

How do Texas Conventional and Organic Producers Differ in their Perceptions of Barriers to Organic Production?

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ABSTRACT

In response to an increase in consumer demand for organic products, the number of organic operations has increased in the U.S. However, unlike the rest of the U.S., the number of certified organic operations in Texas has remained relatively stable. As a means to understand the perceived barriers to the adoption of organic production practices in Texas, a survey was distributed to a stratified sample of 4006 Texas producers. The difference in perception of barriers (from both market and production standpoints) to organic production between organic (or in the process) and conventional producers was assessed. In general, conventional producers perceived barriers to entry to be more severe than organic producers.

KEY WORDS: organic, Texas, perception, barriers, marketing, production

INTRODUCTION

The number of certified organic farms in the U.S. is increasing; simultaneously the number of companies involved in the processing, manufacturing, distributing, and retailing of organic products is expanding as well (Dimitri and Greene 2002; Dimitri and Oberholtzer 2009; Freundl 2009). However, organic production is not keeping pace with demand (Cantor and Strohlic 2009; Dimitri and Oberholtzer 2009), particularly in Texas (Lau et al. 2010). The objective of this research is to study the perceived barriers to organic production held by Texas producers and how perceptions differ between conventional and organic growers.

Cantor and Strohlic (2009) addressed marketing barriers facing small and mid-size organic producers in California. Volume (too much or too little) was the barrier most often cited (84%) among producers. Obtaining organic price premiums was presented as being a challenge for 66% of the producers, locating and accessing markets was a barrier for 65%, competition was cited by 55%, lack of pricing information was a concern for 47% of respondents, and difficulties meeting buyer requirements was cited by 37% of respondents.

Goldberger (2010) analyzed production and marketing barriers faced by certified organic farmers in Idaho. The most problematic production factors were

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weather-related production losses, high cost of organic inputs, high labor costs, and weed-related production losses. The most challenging market factors noted by certified organic farmers in the study were limited demand, limited distribution opportunities, and obtaining organic price premiums. Goldberger did not interview conventional farmers.

Using production type (e.g., crop, beef) as the dependent variable, Lau et al. (2010) presented an analysis of the respondents' reactions to perceived impediments to organic production. Results indicated that producers in Texas (both organic and conventional) found all market factors to be moderate barriers to organic adoption except the distance to available markets, which was considered a severe barrier to most respondents. Production factors were considered moderate barriers, with the availability of organic processing facilities considered the most severe barrier to considering organic production. This study did not delineate between conventional and organic farmers.

MATERIALS AND METHODS

Several studies have considered the barriers organic producers face as they engage in organic production. However, this study is the first one to focus specifically on the differences in perceived barriers to organic production between conventional and organic producers.

The data source used in this analysis is the same as that used by Lau et al. (2010). Using a database of producers acquired from the USDA National Agricultural Statistics Service (NASS), Texas farmers with farm sales above \$25,000 were grouped by what self-reported primary commodity they produced. Subsequently, a stratified sample of about 6% of the total population was drawn based on the commodities identified. The survey was distributed in the Spring 2007 via mail to 4006 randomly selected producers. Second and third mailings were used to increase the response rate. The total number of surveys returned was 1178 (29.4%) with 961 (24.0%) of these surveys usable.

The primary research hypothesis was that the perceived barriers to engaging in organic production differed between farmers who had, were, or planned to engage in organic agricultural production compared to farmers using conventional methods. Therefore, respondents were asked the question presented in Figure 1.

2. Which of the following statements are most accurate regarding your CURRENT agricultural operation? (Mark all that apply.)	
<input type="checkbox"/> Conventional	<input type="checkbox"/> Certified organic
<input type="checkbox"/> Previously certified organic but no longer certified	<input type="checkbox"/> Non-certified organic
<input type="checkbox"/> Conventional but in the process of becoming certified organic	

Figure 1. Survey question regarding respondents' type(s) of agricultural operation.

After reviewing survey respondents' replies, the data were organized into two groups as follows:

- Conventional - respondents checking only the "conventional" box (n = 851),
- Organic (n = 111) - respondents checking:
 - "Previously certified organic but no longer certified" (n = 2),
 - "Conventional but in the process of becoming certified organic" (n = 19),
 - "Certified organic" (n = 5),

- “Non-certified organic” (n = 85) - self-reported based on personal definition.

Taking the total number of usable surveys, farmers identifying themselves as conventional growers (88.6%) and those who consider themselves organic growers (11.4%) were compared based on their perceptions of barriers to organic production. The data was analyzed using IBM SPSS Statistics 20. Descriptive statistics and cross tabulation statistics were generated, and Analysis of Variance (ANOVA) was conducted. Significant differences in this study are expressed by: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

RESULTS AND DISCUSSION

Farm Characteristics. The farm characteristics of the conventional growers and organic group were analyzed. Respondents were asked to indicate the production category(ies) that best described their business. Figure 2 presents respondents' answers organized by category. There is a significantly larger percentage of organic respondents engaged in vegetable/fruit/nut ($p = 0.000$), greenhouse/floriculture/sod ($p = 0.002$), and poultry/egg production ($p = 0.008$) compared to the conventional growers. Conversely, a significantly larger percentage of conventional respondents are engaged in row crop production ($p = 0.000$). Figure 3 compares the two groups by years engaged in agricultural operations. Those farming for less than 10 years are using organic practices at a significantly higher rate: < 5 years ($p = 0.010$) and 5-10 years ($p = 0.025$) compared to those farming more than 20 years where conventional methods are more commonly used ($p = 0.006$). The data indicates that the transition period began 10 to 20 years ago where there is no significant difference expressed between the two methods of agricultural production. Figure 4 shows that almost 70% of organic growers generate sales of less than \$50,000 ($p = 0.000$) likely implying small operations. Finally, Figure 5 indicates some differences in terms of how conventional and organic operations see the future of their farming operation. A significantly larger percentage of organic farmers envision their operation becoming more diverse ($p = 0.001$) over the next three years while conventional respondents are more likely to expect no changes ($p = 0.066$).

Please indicate the type of producer category that best describes your business. (Select all that apply.)

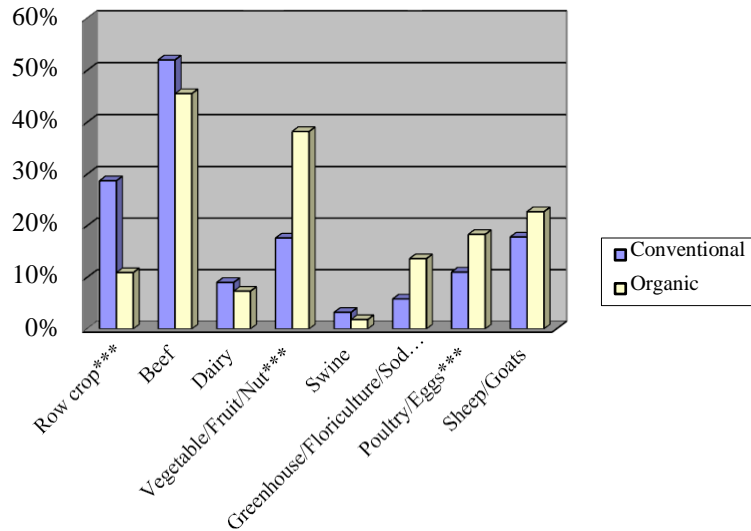


Figure 2. Types of production activities reported by survey respondents (* p < 0.10, ** p < 0.05, *** p < 0.01).

Please indicate your years in agricultural operation (including conventional and organic).

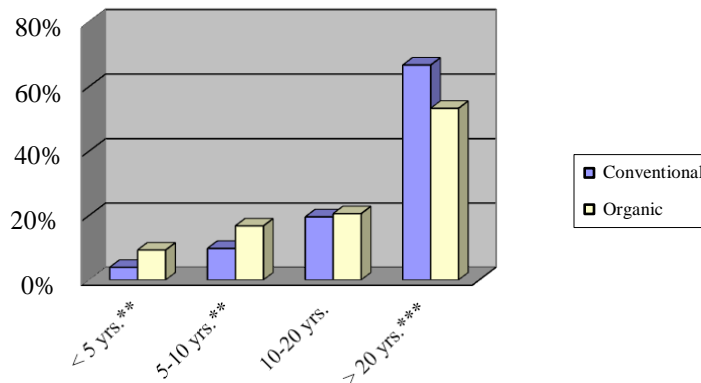


Figure 3. The number of years survey respondents have been involved in agricultural operations (* p < 0.10, ** p < 0.05, *** p < 0.01).

Please identify the size of your operation by selecting the category that best describes your annual gross sales.

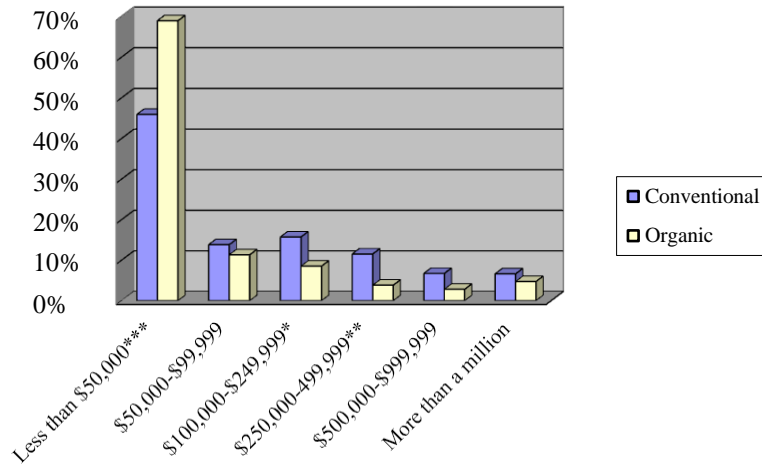


Figure 4. Respondents' annual gross sales. * p < 0.10, ** p < 0.05, *** p < 0.01.

How do you see your operation CHANGING in the next three years? (Select all that apply.)

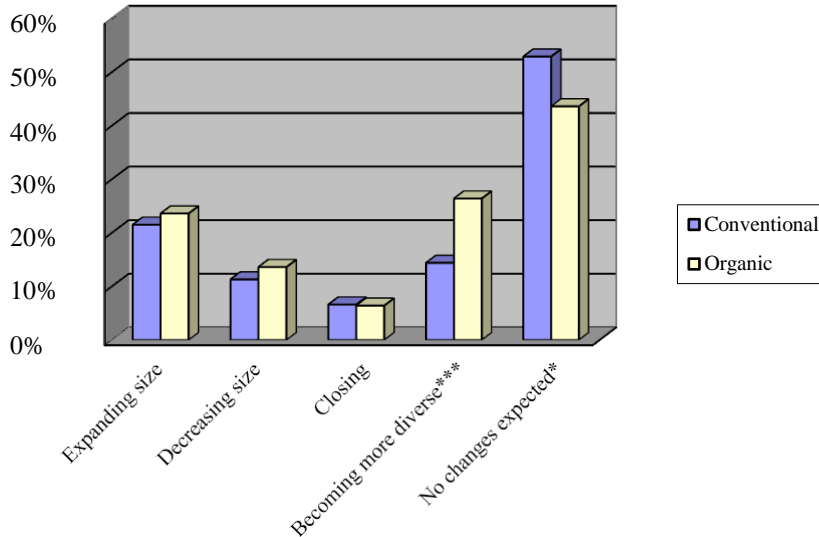


Figure 5. Respondents' perception of the future of their operation.

* p < 0.10, ** p < 0.05, *** p < 0.01.

Perception of Barriers. Various questions regarding the marketing and production barriers to organic production are summarized below. These questions were presented in the survey using a three-point Likert-type scale. The results are first summarized for the overall sample and then broken down to compare rankings across conventional and organic producer categories.

Producers were asked to determine the main adoption barriers to organic production via two separate questions: one pertaining to marketing conditions and the other to production conditions. The producers were given the following ranking choices: 1 - "Not a barrier" = no issue to entering organic markets; 2 - "Moderate barrier" = some level of barrier for entry to organic markets; 3 - "Severe barrier" = a definite barrier to entry.

Conventional and organic producers' perceptions of barriers to market conditions are significantly different (Table 1). Conventional producers identify the following as greater barriers to entering the organic market compared to the organic group: finding reliable buyers/market for organic products ($p = 0.008$), the difficulty in obtaining organic price information ($p = 0.003$), the uncertainty in obtaining organic price premiums ($p = 0.022$), the unstable organic market and/or prices ($p = 0.010$), the distance to available organic markets ($p = 0.076$), and the lack of organic marketing networks ($p = 0.041$). Conventional producers also perceive significant differences among production factors (Table 2). Conventional producers are more prone to consider production factors as being a severe barrier, while organic producers consistently found these same barriers to be moderate. Availability of organic processing facilities ($p = 0.000$) was the barrier considered to be the most significant production barrier to the adoption of organic farming practices by conventional producers. It was followed by pest-related production losses ($p = 0.000$), high input costs ($p = 0.000$), weed-related production losses ($p = 0.000$), disease-related production losses ($p = 0.000$), availability of organic inputs ($p = 0.024$), lack of understanding regarding organic production methods ($p = 0.001$), weather-related production losses ($p = 0.015$), and finally, fertility-related production losses ($p = 0.000$).

Producers were asked, "Would an increase in revenue facilitate your adoption of organic production?" Over 43% of the conventional farming respondents indicated that "No, no amount of additional revenue would prompt a change in their operation." Fifty percent of the conventional farming respondents indicated that, "Yes, additional revenue might encourage a change to organic production." The remaining 7% of the conventional growers selected the choice, "An increase in revenue is not necessary for me to adopt organic production." One might surmise that those farmers who selected that, "No, no increase in revenue would interest them in switching to organic production," also perceived the barriers to adoption as moderate to severe. However, a cross-tab analysis of the production and marketing barriers identified by this subset of respondents actually showed that they are more prone to consider marketing and production factors as either not being a barrier or as being a severe barrier (i.e., bimodal distribution) with a larger percentage considering the factors as not being a barrier. In other words, they may simply not be interested in organic production.

Table 1. Differences in perception of marketing barriers between conventional and organic producers.

Market Conditions		Not	Moderate	Severe	Pearson chi-square ^a
Finding reliable buyers/market for my organic products	Conventional	30.5	32.6	36.9	9.574*** ^b
	Organic	43.2	34.7	22.1	
Difficulty obtaining organic price information	Conventional	26.1	40.1	33.8	11.620***
	Organic	43.0	32.3	24.7	
Uncertainty in obtaining organic price premiums	Conventional	23.3	36.2	40.5	7.632**
	Organic	33.0	40.7	26.4	
Unstable organic market	Conventional	25.7	36.7	37.7	9.180**
	Organic	39.8	35.2	25.0	
Distance to available organic markets	Conventional	25.9	30.2	44.0	5.166*
	Organic	37.0	27.2	35.9	
Competition with “non-organic” products	Conventional	28.5	30.9	40.6	1.749
	Organic	32.2	34.4	33.3	
Lack of organic marketing networks	Conventional	24.7	32.9	42.4	6.402**
	Organic	31.9	39.6	28.6	

^a These numbers represent the Pearson chi-square statistic of the chi-square test of cross tabulation.

^b * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 2. Differences in perception of production barriers between conventional and organic producers.

Production conditions (%)		Not	Moderate	Severe	Pearson chi-square ^a
Weather-related production losses	Conventional	24.8	34.7	40.5	8.335** ^b
	Organic	34.1	40.7	25.3	
Pest-related production losses	Conventional	22.1	29.9	48.0	18.000***
	Organic	33.3	42.2	24.4	
Disease-related production losses	Conventional	22.1	32.5	45.4	25.649***
	Organic	38.2	43.8	18.0	
Weed-related production losses	Conventional	24.3	29.0	46.8	20.292***
	Organic	40.4	37.1	22.5	
Fertility-related production losses	Conventional	28.4	34.4	37.2	28.144***
	Organic	55.7	26.1	18.2	
High input costs	Conventional	20.5	31.8	47.7	16.327***
	Organic	36.5	36.5	27.1	
Availability of organic inputs (feed, fertilizer, etc.)	Conventional	20.6	34.6	44.8	7.496**
	Organic	28.9	41.1	30.0	
Availability of organic processing facilities	Conventional	20.4	27.0	52.6	19.206***
	Organic	29.8	42.9	27.4	
Lack of understanding regarding organic production methods	Conventional	24.0	34.9	41.1	13.568***
	Organic	40.0	35.6	24.4	

^aThese numbers represent the Pearson chi-square statistic of the chi-square test of cross tabulation.

^b * p < 0.10, ** p < 0.05, *** p < 0.01.

Usefulness of Information and Services. The final section of the survey focused on organic and conventional growers' perceptions of information and/or services related to organic production. Not surprisingly, organic producers found most information and services described in the survey to be significantly more useful than the conventional producers (Table 3). Assuming that a response of 2 is neutral or average, conventional producers consistently ranked information and services below average; the only exception was organic processing facilities at 2.06. Conversely, organic respondents' consistently ranked information and services well above the mid-point of 2, except for organic export programs/market development and crop insurance for organically grown products, where no significant difference existed between organic and conventional growers. Based on ordinal ranking, the organic group seems most interested in directories of organic product buyers, local or regional organic market development, and consumer education programs about organic options.

Table 3. Means of responses to the question “Please rate the usefulness of the following information and/or services for marketing your products organically.”

Information and/or Services	Means (1 = not useful, 3 = very useful)		t-statistic for difference in means
	Conventional	Organic	
Directories of organic product buyers_	1.97	2.28	3.570***
Local/regional organic market development_	1.97	2.26	3.311***
Consumer education programs about organics	1.94	2.25	3.465***
Organic marketing workshops/seminars	1.91	2.21	3.462***
Organic-specific research and extension services	1.95	2.20	2.854***
Development of organic marketing co- ops/ associations	1.89	2.20	3.470***
Organic price reporting services_	1.91	2.14	2.557**
Organic processing facilities	2.06	2.13	0.455
Representation on organics-related public policy issues	1.80	2.02	2.607***
Organic export programs/market development	1.83	1.99	1.845*
Crop insurance for organically grown products	1.90	1.84	-0.635

^a These numbers represent the t-statistic of the test for difference of means (two-tailed).

^b * p < 0.10, ** p < 0.05, *** p < 0.01.

Respondents were also asked to select the organic production topic they would like to learn more about (Table 4). Topics listed, except for post-harvest handling, appropriate equipment/machinery, health regulations, rotational grazing, recordkeeping, crop rotations, exporting organics, labeling, and irrigation, were found to be significantly more useful to organic producers than conventional growers. Insect control seems to be a particularly important topic to organic producers, as noted in the ordinal ranking.

Finally, respondents were presented with several statements regarding organic production and asked to indicate whether they agreed, disagreed, or did not know about the statement. The percentage of respondents disagreeing with each statement is listed in Table 5. For all statements, except “I understand the process of organic certification,” there are significant differences between the conventional growers and the organic group.

Table 5 also shows that a high percentage of respondents disagreed with the statements, “My lenders support the idea of organic production” and “I understand the process of organic certification,” suggesting there is room for improvement in these two areas.

Table 4. Responses to the question “Please indicate which of the following topics will help you learn more about organic production. (Select all that apply).”

Topics	% of respondents selecting the topics		Pearson chi-square ^a
	Conventional	Organic	
Insect control	39.5	57.3	12.696***
Weed control	40.8	51.8	4.830**
Disease control	36.7	51.8	9.400***
Fertilizing techniques	36.9	50.9	8.076***
Marketing of organic products	32.2	47.3	9.876***
Soil amendments	23.5	44.5	22.470***
Best management practices	30.0	39.1	3.792*
Organic certification	25.0	36.7	6.778**
Cover crops	16.8	31.8	14.551***
Consumer education on organics	18.3	31.2	10.068***
Value-added products	18.1	28.4	6.579**
Composting	16.1	28.2	9.859***
Rotational grazing	19.8	26.4	2.600
Recordkeeping	19.5	26.4	2.832
Health regulations	20.4	25.5	1.472
Cooperative input/supply buying	17.5	25.5	4.093**
Season extension techniques	13.3	22.7	7.072**
Crop rotations	17.7	21.8	1.129
Irrigation	15.6	21.8	2.730
Labeling	13.6	19.1	2.359
Appropriate equipment/machinery	18.3	18.2	0.001
Post-harvest handling	14.1	17.3	0.783
Exporting organics	12.5	15.5	0.768

^aThese numbers represent the Pearson chi-square statistic of the chi-square test of cross tabulation.

^b * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 5. Miscellaneous questions regarding respondents' perceptions and attitudes about organic farming.

Statements	% of respondents selecting "disagree"		Pearson chi-square ^a
	Conventional	Organic	
Organic farming is attractive because I have experienced problems with my conventional system.	86.3	66.7	15.472***
My lenders support the idea of organic production.	93.9	64.7	29.067***
I understand the process of organic certification.	72.2	60.8	2.783
I am concerned about the economic risks of transitioning to organic methods.	26.2	56.9	23.448***
Organic production is compatible with my high production system of farming.	86.0	50.0	42.364***
I feel the necessary informational support for organic farming is available.	63.3	42.9	8.421***
I am interested in organic production, but not organic certification.	68.4	41.3	17.402***
I have the right equipment for organic production.	70.1	38.5	20.566***
Organic farming is financially viable for me.	81.6	31.6	65.773***
Organic markets are reliable to me.	69.1	28.8	32.107***
I am satisfied with my present farming system.	14.3	28.4	11.447***
Organic farming has proven to be profitable.	72.2	26.3	46.793***
Organic farming is a feasible long-term production method for me.	80.3	26.2	77.202***
I can successfully farm without the use of synthetic chemicals.	70.5	21.9	56.223***
Organic farming is technically viable for me.	71.7	20.3	67.763***
I support the philosophy of organic farming.	36.6	8.5	25.202***

^a These numbers represent the Pearson chi-square statistic of the chi-square test of cross tabulation.

^b * p < 0.10, ** p < 0.05, *** p < 0.01.

CONCLUSION AND DISCUSSION

The differences in respondents' perceptions of marketing and production barriers to the adoption of organic farming practices were analyzed. The two groups sampled and compared were conventional agricultural producers and organic producers in Texas. The two groups do differ in their perceptions.

Statistically significant differences are evident between the two groups in their perceptions regarding marketing and production barriers. A substantial proportion of

conventional producers perceive the barriers to adopting organic production as being more severe than organic producers. This can explain the lack of adoption of organic production. Providing networking opportunities for conventional producers to meet with organic producers in Texas and discuss their perceptions about barriers to adoption could provide an incentive to some conventional producers to switch at least part of their production to organic to meet rising domestic demand. However, the survey showed that 43% of the conventional producers would not move to organic production regardless of the increase in additional revenue that such a conversion could possibly generate.

The analysis also indicates that producers perceive a lack of support for organic production from lending institutions and a lack of informational support about the process of organic certification. In short, conventional producers perceive that marketing and production barriers are high, which appears to be stifling the adoption of organic production practices in Texas.

Note that 77% of the organic group was composed of those growers identifying themselves as “non-certified organic” producers. The survey as designed did not ask additional questions to verify the types of organic production practices employed by this group. Table 5 reveals that 60.8% of the organic sample does not understand the process of organic certification. This may imply that those producers identifying themselves as “non-certified organic” growers may be selectively choosing the parts of the certification process that work best for them or possibly have different definitions as to what constitutes organic.

As indicated, this analysis is limited to Texas. A similar analysis could be conducted across the rest of the United States to see if results are similar in other states with specific attention to states where organic production is more significant (e.g., California). In addition, this analysis is based on a small number of organic respondents, both certified and non-certified, from the overall stratified sample. A similar survey could be conducted in an effort to capture responses from a larger number of organic producers in Texas.

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