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## Understanding Consumer Interest in Organics: Production Values vs. Purchasing Behavior

Anne C. Bellows\*

Benjamin Onyango<sup>†</sup>

Adam Diamond<sup>‡</sup>

William K. Hallman\*\*

\*Universität Hohenheim, bellows@uni-hohenheim.de

<sup>†</sup>Rutgers University, onyango@aesop.rutgers.edu

<sup>‡</sup>USDA, Agricultural Marketing Service, adam.diamond@usda.gov

\*\*Rutgers University, hallman@aesop.rutgers.edu

# Understanding Consumer Interest in Organics: Production Values vs. Purchasing Behavior\*

Anne C. Bellows, Benjamin Onyango, Adam Diamond, and William K. Hallman

## Abstract

Extensive research exists on who does or might purchase organic food products, however little research has addressed either who values organic production methods when deciding what to eat, and correspondingly, who does not purchase organics regularly. This paper reports that values about organic farming often do not translate into corresponding stated preferences about organic food consumption behavior. The paradox is examined within the context of the consumers' socio-demographic characteristics as well as through opinions and preferences related to food in their lives.

Results show that consumer claims of buying organics and placing importance on organic production systems when deciding what to eat are highly correlated (.472 at 1% significance level;  $p < .001$ ). Organic consumers, however, comprise only slightly more than one quarter (27%) of the highly enthusiastic proponents of organic production methods. Our results corroborate existing research that well-educated persons and those who are primary household shoppers purchase organics most frequently. Additionally, women and those who are older, have higher incomes, and are more liberal, as well as respondents who claim food production knowledge also tend to buy organic food regularly.

Regression and factor analysis show that those who value organic production systems when deciding what to eat may be ranked in the following order: the religiously observant, older and female respondents, persons of color, and those who claim food production knowledge. Results show that many of these organic system proponents are under-represented as buyers, in particular: the religiously observant, those for whom food plays an integral role in their lives, the less educated, and lower income and older respondents.

More attention should be directed to people who value organic production systems yet do not purchase organics. This will enhance understanding of the transaction barriers that impede consumer participation in the organic market. How this population values organic production systems

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also has implications for the development of public policy related to sustainable and organic agriculture.

**KEYWORDS:** organic purchasing behavior, food production values, food preferences, credence attributes

## 1. Introduction

Extensive research exists on who does or might purchase organic food products. Little research, however, has addressed who does not purchase organics. Additionally, research has not addressed who values organic production methods when deciding what to eat. Data from a national telephone survey of 1,201 U.S. consumers show a sharp discrepancy between organics purchasing behavior and the importance that consumers place on organic production methods when deciding what to eat. In a surprising proportion of the surveyed population, personal belief systems that value organic farming often do not translate into organic food purchasing. This paper is an exploratory effort to understand the relationship between attitudes and behaviors of consumers with respect to organic food and farming, and why values about farming may not translate into corresponding food consumption behavior.

Our paper explores this paradox of production values vs. purchasing behavior by examining how socio-demographic characteristics as well as opinions and preferences related to food correlate to organic purchasing behavior and values concerning organic farming. The discrepancy that we find between organic purchasing behavior and self-declaration of belief in the importance of organic production methods is linked to demographic and cultural variables. We do not know exactly why this discrepancy exists, but we do know that it is significantly correlated with variables such as education, race, income, religious observation, and the role of food in one's life.

Fewer of our respondents buy organics regularly (13%) than highly value organic production methods when deciding what to eat (39%). Research based on these stated preferences (as opposed to revealed behavior) shows that they are highly correlated (.472 at 1% significance level), i.e., those who purchase organic products regularly place great importance on organic production methods. Most enthusiastic proponents of organic production methods (73%), however, do not purchase organics regularly. As a group, those who value organic production methods are under-represented as buyers: they include less educated, lower income, older respondents, and most especially those who are politically conservative and religiously observant; food plays an integral role in their lives. On the other hand, the few regular organic purchasers who do not highly value organic production methods reflect the inverse: more highly educated and higher income respondents who are politically liberal and less religiously observant. Female gender and participation in shopping and, to a lesser extent, cooking are variables associated with both organic purchasing and valuing organic production methods when deciding what to eat.

The relative paucity of research on how consumers value organic production methods when deciding what to eat may derive from the difficulty in translat-

ing such data into instrumental marketing research and analysis. Ironically, a narrow research focus that looks at consumer behavior and attitudes solely for the purpose of improving marketing strategies (cf. Chinnici et al., 2002) and that fails to consider cultural dimensions of organic food consumption may do a great disservice to actually uncovering the drivers of the industry and pathways to significant expansion of the market. Other attributes such as religious observance and food practices, as well as trust in the organic label, have been shown to influence consumer values and behavior (Onyango et al., 2007; Krystallis and Chrysosoidis, 2005).

Understanding who places importance on organic production methods is key not only to understanding the sociocultural context in which organic food consumption takes place, but is a worthy intellectual goal in its own right. It is also critical to the development of effective marketing strategies and public policy in the organic arena. Knowing who values organic production methods can help broaden the organic food market segment by informing the development of more culturally appropriate marketing and merchandising strategies. Likewise, knowing the level of public interest in organic farm practices can inform policy making that is designed to grow the organic farming sector in pursuit of public purposes such as improved water quality, reduced soil erosion, and biodiversity protection and private purposes such as health and well-being. Explaining this apparent gap between values and stated behavior with regards to organic food may shed light on the social context of organic food consumption and what can be done to expand organic agriculture and its related markets.

## **2. Background**

While still catering to a small population, the organic food industry has been growing rapidly. Organic sales have increased between 17% and 21% each year since 1997 compared with total U.S. food sales which have been growing at an average rate of 2% to 4% a year (Organic Trade Association, 2007; Scheel, 2004; Organic Trade Association, 2004). The Organic Trade Association estimates that current sales in the U.S. of organic products total \$15 billion (Organic Trade Association, 2006). This rapid growth makes it an attractive market for mainstream food companies that are looking for new ways to grow their businesses. Organic food has permeated the global food marketing chain (Raynolds, 2004), provoking intense responses from sympathetic critics that organic farming's authenticity is being threatened as it scales up operations to meet the demands of mass marketing (Guthman, 2004; cf. Whitley, 2003). The organic food industry is, however, still a niche market that only attracts a relatively small number of consumers and accounts only for about two per cent of the world's retail food market (Organic Trade Association, 2004; cf. Lohr, 2001 for earlier statistics). This niche status

spawns several questions: Who is buying organics and how do they differ from the rest of the population? Who does *not* buy organics and why? Are there persons who have an affinity for organics who also face obstacles to buying organics be they cultural, attitudinal, economic or geographic? What if anything can be done to overcome such barriers?

A number of previous studies have linked organic purchases to a series of socio-economic variables characterizing consumers, as well as, perceived, or credence attributes, that consumers attach to organic food products. Perceived attributes include taste, freshness, quality, safety, and health (Kihlberg and Risvik, 2007; Zhao et al., 2007; Botanaki et al., 2006; Lea and Worsley, 2005; Chinnici et al., 2002; Lockie et al., 2002; Lyons et al., 2001) and qualify as credence characteristics. "As a credence good, information about an organic product is asymmetric. That is consumers may not detect the presence or absence of organic characteristics even after purchase and use. Consumers may only know that the product is organic when they are informed (Yiridoe et al., 2004, 194)." In the case of organics, product labels indicate a food item's organic status and convey to the consumer that the labeled good possesses food production characteristics that the consumer would not be able to verify independently. Confidence in the label depends upon trust between consumers and producers, as well as, trust in the social and economic organizations that connect them.

Research on the socio-economic characteristics of organic consumers indicates that they are likely to be highly educated (college and above), urban dwellers high income earners, younger consumers and female (Zhao et al., 2007; Onyango et al., 2007; Thogerson and Olander, 2006; Lea and Worsley, 2005; Selfa and Qazi, 2005; Kramer, 2003; Hartman Group, 2000; Govindasamy and Italia, 1999). Research on organic consumer motivations indicates that private benefits inhering to food consumption tend to be more important than knowledge of the public benefits accruing to organic farming (Molyneaux, 2007; Food Marketing Institute, 2006; Conner, 2004; Weir et al., 2003; Caswell and Mojduska, 1996). In other words, taste, health, convenience, and freshness (the private benefits) appear to be more important drivers of organic food consumption than concern for the environment and the ability of organic farming to protect biodiversity, reduce water pollution, or save natural habitat (public benefits). Results from a study of Australian consumers indicate that "for organic consumers, price is just as important [as it is with nonorganic consumers], but health and the natural content of food appear slightly more important while animal welfare and sensory appeal are of similar importance." (Lockie, 2002, 35). Thus, organic consumers are defined in part both by willingness to pay for certain attributes (especially, but not only, private benefits) and by income flexibility to pay for those attributes (Aguirre, 2007; Botanaki et al., 2006). In terms of income flexibility, exclusivity as represented by organic price premiums may simultaneously work to drive the

market even as it deters others from entering the market. Consumer research indicates it is the size of the premium relative to non-organic foods, not the absolute price of organic food that deters some from buying organics (Kihlberg and Risvik, 2007; Yiridoe et al., 2004). Some consumers are even drawn by the higher price because it can convey exclusive status that attracts certain buyers (Guthman, 2003; Miele, 1999).

Why do people *not* buy organics? This question elicits far less literature. From the previous studies, however, we can surmise that income, general education and specifically knowledge of, experience with, and values regarding food and agriculture play a role in decisions to buy or not to buy organics. There are many consumers who would like to buy organic foods, but for whom organics remain beyond reach (cf. Vermeir and Verbeke, 2006). Certainly high relative price premiums are just one of several barriers that contribute to the organic food market not being saturated. Other transaction costs associated with organic foods have been identified as purchasing barriers that exclude interested consumers from the organics food market, including lack of accessibility to stores carrying organic foods, uncertain product availability and quality, and lack of available information about organic foods that can enhance familiarity and comfort with the product (Vermeir and Verbeke, 2006; Reynolds, 2004; Guthman, 2003; Lockie et al., 2002; Chinnici et al., 2002; cf. Huang et al., 2006; Norwood, 2006). According to Krystallis and Chryssoioidis (2005), willingness to pay the organic price premium is more dependent on trust in the organic certification process, food quality, and brand name familiarity than on price or socio-demographic variables (cf. Dimitri 2003). Therefore lack of trust may provide another explanation for why people who might want to buy organics nevertheless do not. In other words, would-be buyers who value organic food production methods when deciding what to eat might not have confidence in the governmental or market-based mechanisms that are designed to develop, implement, and protect organic standards (Princen et al., 2002; cf. Guthman, 1998). One U.S.-based study, for example, revealed that concerns related to organic claims increase steadily by age and race/ethnicity. African-Americans were most likely, and Latinos least likely, to report mistrust as a barrier to purchasing organic products (Strochlic, 2005).

Buyers and sellers employ organic labels to differentiate organic products from others. Trust in organic labels should empower consumers to make informed choices based on the information presented to them on product labels and store displays, thus allowing greater alignment between consumer values and behavior (cf. Kiesel and Villas-Boas, 2007; Gale, 2002). Trusting the label suggests belief that the label represents consistent standards, practice, and regulation. Yet organic labeling, its proponents, and its definitions have evolved continuously over more than three decades (Park and Lohr, 2006; cf. Bergès-Sennou and Waterson, 2005; Bergès-Sennou et al., 2004; Huffman et al., 2004). Its meanings are

not constant and therefore arguably confusing or frustrating to consumers. Originally a subset of eco-labels and aligned with alternative politics, the organic label was conceived as a values-based aspect that could “present itself as primarily an ethical and moral effort to counter unsustainable trends within presently existing capitalism” (Barham 2002, 349; cf. Lockie et al., 2002; Lyons et al., 2001; Conford, 2001; Chaney, 1996; Belasco, 1989; Peters, 1979).

In 2002, federal standards were adopted to develop a unified definition of “organic” at the U.S. national level. Those uniform standards, however, and the label that represents their implementation have not quelled ongoing debate and public skepticism. Concerns have been raised with regard to the uniformity and adequacy of enforcement (Lavigne, 2006; Conner, 2004; Conner and Christy, 2004). Organic food supply chains are criticized by some for mimicking their non-organic counterparts (referred to “the conventionalization of organic;” see Guthman, 2004; Hall and Mogyorody, 2001; Buck et al., 1997). The passage of national standards has not in itself quelled debate over the exact composition of organic standards. Industry groups, consumer organizations, and environmental organizations have sought to shape organic standards to reflect what they see as best for the organic movement, or industry depending on who’s talking. The landmark Harvey decision did lead to a decisive ruling by the USDA’s National Organic Program based on Congressional passage of an amendment to the Organic Foods Production Act, allowing for limited use of synthetic ingredients in processed organic food items (USDA, 2006). However, other issues such as access to pasture requirements remain unresolved and subject to continuing debate. Different constituencies draw different conclusions from the continuing evolution of the standards (Organic Consumer Organization, 2008; Fromartz, 2007).

A more conservative consumer population may be wary of the counter-culture origins of organics. More progressive consumers may distrust the agro-industry embrace of organic and sustainable agriculture. Organic labeling remains a symbol of negotiated meanings that can confuse or frustrate consumers from diverse socio-cultural demographic backgrounds. Among other possible organic purchasing barriers, lack of confidence in organic labeling, both before and after the U.S. federal organic standards, may discourage some consumers regardless of whether or not they place high value on organic production methods when deciding what to eat.

### **3. Methods and Data Collection**

In 2003 the Food Policy Institute at Rutgers, the State University of New Jersey, conducted a telephone survey of 1201 randomly selected U.S. households. The survey elicited information on consumers’ opinions about, knowledge of, and awareness of general foods and biotechnology in particular. Data were also col-



lected on consumer's attitudes towards personal health and safety as well as environmental concerns relating to foods. Additional respondents' information on socio-economic characteristics, political, moral, and religious views was garnered. Queries on organic purchasing behavior and the level of importance respondents place on organic production methods preceded those on biotechnology.

To limit the length of the survey and minimize fatigue on the part of the respondents, two versions of the survey were created and given to two identically drawn split samples. Most of the questions were administered to all of the respondents, but a small subset of the questions was divided into two question sets "A" and "B," and were uniquely asked of the split respondent samples. The Version A questionnaire required an average of 24.8 minutes of interview time to administer; Version B averaged 26.4 minutes. Thirty-eight percent of randomly selected phone calls resulted in completed interviews. Phone calls to regional lists that excluded non-residential or non-working numbers produced a 56% rate of completed surveys (Hallman et al., 2003, for related publications, see also <http://foodpolicyinstitute.org/publicationsall.php>).

All respondents were asked all of the questions reviewed in this paper; no split sample questions are included in this review. During the telephone interview, survey participants were asked closed-ended questions about their purchasing decisions for organic foods, the importance they place on organic production methods as they relate to their eating decisions, religious observance, ethnicity/race, gender, income, education, the role of food in their lives, household composition, age, political affiliation, shopping habits, and knowledge of farming practices. The two questions that frame our analysis of respondent's behavior and opinions towards organic foods are:

1. How often do you buy food products labeled specifically as "Organic?" Would you say: 1-never; 2-rarely, 3-sometimes, 4-frequently, 5-always? (n=1185; no response=16)
2. On a scale from 1 to 10 where 1 is "not at all important" and 10 is "extremely important," how important is it that your food is produced organically when deciding what to eat? (n=1185; no response=16)

Using comparison data from the 2000 U.S. Census, researchers weighted the sample to more accurately reflect the racial, ethnic and educational makeup of the entire national population. These weighting adjustments are illustrated in Table 1. Ideally, the sample population in any survey should have the same characteristics of the wide population they are intended to represent. When the number of respondents interviewed in a particular demographic category does not match the number one would have expected to interview based on census data, the group's responses are weighted by a factor that compensates for the difference. For example, if census figures show that 39 percent of Americans aged 18 and

older have a high school education, and only 32 percent of those interviewed have a high school education, each of these respondents counts as 1.21 persons to adjust for the difference. Data presented in this study are estimates of the distribution of responses within the United States and are derived from the weighted data.

**Table 1: Weight Adjustments (percentage based on valid responses)**

	Unweighted %	Weighted %	US Census %
<b>Males</b>			
18 - 24	3.44	6.65	6.63
25 - 34	7.30	9.60	9.62
35 - 44	10.05	10.72	10.73
45 - 54	9.28	8.84	8.84
55 - 64	5.07	5.58	5.57
65+	6.70	6.91	6.89
<b>Females</b>			
18 - 24	5.24	6.36	6.35
25 - 34	9.19	9.44	9.45
35 - 44	12.03	10.83	10.85
45 - 54	11.43	9.17	9.17
55 - 64	8.33	6.04	6.04
65+	11.94	9.87	9.84
<b>Race/Ethnicity</b>			
White (non-Hispanic)	80.33	71.97	71.98
Black (non-Hispanic)	10.05	11.15	11.16
Hispanic	5.67	10.99	10.98
Other (non-Hispanic)	3.95	5.89	5.88
<b>Education</b>			
Less than high school	7.82	19.60	19.60
High school grad/GED	29.81	28.63	28.63
Some college	26.72	27.37	27.37
College grad or more	35.65	24.40	24.40
<b>Region</b>			
Northeast	16.49	19.39	19.39
Midwest	25.26	22.82	22.83
South	35.14	35.73	35.71
West	23.11	22.06	22.08

Hallman et al., 2003, page 4.

In this paper we report respondents' answers untested by revealed preference analysis. We employ descriptive statistics, bivariate analyses, and factor analyses reinforced by basic regressions to estimate the impact of consumers' socio-economic characteristics, food systems perceptions and food attributes on consumer's organic food purchases regularity and their appreciation of the organic farming methods.

#### 4. Results

Part A reports descriptive and bivariate results of consumer food preferences. Part B provides results from factor and regression analyses on purchasing behavior and the importance consumers of organic production methods in eating decisions.

#### 4. A Descriptive and Bivariate Statistics

##### 4. A.i Relationships between Production Values and Purchasing Behavior

Figure 1 presents data on organic purchasing. Respondents showed fairly proportionate responses when asked if they "never," "rarely," "occasionally," "frequently," or "always" bought food products labeled specifically as "organic." Only 1.7% "always" buy organics, therefore, that category was grouped with "frequently" buy to form the category "regular purchasers" (13%). "Regular organic purchasers" represents a small population of mature and established organics consumers. More than a quarter of respondents (28%) never buy organics. Most typically, respondents "occasionally" (31%) or "rarely" (28%) buy organics, together representing important growth potential for organics purchasing.

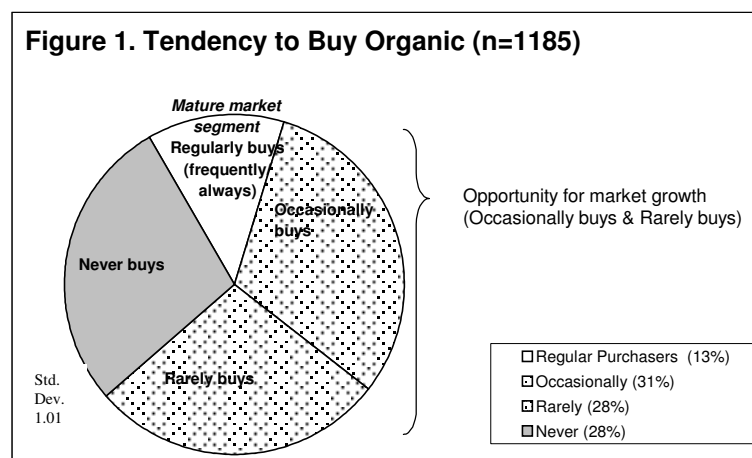
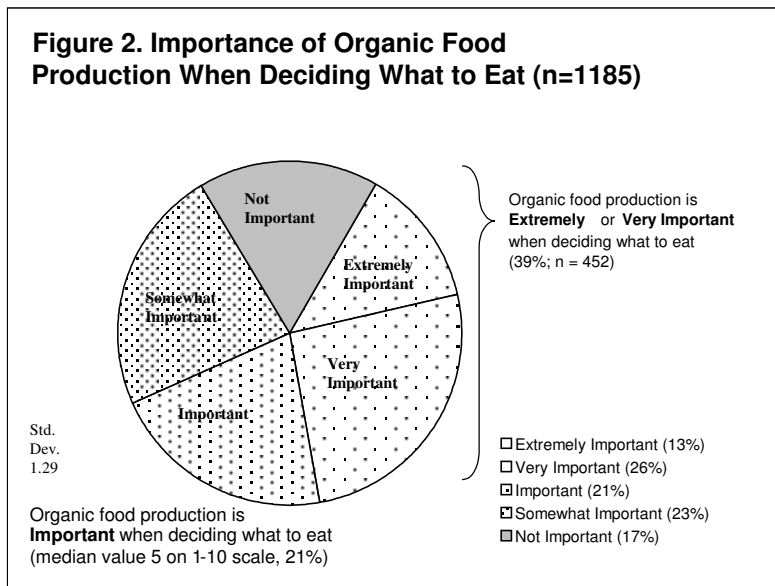
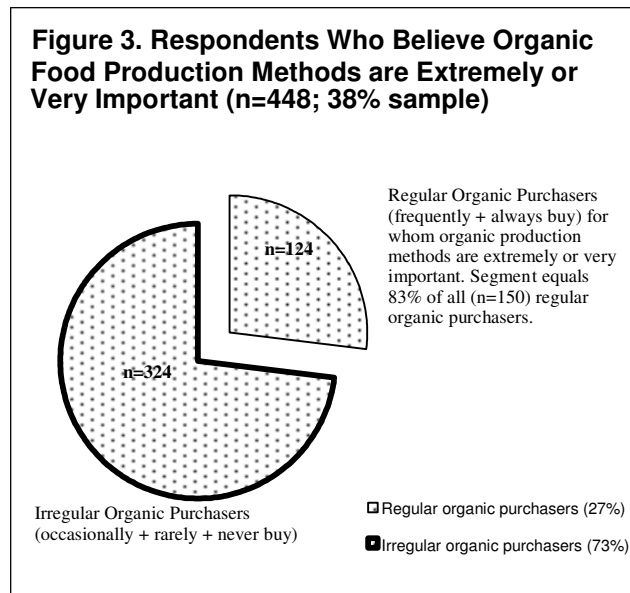


Table 2 and Figure 2 present data on the importance of organic food production when deciding what to eat. Respondents were asked to rate, on a scale from 1-10, the degree of importance that they placed on a variety of food attributes when deciding what to eat. One of these food attribute variables was, “how important is it that your food is produced organically when deciding what to eat?” As reported in Table 2, the 1-10 scale was collapsed into 5 categories. The 5-point scale that we use remains the same in terms of original direction and represents numerical response groups reflective of the raw data. Overall, the answers skew toward more, rather than less, importance being placed on organic production systems when deciding what to eat. Seventy percent (70%) of responses range between “somewhat important” and “very important.” The extremes are neither particularly large nor dissimilar in size. Note, the “extremely important” and “very important” segments form 39% (n=452) of the surveyed population (missing, n=16). These respondents, who place the most importance on organic food production when deciding what to eat, are further analyzed in Figure 3.

**Table 2. The Importance of Organic Food Production When Deciding What to Eat: Collapsing the Scale**

	Original values (1-10)	Frequency	Valid Percent
Not important	1	201	17.0
Somewhat important	2-4	278	23.5
Important	5	254	21.4
Very important	6-8	304	25.7
Extremely Important	9-10	148	12.5
Total Answering		1185	100
Missing		16	(1.37)
<b>Total Surveyed</b>		<b>1201</b>	





Organic food buying behavior and the importance placed on organic food production in consumption decisions are significantly and positively correlated ( $X^2(12, N=1170) = 319.96, p < .001$ ). Figure 3 divides the 38% (n=448) of all respondents who believe organic food production methods are extremely or very important when deciding what to eat into regular (27%) and irregular (73%) purchasers of organics. (Note, the smaller n=448 in Figure 3 reflects missing values in the bivariate analysis). 83% (n=150) of all regular organics purchasers believe that organic production methods are extremely or very important when deciding what to eat. More interesting, however, are the other three-quarters (73%) who place the most importance on organic production methods when deciding what to eat. They are *irregular* (cf. Figure 1: occasional, rarely, or never) organic buyers, forming 31% of the entire survey population of infrequent purchasers of organics. The next section seeks to understand who comprises this group that claims to care about organic production methods when deciding what to eat, yet unexpectedly does not purchase organics regularly.

#### 4. A.ii Socio-economic Aspects of Production Values and Purchasing Behavior

We compare demographic variables of education, income, age, race/ethnicity, gender, household composition, religious observance, and politics to respondents' organic purchasing behavior and the importance they place in organic production systems when deciding what to eat. As mentioned in the previous section, education has consistently been identified as the major factor associated with organic

buying, and to a lesser and more varying extent, income, age, and gender. Our analysis compares favorably with the existing literature on organic food purchases; however, our analysis shows a different and complex population that cares about the *production processes*. These findings provide new perspectives on the actual and potential organics market, as well as indications of who has interest in organic agricultural policy.

Table 3 below identifies significant associations between socioeconomic variables that are positively correlated with buying behavior and negatively associated with production values. As expected, the more education and income the respondent reports, the more likely they are to purchase organics regularly ( $p < .001$  and  $p < .013$ , respectively). Unexpectedly, however, there is a significant inverse relationship between education and income relative to production values: the less education and income the respondent reports, the more likely they are to place importance on organic production methods when deciding what to eat ( $p < .020$  and  $p < .017$ , respectively). While 51% of respondents with less than a high school diploma place very high or extremely high importance on organic production systems, only 35% of those with a college degree or more education think similarly. Likewise, lower income respondents (household annual income <\$40K) place greater importance on organic production systems when deciding what food to eat than do higher income groups.

**Table 3. Production Values and Purchasing Behavior: Oppositional Significance in Education and Income Variables**

Variable	Tendency to Buy Organics $p <$	Importance Organic Product'n $p <$
Education	.001 (pos.)	.020 (neg.)
Income	.013 (pos.) <sup>1</sup>	.017 (neg.) <sup>2</sup>

<sup>1</sup>Income at less than \$50K or \$50K and above.

<sup>2</sup>Income at less than \$25K, 25 -39.9K, 40 -49.9K, 50 -74.9K, 75 -99.9K, 100K and above.

Table 4 presents variables that demonstrate mild oppositional significance with purchasing behavior and production values. In the case of household structure, the survey asked whether children lived in the household or not. Thirty-eight percent of households had children; the majority (62%) had none. The survey also asked for the number of adults living in the household. Twenty-eight percent of households were single-adult occupied, 55% of households had two resident adults, and 17% had three or more adults. The tendency to buy organics was invariant with household composition, however, respondents placed increasing importance on organic production methods when deciding what to eat if there was at least one child in the house ( $p < .100$ ), as well as with increasing numbers of adults in the household ( $p < .075$ ).

**Table 4. Production Values and Purchasing Behavior: Mild Oppositional Significance in Additional Variables: Household Structure, Age, Religious Observance, and Political Leaning**

Variable	Tendency to Buy Organics <i>p</i> <	Importance Organic Product'n <i>p</i> <
Children in the household (yes/no)	Not significant	.100 (pos.)
Adults in the household (number)	Not significant	.075 (pos.)
Religious observance	Not significant (.108, neg.)	.037 (pos.)
Age	Not significant	Not significant
Political Affiliation (more conservative to more liberal )	Not significant	Not significant

When asked how often they attend a church or other house of worship over the course of a month, respondents' answers were divided into never (27%), occasionally, ranging from less than once per month to several times per month (38%), and at least once per week (35%). There is not a strongly significant relationship between buying organics and religious observance ( $p < .108$ ). Moderate religious observance (occasionally) is most closely correlated with regular (sometimes and always) organics purchasing. On the other hand, the religiously observant place significant importance ( $p < .037$ ) on organic production values. People with regular religious observance place the greatest importance on organic production methods. Forty-two percent of those with regular religious observance believe that organic production is very or extremely important relative to their eating decisions.

The survey sample shows an even distribution by age (ages 18-32, 21%; 33-41, 21%; 42-51, 21%; 52-64, 19%; 65-93, 18%). There is no statistically strong relationship between age and organic buying behavior or importance placed on organic production methods. We note, however, that the oldest age group (65-93) constitutes the least regular buyers of organics. At the same time, these seniors most often believe that organic production methods are extremely important when deciding what to eat. Conversely, the youngest age group (18-32) placed the least importance on organic production methods when choosing their foods.

Behaviors associated with organic purchases and agricultural production preferences were tested against respondents' political affiliation (conservative, liberal, in-between) and found not to be significantly associated.

As seen in Table 5, female respondents made up 58%, and male respondents made up 42% of the total survey sample. Women reported both occasionally (35% vs. 27% men) and frequently (13% vs. 12% men) buying organic foods more often than did men ( $p < .015$ ). Even more significantly, women value or-

ganic production more than do men when deciding what to eat (42% vs. 32% men;  $p < .002$ ).

Using protocol established by the U.S. Census, two separate questions queried respondents to identify their race/ethnicity. The first question asked if the respondent self-identified as Hispanic (6%,  $n=64$ ) or not Hispanic (94%). The second question asked the respondent, “are you White (83%), Black/African-American (11%), Asian or Pacific Islander (2%), Native American (1%), Hispanic (2%), or of some other race (1%)?” re-including the category of Hispanic in a more complicated set of race/ethnic identities. When respondents self-identify as Hispanic (6%) versus non-Hispanic (94%), almost twice as many Hispanics purchase organics on a regular basis than do non-Hispanics (22% vs. 12%, respectively); they also place greater importance on organic food production in their eating decisions than do non-Hispanics ( $p < .045$ ).

**Table 5. Production Values and Purchasing Behavior: Strongly Positive Significance in Additional Variables: Gender, Hispanic, and Race**

Variable	Tendency to Buy Organics $p <$	Importance Organic Product <sup>n</sup> $p <$
<b>Gender</b> (Female 58%; Male 42%)	.015 (pos.)	.002 (pos.)
<b>Hispanic, self-identified</b> (yes/no)	Not significant (.181, pos.)	.045 (pos.)
<b>Race<sup>1</sup></b>	<i>Not relevant</i> Most frequent buyers in order: Asian/Pacific, Other, Native Amer, White, Black, Hispanic	<i>Not relevant</i> Place most importance on organic production: Asian/Pacific, Other, Native Amer, Black, Hispanic, White

<sup>1</sup> Not relevant for chi square analysis. Order by race is consistent for Tendency to Buy Organics and Importance of Organic Production except that Whites drop from 4<sup>th</sup> to the last (6<sup>th</sup>) in importance placed on organic production methods when deciding what to eat.

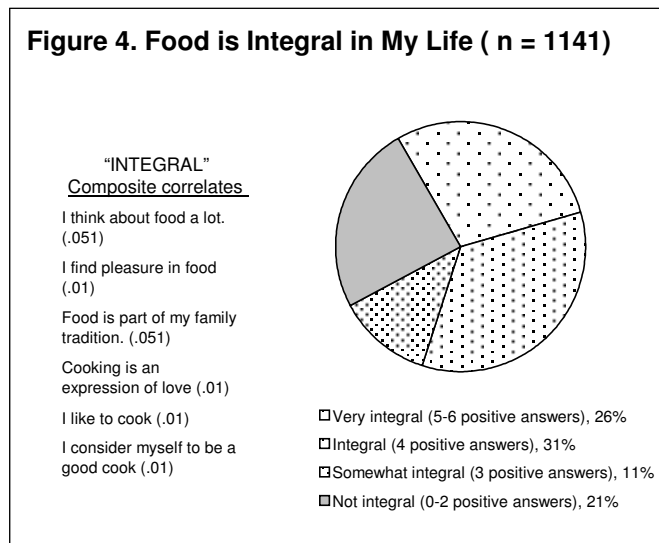
When respondents self-identify among the six race-ethnic categories, however, the percentage of Hispanics drops to 2% of the total population, and falls back to last place in terms of the regularity of organic purchasing. We know that the former 6% group of Hispanics ( $n=62$ ; Hispanics vs. non-Hispanics) reports higher income than the latter 2% group ( $n=18$ ; Hispanics vs. 5 other race/ethnic groups); 58% versus 50% claim incomes over \$50,000, respectively. Thus, income as a predictor of organic buying may help explain why the two separate groups of self-defined Hispanics differ dramatically in terms of organic purchasing. When respondents self-identify among the six race-ethnic categories, the groups with the highest purchase rates of organics (“sometimes” and “frequently/always” combined) are Asian/Pacific Islanders (63% combined) followed by “Other” (54% combined) and Native American (50% combined). Whites and Blacks follow (44% and 43% combined, respectively) and Hispanics appear least represented



(39% combined). When looking at the importance placed on organic production systems when deciding what to eat and combining the categories of “very important” and “extremely important,” the order remains the same with the exception that Whites fall precipitously (and fall contrary to the stereotype that organic consumption is the province of Whites) to the lowest rung; only 35% of Whites place importance (very important and extremely important) on organic systems. Seventy-two percent of Asian/Pacific Islanders, at the opposite pole, believe that organic production systems are important when making eating decisions.

#### **4. A.iii Food System Engagement and Production Values and Purchasing Behavior**

This paper considers how food is integrated in respondents’ lives and how this relationship might be associated with respondents’ organic purchasing behavior and the importance they place in organic production systems when deciding what to eat. Specifically, we look at four variables: a) cooking; b) shopping; c) self-reported understanding of cultivation practices; d) a composite variable “food is integral,” or “Integral,” that provides a measure of how fundamental a role food plays in respondents’ lives. The composite variable “Integral” is the sum of six agree-disagree questions from n=1141 respondents who answered all of the questions: I think about food a lot; I consider eating one of life’s great pleasures; food is an important part of my family traditions; I think cooking is an expression of love; I like to cook; and I consider myself to be a good cook. These variables are all highly correlated at the 0.01 level (two-tailed) with the exception of “I think about food a lot” (.051) and “food is an important part of my family traditions” (.051). Figure 4 shows that 21% described food as “not integral” in their lives (0-2 positive answers), 22% described food as “somewhat integral” (3 positive answers), 31% described food as “integral” (4 positive answers), and 26% described food as “very integral” (5 positive answers). No respondent had 6 positive answers.



Respondents (n=1179) identified if they infrequently (33%), frequently (29%), or always (38%) prepare or help to prepare the main meal of the day. As seen in Table 6, there is no significant statistical relationship between frequency of cooking and organic food purchasing or importance placed on organic production methods when deciding what to eat. We note that the 13% of the sample that buys organics regularly also invests the most time in cooking; 45% “always cook.” Similarly, among the 12% of the total that believes organic agricultural practices are extremely important in deciding what to eat, the greatest part (50%) always contributes to the preparation of the day’s main meal.

Respondents (n=1201) were grouped into those who conduct a lot of the household food shopping (59%) and those who do not shop much (41%). Those who shop a lot, buy organic foods significantly more frequently than do those who do not shop a lot ( $p < .058$ ). Of the 13% of all respondents who buy organics frequently, 66% are the regular household food shoppers, instead of the expected 59%. Similarly, as a belief in the importance of organic food production increases, the amount of time spent shopping also increases ( $p < .052$ ). Among those respondents who believe organic production methods are extremely important to eating decisions, twice as many (66%) shop a lot compared to those who do not shop a lot (33%).

Respondents were asked to self-evaluate their understanding of how food is grown and produced. Of the 1172 who answered the question, 3% responded “poor”, 19% “fair”, 35% “good”, 28% “very good”, and 14% “excellent.” The more cultivation knowledge a respondent claims, the more likely s/he is to buy organics ( $p < .038$ ). There is not a significant relationship between self-reported

understanding of how food is grown and produced and whether respondents think organic production practices are an important component of deciding what to eat.

**Table 6. Production Values and Purchasing Behavior with Food System Engagement Variables**

Variable	Tendency to Buy Organics <i>p</i> <	Importance Organic Production <i>p</i> <
<b>Cooking</b> (n=1179: infrequently 33%; frequently 29%; always 38%)	Not significant (.576, pos.)	Not significant (.119, pos.)
<b>Shopping</b> (n=1201: shop a lot 59%; don't shop a lot, 41%)	.058 (pos.)	.052 (pos.)
<b>Food Production Knowledge</b> (n=1172: self-evaluated: poor 3%; fair 19%; good 35%; very good 28%; 14% excellent)	.038 (pos.)	Not significant
<b>Integral</b> (n=1141: very integral 26%; integral 31%; somewhat integral 11%; not integral 21%. See also Figure 4.)	Not significant	.101 (pos.)

Whether food is integral or not in respondents' lives (n=1141) does not correlate significantly to buying organic foods. The degree of "integral-ness" is, however, moderately and positively correlated to the importance that respondents place on organic production methods when they decide what to eat ( $p < .101$ ). In other words, those who find and share fulfillment in eating and cooking think more about the production aspects of growing food organically than do those less gustatorially engaged.

#### 4. B Multi-variate Results: Regression and Factor Analysis

More independent variables explain variation in production values than variation in purchasing behavior. Table 7 establishes strong significance between buying behavior and more education and shopping activity and a somewhat weaker relationship with more liberal and older consumers who self-report knowledge about food production systems. Greater regularity of religious observance, older age, Hispanic (versus non-Hispanic identity) and female identity, higher self-reported food production knowledge, lower income, and (to a lesser extent) childless households are closely associated with placing importance on organic production methods when deciding what to eat. The R-square statistics for the two models in Table 6 are relatively low (For 1. Purchasing Behavior,  $r^2 = .054$ . For 2. Production Values,  $r^2 = .099$ ), however, this may be expected of survey data.

**Table 7. Regression Model for Purchasing Behavior and Production Values**

<b>Dependent Variable</b>	<b>t</b>	<b>Sig.</b>
<b>1. Purchasing Behavior</b>		
Education	2.412	0.016
Shopping engagement	1.796	0.073
Politics (more conservative-more liberal)	1.555	0.120
Age+	1.483	0.139
Food production knowledge++	1.468	0.143
<b>2. Production Values</b>		
Religion (observance regularity)	2.611	0.009
Age+	2.362	0.019
Hispanic (no/yes)	2.342	0.020
Gender (female)	2.087	0.037
Food production knowledge++	2.059	0.040
Income	-1.999	0.046
Children in household (no/yes)	-1.506	0.133

+, ++: Age and self-reported food production knowledge exert influence on both dependent variables, although the variables provide only moderate explanatory power in the case of purchasing behavior.

As reported earlier, purchasing behavior and production values are highly correlated. When analyzed as dependent variables in regression modeling, however, only increased age and higher self-reported food production knowledge are commonly (and modestly in the case of purchasing behavior) correlated with both purchasing behavior and production values. This underscores that despite their high correlation, the determinants of purchasing behavior and production values are different. Further, the independent variables related to production values are both greater in number (7 versus 5) and more significantly associated than is the case with purchasing behavior.

Flexible portraits of the respondent populations can be ascertained through factor analysis. Because purchasing behavior and production values variables are highly correlated, they inevitably create their own factor. Thus, two separate factor analyses were generated with all of the same variables, except that one (A) additionally included purchasing behavior (and not production values) and the other (B) included production values (and not purchasing behavior). Table 8 presents the factor loadings that are greater than or equal to .300 for these two analyses “(A) With Purchasing Behavior” and “(B) With Production Values.” Factor loads of <.300 for purchasing behavior (in the (A) column) and production values (in the (B) column) are included for all Factor Profiles to emphasize their relative insignificance in defining (A) and (B)’s three factors common.

**Table 8. Factor Analyses: (A) With Production Values; and (B) With Purchasing Behavior**

Factor Profiles	Variables	Factor Loading	
		(A) With Purchasing Behavior	(B) With Production Values
1. Lower income women for whom food is integral to their lives; they shop and cook and tend to live with no or few other adults.	Cooking engagement	.739	.734
	Shopping engagement	.725	.778
	Gender (female)	.605	.606
	Integral	.508	.437
	Income	-.319	-.303
	Adults in Household (number)	-.300	-.393
	Organic purchasing behavior Organic production values	(.258)	(.116)
2. Younger multiple adult households with children tend to be Hispanic.	Children in household (no/yes)	.755	.750
	Age	-.729	-.678
	Hispanic (no/yes)	.502	.522
	Adults in household (number)	.405	.482
	Organic purchasing behavior Organic production values	(-.107)	(.096)
3. More educated and higher income households with self-reported food production knowledge and multiple resident adults.	Education	.712	.740
	Income	.710	.716
	Food production knowledge	.537	.548
	Adults in household (number)	.433	.359
	Organic purchasing behavior Organic production values	(.242)	(-.124)
	4.(A) Politically more liberal and not religiously observant respondents who tend to buy organics.	Politics (conservative-liberal)	.649
Religion (observance regularity)		-.606	
Organic purchasing behavior		.416	
4.(B) Religious observance by older respondents for whom food plays integral role and who place importance on organic production values.	Organic production values		.666
	Religion (observance regularity)		.620
	Age		.343
	Integral		.315

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Controlled for 4 factors and maximum 0.3 factor loading values (with the exception of illustrating weak, as well as, strong dependent variable values).

(A) Purchasing Behavior: Convergence in 7 iterations explaining 47.5% of variance.

(B) Production Values: Convergence in 6 iterations explaining 47.8% of variance.

As Table 8 exhibits, the two analyses produce three strong and stable Factor Profiles in common (Numbers 1-3). The fourth Factor Profiles of (A) and (B) are unique and include the strongest showing of the purchasing and production variables, respectively speaking. 4(A) and 4(B) are the only Factor Profiles significantly defined by purchasing behavior or production values. The first common Factor Profile identifies lower income women for whom food is integral to their lives. They shop and cook and tend to live in households with no or few

other adults. The second common Factor Profile describes younger Hispanic households comprised of multiple adults and children. The third Factor Profile in common identifies more educated and higher income households with high self-reported food production knowledge and multiple resident adults. Factor results can also be read in their inverse. Thus, for example, the third factor also portrays less educated, lower income, single adult households that do not claim food production knowledge and, to a lesser extent, do not buy organics.

Factor Loading for 4(A) Purchasing Behavior profiles liberal respondents who are not religiously observant and who tend to purchase organics. Factor Loading 4(B) Production Values closely links organic production values with religious observance and to a lesser degree with age and the integral aspect of food in respondents' lives. The key identifier shaping and differentiating Factors 4(A) and 4(B) is religious practice. More religious observance (as measured by regularity of worship at house of faith) is strongly associated with placing importance on organic production methods when deciding what to eat and moderately associated with older age and the integral role of food in respondents' lives. Less religious observance is differentiated by fairly strong organic purchasing behavior and strong liberal political identity.

## 5. Discussion

We have found curious relationships between and among the population that purchases organic foods and the population that places importance on organic production methods when deciding what to eat. Most regular organic purchasers do value organic production, but they are a relatively small portion (27%) of all of those who value organic production methods when deciding what to eat. On the other hand, a relatively large part (73%) of those who value organic farming do not purchase organics often.

We assume that those who buy organics regularly are committed organics consumers and we know from other research that organic buyers pursue private (taste, health, convenience, freshness, etc.) and public benefits (clean water, biodiversity, etc.) with their purchases. Most of our sample of regular buyers value organic farming. We do not understand all the ramifications of valuing organic production, but we assume that respondents link the practice of eating to the farm context of producing the food that they eat. Because respondents are responding specifically to a question about organic farm methods, we categorize the farm and work context of producing food in terms of the public benefit of sustainable environmental practice. As mentioned, we have over twice as many respondents who value organic production methods when deciding what to eat than we have regular organic purchasers. This suggests that at least as many people value the public rather than the private benefits of organic agriculture, but they are alienated po-

litically and from market analysis because they do not purchase organics regularly.

The connection between thinking about organic food production and eating organics may seem logical, yet we find a large population for whom the link is broken. This group places importance on sustainable farming in the context of deciding what to consume, yet they do not buy organic food to eat. We therefore postulate that the non-organics consumers would prefer to buy organics or are considering buying organics but that they face purchasing barriers. Consumption barriers could be price, store location, food quality or availability, information, trust that the product really is organic, or not having made up their mind due to the overwhelming amount of related information. These barriers help explain the gap between values and behavior. Overcoming them would presumably bring greater alignment between values and behavior, dramatically expanding the organic market in the process.

Several questions are germane. First, who makes up the organic buyers and who values organic production when deciding what to eat? What population is constant in both groups? Who is valuing organic production but not buying organics? The following summaries integrate the findings from the multiple analytic methods employed earlier.

*Who does and does not buy organics?* Well-educated persons who conduct shopping for the household most regularly purchase organics as opposed to less educated non-shoppers. Composites of women and older, higher income, and more liberal respondents who claim food production knowledge tend to buy organic food more regularly than their opposites. The religiously observant tend *not* to buy organics along with composites of older and more conservative shoppers for whom food has an integral role in their lives. In the context of race and ethnicity, when respondents self-identify as Hispanic (6% of total sample) versus non-Hispanic, almost twice as many Hispanics buy organics frequently than do non-Hispanics. However, when respondents self-identify among six race-ethnic categories, the percentage of Hispanics falls to 2% of the total population and to last place in terms of regularity of organics purchasing. We know that the smaller Hispanic cohort (2%) reports lower incomes than does the larger cohort (6%), allowing income to explain part of the discrepancy in the two separate Hispanic-identified groups. When respondents self-identify among the six race-ethnic categories, Asian/Pacific Islanders, “other,” and Native American respondents purchase organics more regularly than do other race/ethnicities. The least represented race/ethnic populations in organic purchasing (from six categories) are White, Black, and Hispanic (respectively, with Hispanics purchasing the least often). For our research population, race and ethnicity are fluid constructions. While we can report general findings, they are by no means conclusive in terms of

correlating organic production values and purchasing behavior to race or ethnicity.

*Who values organic production methods?* Those who value organic production methods when deciding what to eat include first and foremost the religiously observant, followed by older and female respondents, those who claim food production knowledge, and respondents of color. Whites place the least relative importance on organic production as compared to other race/ethnic groups. Households with multiple adults value organic production, as do shoppers who are engaged with the food system (eat for pleasure; good cook; like to cook; food is a family tradition; food expresses love; think about food). Higher education and income are significantly disassociated with valuing organic production methods.

*Who both buys organics and values organic production methods?* Women and household shoppers tend both to buy organics and value organic production methods. Among ethnic groups, a higher percentage of Asian Americans, followed by Native Americans and Hispanics, both buy organics regularly and place importance on organic production than do other race/ethnic groups. Additional food system engagements like cooking and the integral role of food in one's life are correlated both with buying organics and valuing their production. In separate multi-variable composites, older respondents and those who claim food production knowledge both purchase organics (in composite with education and liberal politics) and value organic production methods (in composite with conservative politics, religious observation, lower income, no children).

*Who values organic production but does not buy organics?* The religiously observant most distinctly value organic farming when deciding what to eat, yet do not buy organic food. Additionally older, lower income, and less educated respondents for whom food plays an integral role in their lives (eat for pleasure; good cook; like to cook; food is a family tradition; food expresses love; think about food) care about organic food production but do not buy organics.

*Who buys organics but does not value organic production methods?* This group is very small because of the high correlation between organic purchasing and production values. We know, however, that they tend to be the inverse of those who value organic methods but do not buy. Statistically, their most significant characteristics are that they tend toward liberal politics and away from religious observation. Additionally, they are younger, well-educated, and high earners.

Our research broadens knowledge about those who do and do not value organics by querying respondents about how they value the production end of the food chain and not just their behavior in the retail purchasing side. In the Background section of this paper, we referenced research that suggests that organic consumers place greater attention on taste, health, convenience, and freshness



(private benefits) than on the environment and the ability of organic farming to protect biodiversity, reduce water pollution, or save natural habitat (public benefits). This research, however, provides limited insights into preferences of non-regular organic purchasers or about those who care about organic farming methods when deciding what to eat. These populations may well value public and private benefits of organics but face barriers of price, availability, and quality as well as lack of trust and alienation in the highly politicized marketplace of organic production methods, certification, processing, and marketing. Further research is needed to test general questions such as, is the organic label “authentic,” or whether private claims of organics (health, freshness) are legitimate or worth the premium. Our findings suggest that specific new questions need to be asked such as, what is the relationship between religious observation and support for sustainable or organic agriculture? Why do those with less education and income identify more strongly with organic production methods when deciding what to eat than those with more education and income? Are groups that value organic agricultural methods yet do not purchase organics unable or unwilling to buy organic food?

Findings in this paper contribute evidence with which to expand both the organic retail industry and to develop public policy from organic production to consumption that is reflective of interested population groups. Population subsets like Asian/Pacific peoples, Native Americans, and Hispanics, in addition with less-educated, lower income, politically conservative, and religiously observant respondents show an interest in organic foods and/or production that needs to be respected, elicited and included in policy and market-based formulations.

## **6. Conclusion**

Our research shows that more people value organic production methods when deciding what to eat than actually buy organic foods. Research to date has focused less on those who care about organic food production methods, or even on who does not buy organics, than on those who actually buy organics. Existing research overemphasizes organic consumers’ interests in private product benefits (health, taste, freshness) over public benefits (environmental well-being) because those non-organics buyers who are interested in organic farming when deciding what to eat are missing in analyses that probe organic purchasing motivations. This latter group is relevant to organic marketing research because its interest in organic consumption is probably high, but is impeded by various transaction barriers.

Organic price premiums do discourage some buying. Lower education levels and lower income levels and self-described food production knowledge are correlated with non-organic buyers. We believe, however, that alienation in the

organic production and marketing system, including the role of organic certification and labeling, may play a larger role. The organic movement began through close collaboration between a small population of farmers, consumers, and distributors who knew each other fairly well personally and through media (e.g. newsletters) and symbols like established eco-labels. Exchange (food and money) was built on familiarity, trust, and confidence as well as on a belief in the non-monetary outcomes of the exchange, i.e., the goal of ecologically stable and socially sustainable agricultural systems. The eventual success of this small-scale niche market has attracted global-scale, industrial-sized agricultural interests that operate at great physical and social distance from consumers. Producers and consumers now no longer know each other. The distribution networks between them inhibit and complicate understanding about the ecology and business of production rather than enhance it.

The organic industry will surely continue to grow exponentially. It may, however, be necessary to rethink marketing and policy strategies to incorporate the interests of non-traditional organic buyers. What does this rethinking involve? First, consumers' concerns about organic farming methods need to be addressed with more comprehensive and transparent information about the conditions of food production. Second, in recognition of consumers who value organic production methods highly but who do not purchase organics regularly, policy makers need to assess the marginal costs of expanding market entry relative to the marginal benefits of this group's participation. Third, the organic label should increase familiarity between farmers and consumers rather than presume automatic credence. Use of a label to increase familiarity, however, may be complicated by factors of social marginalization (i.a., economics and education), key identifiers of those who value organic production methods but do not buy organic products regularly.

In conclusion, policy makers, researchers, activists, and marketers should acknowledge the experience, knowledge, and interests of consumers who presently do not buy organics regularly but who have strong related interests. The organic marketing associations should rethink their marketing and promotional strategies to embrace carefully targeted non-traditional buyers. Farm and food policy makers need to pay attention to the diverse population that values organic farming methods and conduct the research necessary to understand them better, and incorporate their issues. For too long, policy makers and marketers have presumed that the organic food phenomenon represents little more than a lucrative niche market appealing to high socioeconomic strata. Indeed, marketers have played on the exclusivity of organic markets as a tool to appeal to certain segments of the population. Academics need to construct more inclusive and accessible organic research methods. Farmers and environmentalists might well benefit from developing alliances with those who value organic production methods.

Finally, to overcome possible alienation and exclusion, all of these links need to incorporate relationships built on familiarity and trust.

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