



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

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

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

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

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

What Influences Consumer Choice of Fresh Produce Purchase Location?

Jennifer Keeling Bond, Dawn Thilmany, and Craig Bond

There is evidence that consumers are increasingly purchasing food directly from local producers, but little is understood about which market-specific, intrinsic, extrinsic, and demographic attributes influence the probability of preferring to purchase fresh produce through direct-market channels. A multinomial logit model is used to analyze a national dataset of fresh produce consumers with a focus on exploring differences among those that prefer to purchase direct always, occasionally (seasonally and as a secondary source), and never. Results suggest that to increase patronage and loyalty of current customers, producers may emphasize the availability of fresh, superior, vitamin-rich, and locally-grown produce at market locations through booth displays, ads in magazines, radio spots, and electronic newsletters. To attract new customers who do not currently admit a preference for purchasing direct, producers may find greater success by locating in convenient-to-reach venues, showcasing a variety of colorful offerings, and working to enhance the overall aesthetic appeal of market locations.

JEL Classifications: C35, C42, Q13

As consumer demand for value-added and specialty produce has grown, so has the number of direct market channels and the number of small- and medium-sized farms using these venues as outlets for their differentiated produce (USDA-AMS 2002). Evidence of the growing importance of these markets to producers can be found in the 37% increase in value of agricultural products sold directly to consumer between 1994 and 2006 (USDA-AMS 2006).¹ To fully capitalize on the opportunities these market channels afford, it is important that the growing ranks of direct market vendors understand what purchase location and product attributes are most preferred by current and potential consumers.

In this study, we investigate the intrinsic and extrinsic attributes associated with an increased probability of preferring to purchase fresh produce direct from producers. We use three frequency categories: (1) *direct always*—prefer to always purchase fresh produce direct from producers, (2) *direct occasionally*—prefer to purchase as a secondary or seasonal source of produce, and (3) *direct never*—consumers in this category admit no preference for purchasing fresh produce direct (and serves as our base category).² All frequency groups are mutually exclusive and refer to the stated preferred shopping behavior of respondents.

In addition to analyzing linkages between purchase location features, product attributes, and patronage, it is also important for producers to know how to best educate current and

Jennifer Keeling Bond is assistant professor, Dawn Thilmany is professor, and Craig Bond is assistant professor Department of Agricultural and Resource Economics Colorado State University Fort Collins, CO.

¹In this study, direct market channels include farmers' markets, roadside stands, producer direct Internet and catalog sales, and fresh produce sales occurring at producers' farms or ranches.

² Extrinsic attributes refer to features related to a product, but not physically part of the offering (e.g., production practice, brand). Intrinsic characteristic represent the physical attributes of a product (e.g., color, vitamin content).

potential customers about the features of the purchase location and the products available at direct market venues. As such, we also examine how the relative desirability and credibility associated with food and nutrition information sources affects the probability of preferring to purchase direct. These findings might in turn guide producers' selection of promotion messages and how they are communicated to target consumers.

Finally, our study looks at linkages between socio-demographics and shopping frequency preferences. These results are intended to assist budget-challenged direct sellers in making the most of limited marketing dollars by informing targeted marketing efforts. The final section summarizes our findings and provides marketing implications for producers interested in increasing patronage.

Supporting Literature

When choosing to shop direct, consumers internalize not only location-specific attributes but also an array of product-specific qualities that we classify as intrinsic and extrinsic. Previous studies have found connections between consumer demand and particular sets of attributes such as production practice (Kremen, Greene, and Hanson; Loureiro and Hine; Thilmany, Umberger, and Ziehl) and food safety practices (Baker and Crosbie; Gallons et al.; Baker and Burnham). We aim to both unify the investigations of previous authors and provide even greater information to direct sellers by analyzing connections between preferences and a broad list of product attributes including both production practice and food safety features in addition to value/package/convenience and traditional product specific attributes. Furthermore, by not limiting our sample to one particular region, state, or to one produce type, we are able to draw generalizations that may be applicable to the largest number of direct sellers.

The first section of our study analyzes linkages between purchase location features and the likelihood of preferring to purchase fresh produce direct from producers. Although little research has focused on this particular

aspect of direct-from-seller purchase behavior, Thompson and Kidwell found that purchase location convenience had a significant impact on consumers' propensity to purchase organic produce. Increasing numbers of supermarkets stock a variety of organic products, including produce, thus availability of organic fruits and vegetables may not be a strong draw to farmers' markets and roadside stands. As such, direct sellers may have to place greater emphasis on other aspects of their markets, including convenience, to draw consumers.

Brown identified several sources of differentiation that are currently utilized by farmers' markets, including claims of freshness and variety available. Furthermore, Stevenson and Lev found that fair pricing, social interaction, and locally-grown purchase location attributes are important to direct consumers. Noting the above findings, we test whether our consumers' relative concern about the variety available, convenient location, support for local producers, prices, perceived safety, and superiority of produce are significant factors in the frequency of purchasing from farmers' markets and roadside stands.

Selection of fresh produce is influenced not only by features of potential sales locations, but also by extrinsic and intrinsic product-specific attributes. In terms of extrinsic attributes, food safety (as measured by traceability and country-of-origin) was found to be an important factor in selecting produce by Baker and Crosbie and Baker and Burnham. In a study with similar goals to our own, production methods (as they relate to beef) were found to significantly impact consumers' choice to enter the natural and grass-fed beef markets (Grannis and Thilmany). Sunding determined that intrinsic attributes such as nutritional content, purity, and freshness are important to consumers, although there is also growing awareness and demand for food with extrinsic production-based labels such as "free-range," "organic," and locally-produced. In an Indiana survey about local products, Jekanoski, Williams, and Schiek found that intrinsic quality perceptions, including those regarding freshness, played an influential role in consumer acceptance of locally grown produce. A recent study by Keeling Bond, Thilmany,

and Bond indicated that consumers who prefer to purchase their produce primarily through direct market channels rank attributes such as vitamin and nutrient content higher in importance (in terms of motivating purchase) than do other groups.

The present investigation tests for the influence of the above mentioned attributes, including production practice variables, such as organic and pesticide-free claims, food safety, and other intrinsic claims for fresh produce. Based on our review of the literature, we expect that those consumers who prefer to always purchase direct will place relatively greater importance than direct occasional shoppers on attributes that are perceived to be more common in produce available at farmers' markets and roadside stands (Brown; Sharp, Imerman, and Peters; Gallons et al.). Such attributes will include claims relating to organic production practices, freshness, locally-grown, and the ability to form a relationship with the producer, possibly as a source assurance.

Many direct marketing venues have limited advertising and education budgets with which to provide information to the consumer and often depend on low cost marketing methods such as articles in local papers, flyers, public service announcements (PSAs) for radio broadcast, and notices in church and nonprofit newsletters and websites. Recently, farmers' markets in particular have begun to team up with state branding programs (e.g., Colorado Proud, Tennessee Fresh) to reach a wider audience, as well as to access state-funded marketing research and assistance programs (Patterson). The stated purpose of many of these programs is to promote locally-grown fruits and vegetables with the intention of increasing the profitability and the viability of local farms and agriculture. As such, there is a natural partnership between the 42 active state marketing boards and direct-to-consumer channels which feature locally-grown produce. Furthermore, state marketing boards may serve as a significant source of promotional dollars directed at small- and medium-size farms.

Despite the fact that consumers express a strong desire for nutrition information, Jacoby, Chestnut, and Silberman suggested that consumers

devote a negligible proportion of their prepurchase search to actually acquiring nutrition information. More recent studies have found that consumers do use some types of nutritional information on food packages when making purchase decisions (Nayga). Even if consumers pay little attention to nutrition labeling when making food purchases, they have been found to respond to brands, indicating that direct marketers may gain exposure from using state branding programs (Govindasamy, Italia, and Thatch 1999). At present, direct-to-consumer marketers utilize minimal nutritional, attribute or brand labeling. In fact, many small producers opt to not label organically-grown and pesticide-free produce as such, citing the high cost of becoming USDA organic certified (Cloud). If links between marketing (via labeling or other methods) specific attributes and increased probability of preferring to shop direct can be demonstrated, it may encourage the adoption of more customized and effective marketing strategies by producers.

Several recent studies have attempted to identify the "typical" farmers' market or direct market channel consumer in an effort to aide producers in targeting groups most likely to be receptive to their message and to purchase direct. Consistencies across studies lend credence to the loose definition of a characteristic direct market channel user. Thilmany et al. found farmers' market consumers are typically older and spend a greater share of their grocery budget on fresh produce. Brown and Cartier described the archetypal direct consumer as white, middle age, in the middle- to higher-income bracket, well-educated, and female. Accordingly, we expect these demographic features to significantly and positively affect the relative odds that a respondent prefers to purchase direct always or occasionally.

We also investigate the influence of region of residence (e.g., MidAtlantic, Mountain) and size of market (population in community) on stated propensity to purchase direct. We hypothesize that consumers on the Pacific Coast will express greater relative odds of purchasing direct as a result of having longer farmers' market seasons, greater variety of produce choices, and more exposure to direct sellers (Brown).

Data and Methods

In 2005, an interdisciplinary NRI study was funded to provide integrated research and outreach support to small- and medium-size farmers on topics related to production practices, selection and use of nutritionally superior cultivars, marketing, and nutritional education. The project began with a nutritional analysis of several fresh produce items commonly available at farmers' markets, grown under a variety of production practices. Results from the initial phase of the project informed claims made in the focus group stage and assisted in framing a national survey. Consumer data related to demographics, willingness to pay (under a variety of scenarios), purchasing habits and attribute preferences was gathered from the survey process.

Data were collected by the National Family Opinion Organization (NFO) in May 2006. The NFO solicited a representative population of 3,170 grocery shoppers from all regions of the country to participate. From this effort a total 1,549 usable surveys were returned for a 48.9% response rate. A summary of demographic variable means and standard deviations can be found in Table 1.

By construct, the NFO research group accounts for potential demographic bias through sampling techniques and includes members who are familiar with taking online surveys. These methods help to ensure that the sample population is comprised of census-accurate (in terms of age, income, household size, and percent of households with children living at home) and reliable respondents. For our survey, we requested that the respondent be the primary household grocery shopper and as a result, females are a dominant share of the sample population. This finding is consistent with other studies of food purchasing behavior (Loureiro and Umberger; Grannis and Thilmany).

We are limited to using cross-sectional data for our analysis which prevents tracking of changing purchasing behaviors and fresh produce preferences over time. A lack of time series or panel data further inhibits the estimation of individual-specific parameters. To overcome this limitation, we have grouped respondents into

three distinct categories based on stated preferences for patronizing direct market channels as a primary or secondary and seasonal source of fresh produce. These categories are labeled *direct always*, *direct occasionally*, and *direct never*. Each category represents 30%, 50%, and 20% of our sample, respectively. For additional information on category-specific characteristics, motivations, and produce attribute preferences, the reader is directed to Keeling Bond, Thilmany, and Bond.

We focus on survey questions related to preferences for purchase location attributes, production practice, intrinsic and extrinsic fresh produce attributes, as well as desirability of various marketing methods and perceived credibility of information sources. Due to the long survey length, it is not reprinted here; however, interested readers are invited to request a complete copy from the authors.

To estimate the probability of classification into a particular frequency group, a multinomial logit model is estimated which takes into account the multiple fresh produce and purchase location-related choices consumers face when maximizing their utility. In our study, the categories refer to the shopping frequencies stated by the consumer. Choice of shopping venue is not necessarily independent of other alternatives; however, the qualitative categories that describe an individual respondent's stated preferred behavior are mutually exclusive.

We use a Random Utility Model (RUM) to model discrete choices based on maximizing behavior by consumers (Green and Srinivasan). The RUM assumption, in its simplest form, assumes that a consumer with a finite set of brands to choose from selects the brand that gives him/her the maximum amount of utility. A consumer's utility derived from a choice is specified as a linear function of the consumer's characteristics and the specific attributes of the choice, in addition to an error term. The probability of selecting a particular option is equal to the probability that the utility derived from that option is greater than the utility derived from all other available choices. As in our study, a multinomial logit model can be used for empirical analyses when the random utility error terms are assumed to be independently

Table 1. Summary Statistics for the Demographic Variables ($n = 1549$)

Variable Name	Description (coding)	Mean	Standard Deviation
Age	In years	51.07	14.70
Gender	1 if female, 0 if male	0.74	0.44
Weekly Grocery Expenditures	1 = < \$50, 2 = \$50–\$99 3 = \$100–\$149 4 = \$150–\$199 5 = \$200–\$299 6 = \$300 or more	2.36	1.01
Market Size (persons)	1 = Under 100,000 2 = 100,000–499,999 3 = 500,000–1,999,999 4 = 2,000,000 and over	3.03	1.08
Household Income	1 = < Under \$30,000 2 = \$30,000–\$49,999 3 = \$50,000–\$74,999 4 = \$75,000 and Over	2.49	1.17
Race	1 if Caucasian, 0 if otherwise	0.90	0.30
Spanish Origin	1 if Spanish Origin, 0 if otherwise	0.03	0.16
Household Size	Actual number in household, range: 1–7 members	2.41	1.34
Life Stage	1 if single, no children, 0 otherwise 1 if couple, no children, 0 otherwise 1 if couple, at least one child in household	0.26 0.40 0.32	0.44 0.49 0.47

and identically distributed as a log Weibull distribution.

Furthermore, a multinomial logit model structure allows the researcher to estimate the probability that the i th alternative of J available alternatives is selected or, as in our case, stated as the preferred alternative. The choices in our model are discrete categories corresponding to the frequency of direct purchase behavior, forming the dependent variable. The independent variables are hypothesized to be factors in influencing the fresh produce shopping location preferences of our respondents. Independent variables including demographics, intrinsic and extrinsic attributes, as well as consumer education preference variables (e.g., T.V., booth displays, electronic newsletters, emails, and written publications) are also included.

Equation (1) below describes the basic multinomial logit model used to estimate the probability of one type of direct shopping behavior among three alternatives (k of J alternatives) being chosen for individual j .

$$\begin{aligned}
 P_j &= P(Y_j = k | X_j) \\
 (1) \quad &= \frac{\exp\left(\beta_{0j} + \sum_k \beta_{1k} x_{jk} + \xi_j\right)}{\sum_{i=1}^J \exp\left(\beta_{0i} + \sum_k \beta_{1k} x_{ik} + \xi_i\right)}
 \end{aligned}$$

Similar to Borooah and for ease of interpretation, we choose to present results in terms of the relative risk ratio (RRR) where probability of selecting an alternative is relative to a base category. In our case, the base category is the *direct never* consumer; one that reports no preference for purchasing fresh produce direct from the producers. As a result, preferences for purchasing *direct always* or *direct occasionally* are given in relative odds form.

Results

Many independent variables representing relative preferences for purchase locations attributes such as variety available, production practice and product attributes (e.g., organic

and vitamin content), methods of receiving food and nutrition education information (e.g., television and radio), credibility of information sources, and demographics including location, age, and marital status, were used in the regression analysis. Because our estimating equations contain numerous variables, for ease of interpretation, we limit our discussion to variables that were found to be significant in the *direct always* or *direct occasionally* regressions. Tables of results are organized into the following: demographics (Table 2), purchase location attributes (Table 3), production practice and product attributes (Table 4), and methods of receiving food and nutrition education (Table 5).

Demographics and Premium Attribution (Table 2)

Similar to the findings of other researchers such as Brown and Cartier, our data indicates that whites are more likely to prefer to purchase *direct occasionally* while older singles and those living in big markets are less likely to share this preference. With respect to location, individuals living in the Mountain region are weakly more likely to prefer to purchase *direct always* and those living in the Southwest Central region are less likely to prefer to purchase *direct always*. Unlike Cartier, we do not find income variables to be a significant factor in determining fresh produce purchase location preferences. This result runs contrary to the notion that "typical" farmers' market customers belong to middle- and higher-income cohorts and may be indicative of the changing face of direct-to-consumer market channel patrons.

Overall, demographics tend to be a weak predictor of relative odds of preferring to purchase fresh produce at farmers' markets, CSA's, and roadside stands. Recent double-digit growth in numbers of people shopping direct suggests that such a large cross-section of the population is participating in these markets that no one distinct consumer type represents a plurality (USDA-AMS 2002). In one sense, this is beneficial to sellers as a wider segment of the population embodies potential customers; however, it may also hinder efforts

to target specific consumer groups at relatively low costs.

Respondents were also asked to estimate what percentage share of the premium they associated with fresh, locally grown produce was attributed to a variety of potential reasons including economic support for agriculture, land and environmental benefits, and minimizing food-miles and energy independence. The larger the share attributed to each of these independent categories, the greater the probability the individuals belonged to the *direct always* category. However, these shares are not significant in the *direct occasionally* regressions, suggesting that the two groups value fresh, local produce for different personally- and publicly-appropriate reasons.

Purchase Location Attribute Preferences (Table 3)

With respect to purchase location features, individuals that place greater importance on superiority of products and support for local producers and businesses are relatively more likely to prefer to shop *direct always*, while consumers in the *direct occasionally* category are only concerned with the latter. Govindasamy and Thornsbury similarly found that consumers who frequently purchase direct tended to rank support for local producers and variety available higher than other attributes. In our analysis, variety available is not a significant factor in preferring to purchase direct, suggesting that consumers in these categories do not frequent farmers' markets to seek out a large variety of fresh produce options and, as such, direct-to-consumer channels may be insulated from patronage losses as traditional grocery stores stock increasingly diverse selections of fresh produce.³

Both groups of direct consumers appear to place relatively less emphasis on location and physical and aesthetic appeal, and tend to express a stronger preference for fresh, unprocessed produce than those that never prefer to

³ Between 1987 and 1997, the variety (number of types) of fresh produce items available in grocery stores has doubled from 173 to 345 (Govindasamy and Thornsbury).

Table 2. Demographics and Premium Attribution ($n = 1549$)

Relative Odds of Consumer's Preferred Shopping Choice		
Baseline = 1.00 for Even Odds Variable	Direct Always vs. Direct Never	Direct Occasionally vs. Direct Never
New England	0.850 (0.341)	0.843 (0.300)
MidAtlantic	0.778 (0.218)	1.108 (0.265)
Northeast Central	0.806 (0.213)	0.858 (0.194)
Southwest Central	0.615 ^c (0.185)	0.810 (0.203)
Mountain	1.932 ^c (0.722)	1.320 (0.449)
Pacific	0.915 (0.261)	0.815 (0.204)
Small Market	0.813 (0.231)	0.966 (0.234)
Midsized Market	0.825 (0.212)	0.906 (0.200)
Big Market	0.837 (0.189)	0.723 ^c (0.142)
Young & Single	1.129 (0.475)	0.627 (0.236)
Middle-Age & Single	0.962 (0.292)	0.668 (0.172)
Old & Single	0.999 (0.395)	0.496 ^b (0.171)
Young Couple	1.063 (0.436)	0.845 (0.296)
Old Working Couple	1.488 (0.451)	1.115 (0.289)
Young Parent	0.937 (0.327)	0.790 (0.232)
Middle-Age Parent	1.553 (0.662)	1.337 (0.489)
Older Parent	0.964 (0.303)	0.728 (0.193)
Low Income	1.286 (0.327)	1.175 (0.255)
Low-Middle Income	1.353 (0.362)	1.212 (0.278)
Upper-Middle Income	1.220 (0.313)	1.037 (0.228)
White	1.547 (0.629)	2.381 ^a (0.859)
African American	0.964 (0.555)	1.665 (0.834)
Asian	0.883 (0.572)	1.030 (0.604)

Table 2. Continued.

Relative Odds of Consumer's Preferred Shopping Choice		
Baseline = 1.00 for Even Odds Variable	Direct Always vs. Direct Never	Direct Occasionally vs. Direct Never
Share of Premium Attributed to Economic Support for Agriculture	1.009 ^a (0.006)	0.994 (0.004)
Share of Premium Attributed to Land and Environmental Benefits	1.018 ^a (0.007)	1.007 (0.006)
Share of Premium Attributed to Minimizing Food Miles/Energy Dependence	1.018 ^c (0.006)	0.996 (0.005)

^{a,b,c} Relative Risk Ratio is significant at the 1%, 5%, and 10% level. Standard deviations in parentheses.

use direct market channels.⁴ Purchase location convenience is relatively less important to the *direct always* and *occasionally* shopper. With the above in mind, to draw new patrons from the *direct never* category, farmers' markets may do well to set up attractive and inviting displays in revitalized downtown common areas and central parks where there is a high level of foot traffic. To maintain patrons who seek to buy *direct always* and *direct occasionally*, emphasizing linkages between locally-grown produce and support for small, local businesses may help direct marketers maintain competitiveness with chain grocery stores that are increasingly promoting locally-grown fresh produce (Roth; Cloud).

Production Practice and Product Attribute Preference (Table 4)

Our survey asked respondents to rank the importance (from not at all important to extremely important) of a variety of production practice and product-specific attributes in making fresh produce purchases. With respect to the production practice and food safety issues, it is somewhat surprising that the organic attribute

is not significant in the *direct always* regression and is associated with decreased probability of preferring to purchase *direct occasionally*. These findings are likely attributable to the growing presence of organic and necessarily pesticide-free options at most traditional groceries and health food stores, making it less essential to seek out direct-from-producer sources to purchase these value-added fresh produce items.

Consumers are reported to frequently associate locally-grown produce with greater freshness, less spoilage, and increased safety as a result of having traveled less distance to arrive at markets (Pirog et al.; Cloud). Respondents, both the *direct always* and *occasionally* categories, place greater importance on the locally-grown attribute while other attributes that are traditionally associated with food safety (e.g., traceability, country-of-origin labeling) are not found to be impactful. As such, local producers that sell direct may benefit from the increasingly common consumer perception that locally-grown foods are a safer alternative to nonlocal, domestic and imported substitutes.

With regard to the intrinsic or product-specific attributes, the probability of a respondent preferring to purchase *direct always* or *direct occasionally* increases as greater importance is placed on freshness, although this relationship is strongest for the *direct always* respondent. To a lesser degree, vitamin content is also associated with an increased probability of preferring to purchase *direct always*. On the

⁴ Respondents were asked to rank their preferences for produce purchases where 1 = most often, 2 = sometimes, and 3 = never. As such, the lower the number, the more likely a respondent is to prefer to purchase produce in a fresh, unprocessed state.

Table 3. Purchase Location Attributes ($n = 1549$)

Baseline = 1.00 for Even Odds Variable	Relative Odds of Consumer's Preferred Shopping Choice	
	Direct Always vs. Direct Never	Direct Occasionally vs. Direct Never
Variety Available	0.908 (0.116)	0.946 (0.104)
Superior Products	1.419 ^a (0.188)	1.100 (0.123)
Safety of the Product	0.952 (0.111)	0.946 (0.095)
Support for Local Producers and Businesses	1.429 ^a (0.144)	1.233 ^a (0.107)
Convenient Purchase Location	0.658 ^a (0.068)	0.823 ^b (0.074)
Physical/Aesthetic Appeal	0.735 ^a (0.069)	0.861 ^c (0.070)
Recommendation of Friend/Family	0.967 (0.096)	1.052 (0.898)
Competitive Prices	0.952 (0.131)	0.998 (0.094)
Social Interaction	0.989 (0.102)	0.942 (0.085)
Prefer to Purchase Fresh, Unprocessed*	0.104 ^a (0.085)	0.352 ^b (0.168)
Prefer to Purchase Canned	1.151 (0.255)	0.923 (0.183)
Prefer to Purchase Frozen	1.020 (0.300)	1.131 (0.299)
Prefer to Purchase Ready-to-Eat	1.476 (0.415)	1.179 (0.300)

^{a,b,c} Relative Risk Ratio is significant at the 1%, 5%, and 10% level.
Standard deviations in parentheses.

* In the case of the "prefer to purchase fresh, unprocessed" category, the lower the number, the more likely a respondent is to prefer to purchase produce in a fresh, unprocessed state.

other hand, the greater importance is placed on color and package type, the more likely the respondent prefers to purchase *direct never*.

Marketing Methods and Credibility Preferences (Table 5)

To further aid in effectively promoting direct market channel offerings, we look at the association between preferred shopping location, the desirability of various methods of food and nutrition information delivery, and the perceived credibility of information sources. Here again, some differences between the *direct always*, *direct occasionally*, and *direct never* groups are evident. In particular, the relative

odds of preferring to purchase *direct always* and *occasionally* are greater as the consumer finds magazines, radio, and booths a more desirable source of receiving food and nutrition education information. *Direct occasionally* shoppers are also more likely to find e-mail newsletters and updates to be a desirable information source.

Increased desirability of television is more closely associated with the *direct never* category. For this reason, television ads may be an effective way to reach new customers who, as yet, do not prefer to purchase direct, while e-mail newsletters, radio, and magazines may serve to increase patronage among existing customers. Anecdotal evidence from farmers'

Table 4. Production Practice and Product Attributes ($n = 1549$)

Baseline = 1.00 for Even Odds Variable	Relative Odds of Consumer's Preferred Shopping Choice	
	Direct Always vs. Direct Never	Direct Occasionally vs. Direct Never
Importance of Organic	0.870 (0.087)	0.864 (0.077)
Importance of Pesticide-Free	0.926 (0.956)	1.047 (0.092)
Importance of Vitamin Content	1.221 ^c (0.150)	1.164 (0.122)
Importance of Other Nutritional Properties	1.026 (0.124)	0.940 (0.098)
Importance of Firmness/Texture	1.192 (0.171)	1.058 (0.129)
Importance of Color	0.989 ^a (0.130)	0.943 (0.105)
Importance of Visual Appeal	0.853 (0.115)	0.887 (0.102)
Importance of Taste	1.025 (0.088)	1.057 (0.077)
Importance of Carbohydrate Content	1.107 (0.099)	1.026 (0.081)
Importance of Variety Available	1.037 (0.105)	1.142 (0.987)
Importance of Brand	0.873 (0.092)	0.879 (0.080)
Importance of Freshness	1.547 ^a (0.158)	1.148 ^c (0.097)
Importance of Traceability	0.967 (0.108)	0.881 (0.087)
Importance of Country-of-Origin Labeling	1.04 (0.099)	1.115 (0.092)
Importance of Locally Grown	1.659 ^a (0.188)	1.228 ^b (0.123)
Importance of Convenient Prep	0.928 (0.091)	0.970 (0.082)
Importance of Package Type	0.825 ^b (0.084)	0.996 (0.089)
Importance of Good Value for Price	0.828 (0.105)	0.894 (0.096)
Importance of Relationship w/Producer	1.102 (0.127)	1.022 (0.107)

^{a,b,c} Relative Risk Ratio is significant at the 1%, 5%, and 10% level.
Standard deviations in parentheses.

markets suggests that more and more vendors are setting up e-mail lists of their regular clientele to keep in touch as the market season progresses. Sampling and informational booths, widely observed at many direct markets, appear to be a desirable promotion medium, and as

eluded to earlier, may substitute for marketing information/assurances offered to those who don't have direct relationships with their food sources.

These results should be viewed relative to what methods of advertising direct marketers are

Table 5. Methods of Receiving Food and Nutrition Education Info and Credibility of Info Sources ($n = 1549$)

Relative Odds of Consumer's Preferred Shopping Choice		
Baseline = 1.00 for Even Odds Variable	Direct Always vs. Direct Never	Direct Occasionally vs. Direct Never
Desirability of Newspaper	1.007 (0.115)	0.973 (0.096)
Desirability of Magazines	1.232 ^c (0.147)	1.221 ^b (0.127)
Desirability of Radio	1.363 ^a (0.153)	1.289 ^a (0.127)
Desirability of Television	0.746 ^a (0.086)	0.806 ^b (0.796)
Desirability of E-mail Newsletter/Updates	1.079 (0.122)	1.198 ^c (0.118)
Desirability of Internet	1.031 (1.055)	1.078 (0.097)
Desirability of Video/CD-Rom/DVD	0.998 (0.133)	0.997 (0.118)
Desirability of Written Publications	1.023 (0.102)	0.910 (0.787)
Desirability of Presentations	1.110 (0.136)	0.927 (0.121)
Desirability of Booths	1.180 ^c (0.118)	1.210 ^b (0.085)
Desirability of Hotline	1.040 (0.112)	0.898 (0.085)
Credibility of Extension Personnel	1.092 (0.111)	1.093 (0.096)
Credibility of Government Agencies	1.058 (0.123)	1.031 (0.103)
Credibility of Farmers	1.093 (0.133)	1.041 (0.110)
Credibility of Industry Associations	0.913 (0.117)	0.967 (0.107)
Credibility of Medical Professionals	0.733 ^a (0.091)	0.783 ^b (0.838)
Credibility of Nutrition Professionals	1.214 (0.161)	1.229 ^c (0.142)
Credibility of Family/Friends	1.029 (0.113)	0.931 (0.089)
Credibility of Academic Researchers	0.883 (0.108)	1.002 (0.106)
Credibility of Media/Celebrities	0.951 (0.128)	1.040 (0.122)
Credibility of Blogs	0.908 (0.118)	0.819 ^c (0.093)

^{a,b,c} Relative Risk Ratio is significant at the 1%, 5%, and 10% level.
Standard deviations in parentheses.

currently using. Govindasamy, Italia, and Thatch (2000) found that New Jersey direct marketers were relying primarily on word of mouth advertising (86%), followed by signs (77%), newspaper ads (58%), brochures and mailings (22%), radio (18%), and television (9%). Word of mouth is thought to be a highly effective promotional tool; however, our study finds that the credibility of friends and family is not a significant factor in determining the probability that a consumer prefers to purchase direct. In addition, we do not find a link between increased desirability of newspaper ads or written publications and an increased likelihood of preferring to shop direct, indicating a possible disconnect between what direct sellers believe to be effective promotion tools and the methods to which consumers respond and find pleasing.

Credibility of medical professionals is significant in both regressions, but indicates that the more credible an individual believes doctors and nurses to be, the less likely they are to shop direct. A similar, though weaker, result was found for blogs. Increasing credence in nutritional professionals is also weakly associated with an increased probability of shopping *direct occasionally*. With this in mind, direct market vendors may benefit by seeking out referrals and educational partnerships with these specialists. A small, but growing number of farmers' markets have pursued such a connection by hosting events at hospital and medical centers, partly to support healthy eating, and partly to inform those in the medical profession, including nutritionists, of local offerings.

Marketing Implications

Previous research has separately identified many attributes that consumers value in fresh produce and purchase locations, and what claims are being made by farmers' markets. Through analysis of a national data set, our study serves to bridge a gap in the present understanding of direct to consumer shopping behavior by collectively determining which product and purchase location attributes are associated with patronage frequency and to further investigate what information sources these individuals prefer and find credible. By

contributing to a greater understanding of what motivates consumers to select specific purchase locations and particular types of fresh produce, producers may be better able to organize their product offerings and marketing activities to increase frequency of market attendance, sales per customer, and possibly, increase overall patron numbers.

Similar to the findings of Stevenson and Lev, we find that current direct market channel patrons place greater importance on the availability of locally-grown produce when selecting a fresh produce purchase location. Although the former finding is not surprising, we can also conclude that frequent direct purchasers associated a greater share of their fresh produce premium with a desire to support local businesses. As such, to retain and stimulate sales from these consumer groups, direct marketers may want to focus on marketing their venues as a source of local produce and a means of supporting local businesses. Placing greater importance on availability of fresh, unprocessed produce is also associated with a greater probability of belonging to both *direct always* and *direct occasionally* categories; providing grounds to use this claim as a basis of differentiating direct market channels from other purchase locations. In addition, members of the *direct never* category are found to place more emphasis on purchase location convenience and aesthetics. Thompson and Kidwell similarly found that purchase location convenience was associated with an increased propensity to purchase organic produce. Therefore, to attract individuals who currently do not admit a preference for purchasing direct, vendors may want to set up stands in easy-to-access areas while also paying attention to the overall aesthetic appeal of the market.

In terms of production practices and product attributes, current direct shoppers are found to place greater importance on freshness, locally-grown foods, and vitamin content (with the former only significant for *direct always*). Sunding also found that nutrition content and freshness are important to consumers; indicating that these claims, in particular, may be meaningful sources of differentiation for direct to consumer vendors.

In reviewing the results from our investigation of consumer attribute preferences, it becomes clear that differences between current shoppers and those that do not express a preference for shopping direct may make it challenging for vendors to target both groups effectively. Therefore, vendors may want to keep in mind the proportion of our sample represented by each consumer category: the *direct occasionally* group represents 50% of our sample while *direct always* accounts for an additional 30%. *Direct always* and *direct occasionally* shoppers share many common preferences, thus a well-constructed marketing plan may be able to increase attendance frequency and sales volume from both categories of current customers. However, *direct nevers* express distinctly different preferences for a variety of attributes, necessitating a different marketing approach. In particular, if direct sellers wish to target the 20% of consumers who are less motivated to buy direct in order to increase the pool of potential patrons, greater emphasis should be placed on improving the convenience of direct market locations (locating near other services, community features, or improved parking), creating colorful displays, making available processed as well as fresh products (e.g., roasted chilies, salsa), promoting organic produce, and offering produce in conveniently-sized packages.

When selecting media vehicles, the common wisdom that word of mouth advertising works best is not supported by empirical evidence on stated preferences, although some of this may occur during market sales and sampling. To target the widest variety of potential new and committed direct consumers, our results suggest that vendors and market managers consider the use of radio, magazines, and booths as they appeal to both *direct always* and *direct occasionally* groups, representing 80% of our survey population. If members of the *direct occasionally* group are targeted, e-mail newsletters may also be effective. *Direct nevers* appear to be more receptive to television promotion and while this form of advertising is likely beyond the resources of any one producer; farmers' market associations or statewide groups of direct marketers might be able to pool resources to take advantage of this wide-reaching medium to

attract new patrons. Use of blogs and testimonials by medical professionals may also be an effective way to reach this untapped audience; however, current *occasional* customers find nutrition professionals to be relatively more credible sources of information.

Taken as a whole, the results of this study provide some insight into how a wide variety of factors may impact the fresh produce purchase decision process and how marketers may best tailor their advertising strategies to target diverse consumer groups. Beyond individual enterprises, if there continues to be new federal and state monies targeted at local marketing and specialty crops programs, this research may inform State Departments of Agriculture, specialty crop producer associations, the USDA-Agricultural Market Service, federal or state marketing orders, and even Land Grant institutions, on how to best support growth in the local food systems. Finally, results from this study suggest a need for additional research on fresh, value-added produce, nutrition content, and consumer response to marketing claims, as well as the economic benefits of direct purchases to local farms and farm systems.

[Received July 2008; Accepted August 2008.]

References

- Baker, G.A., and P.J. Crosbie. "Measuring Food Safety Preferences: Identifying Consumer Segments." *Journal of Agricultural and Resource Economics* 18,2(1993):277-87.
- Baker, G.A., and T.A. Burnham. "Consumer Response to Genetically Modified Foods: Market Segment Analysis and Implications for Producers and Policy Makers." *Journal of Agricultural and Resource Economics* 26,2(2001):387-403.
- Brown, A. "Farmers' Market Research 1940-2000: An Inventory and Review." *American Journal of Alternative Agriculture* 17,4(2002):167-76.
- Borooah, V.K. *Logit and Probit Ordered and Multinomial Models*. CA: Sage Publications, 2002.
- Cloud, J. 2007. "Eating Better Than Organic." *Time Magazine* March 02. Internet site: <http://www.time.com/time/magazine/article/0,9171,1595245,00.html>.
- Cartier, K.C. "Direct Marketing of Produce: A Study of Farmers' Markets in Jackson, Knoxville,

- and Memphis, Tennessee." Ph.D. Dissertation, University of Tennessee, Knoxville, 1994.
- Gallons, J., UC Toensmeyer, J. Bacon, and C. German. "Analysis of Consumer Characteristics Concerning Direct Marketing of Fresh Produce in Delaware: A Case Study." *Journal of Food Distribution Research* 28(1997):98–106.
- Govindasamy, R., J. Italia, and D. Thatch. "Consumer Attitudes and Response toward State Sponsored Agricultural Promotion: An Evaluation of Jersey Fresh Program." *Journal of Extension* 37,3(1999).
- . "Direct Market Retailer Perceptions of State-Sponsored Marketing Programs." *Review of Agricultural Economics* 22,1(2000):77–88.
- Govindasamy, R., and S. Thornsby. "Fresh Produce Marketing: Critical Trends and Issues." *Choices* 4,21(2006):225–65.
- Grannis, J., and D. Thilmany. "Marketing Natural Pork: An Empirical Analysis of Consumers in the Mountain Region." *Agribusiness* 18(2002): 475–89.
- Green, P.E., and V. Srinivasan. "Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice." *Journal of Marketing* 54,4(1990):3–19.
- Jacoby, J., R. Chestnut, and W. Silberman. "Consumer Use and Comprehension of Nutrition Information." *The Journal of Consumer Research* 4,2(1977):119–28.
- Jekanowski, M.D., D.R., II Williams, and W.A. Schiek. "Consumers' Willingness to Purchase Locally Produced Agricultural Products: An Analysis of an Indiana Survey." *Agricultural and Resource Economics Review* 29(2000): 43–53.
- Keeling Bond, J., D. Thilmany, and C. Bond. "Direct Marketing of Fresh Produce: Understanding Consumer Purchasing Decisions." *Choices* 21,4(2006):1–6.
- Kremen, A., C. Greene, and J. Hanson. *Organic Produce, Price Premiums, and Eco-Labeling in U.S. Farmers' Markets*. U.S. Department of Agriculture, Economic Research Service, Outlook Report No. VGS-301-01, Washington, DC, 2004.
- Loureiro, M., and S. Hine. "Discovering Niche Markets: A Comparison of Consumer Willingness to Pay for Local (Colorado Grown), Organic, and GMO-Free Products." *Journal of Agricultural and Applied Economics* 34,3(2003):477–87.
- Loureiro, M.L., and W.J. Umberger. "Estimating Consumer Willingness-to-Pay for Country of Origin Labeling." *Journal of Agricultural and Resource Economics* 28(2003):287–301.
- Nayga Jr., R.M. "Determinants of Consumers' Use of Nutritional Information on Food Packages." *Journal of Agricultural and Applied Economics* 28,2(1996):303–12.
- Patterson, P.M. "State-Grown Promotion Programs: Fresher, Better?" *Choices* 21,1(2006):41–46.
- Pirog, R., T. Van Pelt, K. Enshayan, and E. Cook. "Food, Fuel, and Freeways: An Iowa Perspective on How Far Food Travels, Fuel Usage, and Greenhouse Gas Emissions." Staff Paper, Leopold Center for Sustainable Agriculture, Ames, Iowa. June, 2001.
- Roth, M. "Overview of Farm Direct Marketing Industry Trends." Paper presented at Agricultural Outlook Forum conference, Arlington, Virginia, February 22–23, 1999.
- Sharp, J., E. Imerman, and G. Peters. "Community Supported Agriculture (CSA): Building Community among Farmers and Non-Farmers." *Journal of Extension* 40,3(2002).
- Stephenson, G., and L. Lev. "Common Support for Local Agriculture in Two Contrasting Cities." Oregon State University Extension Service. Oregon Small Farms Technical Report 1, 1998.
- Sunding, D.L. "The Role for Government in Differentiated Product Markets: Looking to Economic Theory." *American Journal of Agricultural Economics* 85,3(2003):720–24.
- Thilmany, D., J. Keeling Bond, C. Bond, C. Stushnoff, F. Stonaker, P. Kendall, and M. Bunning. "Eat Your Fruits and Veggies: Exploring Fresh Produce Market Choices." *Food Distribution Research Society Conference Proceedings*, 37(1), 2006.
- Thilmany, D., W. Umberger, and A. Ziehl. "Strategic Market Planning for Value-Added Natural Beef Products: A Cluster Analysis of Colorado Consumers." *Renewable Agriculture and Food Systems* 21(2006):192–203.
- Thompson, G.D., and J. Kidwell. "Explaining the Choice of Organic Produce: Cosmetic Defects, Prices, and Consumer Preferences." *American Journal of Agricultural Economics* 80,2(1998): 277–87.
- . The National Organic Program, Organic Food Standards and Labels: The Facts. April, 2002. Internet site: <http://www.ams.usda.gov/nop/Consumers/brochure.html>.
- U.S. Department of Agriculture-Agriculture Marketing Service (USDA-AMS). Program Announcement, USDA Releases New Farmers Market Statistics. December. AMS No. 281–06, 2006. Internet site: <http://www.ams.usda.gov/tmd/MSB/>.