

Assessing Farmer Interest in Transition to Organic Production and Barriers to Expansion of Organic Production in New York State

Sarah Johnston, New York State Department of Agriculture and Markets, 10B Airline Drive,
Albany, New York 12235 sarah.johnston@agmkt.state.ny.us
(Voice) 518- 457-4531 (Fax) 518-457-2716

July 29, 2010

Abstract

A survey of farmers in New York State was conducted from November 2007 through January 2008 to assess interest in organic production and transition, and to identify barriers and needs of organic and conventional producers. Survey results indicate that there is substantial interest among farmers in the state in organic production, despite the challenges and barriers they identify in both production and marketing of organic farm products. Among conventional farmers, 40% of those responding indicated a high (6%), moderate (15%) or slight (19%) level of interest in transition to organic production, while 60% indicated no interest in organic production. Among farmers identified as organic in advance of the survey, 14% indicated that they are transitioning additional acres to organic production. Perceptions about barriers to entry differed between organic, transitioning and conventional farmers. Of the conventional farmers with an interest in organic production, 39% indicated that disease-related production losses are a severe barrier to their entry. Fifty-six percent of conventional farmers with no interest in organic production perceived losses to disease as a severe barrier, while only 6% of organic or transitioning farmers perceived this as a barrier. Conventional farmers with an interest in organic production indicated that the following information and services would be the most useful: directories of organic product buyers, organic-specific written production guidance, local/regional organic market development, organic consulting services, and university research on organic challenges. Organic and transitioning farmers indicated that the most useful information or service of all is university research on organic challenges.

Introduction

Organic foods have been steadily gaining an increasing share of national food sales over the last decade (OTA, USDA ERS). Organic fruits and vegetables account for the largest share of sales, followed by dairy products (OTA). U.S. production of fruits and vegetables has been increasing, but imports of fruits and vegetables have continued to gain market share (USDA, ERS, Lucier). At the same time, consumption of fruits and vegetables in the U.S has been on the rise. In 1998, the U.S. became a net importer of fresh produce (USDA, ERS, Lucier). While there are many factors associated with increased imports of all kinds of produce, the fact remains that there is a strong market for organic fruits and vegetables (OTA, Packer). There are economic reasons to keep New York State farms in business and farming profitable, most notably the \$4.5 billion contribution in agricultural production to the state economy (NYSDAM). Farms also comprise the rural landscape that attracts tourists to upstate New York and keeps the costs of community services lower than residential development (AFT). In addition, substitution of locally grown fruits and vegetables for imports has the potential for substantial economic development (Swenson).

This survey was conducted to understand producers' views about barriers to organic transition, to gather input from conventional farmers currently transitioning to organic, and to identify challenges and service needs of current organic farmers. This information is intended to help policymakers understand producers' concerns, and to guide policy initiatives that support a transition to organic farming by those who wish to take advantage of increasing market demand for organic food. The survey asks producers to identify their level of interest in transition to organic production and to identify barriers that exist to transition to organic production.

Materials and Methods

Since little information was available about current organic producers and no information was available about farmers' views on organic transition in New York State, this survey was designed to reflect upon the entire farming community in New York. Previous relevant research was reviewed to prepare the four pages of survey questions. Some questions from a survey given by the State of Texas (2007) and another in California (2007) were used. The questions were designed to provide useful information related to policy options available to the State of New York to encourage organic production.

The population for this survey was the entire farming community in New York. The complete list of farmers in New York maintained by the National Agricultural Statistics Service (NASS) was stratified to provide reasonable coverage of all types of producers. In November 2007, the population of known farms was 30,641. All known organic producers (whether certified or not) were pulled together first into one stratum to ensure they were appropriately surveyed. A list of 735 certified organic producers provided to the New York State Department of Agriculture and Markets by organic certifying organizations operating in the state was added to the list of organic producers gathered from other extensive list building efforts by the New York Field Office of (NASS), for a total of 980 organic producers. The organic growers were then extracted from the complete production strata. All remaining farms on the NASS list were identified by their primary type of production, i.e. dairy, fruits/nuts/berries, greenhouse/nursery, Christmas trees, hay, vegetables/melons, cattle/calves, sheep/goats, oilseed/grains, hogs/pigs, equine, poultry/eggs, aquaculture, other animals, cropland only. A random sample of 3,020 operations was drawn from all strata for the survey of farmers not otherwise identified as organic. Surveys were mailed to 4000 producers. The designed survey margin of error at 95% confidence level was 1.04%.

All questionnaires were manually reviewed for clarity before being computer reviewed and summarized to ensure consistency across all questions. Data cells considered to have invalid responses were not included in data summaries. Survey responses were post-stratified based on whether one reported being an organic producer (certified or not) or not producing organic crops. This latter grouping is called "conventional" farmers in this report.

It is not possible to obtain accurate direct estimates of population totals because of the incompleteness of the list frame used to collect the data. Therefore, most survey indications derived from this survey are expressed as percentages of those who responded to specific questions. The responses give some insight into the concerns and needs of producers, however, we cannot extrapolate results to make statistical assumptions about the New York Farmer population as a whole. This survey can be classified as a non-probability survey – a mail survey that summarizes only positive responses. No attempt is made to impute data for non-response.

Operators who are most willing to cooperate generally have an interest in the survey being conducted. This tends to skew results because those strata are more represented than strata with operators not having an interest.

The entire survey summary is based on mail responses. Total returns from the sample mailing were 954 reports for a 23.9 percent response. Of that total 783 were considered good and usable reports, or 19.5 percent. Most returns designated as unusable responses indicated their farm was no longer in business. Of the known organic producers surveyed, 34% responded, compared to a 20% response rate from the remainder of the sample. This response difference was attributed to a higher interest by organic growers for describing their concerns, issues and interests compared with the general farm population. As a result, one must consider this response bias in the statistics which describe the complete farm universe. However, when considering statistics, which are broken into organic producers and non-organic producers, those results will have lesser amounts of response bias.

Results

Interest in Transition to Organic Farming

An important question for policy makers and service providers is the level of interest in the farming community in transitioning to organic practices. A related question is what barriers farmers perceive as serious enough to prevent them from making the transition.

In order to separate organic farmers from others, survey recipients were asked to characterize their growing practices as organic, transitioning to organic or conventional. Farmers were also asked to characterize their interest in transition to organic agriculture. For farmers who did not identify themselves as organic producers for purposes of the survey, 60% indicated that they had no interest in organic production, while the remaining 40% indicated some level of interest in transition to organic production. Within this second group, 6% indicated a high level of interest in becoming involved in organic production, 15% indicated a moderate level of interest and 19% indicated a slight interest in becoming involved in organic production.

New York State Farmers Currently in Transition

One purpose of the survey was to gather input from farmers who are transitioning to organic production. Federal organic farm regulation does not require farmers to notify anyone during the mandatory three-year process that is needed for transitioning land to organic production, so this population is not easily identified. The exception is dairy; herd conversion requires a one-year supervised transition with a USDA-accredited certifying organization.

For farmers in the sample who were not initially identified as organic, 3% of these respondents indicated that they are currently transitioning some or all of their farm acres to organic production. As of October 2007, dairy farmers were the largest segment of certified organic farmers in New York State, numbering at least 286 farms or 5% of all dairy farms shipping milk to NYS processing plants. (Source: NYSDAM Division of Milk Control & Dairy

Services.)¹ At the time the survey was conducted, 1% of responding conventional dairy farmers reported being in transition to organic production.

For conventional farmers transitioning acreage to organic in 2007, 42% indicated they have acreage in the first year of transition, 23% had acres in the second year and 54% have some land in the third year of transition. (Since some respondents report acreage in more than one transition category, percents add to more than 100.) Acres in the first year accounted for 30 percent of all the acreage in transition. Second year acreage totaled 12 percent of the total and third year acreage in transition accounted for 58 percent of the total.

Among the organic farmers who responded to the survey, 14% indicated that they are currently transitioning additional acreage into organic production.

Interest in Transition in Relation to Years of Farming Experience

An intriguing policy question for educators is the age or experience level among farmers interested in organic transition. Farmers were asked to identify the number of years they have farmed and this information was linked to their level of interest in becoming involved with organic production.

For farmers with five or fewer years in farming, 7% indicated a high interest in organic production, and 57% have no interest. For farmers with 6-10 years of experience, 73% indicate no interest in organic farming, while 11% indicated a high level of interest in transition. Seventeen percent of farmers with 11-15 years of experience indicate high interest in becoming involved in organic farming. When the three categories of interest are added together, the group with the most interest are farmers with 16-20 years experience among whom 55% express some level of interest, followed by farmers with 11-15 years of experience, where 50% indicate an interest in becoming involved in organic production, and 34% indicate a moderate or high interest. For farmers with more than 20 years of experience, 38% still indicated an overall interest in organic production.

Years in Farming	Interest in Organic Production			
	None	Slight	Moderate	High
1-5	57%	14%	21%	7%
6-10	73%	11%	5%	11%
11-15	50%	17%	17%	17%
16-20	45%	33%	14%	8%
20+	61%	18%	14%	6%

Table 1 Interest in becoming involved in organic production, arranged by years of farming experience

Barriers and Challenges to Organic Production

The survey sought to better understand farmers' complex reasons or perceptions related to organic marketing and production challenges in order to provide useful information for policy makers. It asked all respondents to identify the severity of marketing and production barriers to producing organically from a provided list.

¹ Dairy farm numbers are compiled several ways. In this case, reports from plants in New York State where organic milk is delivered for processing were accessed and the number of certified organic dairy farms shipping milk in October 2007 was used to calculate the percentage of organic dairy farms in New York State.

Conventional Producers' Barriers and Challenges

Respondents with no interest in organic production indicated that concern about disease-related production losses is the most significant severe barrier to producing organically (57% of respondents), followed by the high cost of organic inputs (49%), and lack of organic pest-related control information (38%). For marketing barriers, competition with non-organic products was identified by 29% of respondents as the most severe.

For producers with an interest in organic production, the response was similar to the “no interest” group, with 29% identifying competition with non-organic products as the most severe barrier to entry into organic markets and 28% concerned about the uncertainty of obtaining organic price premiums.

Production barriers for the “interested” group, however, do not loom quite so large. Instead, 39% indicate that disease-related production losses are a severe barrier, while 35% consider lack of organic pest-related control information to be a severe barrier. The high cost of organic inputs is identified by 45% of respondents as a severe production barrier, followed by 39% who identify disease-related production losses as a severe barrier, 37% concerned about recordkeeping requirements of organic certification and 35% listing the lack of organic pest-related control information as a severe barrier.

Barrier	Severity of Barrier		
	Not a Barrier	Moderate Barrier	Severe Barrier
	(Percent)		
Marketing			
Finding reliable buyers/market for my organic products	42	38	20
Difficulty obtaining organic price information	41	43	16
Uncertainty in obtaining organic price premiums	29	43	28
Unstable organic market and/or prices	39	36	25
Distance to available organic markets	43	35	22
Competition with “non-organic” products	42	29	29
Lack of organic marketing networks.....	45	33	22
Production			
Planning workable organic rotations	38	36	26
Lack of organic pest-related control information	28	34	38
Disease-related production losses	21	22	57
Recordkeeping requirements of organic certification.....	29	34	37
On-Farm inspections	40	35	25
Organic soil fertility requirements.....	36	34	30
High costs of organic inputs	28	23	49
Availability of organic inputs (<i>seed, feed, fertilizers</i>)	33	35	32
Availability of organic processing facilities	40	37	23
Lack of enough pasture for organic livestock requirements ..	52	18	30
Current farm infrastructure (<i>i.e. barn in disrepair</i>)	59	26	15
Lack of reliable labor	39	27	34
Access to capital	49	28	23

Table 2 Barriers to Organic Production for Producers who Indicated No Interest in Producing Organically

It is also useful to aggregate moderate and severe barriers to identify just how many producers are concerned about an issue. As a consequence, 82% of those interested in transition identify disease-related production losses as either a moderate or severe barrier and 86% consider the high costs of organic inputs as a barrier. Similarly, 79% consider availability of organic inputs a barrier.

Barrier	Severity of Barrier		
	Not	Moderate	Severe
	(Percent)		
Marketing			
Finding reliable buyers/market for my organic products	37	45	18
Difficulty obtaining organic price information	36	45	19
Uncertainty in obtaining organic price premiums	27	45	28
Unstable organic market and/or prices	38	43	19
Distance to available organic markets	34	47	19
Competition with “non-organic” products	36	35	29
Lack of organic marketing networks	29	44	27
Production			
Planning workable organic rotations	40	49	11
Lack of organic pest-related control information	25	40	35
Disease-related production losses	18	43	39
Recordkeeping requirements of organic certification	20	43	37
On-Farm inspections	34	47	19
Organic soil fertility requirements	35	47	18
High costs of organic inputs	14	41	45
Availability of organic <i>inputs (seed, feed, fertilizers)</i>	21	47	32
Availability of organic processing facilities	26	45	29
Lack of enough pasture for organic livestock requirements ...	56	28	16
Current farm infrastructure (<i>i.e. barn in disrepair</i>)	51	31	18
Lack of reliable labor	38	33	29
Access to capital	35	40	25

Table 3 Barriers to Organic Production Indicated by Conventional Producers with Interest (Slight, Moderate or High) in Organic Production

Challenges Facing Organic Producers & Relative Familiarity with Organic Methods

Responses from producers who were already organic or transitioning to organic showed that 12% consider distance to available organic markets to be the most severe barrier or challenge, followed by 11% indicating that the lack of organic marketing networks is also a severe barrier.

Production challenges for organic producers indicate that 24% of respondents consider lack of reliable labor as the most severe production barrier or challenge, followed by the high cost of organic inputs and the lack of organic processing facilities.

For organic and transitioning farmers, only 6% perceive disease-related production loss as a severe barrier. As many as 37% of organic and transitioning producers consider lack of organic pest-related information to be a moderate barrier to organic transition, while 9% consider lack of organic pest-related control information to be a severe barrier.

Barrier	Severity of Barrier		
	Not	Moderate	Severe
	(Percent)		
Marketing			
Finding reliable buyers/market for my organic products	65	28	7
Difficulty obtaining organic price information	54	38	8
Uncertainty in obtaining organic price premiums	48	42	10
Unstable organic market and/or prices	68	24	8
Distance to available organic markets	60	28	12
Competition with "non-organic" products	51	39	10
Lack of organic marketing networks	56	33	11
Production			
Planning workable organic rotations	73	23	4
Lack of organic pest-related control information	54	37	9
Disease-related production losses	56	38	6
Recordkeeping requirements of organic certification	41	43	16
On-Farm inspections	75	20	5
Organic soil fertility requirements	69	26	5
High costs of organic inputs	34	43	23
Availability of organic <i>inputs (seed, feed, fertilizers)</i>	39	48	13
Availability of organic processing facilities	52	25	23
Lack of enough pasture for organic livestock requirements ...	81	15	4
Current farm infrastructure (<i>i.e. barn in disrepair</i>)	54	30	16
Lack of reliable labor	46	30	24
Access to capital	49	32	19

Table 4 Barriers to Producing Organically Indicated by Producers Already Transitioning or Producing Organically

Comparing Organic and Conventional Subgroups

Plotting the responses to the question about the severity of barriers allowed us to compare perceptions identified by the conventional and organically-producing subgroups. The chart in Figure 1 plots barriers identified as most severe to organic production for three producer subcategories: organic producers and those transitioning to organic production, conventional producers with no interest in organic production, and conventional producers with interest in producing organically.

In general, organic and transitioning producers were far less likely to identify barriers as 'severe' than either of the other two groups. Conventional farmers with no interest in organic production identified more barriers as 'severe' on average. Disease-related losses were the highest-ranked severe barrier to conventional producers who indicated no interest in organic production, and the most divergent result between organic and non-interested conventional producers. Fifty-seven percent of these respondents called it a severe barrier, compared to 6% of organic and transitioning farmers. This concern ranked second among conventional producers with some amount of interest in producing organically. The cost of organic inputs was shared as a severe barrier by all three groups. Nearly half (49%) of conventional non-interested respondents identified the cost of organic inputs as a severe barrier. A far lower percentage of organic and transitioning producers indicated this as a severe barrier, but at 23%, nearly one in four organic or transitioning producers considered this a severe barrier; it was the number two concern of this group.

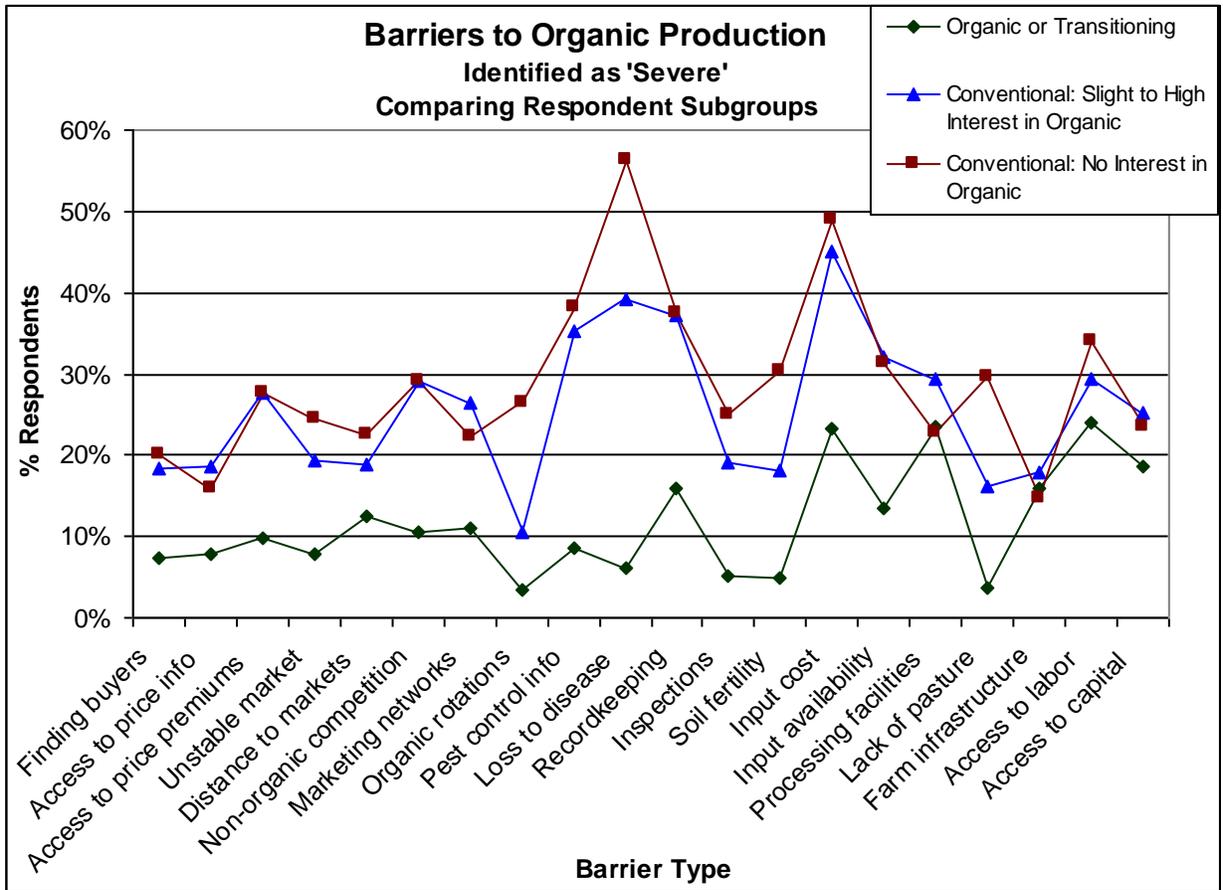


Figure 1 Comparison of Subgroup Responses to Severe Barriers to Organic Production

Lack of organic pest control information was identified as a severe barrier for conventional producers (38% of non-interested, and 35% of those with some degree of organic interest). It was not shared by as high a percentage of organic and transitioning producers (9%).

Payment as Motivator

Non-organic producers were asked whether a payment would facilitate organic adoption. For all respondents, 54% report “no”, 31% said “yes” and 15% said it wasn’t necessary. However, pairing respondents with their self-identified level of interest is useful. For producers with no interest in organic production, 89% said “no” regarding the persuasiveness of a payment, 7% said “yes”, and 4% said a payment is not necessary. Only 16% with interest in organic production said “no”, while 60% indicated that “yes”, a payment would facilitate transition, with another 24% indicating that no payment is necessary. The survey question did not indicate any level of payment and no association with costs of transition was provided with the question.

Payment Influence Level	All Conventionally-Producing Respondents	No Interest in Organic Production	Interested in Organic Production
No amount of payment will increase interest in organic production	54%	89%	16%
Yes, a payment would encourage a transition to organic production	31%	7%	60%
A payment is not necessary for me to adopt organic production	14%	4%	23%

Table 5 Influence of a Transition Payment on Adoption of Organic Production by Conventional Producers

Services Needed to Support Organic Production or Transition

The types of information and/or services needs identified as being very useful to organic production or transition were similarly ranked by both organic and conventional producers with an interest in transition to organic.

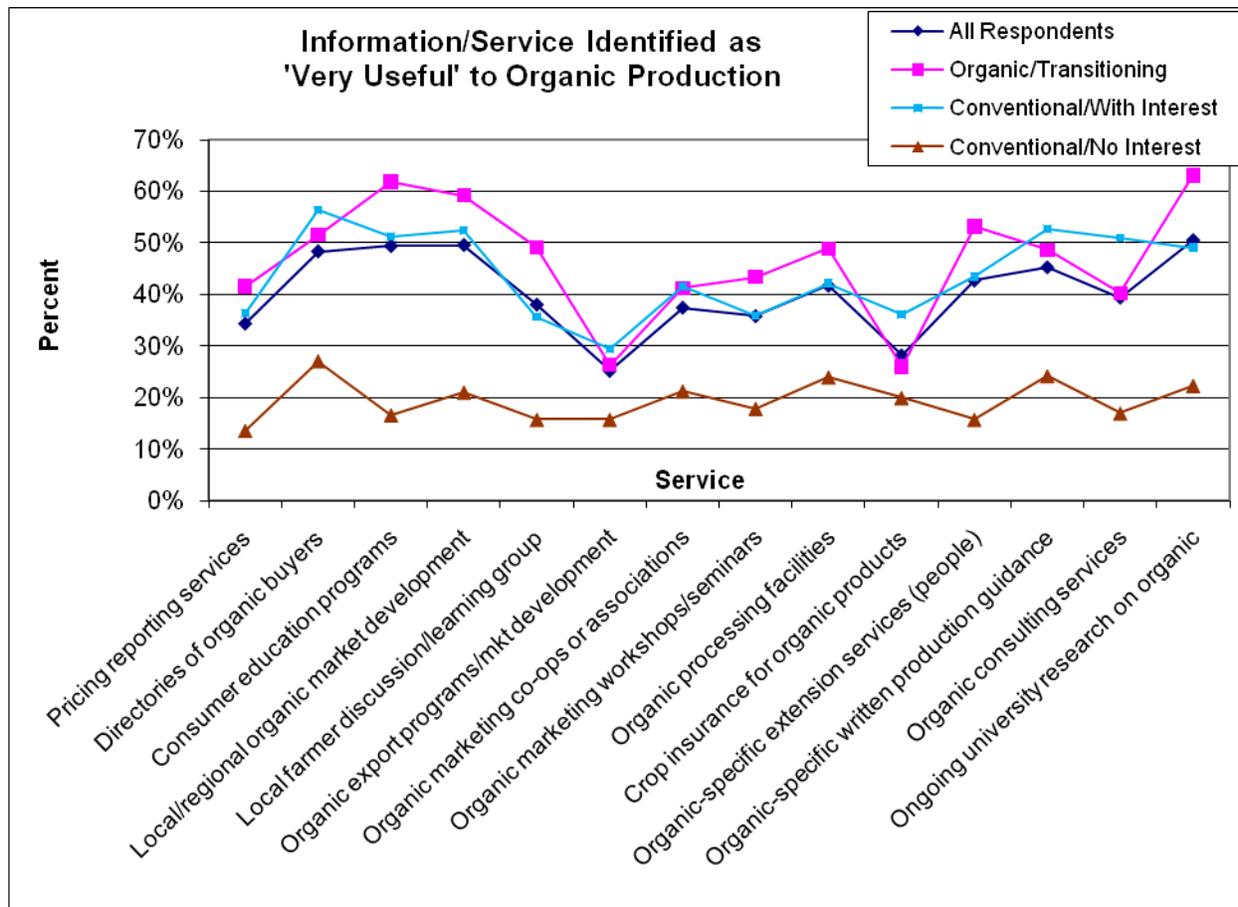


Figure 2 Information and Services Identified as 'Very Useful' to Organic Production

University research on organic challenges is thought to be very useful by 64% of organic and transitioning respondents, while 49% of those with some level of interest in organic production also thought research would be highly useful. Organic-specific written production information is considered highly useful by 53% of those interested in organic transition and 49% of organic farmers. Organic-specific extension services (people) are seen as highly useful by 44% of those interested in organic transition and 53% of existing organic farmers and those already transitioning.

Directories of organic product buyers are viewed as very useful by 52% of organic and transitioning farmers, while 57% of those interested in transition indicate that directories would be very useful. Local/regional organic market development is also viewed as very useful by organic farmers (59%) and those interested in transitioning (52%). Consumer education programs about organics also are considered highly useful by organic and transitioning farmers (62%) and those interested in transition (51%).

Organic farmers' interest in directories of organic product buyers is particularly interesting in light of their response to the average distance their products travel to market. This question was only asked of organic producers. Twenty-two percent of respondents to the survey indicated their products travel less than 10 miles to market. Over half of the responses indicated their markets were less than 50 miles away, on average. Four percent indicated that their average market location was out of state, and none selected 'out of the country'. This indicates that a majority of organic respondents' food products are being sold and most likely consumed in NYS.

Distance	Percent
0 to 9 miles	22%
10 to 25 miles	18%
25 to 49 miles	16%
50 to 74 miles	10%
75 to 100 miles	11%
100 miles or more	19%
Out of state	4%
Out of the country	0%

Table 6 Average Distance to Organic Markets

Organic producers were asked to identify the channels through which they market their organic products. Although there was no revenue data collected to give weight to the responses, we may gain some insight into marketing channels for New York State organic producers. The two most popular channels were co-ops and associations, and direct sale to a processor.

Income Levels of Organic Producers

It is difficult to draw many useful conclusions from the limited income data we collected. Of note, however, is that only 9% of certified organic producers identified their 2007 income as under \$5000, while 49% of uncertified organic producers did so. For comparison, 30% of all conventional respondents identified their gross income as under \$5000. For certified organic respondents, 72% identified their income as exceeding \$60,000 gross per year, while only 46% of conventional farmers indicated a gross income exceeding that amount.

Discussion

It is interesting that 40% of conventional farmers across all categories of agricultural production indicated some interest – high, moderate or slight – in becoming involved in organic production. Six percent have a high level of interest in transition to organic production. Others have a moderate or slight interest, but the cumulative level of interest among conventional farmers is noteworthy. This result occurred within the context of the 2007 production year, when organic market expansion was still in the double digits. That interest, however, is tempered by the identification of multiple barriers to transition in both marketing and production.

Barriers and challenges identified by producers interested in some level of organic production were different, in some cases, from producers already farming organically or transitioning to organic practices. Most notably, 39% of those with some level of interest in organic production identified disease-related production losses as a severe barrier, while only 6% of organic and transitioning producers identified disease-loss as a severe barrier. Fifty-six percent of conventional farmers with no interest in organic production identified disease-related production losses as severe.

For policy development purposes, knowing the challenges identified by those interested in transition provides policy makers with clear opportunities to provide services that would enable these farmers to act on their interest. These services, such as extension advice and production information, are available for conventional growers. Organic farmers and their nonprofit farmer education organizations have been engines of information transfer, as well as the developers of successful organic production methods, but the information is often transferred in transitory ways, such as at conferences or in newsletters. While growers are experts, they depend on research to quantify and verify the efficacy of production method changes and adjustments. Since growers face multiple risks in any farming operation, the lack of university or research-based information for farmers wishing to transition to organic production can understandably present a daunting hurdle.

The lack of land-grant research on organic production issues has been identified as a barrier by organic growers in the past (OFRF). Research on specific pests and diseases that cannot be controlled by the organic pesticides available to growers is vital. The market created by organic growers for pesticides approved for use by organic growers is still very small and does not seem to be much of a motivating force for the large pharmaceutical companies that manufacture conventional pesticides. Government funding for organic and more sustainable methods of pest control has the potential to benefit society and the environment at large. The clear and continued call for organic research dollars by producers makes it clear that funding organic production research would reduce the barriers associated with organic production.

While transition to organic production can be viewed simply as taking advantage of a market opportunity, many organic practices are also the same or similar to voluntary conservation practices that have been encouraged for years by the USDA Natural Resource Conservation Service through small federal payments. The survey found that if farmers are interested in transition, their decision would be facilitated by a payment, but would not be influenced by a payment if they are not interested. The question seems to have been answered quite differently depending on intention.

The issue of payments as motivators is, however, very complicated. There are agricultural payments for specific commodity production, for conservation practices, crop insurance subsidies and, occasionally, disaster, which are associated with specific commodities and farm practices. For example, crop insurance was identified by conventional farmers with an interest in transition as very useful (36%) or somewhat useful (31%), but only 26% of current organic growers identified it as being very useful. This lower level of interest could be associated with the fact that many organic producers say that crop insurance as it currently exists is difficult for them to use, according to feedback from focus groups conducted by NYSDAM in the mid -2000's and producer comments to NYSDAM staff more recently. Until the mixed signals from multiple government payments are aligned in a single direction, a question regarding payment for one aspect of production is difficult to assess for its usefulness.

While most of the survey questions were specific to organic production issues, a few barriers, such as the 24% of organic or transitioning farmers who identified a shortage of skilled labor to be severe, are barriers that are faced by all farmers in the Northeast. Other barriers, such as the high cost of organic inputs, are issues that market forces rather than government policies can be expected to influence over time.

Conclusion

Policy makers can base programs on sound information, when it exists. This survey data provides both federal and state governments and nonprofit agricultural decision makers with information identified by producers as barriers to transition to organic farming. It provides policy makers with a relatively short list of services that these growers would find useful because they remove or reduce the most significant barriers to transition to organic production. The survey results have shed additional light on the interest level of farmers related to transition to organic agriculture, making it clear that the interest is there, but that legitimate barriers and challenges exist for farmers considering transition. Addressing farmer-identified barriers to transition may prove to be the most expeditious way of expanding organic production in NYS to meet market demand.

Acknowledgements

The survey was designed and conducted by staff of the New York Field Office of the National Agricultural Statistics Service and the New York State Department of Agriculture and Markets. The author would like to thank the following individuals for their review of this manuscript and their helpful comments: Stephen Ropel, Director, New York Field Office, USDA, National Agricultural Statistics Service, Jerry Cosgrove, Deputy Commissioner, New York State Department of Agriculture and Markets.

References

American Farmland Trust (AFT), Cost of Community Services Studies Fact Sheet, www.farmland.org, 2006.

Conner, David, 2004. Beyond Organic: Information Provision for Sustainable Agriculture in a Changing Market, *Journal of Food Distribution*, Vol. 35, No.1, March 2004.

Durham, Leslie, 2006. Organic Farmers in the US: Opportunities, Realities and Barriers, Online. *Crop Management* doi:10.1094/CM-2006-0921-03-RV.

Endres, A. Bryan, 2007. An Awkward Adolescence in the Organics Industry: Coming to Terms with Big Organics and Other Legal Challenges for the Industry's Next Ten Years, *Drake Journal of Agricultural Law*, Vol. 12, 2007.

Fairweather, John, 1999. Understanding How Farmers Choose Between Organic and Conventional Production: Results from New Zealand and Policy Implications.

Govindasamy, Ramu, John Italia, Marc deCongelio, Karen Anderson, Bruce Barbour, 2000. Empirically Evaluating Grower Characteristics and Satisfaction with Organic Production, New Jersey Experiment Station Report, New Brunswick, NJ, Rutgers University.

Huang, Sophia, K Huang, 2007. Increased U.S. Imports of Fresh Fruit and vegetables, USDA, Economic Research Service, FTS-328-01.

Moynihan, Meg, 2007. Experiences and Outlook of Minnesota Organic Farmers – 2007, Minnesota Department of Agriculture. Available at:
<http://www.mda.state.mn.us/news/publications/food/organicgrowing/2007orgsurvresults.pdf>

New York State Department of Agriculture and Markets, 2008. New York Agricultural Statistics. Available at: www.nass.usda.gov/ny

New York State Department of Agriculture and Markets, 2008. Summary of Reimbursements to NYS Organic Farmers for Organic Certification Fees. Available at: <http://www.agmkt.state.ny.us/AP/organic/>

Organic Farming Research Foundation (OFRF), National Organic Research Agenda, 2007. Available at: <http://ofrf.org/publications/pubs/>

OFRF, *Final Results of the Fourth National Organic Farmers' Survey: Sustaining Organic Farms in a Changing Organic Marketplace*, 2004

Organic Trade Association (OTA), 2007 Manufacturer Survey, Packaged Facts. Available at: <http://www.ota.com>

Organic Trade Association (OTA), 2008. The Organic Report, Fall 2008. <http://thepacker.com/>
Packer, The, See: www.thepacker.com

Strochlic, Ron, L. Sierra, 2007. Conventional, Mixed and “Deregistered” Organic Farmers: Entry Barriers and Reasons for Exiting Organic Production in California, California Institute for Rural Studies, Fresno County, California.

Swenson, Dave, 2006. The Economic Impacts of Increased Fruit and Vegetable Production and Consumption in Iowa: Phase II, Leopold Center for Sustainable Agriculture, Iowa State University.

United States Department of Agriculture, Economic Research Service (USDA ERS), Lucier, Gary, *et al.* Fruit and Vegetable Backgrounder, VGS-313-01, April 2006.

USDA ERS Briefing Room, Organic Agriculture: Consumer Demand Continues to Expand, August 22, 2007.

USDA National Agricultural Statistics Service (NASS), 2002 Census.

Wolf, Terry, 2006. Assessing Producer Options and obstacles for Organic Agriculture. Online. *Crop Management* doi:10.1094/CM-2006-0921-04-PS.

York, Mary, Michael H. Lau, Roger D. Hanagriff, Douglas Constance, 2007. Identifying Barriers to Entry into the Organic Market and Possible Strategies to Increase the likelihood of Success for Potential Organic Producers, Texas Department of Agriculture, 2007 Federal State Marketing Improvement Program Project. Available at: <http://www.ams.usda.gov/tmd/FSMIP/FY2006/TX0490.pdf>