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# **Discerning Differences between Producer Groups and Organic Adoption Barriers in Texas**

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## **Abstract**

The number of certified organic operations in Texas has remained relatively stagnant while nationally the organic food sector has experienced double-digit growth. To understand why this occurring, a survey was distributed to a random sample of 4,006 Texas producers. The results will assist in developing strategies to promote the growth of organic production in Texas.

## **Introduction**

Organic farming is one of the fastest growing segments of U.S. agriculture (Dimitri and Greene 2002). In recent years the organic food sector has experienced double-digit growth ranging between 17 percent and 20 percent, while the conventional food industry has experienced a much more moderate 2 percent to 3 percent growth (USDA/ERS 2007; OTA 2006). The amount of certified organic cropland doubled between 1990 and 2002 and then doubled again by 2005. The organic livestock sector grew even faster than the crop sector (USDA/ERS 2007). Following the trend in production, the U.S. organic market more than doubled from 2000 to 2006. Sales of organic food increased from \$5.5 billion in 1998 to almost \$14 billion in 2005 (DataMonitor 2007).

Consumer demand is the major driving force for organic production. Thompson (1998), Lohr (1998) and Casellas et al. (2006) indicate consumers' food tastes are changing. They are demanding product attributes that include safety, convenience, quality and attributes such as environmental quality, animal welfare or lack of genetic modifications. Consumers of organic food want to feel confident that they are buying food that not only was grown organically, but also has kept its organic integrity at each stage in its journey to the market (Dimitri and Greene 2002). The results of a 2003 study conducted in Vermont indicate that young people with higher income, smaller household size and fewer children were willing to pay more for organic food. Conner (2004) found a connection between the high prices paid for organics and consumers' belief in the superiority of organic foods and their ability to deliver health benefits.

The creation of national organic standards in 2002 supported the growth of the market by providing customers accurately identified organic products. Agribusiness has changed its practices to meet the demand. As the organic industry has become more mainstream, larger

farms and ranches have reduced their costs by streamlining their operations. Organic prices are dropping as production, which will likely continue expanding (DataMonitor 2007), increases to meet demand. Production in the United States is still lagging behind demand.

Distribution channels are becoming another major factor influencing organic production. In 2000, more organic food was purchased in conventional supermarkets than in any other venue. Organic products are now available in nearly 20,000 natural foods stores and are sold in 73 percent of all conventional grocery stores (Dimitri and Greene 2002). In recent years the conventional supermarkets have continued to rapidly increase their share of organic sales (OTA 2006). The burgeoning consumer interest in organically grown foods has opened new market opportunities for producers and is leading to a transformation in the organic foods industry.

In this scenario, significant entry into the market is expected. However, many producers in the marketplace point to a variety of constraints, such as in the case of livestock producers the lack of organically grown feed, when adopting organic practices. Many conventional producers are not willing to venture into the world of organics, even though organically certified beef cattle can bring several dollars more per hundred weight than conventionally raised cattle.

Dimitri and Greene (2002) state that as consumer interest continues to gather momentum, many involved in the supply chain are specializing in growing, processing, and marketing an ever-widening array of organic products. However, according to Greene and Kremen (2003) and Kuminoff and Wossink (2005), organic production involves a higher degree of yield risk than conventional production. The adoption of organic methods takes a period of several years to take full effect, which can lead to an increased risk of damage to crops from pests or weeds in the early years of organic production.

Even with growth in demand, several factors must be considered before adopting organic production. Previous survey research has shown that farmers perceive the uncertainty of the conversion to organic as a major obstacle (Padel, 2001). According to Dimitri and Greene (2002), the damage incurred by organic products prior to processing or retail sale is a form of yield risk faced by organic producers. Even though organic producers face risks associated with organic yields, organic producers do not have access to crop insurance or other federally funded assistance programs, according to Volpe (2006). As stated by Lohr (2001), key financial constraints are the lack of access to premium prices until conversion is complete, conversion-related investments and disinvestments, and information gathering costs for production and marketing. While some other countries provide incentives for organic transition, including programs to subsidize the lower yields during the transition period, there are no such programs offered in the United States (Guthman 2004; Michelsen 2001).

Based on figures provided by TDA's organic certification program, as well as by USDA, the number of certified organic operations in Texas has remained relatively stagnant, fluctuating from year to year, but not expanding nearly as rapidly as the demand for organic products, specifically food. There seems to be a discrepancy between the market's capacity for new producers, which given the rapid growth would appear large, and the escalation in the actual number of new growers in Texas, which is relatively small.

USDA data reveals that the big increase in total certified organic acres in crops and pastureland and number of operations in Texas occurred in the 1997-2002 period. The rate of increase in certified-livestock was higher in the 2002-2005 period. There is wide variation across the commodities. Some decreased in total certified organic acres (oilseeds and cotton), several increased moderately (grains, beans, fruit, and peanuts) and some increased substantially

(livestock, hay/silage, and vegetables). In 2005, Texas ranked sixth in total cropland acres (87,124 acres) and second in pasture acres (241,353 acres) (USDA/ERS 2007).

## **Objectives**

The objective of this research is to determine the reasons why different producer groups are not adopting organic production at a higher rate. As stated, there are wide variations among commodities and research has been performed where producers are treated as a homogeneous group. The primary objective will be to determine differences in production and marketing barriers between different producer groups.

The secondary objective of this research is to determine policy objectives to target specific producer groups which would assist in increasing organic production in Texas. Research has shown demand is increasing at a rate that outpaces supply. Specific policy recommendations are needed based on analysis to determine future organic production in Texas.

## **Methodology**

A survey was distributed via postage mail to a random sample of 4,006 producers in Texas through the USDA National Agricultural Statistics Service (NASS). To determine the proper sample size, all Texas producers were first categorized based upon farm value in sales. After narrowing the scope of the survey to any producer reporting farm sales above \$25,000, the numbers of producers in all commodity categories meeting the aforementioned stipulation were calculated for Texas. A sample randomly selected from each producer group based on the estimated response rate of 30 percent was distributed by mail. A second and third mailing increased the response rate.

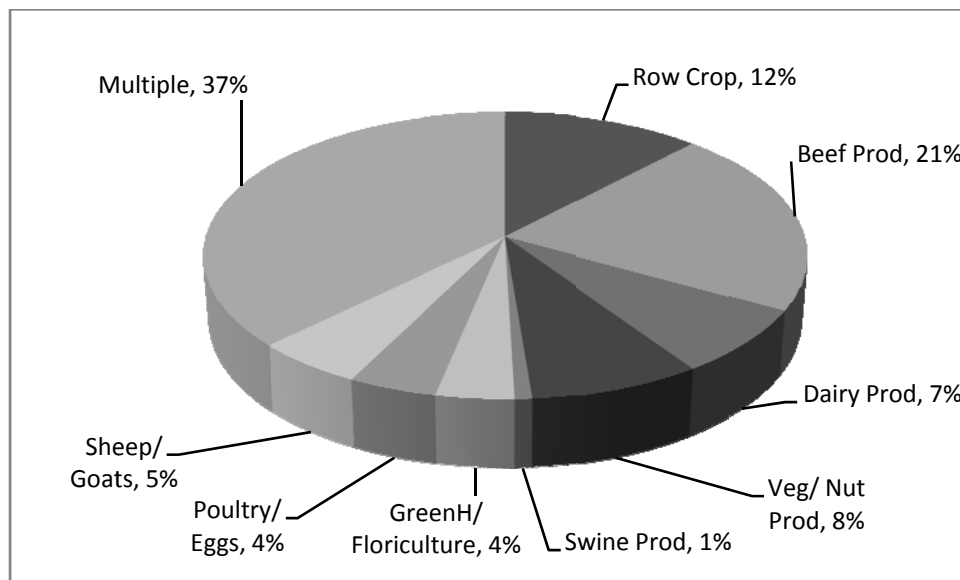
The total number of surveys returned was 1,178 with 977 of those surveys being sufficiently completed. This is slightly below the target sample response of 1,200 surveys.

However, each producer group contained a sufficient number of surveys to extrapolate to the population. The number of surveys was sufficient to make statistically reliable inferences to a population of this size.

The data is descriptively summarized using frequencies, percentages, means, and cross tabulation statistics. In addition, a one way Analysis of Variance (ANOVA) test was used to determine statistical differences among producer groups for various questions. This was critical for determining policy objectives to meet the needs for each group. Each producer group should have different perceptions for various barriers.

### **Results - Demographic Summary Statistics**

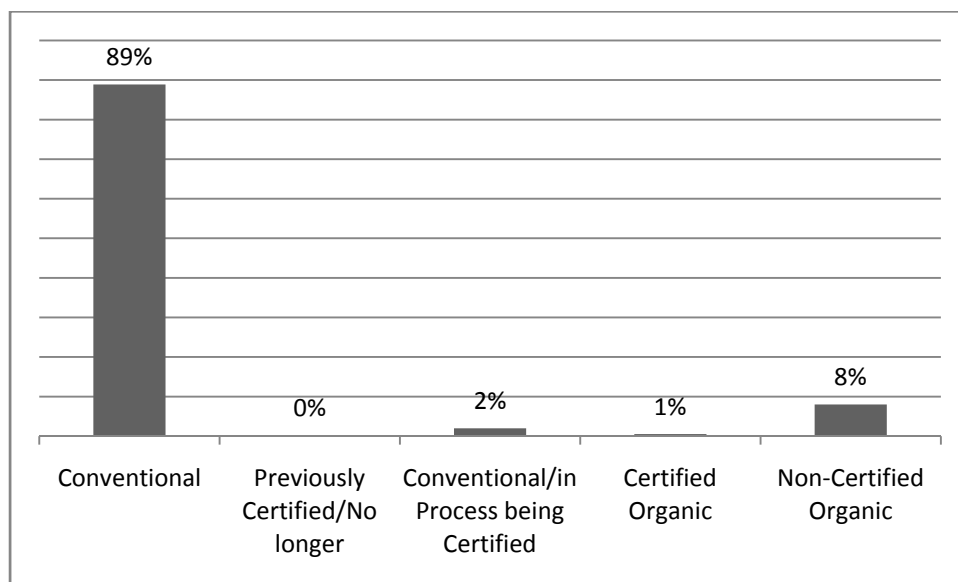
Figure 1 presents the results for the producer category. Producers could select multiple categories. Of the respondents, 37 percent report they produce multiple crops. The most prevalent combination for multiple crops producers is a combination of beef and row crops. Beef cattle producers had the largest single response at 21 percent with row crop being second at 12 percent. Swine producers are the lowest, representing only 1 percent of the sample.



**Figure 1. Producer Categories by Respondents**

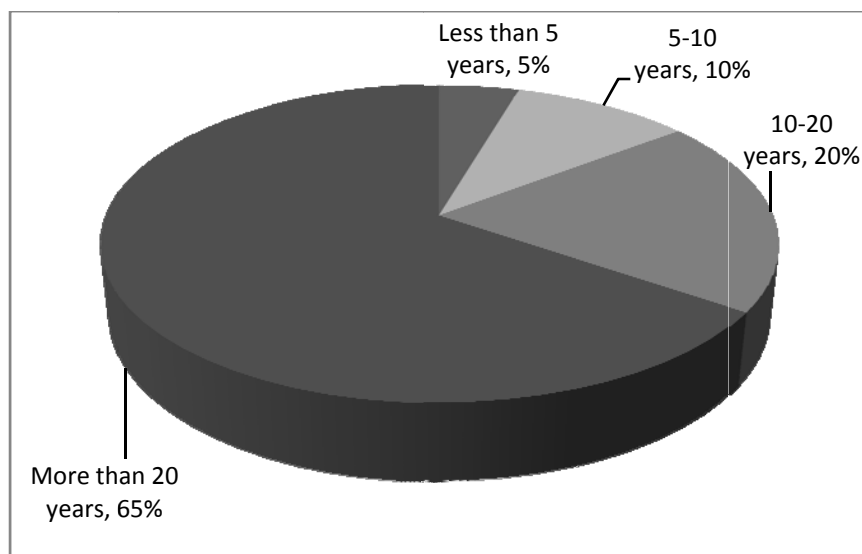


Figure 2 presents the current production practices for producers. As shown, 89 percent are conventional farmers. There are no producers who were previously certified and no longer producing organically. Two percent of producers are conventional and in the process of being certified. One percent of producers are currently certified organic. Eight percent of producers are currently practicing organic production but are not certified. The results of a cross-tabulation analysis show most non-certified organic producers are cattle producers, vegetable/fruit producers, and producers of multiple crops.



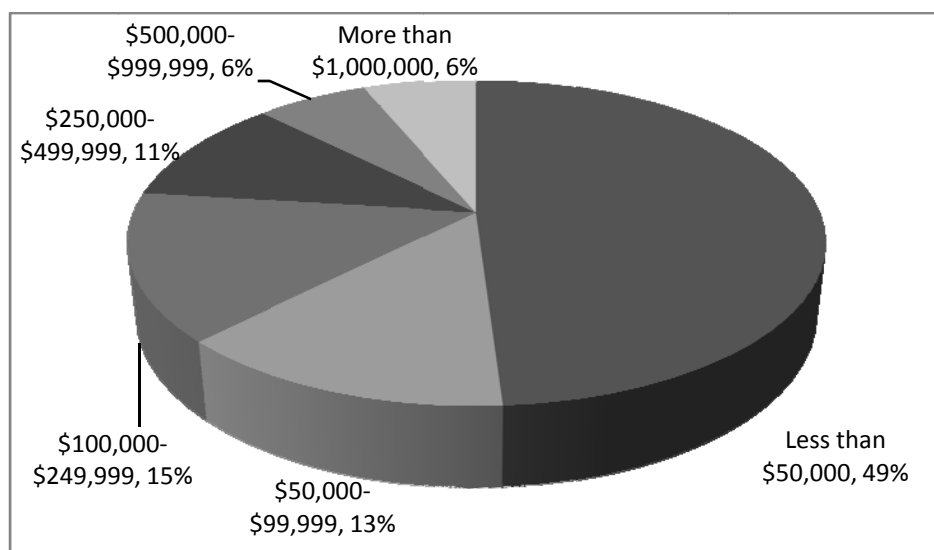
**Figure 2. Current Production Practices**

Figure 3 shows 65 percent of the producers have been in business for over 20 years. Producers who are in business for less than 5 years represent 5 percent of the sample. This is consistent with current agricultural producer demographics in Texas. Cross-tabulation results for production practices versus number of years in operation and between producers and years in operation show a greater percentage of producers in the 0-5 year category are practicing non-certified organic relative to producers 20 years and over (7 percent).



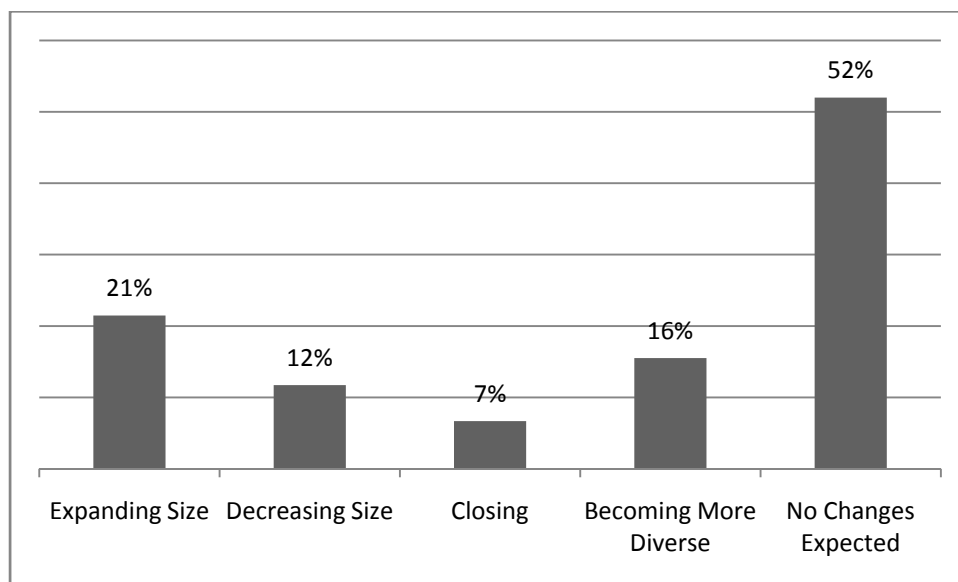
**Figure 3. Number of Years in Agricultural Production**

Figure 4 presents the results for the size of producers based on annual gross sales. A majority of farmers, 49 percent, market less than \$50,000 annually in gross sales. Only 12 percent of all producers market over \$500,000 annual in gross sales. A cross-tabulation analysis shows a majority of the producers over \$500,000 in annual gross revenue are row crop and dairy producers. A large percentage of green house/floriculture producers are over \$500,000 in annual sales. Most vegetable/fruit/nut, swine, poultry, and sheep/goat producers are small in size.



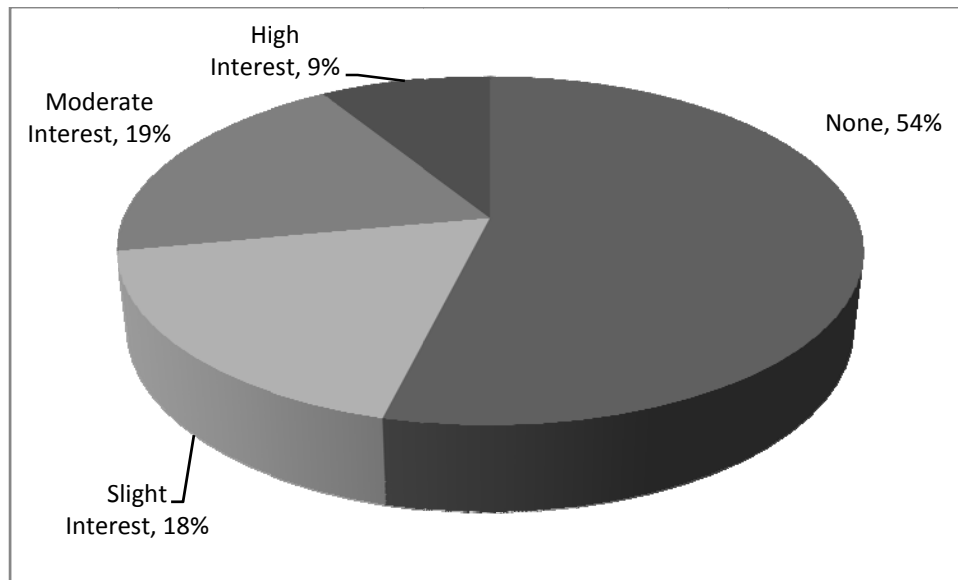
**Figure 4. Annual Gross Sales of Producers**

Producers were asked to select multiple categories that best fit their expectations for the future of their operation. Fifty-two percent of producers do not expect to make any changes in the near future. Twenty-one percent are expecting to expand production while 12 percent are expecting to decrease production. Seven percent of producers are expecting to close operations in the next three years. Almost all respondents who chose multiple categories included *becoming more diverse* as a selection. Cross-tabulations show beef producers are the ones who seem most likely to decrease in size or close. Dairy producers are most likely to expand in size.



**Figure 5. Percent of Operations Changing in the Next 3 Years**

Figure 6 indicates 54 percent of all producers are not interested in organic production, 18 percent are slightly interested in organic production, 19 percent are moderately interested, and 9 percent are highly interested in adopting organic production. Additional information to identify which producer groups are interested in organic production will be helpful to determine direction of future policy.



**Figure 6. Percent of Operations Recognizing Interest in Organic Production**

### **Results - Marketing and Production Barriers**

Various questions regarding marketing and production barriers to organic production are summarized below. These questions are based on a Likert Ranking Scale. Results are summarized for the overall sample and next broken down to compare rankings across producer groups.

One question asks producers to determine the main adoption barriers to organic production. The question is separated into two parts, marketing conditions and production conditions.

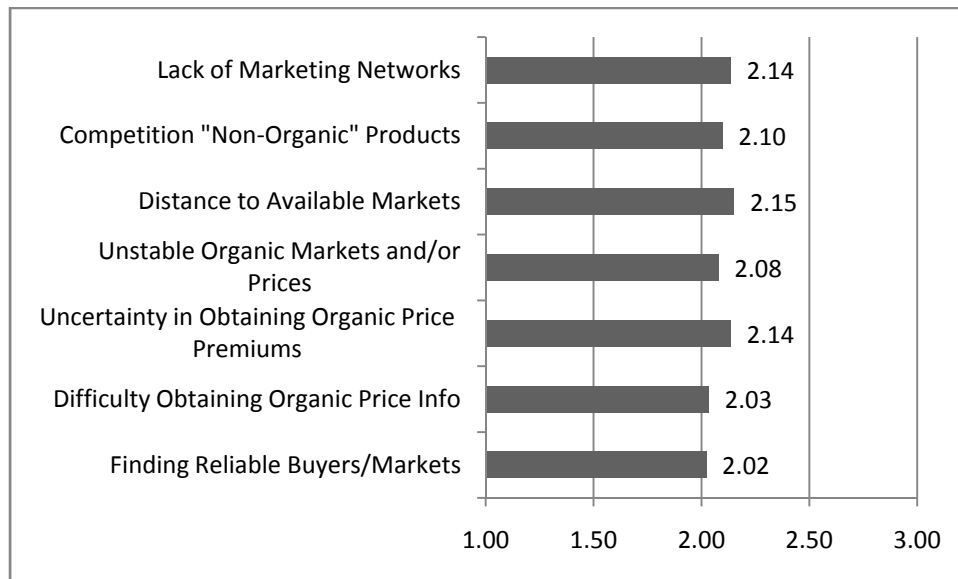
Producers are given the following ranking choices:

- "Not a barrier" = no issue to entering organic markets
- "Moderate barrier" = some level of barrier for entry to organic markets
- "Severe barrier" = a definite barrier to entry

Figure 7 presents the ranking results for marketing conditions. A "1" value represents not a barrier, "2" is moderate barrier, and "3" is severe barrier. As the figure indicates, producers rank all marketing categories as moderate barriers to organic adoption. The frequencies are fairly

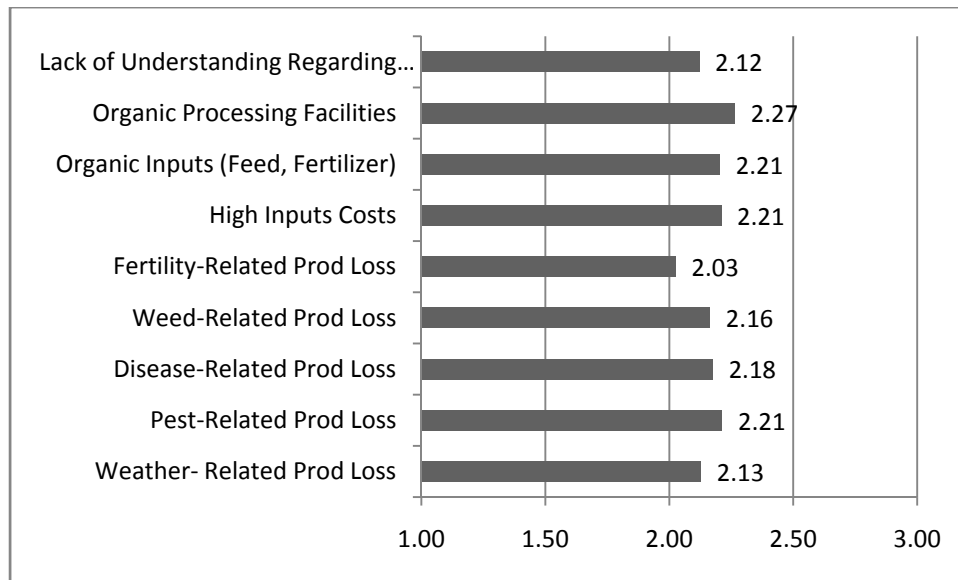
consistent among rankings, indicating there is little difference among marketing barriers.

*Distance to available markets* does stand out as 43 percent of respondents report it as a “severe barrier” to organic adoption.



**Figure 7. Marketing Condition Adoption Barriers**

Production barrier rankings are in Figure 8. The results are similar to the marketing barriers where producers rank the barriers as moderate. Very little information can be gleaned from these results as no production barrier is seen as a severe barrier. The frequency distributions show more producers rank *organic processing facilities*, *pest-related production loss*, and *high input costs* as “severe barriers” for organic production. *Fertility related production loss* was the highest returned number for “not a barrier” to organic production.

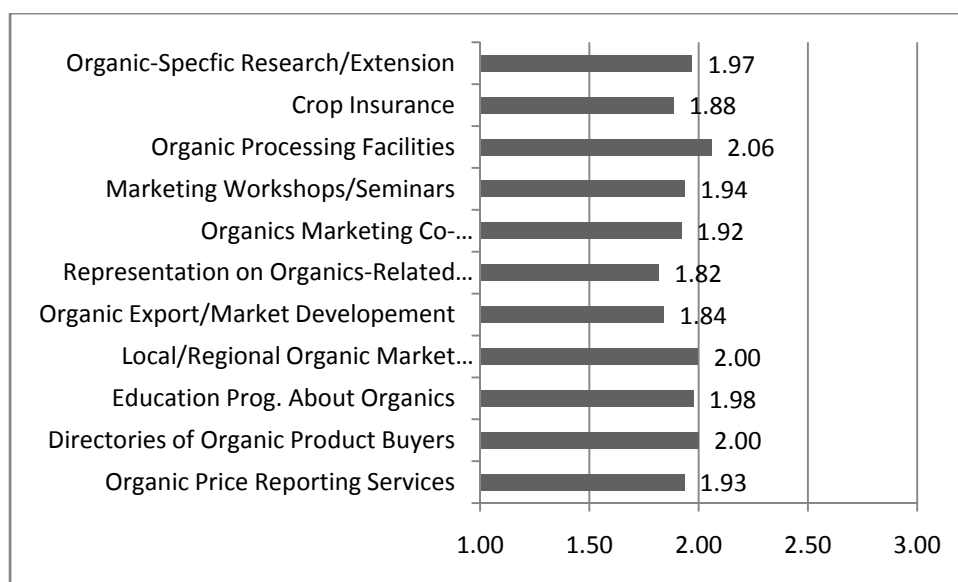


**Figure 8. Production Condition Adoption Barriers**

An additional question asked producers to determine which services and/or information are important to promote organic adoption from producers. The value rankings are:

- 1 = "Not useful"
- 2 = "Somewhat useful"
- 3 = "Very useful"

Figure 9 shows the results from the survey. *Organic processing facilities* ranked the highest among all choices. *Crop insurance, representation on organic related public policy issues, and organic export/market development* are ranked the lowest among the choices. This is interesting as a great deal of focus is on market development for organics.



**Figure 9. Organic Information/Services**

### Results - Analysis by Producer Group

As stated earlier, producers are broken down into 9 different subgroups. Since this study encompasses all producers, there may be differences among the producer groups not gleaned from the overall summary statistics. To determine if there are significant differences among producer groups, a one-way ANOVA was used for scaled items. All significance at the  $p = 0.05$  level was reported. These differences assisted in the development of the policy recommendations in this report.

Table 1 represents  $p$ -values for significance between producer groups and marketing/production barriers. There is statistical significance between each producer group for marketing barriers except for *unstable organic markets and/or prices*. Further analysis shows for almost all barriers, swine producers have the highest mean ranking, indicating it is a “severe barrier”. Greenhouse/floriculture producers saw *competition with “non-organic” products* as a “severe barrier” to marketing organic products.

For production barriers, the results show there fewer significant differences between producer groups. *Pest related production losses*, *weed related production losses*, and *organic processing facilities* are the three production barriers statistically significant between producer groups. These results are consistent with the idea that crop producers would likely find pest and weed related production losses more important than livestock producers. Similarly, livestock producers find processing facilities for harvesting more important than crop producers as availability of faculties are limited. Additional analysis shows that row crop producers rank weed and pest-related production losses as “severe barriers” and swine producers rank processing facilities as a “severe barrier.”

**Table 1. ANOVA Comparison of Producers and Marketing/Production Barriers**

| <i>Marketing Barriers</i>                                  | <i>Significance (p&lt;.05)</i> |
|--|--------------------------------|
| Finding Reliable Buyers/Markets                            | 0.003*                         |
| Difficulty Obtaining Organic Price Information             | 0.005*                         |
| Uncertainty in Obtaining Organic Price Premiums            | 0.010*                         |
| Unstable Organic Markets and/or Prices                     | 0.192                          |
| Distance to Available Organic Markets                      | 0.001*                         |
| Competition with "Non-Organic" Products                    | 0.005*                         |
| Lack of Organic Marketing Networks                         | 0.003*                         |
| <i>Production Barriers</i>                                 | <i>Significance (p&lt;.05)</i> |
| Weather- Related Production Loss                           | 0.078                          |
| Pest-Related Production Loss                               | 0.006*                         |
| Disease-Related Production Loss                            | 0.095                          |
| Weed-Related Production Loss                               | 0.000*                         |
| Fertility-Related Production Loss                          | 0.054                          |
| High Inputs Costs  | 0.064                          |
| Availability of Organic Inputs (e.g. Feed, Fertilizer)     | 0.171                          |
| Availability of Organic Processing Facilities              | 0.037*                         |
| Lack of Understanding Regarding Organic Production Methods | 0.370                          |
| * Denotes statistical significance p<.05                   |                                |

The ANOVA analysis for producers versus organic information sources is in Table 2. There are many statistical differences between groups. *Organic price reporting services*,



*directory of organic buyers, education programs about organics, local/regional organic market development, marketing workshops/seminars, organic processing facilities, crop insurance, and organic specific research/extensions* are all significantly different among producer groups at the 95 percent or greater confidence level. Further analysis shows swine producers and multiple crop producers mainly rank the significantly different organic information services as “very useful.” *Representation on public policy issues* and *crop insurance* are not ranked highly overall.

**Table 2. ANOVA Comparison of Producers and Information Services**

| <i>Information Services</i>                             | <i>Significance<br/>(p&lt;.05)</i> |
|---|------------------------------------|
| Organic Price Reporting Services                        | 0.007*                             |
| Directories of Organic Product Buyers                   | 0.002*                             |
| Consumer Education Programs About Organics              | 0.013*                             |
| Local/Regional Organic Market Development               | 0.001*                             |
| Organic Export Programs/Market Development              | 0.072                              |
| Representation on Organics-Related Public Policy Issues | 0.253                              |
| Organics Marketing Co-ops/Associations                  | 0.058                              |
| Organic Marketing Workshops/Seminars                    | 0.005*                             |
| Organic Processing Facilities                           | 0.000*                             |
| Crop Insurance for Organically Grown Products           | 0.000*                             |
| Organic-Specific Research/Extension                     | 0.001*                             |
| <i>* Denotes statistical significance p&lt;.05</i>      |                                    |

## Conclusions

The data reveals a large amount of information. General policy recommendations can be developed to assist producers in adopting organic production. These recommendations will assist in overcoming the significant barriers with regards to organic adoption.

The results show those respondents most often interested in organic adoption are vegetable/fruit producers, greenhouse/floriculture producers, and multiple crop producers, which are primarily beef producers. Producers interested in organic production are typically smaller in size. A surprising percentage of older producers are also interested in organic production. A

relatively higher percentage of newer producers are already practicing non-certified organic production.

Based on this information, efforts should be directed toward newer producers in vegetables/fruits and greenhouses/floriculture. These producers showed more interest in organic adoption. These newer producers are smaller in size and are willing to take on the additional risk of organic production. Also, the producers who are currently practicing organic production but are non-certified should be targeted for certification.

As a whole, producers felt no marketing barrier is a “severe barrier” to organic adoption. There are statistical differences between those with interest and those with no interest. In general, those with interest rank most barriers as less severe than those with no interest. Those with interest rank *high input cost*, *organic inputs*, and *organic processing facilities* as the most severe barriers to adoption. No marketing barriers are ranked as a “severe barrier” to adoption. Therefore, those with interest believe a market is available for organic products.

Assisting producers in overcoming production barriers should be the focus for policy makers to expand and promote the adoption of organic practices. Research shows consumers are demanding organic products. Producing the product to meet demand will be the key for success. Assistance in the development of organic processing facilities can come from local governments in the form of tax abatements, or lender support may create the development of new processing facilities.

*High input cost* and *availability of organic inputs* can be addressed through supply co-operatives and supplier directories. The cost of organic inputs required for production strains producers during the three-year transition period where output cannot be sold at the organic price level. This cost-price squeeze puts financial pressure on producers. The development of a supply

co-operative will assist producers in obtaining the required inputs and, more importantly, assist in lowering the price of organic inputs because of increased purchasing power and volume associated with the cooperative. Most producers are smaller in size; hence, obtaining inputs at a relative low price is constrained by volume. A supply co-operative will be beneficial to lower cost and maintain a consistent supply of the necessary organic inputs for production.

Producers did not find any information service as “very useful.” There are significant differences among producer groups. The producers of vegetables/fruits and greenhouse/floriculture rank information services on *directories of organic buyers*, *education programs about organics*, *local/regional organic market development*, and *organic specific research/extension* as the main information services most useful for adoption. Most information services are about markets and buyers rather than production. Producers feel there are markets available, but that establishing contact and finding them is the key for success.

For those interested in organic production, almost all information services are “very useful.” The lowest ranked information services relative to others are *organic export/market development*, *representation on organics-related public policy issues*, *marketing co-operatives/associations*, and *crop insurance*. The information services ranked highest are similar to the overall rankings where *directories of organic buyers*, *education programs about organics*, and *local/regional organic market development* are the information services deemed “very useful.”

Based on the results, it is clear which strategies for information services will be beneficial. First, a series of educational seminars on organic requirements and certification procedures is helpful to inform producers of the benefits, risks, and processes. This will help

clear up any misconceptions and provide a clear pathway for producers in adopting organic practices.

Second, a directory of local and regional organic buyers and markets should be developed and maintained for organic producers. An online database may be beneficial, where producers can log on and search for potential buyers of their products. This will narrow the information gap and lower the transaction costs for producers, as they do not have to search for buyers. Also, as a potential source of revenue to offset database cost, buyers could be asked to pay to be listed on the database so they have access to finding organic suppliers and meet the demand of consumers.

Third is assistance in developing local/regional markets. Producers feel there is demand for organic products and markets, but the distance traveled may be too great to overcome the additional cost. Local/regional markets can be developed through marketing assistance programs to educate consumers about the availability of locally grown organic products. A GO TEXAN organic label could be useful in leveraging the popularity of the existing logo. This would easily identify Texas-grown organic products.

Financial risk from adoption or transitioning seems to be a common concern. Specifically, most producers are unsure about *lenders support the idea of organic production*. Support from lenders would be critical in assisting producers when undertaking the three-year transition process to become certified organic. Lenders must understand that during this period, farm income may decrease and assistance will be needed. An education program should be developed where lenders are shown the problems with organic production and understand the financial constraints over the transition period. Having lender buy in will greatly assist producers in overcoming the financial burdens when switching to organic production.

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