely to choose humane and living wage criteria, and to express a much greater willingness to pay for domestic fair trade criteria than other consumers.

Hispanic-American respondents indicated a much stronger preference for living wage criteria than local or humane criteria when compared to European-Americans. Hispanic-Americans were also willing to pay an average of 24 cents more for domestic fair trade strawberries (although the difference was statistically weaker than that demonstrated for ecolabel preferences). This growing demographic group may be an important market to consider when evaluating the potential of alternative ecolabels.

Jered Lawson

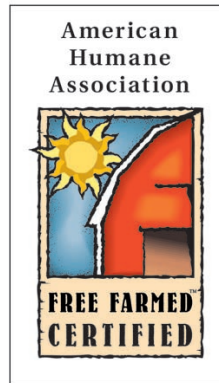


Consumers who frequently support farmers' markets and other local food sources are concerned with the wages of farmworkers and others who produce their food, as well as food production's environmental impact.

Jon Kersey



Ecolabels that identify products as environmentally friendly, locally grown, or humanely produced may be particularly appealing to those already purchasing organic food.



Other demographic variables are likely to be less useful for marketing purposes. Income and education tended to be very weakly associated with ecolabel preferences and willingness to pay for domestic fair trade strawberries. Having children under 18 in the household was associated only with preferring local over living wage. For the variable age, older respondents had a tendency to prefer local ecolabels, and younger respondents were more likely to choose humane and living wage.

Behavioral variables, by contrast, may be more helpful for predicting ecolabel preferences. For example, frequent organic consumers are likely to be receptive audiences for marketing a humane label. On the other hand, consumers who are already frequently obtaining food from a household gardens, roadside stands, a community supported agriculture subscription and/or farmers' markets, are likely to be interested in efforts to market a local label.

*Educators.* Educators, including extension personnel, nonprofit organizations, and others, may benefit from focusing their efforts on women and on people who consider the environment when making purchases. These groups consistently showed a much stronger

interest in nearly all of the food system topics. Hispanic-Americans also expressed greater interest in a number of topics, particularly for wages and working conditions, but also for environmental impacts, treatment of animals, nutrition, and how far food travels. Efforts to change purchasing behavior might best be targeted to these three groups, as suggested by their higher-than-average willingness to pay for domestic fair trade strawberries.

For educational programs focused on specific topics this research offers some guidance as well. Organic consumers showed a greater interest in the treatment of animals, which was also supported by a stronger interest in a humane ecolabel. An education topic that has received increasing attention recently is the distance that food travels. This subject is likely to appeal primarily to those purchasing local and organic products, with much less interest from others, particularly those with high incomes.

*Consumers.* Consumers have played a crucial role in the growth of the "Organic" ecolabel. Those who want even more choices in the marketplace can contribute to the development of additional ecolabels by seeking out prototypes that this research suggests

could be successful on the Central Coast of California. Such efforts include the United Farm Workers' "Black Eagle" label (farmworkers with union contracts), Community Alliance with Family Farmers' "Buy Fresh, Buy Local" label (currently available on the Central Coast and in six other regions of California), and a number of third-party certified humane labels, including "Certified Humane," "Humane Husbandry," and "Free Farmed." Consumer organizations could also use the information from this research to recruit others with similar concerns, and to build a larger movement to propel the food system towards their ideals.

– PHIL HOWARD

*Other Center Research Brief titles –*

- Brief #1. Community Supported Agriculture on the Central Coast: The CSA Member Experience
- Brief #2. Land Use and Water Quality on California's Central Coast: Nutrient Levels in Coastal Waterways
- Brief #3. Alternative Food Initiatives in California: Local Efforts Address Systemic Issues
- Brief #4. Community Supported Agriculture on the Central Coast: The CSA Grower Experience
- Brief #5. What Do People Want To Know About Their Food? Measuring Central Coast Consumers' Interest in Food Systems Issues
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**The Central Coast Research Project**

*Social issues research on consumer interest in the food system is part of the Center's Central Coast Research Project, funded in part by the US Department of Agriculture. The project explores ways to improve the sustainability of the food and agricultural system on California's Central Coast. Included in the project is research on water quality and ways of decreasing nonpoint source pollution from the region's farms.*

Thanks to the Salmon Safe organization, Community Alliance with Family Farmers, and the American Humane Association for permission to use their labels.