

## PREDICTING ORGANIC MARKET DEVELOPMENT WITH SPATIAL ANALYSIS OF EXISTING INDUSTRY INFORMATION

LUANNE LOHR

YASSERT GONZALEZ-ALVAREZ

ANITA GRAF

### AFFILIATION –

The authors are Associate Professor and Graduate Research Assistant, Agricultural and Applied Economics, University of Georgia, and Graduate Student, Rural Sociology, Cornell University.

### ABSTRACT---

We test the likelihood of expansion for six market sectors based on the similarities between counties with and counties without organic markets. Results indicate that sales projections are overstated. Growth imbalance will continue to favor the West and North Central regions over the South and Northeast. .

### -----KEY WORDS-----

organic agriculture, market analysis

Faculty Series are circulated without formal review. The views expressed are those of the authors. This research was supported by USDA-ERS Cooperative Agreement 43-3AEK-7-80060.

The University of Georgia is committed to the principle of affirmative action and shall not discriminate against otherwise qualified persons on the basis of race, color, religion, national origin, sex, age physical or mental handicap, disability, or veteran's status in its recruitment, admissions, employment, facility and program accessibility, or services.

**Copyright © 2001 by Luanne Lohr. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.**

# **Predicting Organic Market Development with Spatial Analysis of Existing Industry Information**

Luanne Lohr, Yassert Gonzalez-Alvarez, and Anita Graf

## **Introduction**

Organic products generated an estimated \$6.5 billion in retail sales in the United States in 1999 (NFM 2000)<sup>1</sup>. Sales have grown 20 percent every year since 1990. Industry demand forecasts predict strong growth in this sector for at least the next five years (OTA 1998, ITC 1999). Using 1997 sales data and annual growth rates from the International Trade Centre (ITC 1999), and assuming a linear trend, projected size of the retail market in 2010 will be at least \$45 billion in the United States.

However, these forecasts assume a coincident increase in farm supply and handlers (intermediaries between farmer and consumer) that will efficiently deliver the product to consumers who want organic foods. Industry projections are needed to guide investment in production, processing, and retailing to maximize the probability of successful market expansion. Currently, the organic industry has no projections on where growth will occur, nor what factors make a locale suitable for organic market development. As a result, targeted development strategies are impossible to undertake, and growth projections are unlikely to be met.

Targeting is important for both sides of the market. Whether a farmer should transition to organic production or should expand existing acreage depends on the selection of market outlets and their relative cost of entry. Similarly, intermediaries - food retailers, natural food restaurants, food processors, and wholesalers or brokers - are concerned with availability, quality, and cost of product, which derive in part from proximity to organic growers. Retailers and restaurateurs

must also be concerned with consumer demand for organics when they are deciding whether to allocate space and effort to offering organics for sale.

Deciding where to site an outlet without prior information about upstream and downstream market components is especially risky for the organic industry because distribution channels are not well developed and the “typical” organic consumer is not well defined. Costs of correcting a bad location decision may be much higher than for nonorganic facilities if either the supply or the demand side do not materialize as expected.

The objective of this research is to develop a method for identifying the most likely locations for successful organic market expansion, by sector, using data from published sources. We anticipate that a methodologically sound means of assessing a location’s suitability for a particular market type will enable the relevant industry audience to make short term development decisions that will maximize expansion opportunities. Using published data permits replication and updating of the method as new information becomes available.

With the output of 28 percent of all organic acreage destined for direct-to-consumer or direct-to-retail markets, according to the Organic Farming Research Foundation (OFRF 1999), the concurrence of organic producers and direct marketing opportunities is critical to market expansion. More than 77 percent of 720 organic farmers answering a question about marketing strategies in a 1997 national organic farmer survey said they wanted to increase sales at the local level in the future (OFRF 1999). About 74 percent of respondents wanted to increase direct-to-consumer marketing, and 64 percent wanted to increase direct-to-retail sales.

Sales from farmers to wholesalers, handlers, brokers, and other distributors accounts for 53 percent of acreage, and sales directly to processors or packers makes up 19 percent of acreage (OFRF 1999). Successful location of these types of facilities requires coordination with existing

and projected farm supply. A majority of responding farmers in the OFRF survey wanted to increase wholesale marketing or regional sales (OFRF 1999).

Dimitri and Richman (2000) reported that organic farmers lack knowledge of marketing institutions, and are not well-informed enough to target markets which could have the largest impact on sales. Locating markets and buyers was mentioned by 25 percent of 828 respondents in the OFRF survey as the type of marketing information most needed (OFRF 1999). An additional 20 percent considered information about specific markets (farmer markets, restaurant marketing, etc.) to be the greatest need.

Among potential outlets for organic farm products, difficulty finding natural foods producers was a major concern among retailers, manufacturers, distributors surveyed in 1998 by the Henry A. Wallace Institute for Alternative Agriculture (now the Henry A. Wallace Center for Agricultural and Environmental Policy) (Richman 1999; Dimitri and Richman 2000). Difficulty finding manufacturers was considered a barrier by these groups as well as producers, suggesting an underdeveloped marketing channel for organic foods (Richman 1999).

The transactions costs associated with matching producers to distributors, manufacturers, or retailers, and with linking distributors to manufacturers and retailers, are high enough to interfere with market expansion. Potential new entrants will not join the market, and existing participants, including conventional mass marketers who handle an increasing share of organic foods, will not diversify and increase their offerings if the marketing channel is not predictable.

We developed a means of determining “organic ready” counties, which would be most likely to support organic production or marketing outlets, based on their similarities to the demographic and economic characteristics of “organic friendly” counties, where organic production or outlets already exist. The sectors evaluated were natural food restaurants, organic

or natural food retailers, organic supermarkets, Community Supported Agriculture (CSA) farms , farmer markets, and handlers (wholesalers, brokers, processors).

This method reasonably assumes that similarities to locations that already support organic outlets are good predictors of the probability of success for a new venture. Market analysts rank locations for new facilities according to number of desirable traits possessed by the site. Lack of systematic information hampers identifying these traits for organic markets. A logical alternative is the matching method used here. Tests of discriminatory power revealed that the variables selected for comparing counties with and without organic outlets are statistically defensible.

The advantages of this method are that it can be easily applied and is replicable over different markets and time periods. Given that limited industry resources constrain location- and market-specific data collection and analysis, the “organic ready” matching method shows promise for strategic planning. In the following sections, the current distribution of enterprises in organic sectors is described, the data and matching method are explained, and the results are presented. Conclusions and policy implications for strategic market planning are also drawn.

### **Current Distribution of Enterprises**

Various industry, government, and commercial sources were consulted as described in the Methods section to obtain current sector data. The six market sectors are: organic retailers, organic supermarkets, natural food restaurants, handlers, farmer markets, and CSA farms. The handlers group combines manufacturers, brokers, distributors, and wholesalers who handle organic products. Organic retailers include food co-ops, natural food stores, specialty shops, and other retail outlets. Organic supermarkets are chain stores that specialize in natural products, and carry a full line of products comparable to conventional chain stores. Natural food restaurants

and farmer markets are typically not organic-oriented, but are likely outlets for organic food sales, especially beginning producers, because of their clientele, the small volume required by the buyer, and the high net return on sales. CSA farms are certified and noncertified organic producers who sell direct to consumers via a subscription arrangement.

Table 1 shows the geographic distribution of organic enterprises by sector by region for 1997. The total for the US is given in the last column, with the distribution across the four USDA-SARE regions shown in the other columns. These regions, excluding Alaska and Hawaii, which are in SARE Region 1, were used as a basis of analysis since they reflect the federal government's extension-research demarcation for sustainable agriculture support.

The number of units is greater than the number of counties, because some counties support more than one enterprise. Four frequency classes per sector were constructed to allow for this variation. We determined there were 4,868 certified organic growers in 1,208 counties. The greatest concentrations of farmers (farmers per county) were found in SARE-1 (western U.S.) and SARE-4 (northeastern U.S.), although the most counties with farmers were found in SARE-2 (midwestern U.S.). CSAs and farmers' markets were typically distributed in low concentrations of 1 to 2 or 1 to 4 enterprises per county. Overall, 2,048 farmers' markets were distributed in 1,107 counties, with the highest numbers in SARE-2 and SARE-4. By comparison, 836 CSAs in 423 counties were mostly concentrated in SARE-4.

The concentration of 1,221 retailers in 522 counties was evenly dispersed across the SARE regions, but county-level distribution favored urban areas. Concentrations of from 10 to 27 retailers per county were associated with major cities, such as Los Angeles, New York, Boston, Seattle, Chicago, and Miami. The SARE regions also had nearly equal distribution of natural

foods restaurants, with 2,094 in 417 counties nationwide, dominated by SARE-1 and SARE-4 enterprises. Again, urban areas attracted the largest concentrations of restaurants per county.

This result is even more pronounced with organic supermarkets. Of 191 supermarkets in 92 counties, the majority were in SARE-1, and most of these were in cities in California and Colorado. SARE-3 (southern U.S.) was relatively more attractive to organic supermarkets than to organic retailers overall. Handlers were predominantly in SARE-1, although at concentrations of 1 to 3 per county, all regions had about the same number. Only 724 handlers in 298 counties were identified, many representing multiple offices of the same larger company. This compares with a 2000 estimate of 1,600 handlers by USDA (USDA, 2000).

High valued markets (restaurants, retailers) tended to be clustered in or near cities, while CSA farms and farmer markets were more evenly distributed. Product requirements for each outlet type vary, but generally move from less stringent for CSA farms and farmer markets to more stringent for restaurants. Prices paid by the buyer increase from CSA farms to farmer markets to handlers to retailers to restaurants. Volume requirements are highest at wholesale and retail, with much smaller quantities required by restaurants, farmer markets and CSA farms.

Direct-to-consumer outlets (farmer markets and CSA farms) are the best entry points for new organic farmers, while restaurants are the most lucrative. With the even distribution of enterprises in these three sectors across the U.S., there should be no access barriers to market entry for new farmers. The combined data for growers, handlers, and retailers revealed that these outlets are often not concentrated where farmers are, suggesting transportation diseconomies that could be altered by relocation of facilities.

## **Methods**

The method for identifying likely locations for market expansion includes three main parts: collecting data to identify counties with and without organic enterprises, selecting variables to compare for likelihood of organic support, and running the matching protocol. The specific steps are listed and described here.

Using the information sources listed on Table 1, we first developed an inventory of organic farmers and market outlets. After eliminating duplicate entries, the county FIPS code was assigned to each entry, based on the city listed in the enterprise's address. This provided a listing by sector that enabled us to count both the number of enterprises and the distribution across counties and SARE regions shown on Table 1 and discussed in the previous section. The "organic friendly" counties, defined as those that contain organic enterprises, were grouped separately from all other counties, the "not organic friendly" counties.

To characterize organic friendly counties, we chose variables from published sources that reflected existing literature on consumer demand characteristics, farm and farmer characteristics, and manufacturing support characteristics. County-level data were collected from the US Census of Population, the US Census of Manufacturers, and the US Agricultural Census (USDA 1997; USDOC 2000; USDOC 1998). Table 2 shows the definitions of the variables selected for markets analysis and the sector each is associated with. Table 3 gives the definitions of the variables used to characterize counties that are organic friendly to farmers.

The means of each variable were calculated by sector, with a separate mean for organic friendly and not organic friendly counties. T-tests for equality of means were conducted for each variable and sector to determine discriminatory power of the variable. These results are presented on Table 4. With the exception of a few of the variables use to assess farm counties, all variables



showed statistically significant discriminatory power between organic friendly and not organic friendly counties.

Using the means of the organic friendly county variables as a test statistic, we compared the value of the variables for each county in the not organic friendly data set, by sector. If the value of the variable for the not organic friendly county met or exceeded the organic friendly mean, that observation was counted as a “match.”

We counted the number of variables matched for each not organic friendly county. We assumed that more matches implies a greater readiness for market development. Based on analysis of the overall matching values, we set 50 percent as the threshold for a county to be considered “organic ready” for market development. That is, at least 50 percent of the variables compared for that county had to result in a match. No distinction was made among the variables in terms of which had to be matched. However, there is no theory nor previous research to guide identification of the most important variables, so there was no reason to treat any variable as a better predictor than the others. For the farmer sector, the organic ready match threshold was set at 60 percent of variables compared because several of the variables failed to exhibit statistically different means between organic friendly and not organic friendly.

## **Results**

The results of the matching procedure are shown on Table 5, which lists the number of organic ready counties by state and sector. The total expansion possibilities include 127 counties for organic retailers (4.8 percent of not organic friendly counties), 99 for organic supermarkets (3.2 percent), 12 for natural food restaurants (0.4 percent), 114 for organic handlers (3.7 percent), 148 for farmer markets (7.9 percent), and 195 for CSA farms (7.2 percent).

Within each sector, certain states stand out as having the greatest potential for market expansion in terms of number of counties. In the organic retailer sector, Alaska (16 counties), Georgia (11 counties), and Virginia (15 counties) have the most organic ready counties. Alaska (12 counties), California (8 counties), Georgia (8 counties), and Virginia (12 counties) appear to offer the most possibilities for organic supermarket expansion.

Natural foods restaurants do not appear to have expansion potential with only 12 counties in the US matching the characteristics of counties organic friendly to these outlets. However, 54% of 101 conventional "table cloth" restaurants surveyed in Florida were willing to buy direct from producers (Zimet and LaColla 1999). Thus, market expansion is likely to be through accessing conventional restaurants, which may require more product education on the part of the farmer.

Organic handlers have potential for expansion in several states. New Jersey and New York (10 counties each) and California (15 counties) are particularly amenable to organic handlers. These regions already dominate this sector, and since it is the largest volume buyer of organic products, this result suggests that SARE-1 and SARE-4 will increase their dominance.

Farmer markets are already widespread, and this analysis shows that potential exists for even more expansion, particularly in Georgia (12 counties), Ohio (16 counties), Texas (12 counties), and Virginia (20 counties). Also, the distribution in the midwest and southeast should help stimulate sluggish growth in farm transition.

CSA farms have good possibilities in more than a dozen states. This is important for entering producers because location of CSAs are completely controlled by the farmer. Farmers in several states who wish to enter the organic industry will find this relatively low cost alternative to be economically feasible.

Nearly all states have counties that would support expansion of organic farm numbers. Leaders are Arkansas (26 counties), Indiana (29), Iowa (22), Kansas (21), Michigan (30), North Carolina (28), Ohio (25), Tennessee (27), Virginia (32), and West Virginia (30). These figures have not yet been matched to the industry sector expansion values, and so do not necessarily suggest that farm expansion would be economically profitable.

## **Conclusions**

The results presented make no distinction among size of counties and number of enterprises that could be supported, but with no current organic components, these counties represent the options to explore for facility location. Also, Table 5 does not distinguish among duplicate counties, such that a county might be suitable for more than one type of sector development. However, it represents an important first step in narrowing the search for facilities locations. By comparing FIPS codes, it should be possible to match the farmer organic ready counties with the marketing sector organic ready counties.

The matching approach presented holds promise in assisting the organic industry to narrow its focus in locating new facilities. From the list of counties generated by this program, industry representatives can look more closely at specific needs for a facility. The data are the best available published information, which could be supplemented by individual market surveys. By targeting particular counties, the industry can save millions of dollars in research costs and enterprise failures.

Farmers considering transition to organic systems will also find these results useful. By identifying the potential markets in or proximal to their counties, they can both plan their own operations and join together to attract new market development. If no nearby facilities are likely

to materialize, they can make plan for marketing longer distance with better information about the distance requirements they will face.

## Footnotes

<sup>1</sup> Calculated from data published in the June 2000 issue of *Natural Foods Merchandiser*. Total natural products store sales of organics were \$4,002,000 in 1999 (p. 20). Natural products stores accounted for 61.3 percent of all organic sales (p. 24). This percentage is consistent with data from the Organic Trade Association's *Manufacturer's Market Survey* in 1998 reporting that health and natural food stores accounted for 62 percent of retail sales of manufactured foods (p. 7).

## References

- Community Alliance of Family Farmers. *National Organic Directory*. Davis, CA, 1998.
- Dimitri, C., and N. J. Richman. *Organic Food Markets in Transition*. Policy Studies Report No. 14. Henry A. Wallace Center for Agricultural and Environmental Policy, Greenbelt, MD. April 2000.
- Johnson, D. N., and E. R. Bragg. *National Directory of Farmers Markets*. Wholesale and Alternative Markets Branch, TMD, AMS, USDA, Washington DC, November 1998.
- Natural Food Merchandiser*. Market Overview 1999. New Hope Natural Media, Boulder, CO, Vol. XXI, Number 6, June 2000, 1, 20-40.
- Natural Foods Merchandiser*,. New Hope Natural Media, Boulder, CO, Vol. XX, Number 8, August 1999.
- Organic Farming Research Foundation (OFRF). *Final Results of the Third Biennial National Organic Farmers' Survey*. OFRF, Santa Cruz, CA, 1999.
- Organic Trade Association. *The Organic Pages*. New York, NY; Succotash Press, 1998.
- Richman, N. J. *The Natural Foods Market - A National Survey of Strategies for Growth*. Policy Studies Report No. 12. The Henry A. Wallace Institute for Alternative Agriculture, Greenbelt, MD, April 1999.
- U.S. Department of Agriculture. National Organic Program Final Rule. 7 CFR Part 205. Appendix A - Regulatory Impact Assessment, Washington, DC, 2000. pp. 462-515.
- U.S. Department of Agriculture. Ag97 Department of Agriculture CD-ROM, Version 1.1.24. National Agricultural Statistics Service. Washington, DC, 1997.
- U.S. Department of Commerce. USA Counties 1998 CD-ROM, Version 3. Administrative and Customer Services Division, Bureau of the Census. Washington, DC, 1998.

U.S. Department of Commerce. Econ97 Report Series Economic Census CD-ROM,CD-EC97-1.

Economics and Statistics Administration, Bureau of the Census. Washington, DC, 2000.

The Vegetarian Resource Group. *Vegetarian Journal's Guide to Natural Foods Restaurants in the U.S. and Canada*. Third Edition. Garden City Park, NY:Avery Publishing Group, 1998.

Zipern, Elizabeth and Dar Williams. *The Tofu Tollbooth*. Woodstock, NY; Ceres Press / Ardwork Press, 1998.

<http://www.wholefoods.com/company/locations/index.html>. Accessed March 2000.

<http://www.wildoats.com/markets/masterlist.html>. Accessed March 2000.

<http://www.earthfar.com/files.html>. Accessed March 2000.

Table 1. Geographic Distribution of Enterprises by Sector by Region, 1997

Sector	SARE 1 West	SARE 2 North Central	SARE 3 South	SARE 4 Northeast	US Total
<b>ORGANIC RETAILERS</b>					
Units	344	229	259	389	<b>1,221</b>
Counties	127	136	121	138	<b>522</b>
<b>ORGANIC SUPERMARKETS</b>					
Units	78	28	48	37	<b>191</b>
Counties	29	14	30	19	<b>92</b>
<b>NATURAL FOOD RESTAURANTS</b>					
Units	801	285	355	653	<b>2,094</b>
Counties	118	75	96	128	<b>417</b>
<b>HANDLERS</b>					
Units	375	106	77	166	<b>724</b>
Counties	99	69	51	79	<b>298</b>
<b>FARMER MARKETS</b>					
Units	378	669	440	561	<b>2,048</b>
Counties	132	436	374	165	<b>1,107</b>
<b>CSA FARMS</b>					
Units	200	209	69	358	<b>836</b>
Counties	80	132	59	152	<b>423</b>
<b>FARMERS</b>					
Units	1,492	1,771	491	1,114	<b>4,868</b>
Counties	214	544	253	197	<b>1,208</b>

Sources: OFRF 2000; Lohr and Graf, unpublished survey 1999; Zipern and Williams 1998; The Vegetarian Resource Group 1998; OTA 1998; *NFM* 1999; CAFF 1998; Johnson and Bragg 1998; [www.sare.org/san/csa/index.htm](http://www.sare.org/san/csa/index.htm) (March 2000); [www.wholefoods.com/company/locations/index.html](http://www.wholefoods.com/company/locations/index.html) ( March 2000); [www.wildoats.com/markets/masterlist.html](http://www.wildoats.com/markets/masterlist.html) ( March 2000); [www.earthfar.com/files.html](http://www.earthfar.com/files.html) (March 2000).



Table 2. Definitions for Variables Used in Matching Counties for Marketing Sectors<sup>a</sup>

Variable	Definition <sup>b</sup>	Relevant Sectors
College	Adults 25+ years with some college education (%)	Retl, Rest, Groc, Fmkt, Csa, Hand
HHInc12	Households with income of \$12,500 or less (%)	Retl, Rest, Groc, Fmkt, Csa
HHInc50	Households with income of \$50K or higher (%)	Retl, Rest, Groc, Fmkt, Csa
MarryMen	Males 15 years old and over - now married (number)	Retl, Rest, Groc, Fmkt, Csa
MWChild	Family households - married couples with own children (number)	Retl, Rest, Groc, Fmkt, Csa
Pct18_29	Population from 18 to 29 years old (%)	Retl, Rest, Groc, Fmkt, Csa
Pct30_39	Population from 30 to 39 years old (%)	Retl, Rest, Groc, Fmkt, Csa
Pct40_49	Population from 40 to 49 years old (%)	Retl, Rest, Groc, Fmkt, Csa
FoodSale	Sales for food stores with payroll (\$/establishment)	Retl, Groc, Hand
EatDSale	Sales for eating and drinking places with payroll (\$/establishment)	Rest, Hand
GrdnSale	Sales for garden stores with payroll (\$/establishment)	Fmkt, Csa
DirSaleValue	Value of ag products sold directly to individuals for human consumption (\$/farm)	Fmkt, Csa
WhlsGro	Grocery wholesalers (number)	Retl, Groc, Rest, Hand
EatDNum	Eating and drinking establishments (number)	Hand
FoodNum	Food stores (number)	Hand
RurlFarm	Rural farm population (number)	Fmkt, Csa
ProdWkr	Employed production workers - machine operators, assemblers, inspectors (number)	Hand
TranWkr	Employed transportation workers - transportation and material movers (number)	Hand
HandWkr	Employed handlers - handlers, equipment cleaners, helpers, laborers (number)	Hand

<sup>a</sup> The sectors are abbreviated as follows: Retl - organic retailers, Groc - organic supermarkets, a subset of Retl, Rest - natural food restaurants, Fmkt - farmer markets, Csa - Community Supported Agriculture (subscription) farms, Hand - organic handlers, brokers, wholesalers, and manufacturers. Details about each sector are provided in the text.

<sup>b</sup> All definitions are for 1990, except income variables, which are 1989.

Table 3. Definitions for Variables Used in Matching Counties for Farms

---

Variable	Definition
TSaleFrm	Market value of agricultural products sold, total sales (\$/farm)
TExpFrm	Total farm production expenses (\$/farm)
DirSale	Value of ag products sold directly to individuals for human consumption (\$/farm)
FertUse	Commercial fertilizer use (acres treated/farm)
InsctUse	Insecticide use (acres treated/farm)
HerbUse	Herbicide use (acres treated/farm)
HarvCrop	Harvested cropland (acres/farm)
OpOnFrm	Percentage of operators living on farm (%)
OpYears	Average years of operators on present farms (years)
OpAge	Average age of operators (years)

---

Table 4. Discriminatory Power of Variables Used in Matching Counties, By Sector<sup>a</sup>

Sector/Variable	Mean Without	Mean With	T-test
<b>ORGANIC RETAILERS</b> N = 521			
College	33	47	-27.10
HHInc12	28	21	21.14
HHInc50	13	22	-18.73
MarryMen	8,144	62,254	-10.90
MWChild	3,724	27,757	-10.79
Pct18_29	15	18	-14.65
Pct30_39	15	17	-16.98
Pct40_49	12	13	- 8.28
FoodSale	1,440	2,190	-22.00
WhlsGro <sup>b</sup>	21	136	- 8.23
<b>ORGANIC SUPERMARKETS</b> N = 92			
College	35	54	-17.82
HHInc12	27	17	31.10
HHInc50	14	30	-13.04
MarryMen	12,381	174,058	- 7.23
MWChild	5,614	77,156	- 7.05
Pct18_29	15	19	-11.77
Pct30_39	15	18	-15.65
Pct40_49	12	13	- 5.44
FoodSale	1,541	2,354	- 9.62
WhlsGro <sup>c</sup>	35	375	- 6.09
<b>NATURAL FOOD RESTAURANTS</b> N = 417			
College	33	48	-26.34
HHInc12	28	19	23.39
HHInc50	13	24	-19.78
MarryMen	8,460	73,688	-10.71
MWChild	3,881	32,729	-10.54
Pct18_29	15	18	-12.34
Pct30_39	15	17	-17.25
Pct40_49	12	13	-10.23
EatDSale	285	424	-20.00
WhlsGro <sup>d</sup>	20	166	- 8.64

Table 4. Discriminatory Power of Variables Used in Matching Counties, By Sector (Continued)

Sector/Variable	Mean Without	Mean With	T-test
<b>HANDLERS N = 259</b>			
College	34	47	-16.42
FoodSale	1,519	2,080	-10.90
EatDSale	296	397	-11.72
WhlsGro <sup>e</sup>	29	210	- 6.80
EatDNum	37	286	- 8.06
FoodNum	84	737	- 8.03
ProdWkr	1,779	10,719	- 5.49
TranWkr	1,025	6,852	- 7.35
HandWkr	959	6,943	- 6.81
<b>FARMER MARKETS N = 1,270</b>			
College	33	39	-14.77
HHInc12	29	24	16.25
HHInc50	13	17	-14.68
MarryMen	7,494	31,301	-11.00
MWChild	3,447	13,992	-10.92
Pct18_29	15	16	-12.59
Pct30_39	15	16	-11.82
Pct40_49	12	13	- 6.39
GardSale	649	1,129	-20.73
DirSale <sup>f</sup>	2,755	4,987	-12.71
RurlFarm	955	1,643	-14.52
<b>CSA FARMS N = 423</b>			
College	34	43	-14.76
HHInc12	28	20	20.84
HHInc50	14	22	-14.95
MarryMen	12,366	47,640	- 6.46
MWChild	5,572	21,448	- 6.48
Pct18_29	15	17	- 8.91
Pct30_39	15	16	-14.54
Pct40_49	12	13	-10.40
GardSale	782	1,262	-14.16
DirSale <sup>g</sup>	3,112	7,165	-12.43
RurlFarm	1,129	1,904	- 7.82

Table 4. Discriminatory Power of Variables Used in Matching Counties, By Sector (Continued)

Sector/Variable	Mean Without	Mean With	T-test
<b>ORGANIC FARMS N = 1,203</b>			
TSaleFrm	98,968	111,695	- 2.61
TExpFrm	76,500	85,358	- 2.32
DirSale	2,862	4,902	-11.44
FertUse <sup>h</sup>	201	205	- 0.54
InsctUse <sup>h</sup>	183	154	4.23
HerbUse <sup>h</sup>	240	240	0.02
HarvCrop <sup>h</sup>	230	244	- 1.53
OpOnFrm	68	72	- 9.92
OpYears	20	21	-5.07
OpAge	55	54	6.44

<sup>a</sup> For each sector, the number of counties that have at least one of the type of outlet listed is given by N. Mean Without is the mean value of the variable for the counties that do not contain the type of outlet listed. Mean With is the mean value of the variable for the counties that contain the outlet type, referred to in the text as “organic friendly.”

<sup>b</sup> N = 431 counties with organic retailers for this variable.

<sup>c</sup> N = 90 counties with organic supermarkets for this variable.

<sup>d</sup> N = 347 counties with health food restaurants for this variable.

<sup>e</sup> N = 215 counties with organic handlers for this variable.

<sup>f</sup> N = 1,249 counties with farmer markets for this variable.

<sup>g</sup> N = 417 counties with CSA farms for this variable.

<sup>h</sup> N is slightly less than 1,203 counties with organic farms for these variables, ranging from 1,120 to 1,196 counties.

Table 5. Number of Organic Ready Counties, by State and Sector

State	Organic Retailers	Organic Supermarkets	Natural Food Restaurants	Organic Handlers	Farmer Markets	CSA Farms	Organic Farmers
Alabama	1			1	3	2	12
Alaska	16	12			8	6	1
Arizona				1	2	2	
Arkansas						1	26
California	4	8	2	15	1	9	4
Colorado	5	5		1	5	10	6
Connecticut		1		3		2	
Delaware				1	1	1	
Florida	2	1		6	3	10	5
Georgia	11	8		2	12	10	14
Hawaii	4	2		1	4	4	
Idaho		1				1	7
Illinois	4	3	1	5	5	8	15
Indiana	3	1		2	4	7	29
Iowa	1					1	22
Kansas	1			1		2	7
Kentucky	2			1	3	1	21
Louisiana	2			1	3	2	2
Maine						1	
Maryland	5	6		4	3	2	3
Massachusetts	3	1	2	5		1	2
Michigan	5		1	5	5	9	30
Minnesota	2	4	1	2	8	5	16
Mississippi						1	14
Missouri	3	3		2	3	5	19
Montana	1	1					6
Nebraska	1	1		1	1	2	7
Nevada	4	2		1	4	4	2

Table 5. Number of Organic Ready Counties, by State and Sector (Continued)

State	Organic Retailers	Organic Supermarkets	Natural Food Restaurants	Organic Handlers	Farmer Markets	CSA Farms	Organic Farmers
New Hampshire		2				1	
New Jersey	3	4	1	10	3	7	3
New Mexico	1	1		1			1
New York	2	3		10		6	11
North Carolina	1	1		3	5	5	28
North Dakota							
Ohio	5			6	16	13	25
Oklahoma	1			2	1	2	8
Oregon	1	1		1			4
Pennsylvania	1	2	1	5		6	18
Rhode Island		1		1	1	1	1
South Carolina	2	1			3	6	15
South Dakota					1		10
Tennessee	1	1		2	2	5	27
Texas	8	4	2	6	12	12	3
Utah		1		1	3	4	7
Vermont		1			1		2
Virginia	15	12		1	20	14	32
Washington		1		3	1	3	4
West Virginia							30
Wisconsin	3	3	1	1		1	16
Wyoming	3				1		7
US Total	127	99	12	114	148	195	522