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# What Matters in Consumer Berry Preferences: Price? Source? Quality?

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This paper reports on initial data collection for the consumer-preference objective in the three-year research project, “An Extended-Season Berry Production and Marketing System to Enhance Viability of Small Appalachian Farms and Rural Communities.” This USDA NRI-funded project studies impacts on small farms and rural communities of widespread adoption of a unique full-season system of berry production with sales to high-value markets. Small-acreage farms in Southern Ohio and similar Appalachian regions are looking for alternatives that may approach the per-acre returns of traditional tobacco production. Small fruit crops have similar production requirements (labor and management intensive, small acreage) and can provide a significant income that more closely approaches tobacco than do many other alternatives. The overall project combines research on the required production system, on marketing strategies for high-value berries and berry products produced in this region, and on the impact such production and processing may have on case-study communities. This report relates to work to understand attributes consumers value in the market that may inform producers on marketing strategies.

## Methods

During summer 2005, an adapted store-intercept technique was used to evaluate consumer perceptions of locally grown produce and their willingness to pay for produce with particular attributes—specifically, particular attributes of fresh berries: freshness guarantee, production location, producer type, and price. Following field tests of

the survey instrument, consumers were approached at direct-sale outlets such as farmers’ markets and roadside produce stands. Similar surveying at grocery stores in urban, suburban, and rural locations will balance the project’s overall sample for this phase of collection. Because preference for locally produced foods is expected to be related to household and shopper attributes, a variety of retail locations were sampled to increase the variability of attributes such as household income, education levels, race, and other demographic features, and to enhance the estimation of consumer willingness to pay for the studied food attributes. In each customer intercept, a computer-based choice experiment and in-store questionnaire was administered. Conjoint analysis of consumer preferences will be used to further determine willingness-to-pay for each of the studied attributes. Base statistical analysis of the preliminary findings is presented in this paper.

## Preliminary Analysis

The sample consisted of 235 consumers with a mean age of 49.1 years, who were interviewed at farmers’ markets and farm markets in late summer 2005. Respondents’ places of residence—21% urban, 38.4% suburban, 22.3% small town and 18.3% rural—reflects the locations chosen. The sample captured a high percentage of primary food shoppers (85.1%), suggesting a consumer who is not merely out for the “rural experience” often promoted by these types of retail establishments. This group of consumers reported spending a mean of \$99.62 per week on groceries, considerably below the average Ohio grocery bill of \$144.94 reported by the 2002 Census. Weekly produce purchases ranged from \$0 to \$100, with a mean of \$28.35. Additionally, our respondents were more highly educated than average Ohioans—51.8% had bachelors, graduate, or professional degrees and another 17.4% had some college or an associate’s degree. The sample was similar in racial distribution to the general Ohio population. Below-average sampling of Black/African-American (5.3% in sample vs.

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11.5% Ohio Census) and above-average responses from Asian (4% sample vs. 1.2% Ohio) populations reflects the customer base of the locations in which the consumer intercepts occurred. Intercept location is again reflected in comparisons between income distribution of the sample to that of Ohio's general population. Under-sampling occurred for the lowest income category—11.32% of the sample earned less than \$25,000, compared to 26.21% for all of Ohio. Over-sampling occurred in the two middle categories—24.06% of the sample earned \$50,000–\$74,999 and 18.4% earned \$75,000–\$99,999, vs. 11.11% and 8.85%, respectively, for the total Ohio population.

Consumers were asked how often they shopped at farmers' markets in season. Some 11.30% shopped farm and farmers' markets twice weekly, 36.09% shopped weekly, 22.17 % shopped twice monthly, 13.48% monthly, and 16.96% less than once a month. Asked to rate the top three reasons they bought locally grown foods, 89.7% of those surveyed cited freshness, with 57.2% of those calling that attribute the most important reason they buy such products (Table 1). Taste was the second most important attribute of local foods, according to the respondents, and slightly behind an interest in supporting local businesses in overall mentions. Nutrition, safety, and support for the regional economy were less often mentioned as reasons to buy locally produced foods. When asked about general food purchases, respondents rated taste and price as most important (Table 2) on a scale of 0 to

3. These responses differed little regardless of age, income, or education.

A major part of this project is to determine consumers' willingness-to-pay (WTP) for specific attributes of fresh berry products. Two techniques were used to gauge this. Consumers participated in an experiment for conjoint analysis that will be conducted at completion of full data collection. Additionally, all respondents were asked to choose the amount above a base price of \$3-per-quart that they would pay for fresh strawberries. Choices were from eight categories that ranged from \$0.00 per quart to \$1.50 per quart. The rated characteristics were "pesticide free," "organic," "locally grown," "grown on a family farm," and "displays the *Ohio Proud* symbol" (a voluntary state product-promotion program). On average, consumers in this sample were willing to pay more for "pesticide free," with a mean of \$0.33/qt. (Table 3). "Locally grown" (\$0.31) and "grown on a family farm" (\$0.30) garnered the next highest premiums, followed by "organic" (\$0.26) and "*Ohio Proud*" (\$0.17). Looking at the results by age, income, and education, we found the means for WTP were significantly different from zero for the organic attribute between those less than 45 years old (\$0.37) and those older than 45 (\$0.23) at both the 0.10 and 0.05 probability levels. The organic attribute was also significant at 0.10, 0.05, and 0.01 probability levels between post-high school educated (\$0.30) and those with a high school education or less (\$0.15). The "locally grown" variable was significantly different at 0.10, 0.05, and 0.01

**Table 1. Reasons Respondents Buy Locally Grown Food.**

	Most important	Percent citing as...		
		2 <sup>nd</sup>	3 <sup>rd</sup>	Total
Freshness	57.21	22.37	10.13	89.71
Support local businesses	10.04	19.3	41.41	70.75
Taste	16.16	41.23	12.78	70.17
Connect w/ food source	5.24	3.07	12.78	21.09
Nutrition	5.68	4.39	10.57	20.64
Support regional economy	1.31	6.58	9.69	17.58
Safety	4.37	3.07	2.64	10.08

**Table 2. Characteristics Rated Important in Food Purchase Decisions.<sup>a</sup>**

	Total	Household income		Age		Education level	
	Mean*	< 50,000	≥ 50,000	< 45	> 45	High school or less	Post-high school
Taste/quality (from past experience)	2.56	2.54	2.59	2.62	2.56	2.43	2.59
Price	1.93	2.14	1.80	1.96	1.91	2.06	1.90
Ease of preparation	1.49	1.36	1.57	1.45	1.53	1.67	1.46
Low trans-fats	1.42	1.33	1.42	1.16	1.51	1.33	1.43
Low-cholesterol	1.26	1.16	1.24	1.00	1.35	1.38	1.22
Labeled as natural	1.19	1.17	1.17	1.30	1.08	1.04	1.21
Brand	1.15	1.06	1.15	0.86	1.31	1.21	1.14
Labeled as organic	1.11	1.29	1.02	1.26	1.02	0.92	1.16
Low-fat	1.09	1.06	1.11	0.84	1.21	1.19	1.06
Low-sodium	1.09	1.04	1.08	0.78	1.25	1.19	1.08
Convenience of packaging	1.03	0.93	1.04	0.78	1.13	1.27	0.97
Low calorie	0.94	0.79	1.00	0.78	1.02	1.02	0.91
Labeled as Heart-Smart	0.89	0.94	0.80	0.72	0.93	1.27	0.78

<sup>a</sup> The question read "In general, when you purchase food of any type at the grocery store, how would you rate the importance of the following characteristics in your decision?"

\*Not important=0, Somewhat Important=1, Important=2, very important=3

**Table 3. Consumer Minimum Willing to Pay for Selected Food Characteristics. (One Quart Strawberry Product).**

	Mean WTP (Cents/quart)						
	Sample Mean	Household income		Age		Education level	
		< 50,000	≥ 50,000	< 45	> 45	High school or less	Post-high school
Pesticide free	0.33	0.35	0.37	0.42	0.33	0.26	0.38
Organic	0.26	0.29	0.27	0.37	0.23 **	0.15	0.30 ***
Locally grown	0.31	0.28	0.36	0.36	0.32	0.21	0.36 ***
Grown on a family farm	0.30	0.28	0.35	0.34	0.32	0.25	0.34
Displays the Ohio Proud symbol	0.17	0.14	0.20	0.18	0.19	0.13	0.20

\*\* and \*\*\* indicate a difference of the means for the two groups that is significantly different from zero at the 0.05 or 0.01 probability levels, respectively.

probability levels for post-high school (\$0.36) and high school or less (\$0.21).

Finally, the consumers participating in the survey were asked to respond to a series of seven statements designed to identify strong positive or negative attitudes that would help explain willingness to buy locally grown produce. Responses are scored as Strongly Disagree = -2, Disagree = -1, Undecided = 0, Agree = 1, and Strongly Agree = 2. Means reflect the position of the average consumer in the sample with regard to these purchases and the percentage of respondents ranking that attribute most, second-most, and third-most important. The statement "Fresh produce at farmer's markets is generally much more expensive than at the grocery store" received an average score of (-0.35). "Eating fresh produce (fruit and vegetables) reduces the risk of cancer and heart disease" received the strongest positive response, with a mean score of 1.29. Slightly less agreement (1.09) went to a statement about pesticides posing a health threat to fruit and vegetable consumers. The rest of the statements regarding the safety of food for sale in local groceries (0.19), food being more safe than a decade ago (0.16), the importance of produce being attractive (0.61), and a statement that food purchased directly from farmers is safer than that at grocery stores (0.42), all reflect a bit of uncertainty on the part of this sample.

## Final Discussion

Targeted marketing of food products provides an opportunity for the small farm to capture a greater share of consumers' food budgets. However, it requires knowledge of which food characteristics are valued by consumers, appropriate methods to inform consumers of those characteristics, and how to deliver such products to the consumer in a satisfactory manner. This research aims to provide guidance on a level of premium that might realistically be captured for specific product attributes and producer-identity branding. Findings presented here begin to establish a basis for establishing such premiums. Conjoint analysis of the pricing experiment conducted with this data collection will further refine that basis. Evaluating the findings by demographic variables, given the market locations surveyed, presented few surprises at this stage in the research. Ongoing data collection in grocery stores should offer a clearer picture of the broader consumer willingness-to-pay for specific attributes in fresh berries. This intelligence can be used not only to set price premiums but to allow growers to target price and product to specific market outlets.