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MINNESOTA DEPARTMENT OF AGRICULTURE

Status of Organic Agriculture in Minnesota

A REPORT TO THE MINNESOTA LEGISLATURE: 2010

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Cost of Preparing Report

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NOTE: *Due to long delays in obtaining important organic adoption data from federal sources, this document constitutes the agency's reporting obligation for both 2008 and 2010.*

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Executive Summary

Purpose of Report

The Minnesota Department of Agriculture (MDA), in conjunction with the Minnesota Organic Advisory Task Force (OATF), is directed to report to the Legislature on the status of organic agriculture in Minnesota. Minnesota Statutes §31.92-31.94 concern organic agriculture. These are available at: www.revisor.leg.state.mn.us

Organic Farm and Market Trends

The number of organic farmers in Minnesota continues to grow. According to the United States Department of Agriculture (USDA) Economic Research Service (ERS), betweeen 2000 and 2008, the number of certified organic farms in Minnesota grew by 42% to 543 operations and the number of certified organic acres grew by 88% to 154,136 acres. In May 2010, the MDA estimated there were approximately 650 certified organic farms in the state.

Despite the lackluster economy of the past several years, consumers have continued to purchase organic food and non-food items. Consumer research firms speculate that between 70 and 75% of Americans buy organic products, and that consumers from all income and ethnic groups buy organic. After dramatic average annual sales increases in the early part of this decade, organic growth has slowed, but is still outpacing that of conventional food sales. Organic now accounts for approximately 4% of all food sold in the United States.

According to the ERS, Minnesota ranks 7th in the nation in certified organic farms and 11th in certified organic acres. Minnesota consistently ranks #1 in organic soybean acres and #1 or #2 in organic corn acres. The state is in the top five for acreage of a number of other organic grain crops, #5 for broilers and turkeys, and #9 for milk cows.

Economic Performance

The profitability of organic farms is influenced by many of the same factors that affect non-organic farms, including weather, the cost of inputs, and prices. University studies consistently find yields and returns of organic production systems to be competitive with or superior to conventional. Data from Minnnesota organic farmers enrolled in farm business management education programs show that median net farm income of organic farms is highly variable. Economic performance was strong in 2007 and 2008, whereas the state's organic farms felt the impact of production problems and low crop prices in 2009.

Environment and Human Health

Environmental protection and conservation practices are mandated by the National Organic Standards. Researchers comparing organic and non-organic systems have found that, in general, organic methods conserve soil and water, increase soil organic matter, and sequester soil carbon at greater rates than conventional practices, while requiring less fossil fuels. Organic farmers in Minnesota have reported that wildlife numbers and diversity increased when they transitioned to organic production. It is important to remember that resource benefits depend on the array of practices that individual farmers, whether organic or not, choose to employ.

The number of health and nutrition studies related to organic food is on the rise. While there is mounting evidence that organic products contain fewer synthetic residues (from pesticides and/or fertilizers) than their conventional counterparts, there is still a great deal of debate over whether the nutrient content of organic foods differs from conventional in significant ways.

Organic Agriculture in Minnesota

Organic farmers in Minnesota are experienced agricultural producers. More than three quarters of the respondents to an MDA survey indicated they had started their careers as conventional farmers who later switched to organic. On average, they have been farming for 25 years, 10 of these organic. Price premiums, environmental concerns, health/safety, and personal satisfaction/enjoyment are all compelling reasons for their decision to farm organically. Most believe organic is more profitable than conventional agriculture and a majority believes that the cost of organic production is the same or lower than conventional.

The major production challenges respondents reported differed slightly by production sector but generally included weed control and the cost of seed, purchased production inputs, and fuel. Respondents identified weed management, nutritional studies on organic foods, and soil health, biology, and fertility as the most important areas for research.

By and large, Minnesota's organic farmers remain optimistic about their future and the future of organic. About three out of four think that they or a family member will be farming 20 years from now. As of early 2009, nearly 97% were planning to maintain or increase their organic production.

Recommendations

The MDA used input contributed by the Minnesota OATF, survey responses by organic farmer stakeholders, the experiences of organizational partners, and other direct input to MDA from the organic community to develop the following recommendations:

Education and Information

Information – Continue annual Minnesota Organic Conference. Maintain Minnesota organic farmer and buyer directories.

Economics – Continue the Organic Farm Business Management Scholarship program to document costs and profitability of organic farming. Expand program to transitioning farmers.

Environmental Impact – Investigate and quantify environmental consequences of various organic farming methods on greenhouse gas emissions and climate change. Develop organic management practices to reduce any negative environmental impacts and promote organic management practices that are environmentally sustainable.

Nontraditional Farmers – Increase outreach to nontraditional farming communities (immigrant farmers, farmers of color, beginning farmers, urban farmers).

Marketing and Promotion

Infrastructure and Distribution – Encourage the expansion of certified organic processing and distribution capacity to increase the value of organic products grown in Minnesota.

Organic Product Information – Provide clear information about organic methods and foods that helps organic farmers market their products and that will help consumers make informed choices about selecting organic, particularly in light of competing claims such as “natural” and “sustainable.”

Marketing – Help Minnesota organic farmers improve their marketing skills. Help Minnesota organic food companies identify and capitalize on new customers and new markets.

Promotion – Encourage the purchase of local organic products through programs like Minnesota Grown.

Leadership and Capacity Building

Collaboration – Encourage collaboration, networking, and complementary efforts by federal, state, university, and nonprofit stakeholders through the Minnesota Memorandum of Understanding on Organic Agriculture and other relationships, including connections between OATF and the Wisconsin Organic Advisory Council. Pursue multi-partner research and outreach projects.

Professional Development – Investigate reciprocal training opportunities (e.g., cross train organic inspectors and food inspectors on organic and food safety requirements for manufactured foods) to reduce contradiction and duplication.

Technical and Financial Assistance

Transition Assistance – Develop programs to provide technical and financial assistance to farmers during transition.

Financing – Increase the number of organic farmers participating in the MDA Shared Savings Loan program. Continue to administer an organic cost share reimbursement program.

Policy and Regulation

Laws and Regulations – Keep Minnesota agricultural leaders, organic farmers, and consumers informed about proposed changes to organic laws and regulations that will affect them and comment when appropriate.

Organic Crop Insurance – Monitor and comment on USDA efforts to assess and reform equitability of crop insurance available to organic farmers.

Enforcement – Cooperate with the National Organic Program on enforcement of the National Organic Standards and state misbranding statute.

Exempt Registry – Create a state registration program or mechanism for organic farms exempt from the requirement to certify under §205.101 of the National Organic Program Final Rule[1].

Organic Integrity – Help organic farmers protect themselves from chemical spray drift by helping them identify their land as organic through the use of “no spray” signs and an organic/sensitive crops land registry, and by providing them clear avenues for reporting drift.

[1]Farms that follow all provisions of the organic rule but have less than $5,000 per year in organic sales.

Research

Identify farmers' research priorities and share with University of Minnesota (UMN) researchers, educators, extension staff, and Minnesota State College and University (MnSCU) faculty as well as agency leaders, policymakers, funders, etc. Growers of all types of organic products consistently identify weed management, soil biology and fertility, and nutritional studies on organic foods as priority research areas. In 2009 and 2010 the MDA observed an increasing level of conversation and concern about the need to develop seed varieties using classical breeding methods and the disproportionate public and corporate investment in development of conventional germplasm (typically using genetic engineering technology and therefore not useable by organic farmers) compared to varieties that will do well in organic systems.

In addition to the specific priorities identified by 2009 organic survey respondents in Tables 14 and 15, organic stakeholders have identified other research topics, including:

- Energy conservation in organic systems;
- Carbon sequestration strategies;
- Social and economic impacts of organic farming on rural communities;
- Research and testing of purchased organic agricultural inputs (e.g., fertilizers, pesticides, etc.) to test product claims;
- Development of added value products or product ingredients (e.g. food ingredients, processing aids, body care products, etc.); and,
- Cover cropping strategies.

Funding

Secure funding for Minnesota organic research, promotion, and organic industry development. Explore funding options including federal, state, dedicated (license plate), and commodity check-offs.

Introduction

This is the fourth *Status of Organic Agriculture in Minnesota* report produced by the Minnesota Department of Agriculture (MDA) since 2001. Minnesota Statute 31.94 (b) requires the department to report on current state or federal programs directed toward organic agriculture, including significant results and experiences of those programs; specific actions the department of agriculture is taking in the area of organic agriculture, including the proportion of the department's budget spent on organic agriculture; current and future research needs at all levels in the area of organic agriculture; suggestions for changes in existing programs or policies or enactment of new programs or policies that will affect organic agriculture; a description of market trends and potential for organic products; available information, using currently reliable data, on the price received, yield, and profitability of organic farms, and a comparison with data on conventional farms; and available information, using currently reliable data, on the positive and negative impacts of organic production on the environment and human health. Due to long delays in obtaining important organic farming adoption data from federal sources, this document constitutes the reporting obligation for both 2008 and 2010.

Background

"Organic" is a labeling claim that describes how an agricultural food or fiber product was grown and handled before it reached the consumer. Organic requirements apply to farmers who grow plants and animals, and to processors and handlers who turn agricultural products into food or other consumer products.

The National Organic Program Final Rule was published in the Federal Register on December 21, 2000 and its standards became effective on October 21, 2002. The standards address production, processing and labeling, certification, recordkeeping, and inputs allowed in organic farming and processing. The standards were developed over 10 years in response to the Organic Foods Production Act of 1990 and two sets of public comments. The rule has been amended several times since that date, subsequent to additional public comment periods. To conform with federal law, the Minnesota Legislature adopted the National Organic Standards by reference in 2003.

Products that make organic claims must be certified by a USDA-accredited organization. Third party certification assures consumers that the product was grown and processed in compliance with the National Organic Standards, and assures farmers and organic companies that they are operating on an equal footing, under consistent and uniform guidelines. Violations of the federal rule are punishable by fines of up to $11,000 per violation. Farms and processors selling less than $5,000 per year may be exempt from certification, but must follow and be able to document compliance with the National Organic Standards.

Land may be certified 36 months after the last application of any prohibited material. Organic crops must be grown on land managed to reduce erosion and improve soil quality, and fertilized with non-synthetic nutrients. Most synthetic herbicides and pesticides are prohibited, although a few synthetic nutrients and soil additives appear on a special National List of Allowed and Prohibited Substances and are permitted. There are strict manure and compost guidelines. Sewage sludge is prohibited. Weeds, insects, and other pests are controlled using practices like crop rotation, variety selection, biological control, mulching, and tillage. The use of genetically modified seed (or other products, such as inoculants), irradiation, and sewage sludge is prohibited.

All organic livestock must eat organic feed and/or pasture. They must not be given growth hormones, treated with antibiotics, or fed urea, manure, or animal by-products. They must be raised in conditions that allow them access to the outdoors (appropriate to the species), exercise, and the opportunity to practice natural behaviors. Starting in 2010, ruminants must receive a minimum 30% dry matter intake from pasture. Physical alterations such as dehorning and castration must be done only to promote the animal's welfare and then in ways that minimize pain and stress. Administration of some medications (e.g., antibiotics) results in automatic decertification of the animal. It is forbidden to withhold medical treatment from a sick animal in an effort to keep it organic.

Slaughter stock must be raised organically from the last third of gestation (except poultry, which must be raised organically from the second day after hatching). For an entire, distinct herd of dairy cattle, the milk may be certified after 12 months of continuous organic management, during which time the cattle may consume organic and/or third year transitional feed and forage. This transitional feed and forage must be produced by the farmer; a dairy producer may not buy third year transitional feed to use while converting a herd.

In addition to production requirements, the National Organic Standards describe how organically raised crops and animals must be processed and handled in order to preserve their organic status. All ingredients, processing aids, pest management in the processing facility, and labeling must follow these Standards. There must be no opportunity for organic products to mix, or commingle, with similar non-organic products.

Under the Final Rule, natural substances are permitted unless they appear on the National List of Allowed and Prohibited Substances (Subpart G of the Final Rule) as "prohibited." "Synthetics" (including antibiotics, hormones, and fertilizers derived from petrochemicals) are prohibited unless they appear on the list as "allowed." The List is overseen by a National Organic Standards Board, appointed by the U.S. Secretary of Agriculture. This is the only body that may add or remove materials from the List.

Organic Farm and Market Trends

Farm Trends

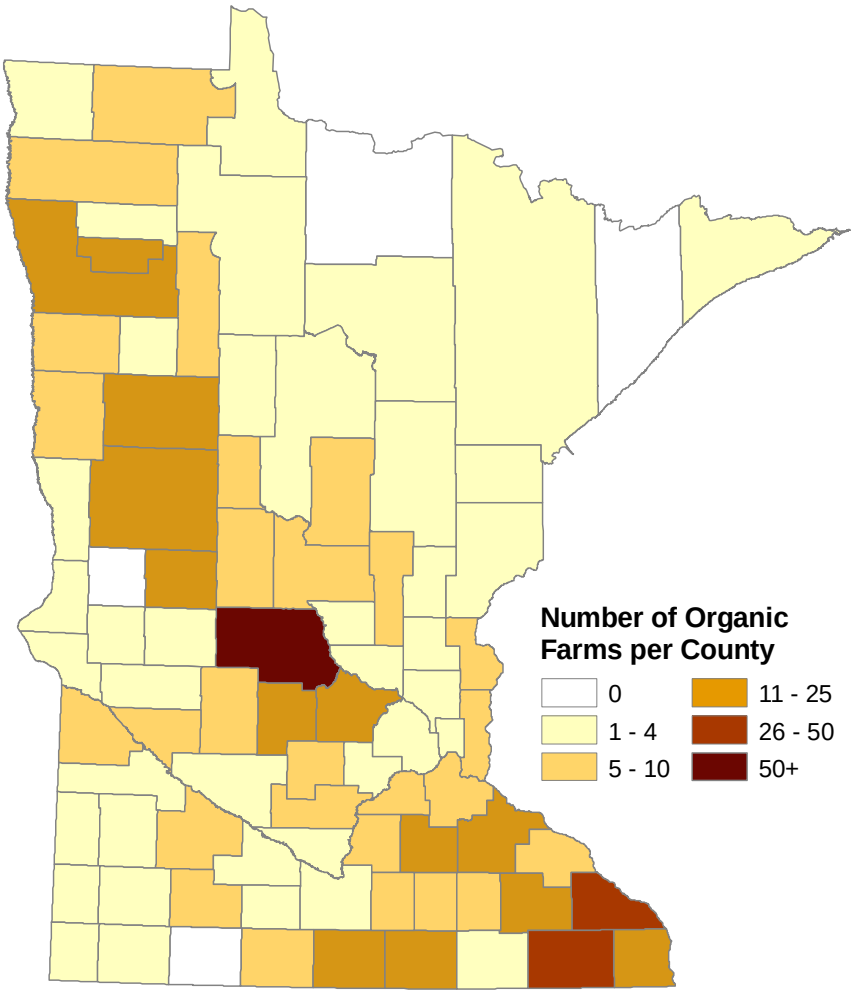
Organic farms are located throughout Minnesota (Figure 1). The MDA tracks the number of certified organic farms in the state using several sources of data. Organic farms are not required to register with the state and counting them is therefore somewhat difficult. The USDA National Organic Program offers a list of certified farms, but the list is organized by certifying agency, rather than by state, and it is unclear how often that list is updated.

Periodically, the MDA contacts certifying agencies known to be accepting clients in the state and requests lists of their certified operations. Using this method, the MDA estimated the number of Minnesota organic farms in early 2010 at 653 and organic food processor/handlers at 214. To track organic farming adoption trends in Minnesota, the MDA also relies on estimates of certified organic farm numbers and certified acreage published by the USDA Economic Research Service (ERS), which collects and analyzes operation and acreage data provided by accredited certifying agents.

In addition, the USDA National Agricultural Statistics Service (NASS) recently began to collect and publish data on organic farming. The 2007 Census of Agriculture included a set of seven questions specific to organic agriculture, but did not separate the responses of

Figure 1.

Location of Certified Organic Farms in MN, by County



Total Number of Certified Operations: 653
Source: MN Department of Agriculture, 2010
www.mda.state.mn.us

certified farms and those exempt from certification. A follow up NASS Organic Production Survey conducted in 2008 collected more in-depth information from farmers who identified themselves as certified or exempt organic. Since NASS and ERS data collection methods vary, both are reported here (Tables 1 and 2).

Table 1. Organic Farm and Acreage Data - Certified Only Data Compiled from Certifying Agencies

Year	Certified Farms, MN	Certified Farms, US	MN Rank Certified Farms	Certified Acres, MN	Certified Acres, US	MN Rank Total Certified Acres	MN Rank Cropped Acres Only
2000	382	6,592	4	81,953	1,776,073	7	5
2001	421	6,949	4	103,297	2,094,272	6	3
2002	371	7,323	5	112,047	1,925,534	7	3
2003	392	8,035	5	123,923	2,196,874	6	3
2004	422	7,808	5	115,298	3,045,109	6	4
2005	433	8,493	5	129,064	4,054,429	7	4
2006	433	9,501	6	131,887	2,937,473	7	4
2007	537	11,367	5	156,343	4,290,684	10	5
2008	543	12,941	7	154,136	4,815,959	11	5

Source: ERS, 2010

Table 2. Organic Farm and Acreage Data - Certified and Exempt, NASS 2008 Organic Production Survey

	MN	U.S. Total	U.S. Average
Organic farms (certified or exempt)	550	14,540	291
Percentage of all farms that are organic (certified or exempt)	0.68%	0.66%	0.66%
Organic acres (certified or exempt)	14,540	4,077,377	79,389
Farms converting acres to organic	84	1,524	31
Acres in conversion	4,771	128,476	3,443
Total organic product sales (farmgate)	$69 mil	$3.2 bil	$67.3 mil

Source: NASS, 2010

Market Trends

The USDA Economic Research Service (ERS) notes that a wider range of consumers has been purchasing more types of organic food, and that organic farms and manufacturers have struggled to produce sufficient supplies to meet demands, resulting in periodic shortages of some organic products.

According to data collected by sources like the Organic Trade Association (OTA) and Nutrition Business Journal, sales of organic foods grew at annual rates of 15-21% during the decade between 1998 and 2008, dropping to 5.1% in 2009 (OTA, 2010).

Estimates of market penetration vary. The Food Marketing Institute (FMI) reported that 51% of consumers bought organic food in 2006 (FMI, 2007). The Natural Marketing Institute (NMI) reported in 2007 that household penetration of organic products was 57% (NMI, 2007). According to the Hartman Group, which has been researching organic consumer behavior for 12 years, 69% bought organic food in 2008, and in a 2010 report, Hartman claims that 75% of the U.S. population uses organic products (Demeritt, 2009; Kimmell, 2010).

Hartman has observed that overall organic use stabilized after dramatic increases between 2000 and 2006, although there are still categories that are growing rapidly, particularly meat and dairy. Hartman reports that between 2000 and 2009, the percent of the U.S. population that purchased organic products occasionally, weekly, and monthly all increased (Figure 2).

Despite reports that the U.S. economic recession has depressed the organic market, Hartman found that consumers are using as much or more organic product (Kimmell, 2010). Retailer members of the Minnesota

Table 3. Organic Food Sales and Market Penetration 1999-2009

Year	Organic food sales ($ billion)	Growth rate	Organic sales as a percentage of total food sales
1999	$5.0	17.6%	1.06%
2000	$6.1	21.1%	1.22%
2001	$7.4	20.7%	1.41%
2002	$8.6	17.3%	1.63%
2003	$10.4	20.2%	1.94%
2004	$12.0	15.6%	2.19%
2005	$14.2	18.5%	2.48%
2006	$17.2	21.1%	2.80%
2007	$20.4	18.5%	3.15%
2008	$23.6	15.7%	3.47%
2009	$24.8	5.1%	4.00%

Sources: OTA, 2009; OTA, 2010

OATF reported similar information. They observed that the economic recession reduced the size of the overall "market basket," but that the proportion of organic products in that basket did not change much. (OATF, 2008, OATF, 2010).

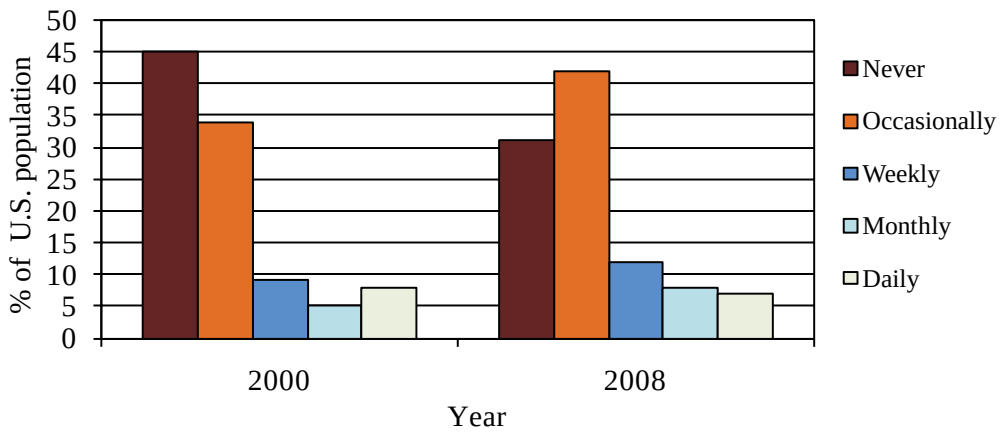
Organic Food Sales

By 2006, as much organic food was sold by conventional retailers (mainstream grocery stores, big box retailers) as in natural foods outlets, and by 2007, 82% of retail food stores offered organic food products.

Table 3 shows U.S. organic food sales during the 10 years between 1999 and 2009. The average rate of growth for organic food sales during this decade was 17.4% per year.

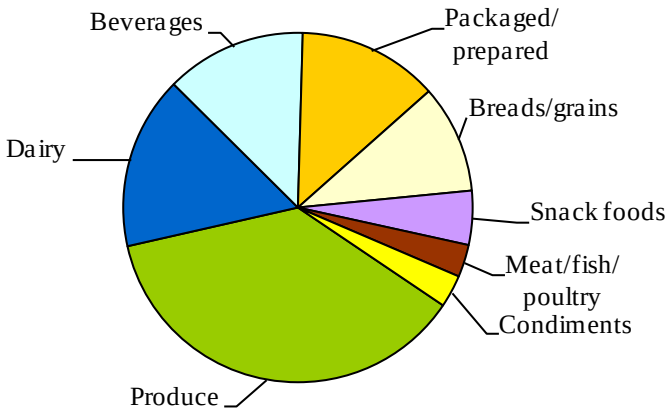
Figure 3 shows 2008 organic food sales by category. The data was compiled by USDA-ERS using data published by Nutrition Business Journal. (USDA-ERS, 2009). The ERS has noted that fresh produce continues its historical position as the most popular organic category; organic dairy, whose annual sales grew from 16% to 34% between 1997 and 2007, has experienced

Figure 2. Frequency of Organic Use



Source: Demeritt, 2009

Figure 3. 2008 Organic Food Sales by Category



Source: Nutrition Business Journal, as reported by USDA-ERS

periodic supply shortages. In 2008 and 2009, organic dairy surpluses led many buyers to institute price reductions, quotas, and/or contract amendments and cancellations. (OATF, 2008; NODPA, 2009). While total sales are still low, organic meat/poultry has been one of the fastest growing organic categories (up 46% between 1997 and 2007); organic feed grain shortages have affected the dairy and other livestock sectors.

The OTA reports that non-food organic sales have been growing at an even more rapid pace than that of organic food (Table 4). The most popular organic non-food categories in 2008 were personal care products, fibers (e.g., linens, clothing), and nutritional supplements.

Manufacturers and retailers have been introducing new organic products rapidly. Using information provided by Datamonitor, the ERS reports that in 1997, 290 organic food and beverage products were introduced. By 2007, 10 years later, the number of annual organic introductions had climbed to 1,110 (mostly beverages, packaged/ prepared foods, and snacks). In 2008, the number of organic new product introductions declined slightly to 1,030. The number of **all** new food and beverage product introductions—organic and nonorganic—also declined by 2% between 2007 and 2008 (Dimitri and Oberholzer, 2009; ERS, 2008).

Seeing the increasing interest in organic processed foods, retailers have begun offering private label (store brand) organic products. Citing data from Nutrition Business Journal and Nielsen, the ERS *Marketing U.S. Organic Foods* report documents that private labels' share of the organic marketplace rose from 8 to 16% between 2003 and 2005 and accounted for 19% of organic sales in 2007 (Dimitri and Oberholzer, 2009).

According to the ERS, as the consumer market for organic has developed, the supply of some organic ingredients has lagged behind demand. In 2007, 57% of organic handlers reported that supplies of ingredients were limited, up from 46% in 2004. Critical shortages were reported by 20% of manufacturers in 2007; minor shortages were reported by 16%. About 65% of the organic products bought by handlers were purchased through contracts (written or verbal), while 29% were transacted on spot markets, whereas in conventional agriculture, spot market transactions are more common (60%) (Dimitri and Oberholzer, 2009).

Since that report, however, the U.S. economic downturn has affected the organic sector by both slowing the increases in sales of some organic products (such as milk) and by increasing the volume of organic ingredients imported from countries like China. The supply of some raw organic products, such as grains and milk, now exceeds buyer demand. The MDA has received anecdotal reports of buyers delaying acceptance (and payment for) contracted grains. In the dairy sector, some processors cut producers, while others have instituted quotas for the amount of milk they will buy from their patrons at organic prices.

Organic Consumer Demographics

After reviewing academic research, industry studies, its own research, and various other data sources, the ERS concluded that while more highly educated consumers appear more likely to purchase organic than less educated consumers, income, race, and the presence of children in a household do not consistently affect a household's likelihood of buying organic products (Dimitri and Oberholzer, 2009).

Table 4. Non-food Organic Sales and Rate of Growth

Year	Non-food organic sales ($ billion)	Growth rate
2005	$0.7	32.6%
2006	$0.9	25.9%
2007	$1.2	26%
2008	$1.6	39.5%
2009	$1.8	9.1%

Sources: OTA, 2009; OTA, 2010

The Hartman Group posits that households with annual incomes greater than $70,000 are more likely than others to be organic consumers and those with incomes lower than $30,000 are less likely to purchase organic products. However, organic is not the sole provenance of the wealthy; more than half (52%) of organic users have household incomes of less than $50,000/year (Demeritt, 2009; Howie, 2004).

Hartman and other groups also consistently find that almost three out of four organic users are white, 14% are Latino/Hispanic, and 12% are African American. However, when their representation in the U.S. population is considered, Latino/Hispanic consumers are more likely than whites to buy organic products and African Americans are nearly as likely as whites to buy organic (Demeritt, 2009).

Hartman reported that organic consumers are most willing to pay premiums of up to 30% over the price of corresponding conventional products for the categories listed in Table 5.

Table 5. Consumer Willingness to Pay Organic Premiums

Item	Percent of organic consumers willing to pay 30% more for organic version of this product
Meat/poultry	65%
Fresh fruit	64%
Soymilk	62%
Milk	62%
Fish/seafood	61%
Breads	61%
Fresh vegetables	60%
Eggs	60%

Source: Demeritt, 2009

Economic Performance

The profitability of organic farming is dependent on many of the same factors that affect conventional farm profitability: yields (which, in turn, are affected by weather), prices, the cost of production inputs, the cost of fuel, and overhead.

Respondents to MDA's 2007 and 2009 Organic Farmer Surveys said they think that, in general, organic farming is more profitable than conventional production (see the section entitled *Organic Agriculture in Minnesota* later in this report).

Public perceptions of an organic yield deficit persist (Avery, 2009; Borlaug, 2009; Monsanto, N.D.). However, a number of peer reviewed studies published by researchers at the USDA Agricultural Research Service, Iowa State University, Cornell University, University of Michigan, Rodale Institute, and University of Wisconsin suggest that yields in well-managed organic systems can match or exceed similar conventional yields. Many find that the performance and profitability of organic systems increases with longer rotations or the longer the land is in organic production.

In the mid-Atlantic region, Cavigelli *et al.* documented lower yields of corn and soybean in organic than conventional systems. They attributed the lower yields to limited nitrogen and high weed pressure. However, these researchers observed that yield differences declined as length of the organic rotation increased. Yields of organic and conventional wheat were comparable. (Cavigelli *et al.*, 2008).

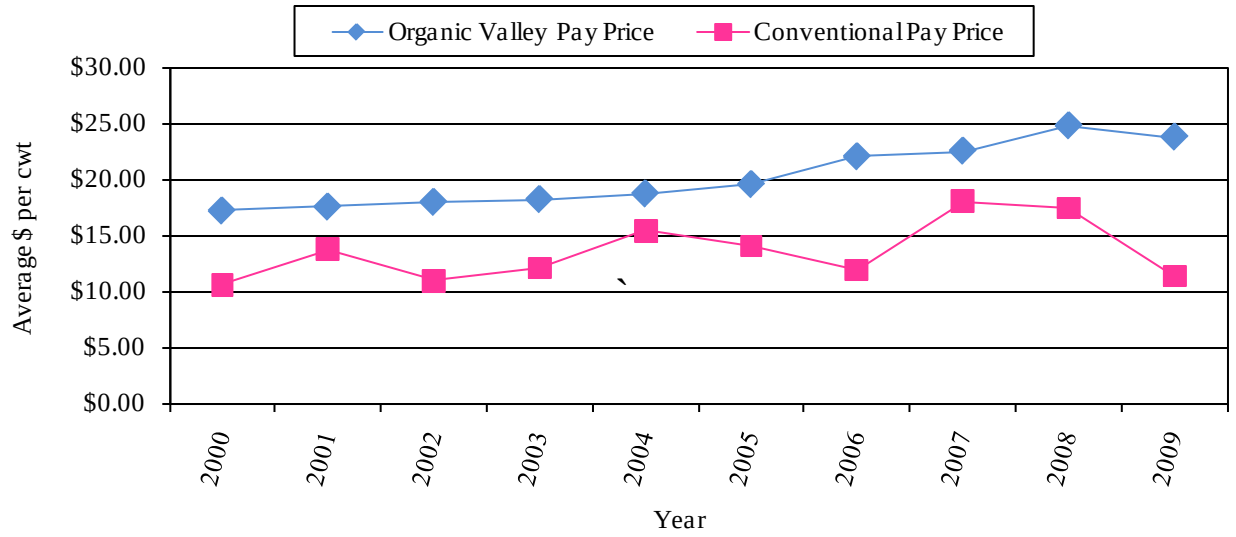
Studying the transition period in Iowa, Delate and Cambardella found feed corn and soybean yields in organic treatments were equivalent to conventional yields for the first three years of transition, and higher in year four, the first year of organic production. The authors credit inclusion of a soil-building crop that includes a forage legume for the higher organic yields in the fourth year (Delate and Cambardella, 2004).

Researchers in Wisconsin found no difference in yield between organic and conventionally grown forages. They reported organic corn and soybean yields as high as 99% of conventional with effective mechanical weed control and 74% when weather impaired weed control efforts. In these trials, organic winter wheat yielded 90% of conventional (Posner *et al.*, 2008). When economic data was integrated, both organic grain and forage systems showed higher returns than conventional no-till corn/soybean, continuous corn, or intensive alfalfa production (Chavas *et al.*, 2009). These conclusions are similar to those of an earlier study by Porter and colleagues at the UMN, who found that even without considering organic price premiums, lower production costs rendered the net returns for organic and conventional crop production equivalent (Porter *et al.*, 2003).

At Purdue, researchers obtained results similar to those of the Wisconsin group. Researchers conducted a review of agronomic and economic data on organic/conventional cropping systems trials and concluded that even if yield penalties experienced during transition were to continue, organic production can be competitive and profitable compared to conventional (Clark and Alexander, 2010). In Iowa, Delate *et al.* found that when organic price premiums were included, economic returns were higher for corn and soybeans grown in the organic systems compared to the conventional corn/soybean treatment (Delate *et al.*, 2003).

Organic cropping system performance has been researched to a greater degree than livestock farming. A 2005-2006 survey study by researchers at Iowa State University concluded that profitability of organic meat (both grass and grain-fed) production compared to conventional or "natural" is highly dependent on price premiums paid (Lawrence *et al.*, 2006). The ERS analyzed data from a 2005 USDA survey of dairy operations that included a targeted sample of organic producers. They found that average operating costs per hundredweight (cwt) of milk produced were $4.38 higher on organic than conventional farms ($3 higher on pasture-based organic farms). They also found that average operating and capital costs for organic dairies were $5.65 higher than for conventional dairies ($4 higher on pasture-based organic operations). In 2005, the average premium for organic milk was $6.69 per cwt, more than compensating for the higher cost of production. Since 2005, input costs have fluctuated, as has the differential between conventional and organic pay prices for milk (Figure 4).

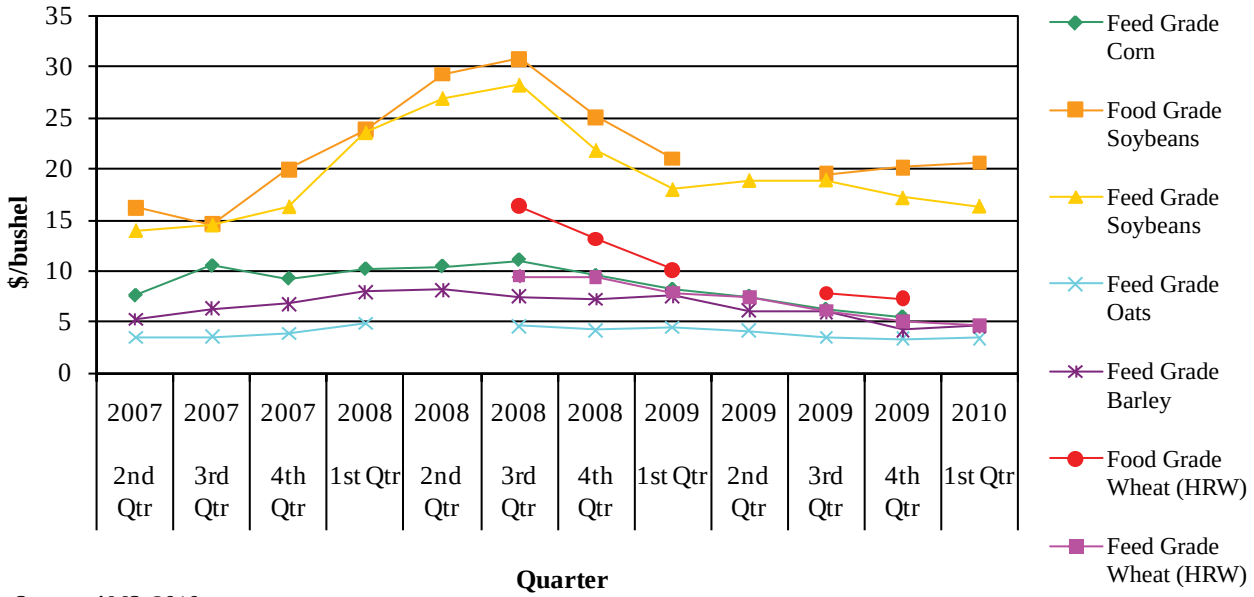
Figure 4. Organic and Conventional Dairy Prices 2000-2009



Sources: Organic Valley® Family of Farms and USDA-AMS Upper Midwest Milk Marketing Area, Minneapolis. Organic Valley® pay price is Midwest base without butterfat or quality premiums. Conventional pay price is Upper Midwest Class III price (3.5% butterfat).

In 2007, the ERS started publishing price information about the spot market for organic grains. As Figure 5 shows, prices for most commodities peaked in mid-2008, with the most marked decreases since then in the price of soybeans and wheat.

Figure 5. Midwest Organic Commodity Prices



Source: AMS, 2010

Since 2006, the MDA has been collecting detailed data on organic farm performance with funding from a USDA Risk Management Agency Research Partnership grant. Nearly 100 farmers have worked with farm business managers in the MnSCU system. Results have been published in four publications: *Organic Farm Business Management Annual Report – 2006, 2007 Organic Farm Performance in Minnesota, 2008 Organic Farm Performance in Minnesota, and 2009 Organic Farm Performance in Minnesota.* These reports are available at www.mda.state.mn.us/fbm.

The project provides scholarships to defray farmers' costs to enroll in farm business management education programs offered by schools in the MnSCU system. Farmers in the program work one-on-one with management instructors,

learning to keep and use records to make sound business management decisions for their farming operations. They receive comprehensive year-end analyses that can be used for tax preparation, discussions with lenders, and enterprise planning. Strict confidentiality measures protect the privacy of both the participants and their information. The data is stripped of all identifying characteristics before inclusion in FINBIN, the UMN Center for Farm Financial Management's interactive benchmarking database. Members of the public can design and run specific benchmarking and enterprise reports at www.finbin.umn.edu

Table 6 summarizes median net income (returns to labor, management, and equity capital invested in the business), and Table 7 summarizes the change in net worth for three profitability groups of totally organic farms: the bottom third, the mid-range, and the top third. It is clear that 2009 was a particularly difficult year for both conventional and organic farmers in the region. Median net farm income for **all** producers was down 63% from $91,242 to $33,417, according to records provided by 2,401 farms contributing data to the FINBIN database (Nordquist, 2010).

The variability of income across profitability groups is caused by various factors, including farmer management ability, capacity, debt load, type of operation, and geographic location. Weather has a strong impact on organic farms – late, wet springs, for example, not only delay crop planting and effectively shorten the growing season, but also increase the difficulty of controlling weeds.

Variability of within-group performance across years likewise has a number of contributing factors, including weather, input costs, and crop, livestock, and livestock product (e.g., milk) prices.

The 2006-2009 prices for selected organic crops are shown in Table 8. In general, prices rose in 2007, peaked in 2008, and declined somewhat in 2009.

Table 6. Median net farm income ($) of totally organic farms by profitability group

Year	Least profitable farms (bottom 33%)	Mid-range profitability (33-66%)	Most profitable farms (top 34%)	Avg all organic farms
2006	-19,530	31,345	108,180	41,973
2007	9,918	56,714	141,139	58,886
2008	- 1,808	46,376	122,639	56,412
2009	26,287	8,022	66,557	8,595

Source: MDA, 2010

Table 7. Net worth change ($) of totally organic farms by profitability group

Year	Least profitable farms (bottom 33%)	Mid-range profitability (33-66%)	Most profitable farms (top 34%)	Avg all organic farms
2006	-36,239	29,478	87,032	35,982
2007	61,486	37,012	180,840	97,765
2008	-4,401	35,352	96,245	44,495
2009	60,772	28,037	54,153	8,584

Source: MDA, 2010

Table 8. Average price ($) per unit received by total and partial organic growers*

Product	2006	2007	2008	2009
Corn, Organic/bu	$5.19	$6.62	$8.71	$7.76
Soybeans, Organic/bu	$4.17	$16.17	$22.50	$21.01
Alfalfa hay, Organic/ton	$132.22	$125.17	$120.39	$108.42
Milk, Organic (cwt)	$22.15	$24.44	$25.39	$25.77

Source: MDA, 2010

*Reflects cash sales only.

Environment and Human Health

Environment

Environmental protection is an underlying principle of the National Organic Standards, which require organic farmers to protect natural resources—including soil, water, and biodiversity—on their farms (see below). The standards require that the third party certification process document and verify these conservation practices.

CFR Regulatory Text, 7 CFR Part 205, National Organic Program; Final Rule.

§ 205.2 ***Terms defined***

"*Organic production"* A production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.

205.203 Soil fertility and crop nutrient management standard.

(a) The producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion.

[…]

(c) The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.

205.205 Crop rotation practice standard.

The producer must implement a crop rotation including but not limited to sod, cover crops, green manure crops, and catch crops that provide the following functions that are applicable to the operation:

(a) Maintain or improve soil organic matter content;

[…]

(c) Manage deficient or excess plant nutrients; and

(d) Provide erosion control.

205.206 Crop pest, weed, and disease management practice standard.

(a) The producer must use management practices to prevent crop pests, weeds, and diseases.

(b) Pest problems may be controlled through mechanical or physical methods per NOP rules.

In a 2005 article published in *Bioscience*, Cornell University's David Pimentel *et al.* enumerated a number of benefits from organic practices. These benefits include higher soil organic matter and nitrogen, lower fossil energy inputs, yields similar to conventional systems, and conservation of soil moisture and water resources. They argued that adoption of organic farming methods and technologies could improve the sustainability and ecological soundness of conventional agriculture (Pimentel *et al*., 2005).

Britain's Soil Association conducted a review of 39 comparative studies and found organic farming produced 28% higher soil carbon levels than non-organic farming on cultivated land in Europe and 20% for a wider group of countries studied. The authors concluded that widespread adoption of organic farming practices on cultivated land would lead to increased carbon sequestration and reduced greenhouse gas emissions (Soil Association, 2009).

Long-term applied research studies have shown organic farming practices are effective at sequestering carbon. The Emmaus, PA-based Rodale Institute posits that since soil organic matter is primarily carbon, commonly used organic agronomic practices such as extended crop rotation, cover cropping, and use of perennial legumes—all organic practices that build soil organic matter—will have a positive effect on carbon sequestration. Over the course of a 23-year study, Rodale has documented a 15-28% increase in soil carbon in organic management treatments (Sayre, ND).

In a study of nine U.S. farming systems trials, Marriott and Wander found that organic systems had higher soil organic carbon and total nitrogen concentrations than conventional systems (Mariott and Wander, 2006).

Spikes in fuel prices call attention to the energy demands of all types of agricultural production. In a 2006 report produced for The Organic Center, Cornell's Pimentel concluded that compared with conventional farming systems, organic farming systems significantly reduce the fossil energy inputs in production while improving several aspects of environmental performance, including reduction of fossil fuels used in corn and soybean production, reduced soil erosion, conservation of water resources, and higher soil organic matter (Pimentel, 2006).

In 2007, a group of British researchers at the Manchester Business School used Life Cycle Analysis methodology (LCA) to examine available evidence related to environmental impacts that occur in the life cycles of food products, including organic, conventional, local, imported, and others. They concluded that in general, the environmental impact of many organically grown foods is lower than for equivalent foods grown conventionally, but that there is insufficient evidence to declare whether, overall, organic or conventional agriculture has less adverse environmental impact (Foster *et al.*, 2006). Organic agriculture detractors pointed to this paper as evidence that organic is no better for the environment than conventional agriculture (Taylor, 2007).

An earlier study concluded that while organic farming *can* deliver positive environmental benefits, these depend on which methods and practices individual farmers choose to employ. As an example, the paper compared an organic farm with no access to livestock manure to a conventional farm with livestock, reminding readers, that "…there is a continuum of farming systems even within 'organic' and 'conventional' classifications" (Shepherd *et al*., 2003).

Organic critics such as the Hudson Institute's Dennis Avery, posit that organic practices degrade soil and use more land area per unit of yield than high input agriculture methods do, requiring more land to be put into production (Avery, 2007).

Minnesota organic farmers report observing or experiencing specific environmental benefits that they attribute to their farming practices. More than half of the respondents to the 2009 Minnesota Organic Farmer Survey wrote comments indicating they had noticed differences in environment or wildlife since they started farming organically:

- *77 reported more wildlife (particularly songbirds, gamebirds, frogs, gophers, bees, and other insects);*
- *12 reported a greater diversity of wildlife;*
- *18 reported they noticed wildlife preferred their crops compared to those on neighboring conventionally-managed land;*
- *44 reported reduced erosion and/or improved soil tilth, health, earthworm populations; and*
- *9 reported less runoff or better soil water holding capacity.*

(MDA, 2009)

Human Health

Differences of opinion about the comparative quality and safety of organic and non-organic foods persist. Although it is legally a marketing and process claim (how the food was grown and handled, rather than a content guarantee), supporters frequently tout health benefits of organic farming. The Organic Center, a nonprofit organization that "generate[s] credible, peer reviewed scientific information and communicate[s] the verifiable benefits of organic farming and products to society" maintains a growing catalogue of peer-reviewed scientific research documenting benefits of organic foods, including increased antioxidants, fewer pesticides, food safety, and superior nutritional quality. However, many researchers and commentators contend that organic has not been proven superior to non-organic food.

Nutritional Content

A 2008 literature review by librarian Mary Gold at the USDA's Alternative Farming Systems Information Center concluded that it is unclear whether organically-grown food contains more or better nutrients (vitamins, minerals, phytonutrients) than conventionally-grown food (Table 9).

Table 9. State of Research on Comparative Quality of Organic and Conventional Foods

Food Quality	U.S. organic standards and certification do not address food quality. They denote method of production and handling only and were implemented to provide a credible marketing claim for organic producers, processors, and retailers.
Nutrient Content	Valid scientific research comparing organic and conventional foods is scant and what has been done focuses on very specific foods and conditions. Across studies done so far, however, some general trends have been noted: on average, organic foods contain slightly higher levels of trace minerals, vitamin C, and antioxidant phytonutrients than conventionally grown crops.
Research Limitations	Research criteria and parameters for valid research of this type are extremely difficult to create and are demanding and expensive to implement.
Definitions of "Conventional"	There is no real definition of "conventional" agriculture. Conventionally produced foods come from a broad range of farming and food processing practices, challenging any science-based comparison between systems.
Defining "Healthful"	Measuring the nutrient content of food is only partly indicative of the "healthfulness" or nutritive value of foods. Assessing the effects of eating organic and conventional foods requires complicated, long-term dietary surveys involving human subjects.
Role of Phytonutrients	Studies have found higher levels of some phytonutrients in organically grown foods. Research has linked consumption of some phytonutrients to health benefits, but when and how these substances affect human health is still unclear. Research on phytonutrients is still in its early stages.
Soils, Vitamins, and Minerals	There is evidence that some fruits and vegetables today contain lower levels of some vitamins, minerals and other elements important to human health than they did 50 years ago. Have farm soils become "depleted" of essential nutrients over the years, and, if so, 1) are they to blame for differences in food values and, 2) does organic farming address these concerns?

Source: AFSIC, 2008 (Adapted with permission.)

Table 10. Summary of Nutritional Value of Organic versus Non-organic Foods

Nutrient	Food or Compound Analyzed	Outcome	Consensus
Nitrate	Lettuce, spinach, kale, endive, chard, cabbage, celeriac, turnip, beetroot, corn salad, potato and radish	Conventional > organic	Organic < conventional; NOTE: manipulation of produce may influence nitrate content
	Lettuce, carrot, potato, red beet, cabbage, leek, turnip and spinach (matched pairs)	Conventional > organic	
	Unwashed green salad, chicory (Italy)	Organic > conventional	
	Unwashed lettuce (Italy)	Organic = conventional	
	Washed lettuce, arugula (Brazil)	Conventional > organic	
	Washed watercress (Brazil)	Organic > conventional	
Fatty acids (FA) in milk	Polyunsaturated FA, Total omega-3 FA	Organic > conventional	Preliminary research has found that organic milk has higher polyunsaturated FA, total omega-3 fatty acids, a more beneficial omega 6: omega-3 ratio, higher alpha-linolenic acid, and higher more levels of conjugated linoleic acid; production system affects milk composition
	Lower omega 6: omega 3 (which is considered beneficial)	Organic > conventional	
	Monounsaturated FA	Conventional > organic	
	Conjugated linoleic, alpha-linolenic acid	Low input organic and low input conventional > conventional	
	Conjugated linoleic acid trans-vaccenic acid in breast milk	Mother consumed organic > mother consumed conventional	
Vitamin C	Lettuce, spinach, kale, endive, chard, cabbage, celeriac, turnip, beetroot, corn salad, potato, and radish	Organic > conventional	Vitamin C: Organic > conventional
	Corn, frozen	Organic > conventional	
Iron, magnesium, phosphorus	Lettuce, spinach, kale, endive, chard, cabbage, celeriac, turnip, beetroot, corn salad, potato and radish	Organic > conventional	Iron, magnesium, phosphorus: Organic > conventional
Protein, crude	Wheat	Conventional > organic	Protein: Organic < conventional; NOTE: lack of chemical nitrogen fertilizers; amino acid profile better
	Lettuce, spinach, kale, endive, chard, cabbage, celeriac, turnip, beetroot, corn salad, potato, and radish	Conventional > organic (N.S.)	
	Lettuce, carrot, potato, red beet, cabbage, leek, turnip, and spinach	Conventional > organic	
Phenolic acids Salicylic acid	Marionberries, corn	Organic > conventional	Phenolic acids: Organic > conventional
	Soups	Organic > conventional	
Flavonoids	Quercetin intake	Organic > conventional	Flavonoids: Organic > conventional
	Quercetin and kaempferol	Organic > conventional	

Source: Versteegen and Neubauer, 2008. (Reproduced with permission.)

In 2009, Alan Dangour and a team of colleagues funded by the United Kingdom's Food Standards Agency published a review of nutritional studies conducted between 1958 and 2008. The reviewers determined that conventional crops were typically higher in nitrogen, organic crops were typically higher in phosphorous, and there was no content difference for eight other crop nutrients. In its report, the team concluded that "there is no evidence of a difference in nutrient quality between organically and conventionally produced foodstuffs" (Dangour *et al.*, 2009).

The Organic Center criticized the Dangour study for omitting measures of some important nutrients, including total antioxidant capacity, and for using data from very old studies assessing nutrient levels in plant varieties that are no longer on the market. In addition, Organic Center scientists asserted that the London team minimized positive findings in favor of organic food. The Organic Center observed that in several instances the Dangour analysis showed that organic foods tend to be more nutrient dense than conventional foods, although this information was not included in the Dangour abstract (Benbrook *et al.*, 2009).

A year earlier, a group of scientists convened by The Organic Center published a report that examined the same studies that were reviewed by the Dangour group. The Organic Center panel concluded that organic foods contained more antioxidants than their conventional counterparts: higher phenolic compounds in 18 out of 25 cases, higher total antioxidant capacity in 7 out of 8 cases, higher levels of quercetin in 13 out of 15 cases, and higher levels of kampferol in 6 out of 11 cases (Benbrook *et al.*, 2008). Phenolics are phyto-chemicals – secondary plant metabolites that help plants resist pests. In the human diet, they are commonly referred to as "anti-oxidants" and are thought to play a role in preventing some chronic diseases like cancers, diabetes, and age-related cognitive decline (Mitchell *et al.*, 2007). Quercetin and kampferol belong to a subgroup of these phenolic compounds called flavonoids, and are associated with reducing the risk of heart disease and estrogen-related cancers (Desjardins, 2007).

The Nutrition in Complimentary Care practice group of the American Dietetic Association reviewed and summarized data on the nutritional value of organic versus non-organic foods (Table 10) *see page 19*.

In a 2009 letter to the journal *Science*, a group of nutritionists stated their opinion that current nutritional methodologies have resulted in unsubstantiated claims about the nutritional superiority of organic foods. However, the authors noted public health and environmental benefits of organic production methods and urged organic supporters to emphasize these benefits rather than misleading nutritional claims (Clancy *et al.*, 2009).

The number of studies comparing the nutritional quality of organic and conventional food doubled between 2000 and 2008, and scientific interest in these topics continues, so more studies can be expected (Benbrook *et al.*, 2008).

Pesticide Residues and Food Safety

A 2008 literature review by librarian Mary Gold at the USDA's Alternative Farming Systems Information Center concluded that there is evidence organic food contains fewer pesticide residues than conventionally grown foods, and that organic meat, eggs, and dairy products are somewhat less likely to contain antibiotic and hormone residues than conventional animal products, and that organic food is no less safe to eat than conventional food (Table 11).

Table 11. State of Research on Comparative Pesticide Residues and Food Safety

Organic and Food Safety Regulations	U.S. organic standards do not directly address food safety. However, the regulations mandate that organic food producers and processors meet requirements that have food safety implications. Organic food must also meet the same State and Federal food safety requirements as non-organic foods.
Pesticide Residues	Pesticide residues—traces of chemicals that were applied to food crops in the field, during processing and/or while in storage—are measurably different on organic foods and non-organic foods. Analysis of USDA and other data documenting pesticide residues on fresh vegetables and fruits shows that organic produce carries significantly fewer pesticide residues than conventional produce. Measured residues on most products, both organic and non-organic, do not exceed government-defined thresholds for safe consumption.
Food Safety and Animal Products	Food safety issues related to animal products (including meats, eggs, and dairy products) are diverse. Direct comparison studies of organic vs. non-organic foods are few, and the data available are specific to commodity, production practice, and/or food safety risk. Organic meat products have been shown to reduce risk for potential exposure to prion-related diseases including mad cow disease and to arsenic residues in chicken meat; and organic livestock practices do not contribute to the growing phenomenon of drug resistant pathogens. In other respects, however, current data show few significant differences with regard to food safety.
Food Additives	Organic regulations ban or severely restrict the use food additives, processing aids (substances used during processing but not added directly to food) and fortifying agents commonly used in non-organic foods including preservatives, artificial sweeteners, colorings and flavorings, and monosodium glutamate (MSG). Materials that handlers and processors may use are defined by the U.S. National Organic Program's *List of Allowed and Prohibited Substances.*
Food Safety	Organic foods have been scrutinized for food safety risks as well as advantages. Some organic production practices and restrictions imply potential health hazards including bacterial and fungal contamination, and increased "natural toxin" and heavy metal content. Research to date on these issues has not substantiated significant increased dangers associated with organic foods.

Source: AFSIC, 2008. (Adapted with permission.)

Organic Agriculture in Minnesota

As reported in "Farm and Market Trends," the MDA estimates that as of early 2010 there are between 550 and 650 certified organic farming operations in Minnesota and another 200 handling operations, mostly grain processors, food manufacturers, or retailers.

According to data provided by certifying agencies and compiled by ERS, Minnesota remains a top producer of a number of major organic crop and livestock products (Table 12).

Minnesota Organic Farmer Surveys

To understand the experiences, outlooks, and needs of organic farmers in the state, MDA has been conducting an organic farmer survey in alternate years. Results of the 2007 and 2009 surveys are reported here. Survey instruments are reproduced in appendices A and B.

In 2007, the MDA mailed surveys to 532 certified organic producers. A total of 209 useable surveys were returned for a useable response rate of 39%

In 2009, the MDA mailed surveys to 632 producers believed to be certified organic. A total of 281 useable surveys were returned for a useable response rate of 44%.

In both years, postage paid envelopes were provided for the survey return.

Table 12. Minnesota Organic Crop and Livestock Production

		Minnesota Rank		
Crop	**2008 Acres**	**2008**	**2007**	**2006**
Soybeans	21,229	1	1	1
Corn	27,565	2	2	1
Buckwheat	2,303	2	2	1
Oats	7,344	3	3	3
Rye	1,635	3	2	4
Barley	4,145	5	3	5
Wheat	13,384	12	10	8
Vegetables	1,011	13	16	11

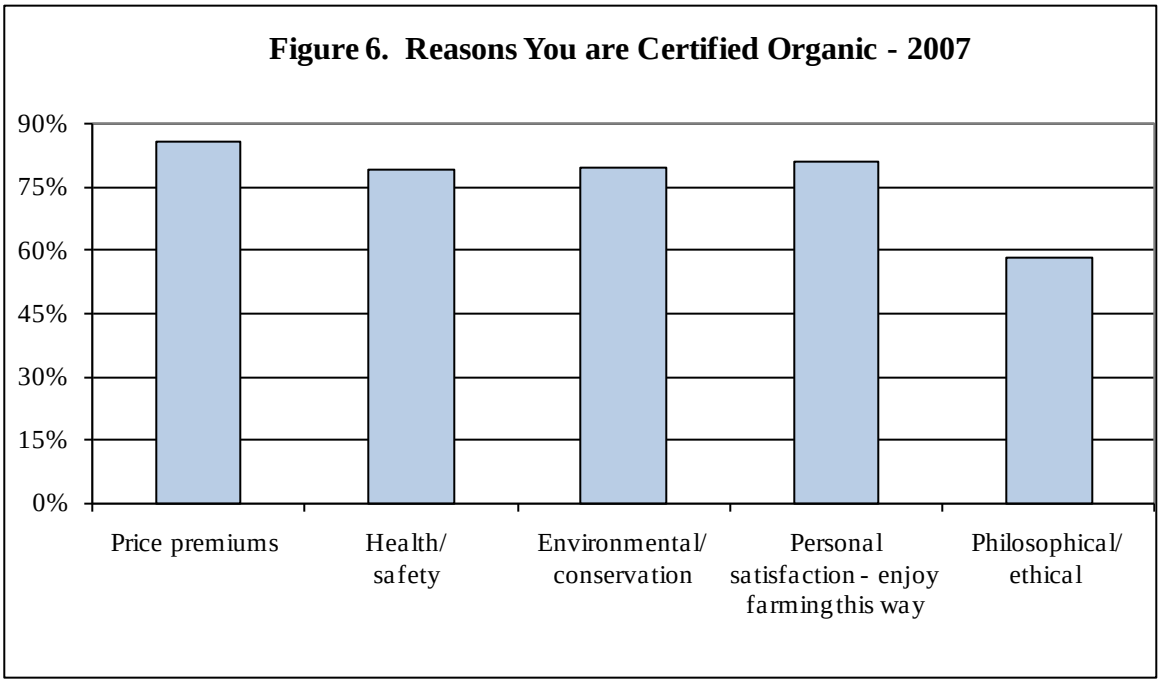
		Minnesota Rank		
Species	**2008 Head**	**2008**	**2007**	**2006**
Broilers	106,075	5	5	8
Turkeys	8,491	5	11	6
Milk cows	8,142	9	8	9
Sheep/lambs	139	11	5	4
Beef cows	1,759	12	10	12
Hogs/pigs	140	12	5	6
Layer hens	41,317	16	15	15

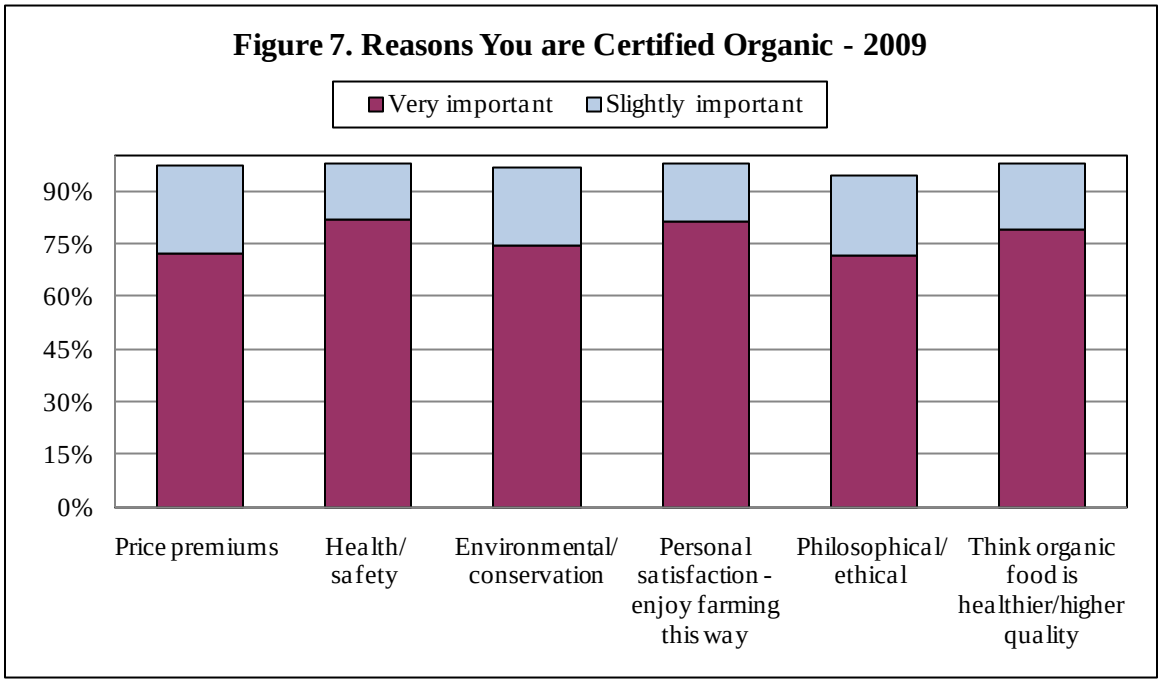
Source: ERS, 2010

Respondent Demographics

Most survey respondents were between 41 and 60 years old. According to the 2007 Census of Agriculture, the average age for all U.S. farmers was 57.1 years, while the average age of all U.S. organic farmers was 53.2 years. At 51.1 years, Minnesota organic farmers were slightly younger than the national average. These findings square with the results of the Minnesota Organic Farmer Surveys; the average respondent's reported age as of December 31, 2008 was 52.

In 2009, 78% of survey respondents said that they had started their organic farming careers as conventional producers who later transitioned to organic. The average respondent reported farming for 25 years; 10 of those organic. In both 2007 and 2009, respondents overwhelmingly cited multiple motivations for their decision to farm organically (Figure 6 and 7). The data are reported separately because while in 2007 the survey asked respondents simply to mark the reasons they farm organically, in 2009, the survey asked them to rate each factor as slightly important, very important, or not important.

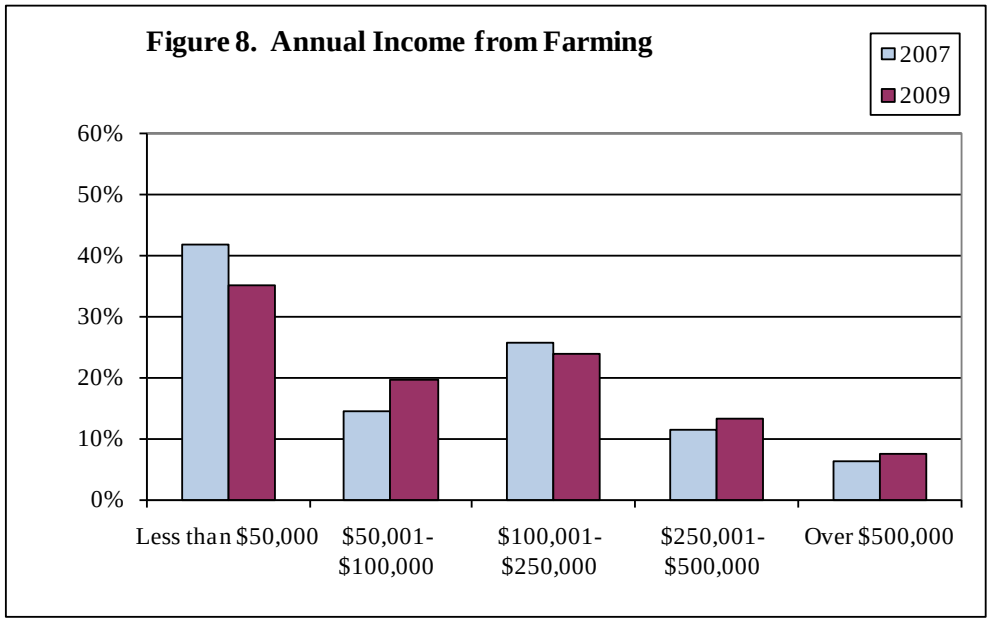


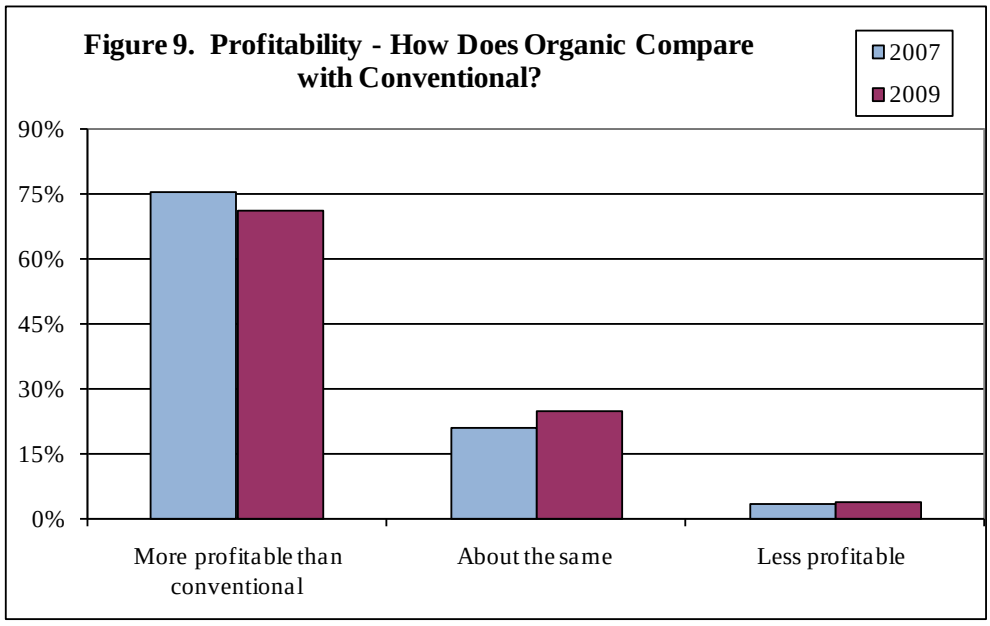


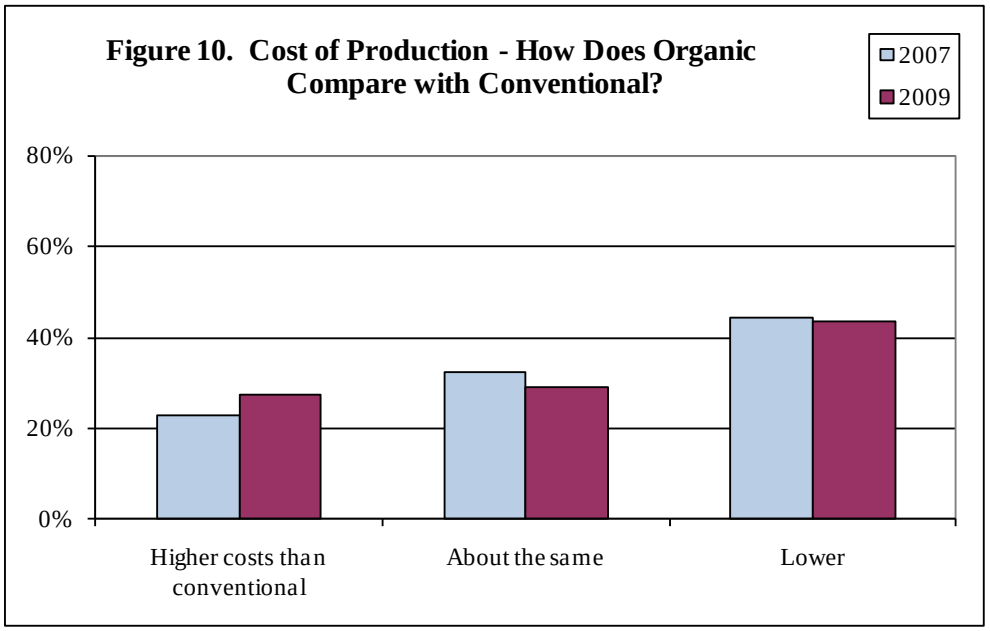
In both years, slightly more than half the respondents reported earning less than $100,000 (gross annual income) from farming, and about a quarter reported earning between $100,000 and $200,000. About 20% reported incomes of more than $250,000 (Figure 8).

In 2009, respondents reported that an average of 1.7 people (including the principal operator and family members) worked on the farm full time, and 2.4 people worked on the farm part time (the question was not asked in 2007). In both years, most survey respondents (68% in 2007 and 70% in 2009) reported that at least one adult worked off the farm.

Most farmers who answered the MDA surveys had a positive outlook about organic farming. In both years, a large majority said they thought organic farming was more profitable than conventional, and with lower costs (Figures 9 and 10).







They are largely optimistic about the future of their farming operations. In both years, about 90% of respondents said they expected their farm would still be in operation in 10 years. About three out of four expected the farm to be in existence 20 years from now (Figure 11).

In early 2009, when the survey was conducted, nearly 97% said they planned to maintain or increase their organic production, while about 3% said they planned to decrease their organic acres or livestock numbers (Figure 12). At this time, respondents had not experienced the weather problems and price declines that would occur later that year; respondents might have answered differently later in the year. The question was not asked in 2007.

Figure 11. Thinks Self or Family Will be Farming In...

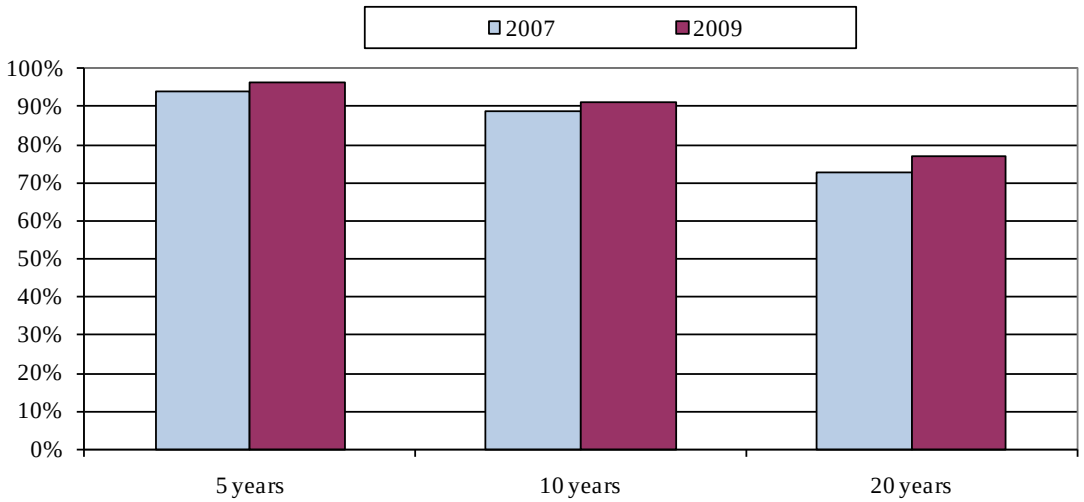
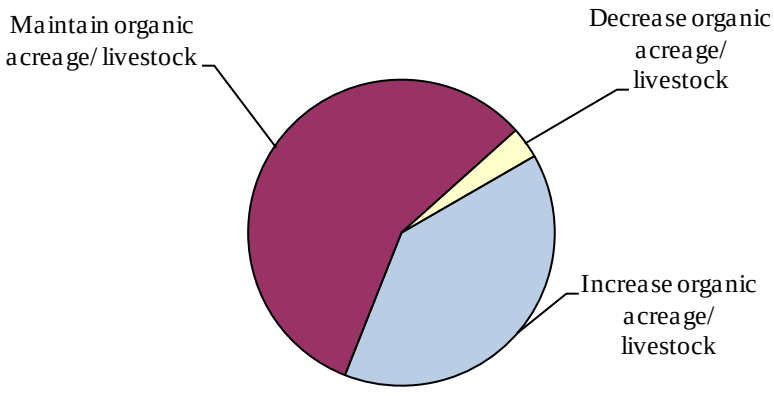


Figure 12. During the Next 5 Years, Do You Intend To… (2009 only)



Challenges

Despite their short and long-term optimism, survey respondents reported a number of challenges to farming organically (Figure 13). In both years, more than 40% of respondents rated "weed control" and "public confusion about what organic is" as major challenges. Weed control consistently ranks as one of organic producers' top challenges, both in Minnesota and in the third and fourth organic producer surveys conducted by the Organic Farming Research Foundation (OFRF, 1999; OFRF, 2004).

In 2009, the cost of fuel was a major concern of just about everybody. Cost of organic seed and other purchased inputs were major challenges to more than 40% of respondents (the survey didn't ask about these challenges in 2007).

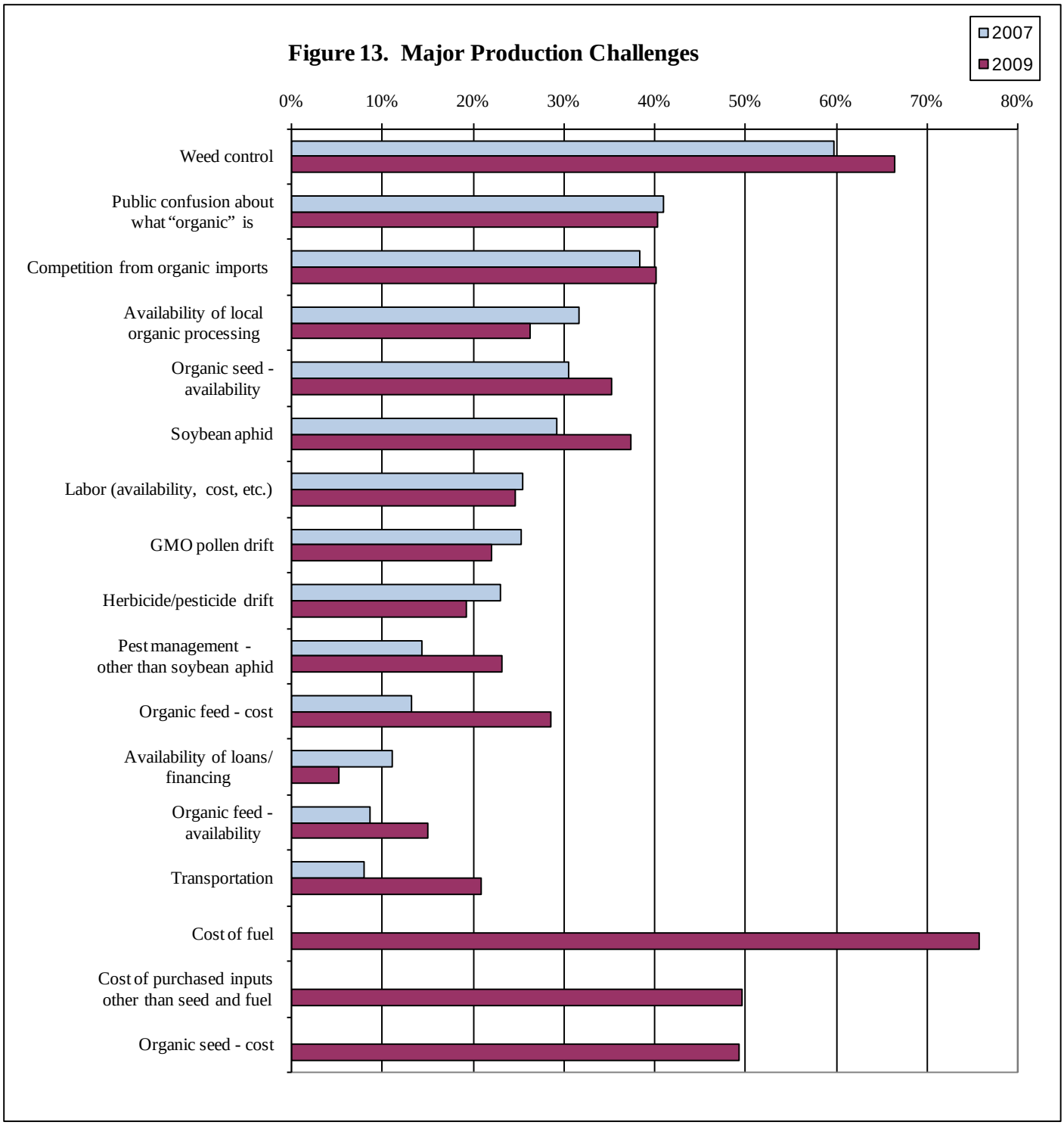


Table 13 breaks out 2009 respondents' top four production challenges by type of farm. Cost of fuel was a concern for all groups. Weed control was a top concern for crop and fruit/vegetable producers. Feed prices were an important issue for the livestock sector while the fruit and vegetable sector frequently cited labor issues as problematic.

Table 13. Top Production Challenges by Type of Respondent, 2009

Crop 1. Cost of fuel 2. Weed control 3. Soil moisture (excess or drought) 4. Soybean aphid	**Fruit, Vegetable, and Orchards** 1. Weed control 2. Cost of purchased inputs other than seed/fuel 3. Labor (availability, cost, etc.) 4. Cost of fuel
Dairy 1. Cost of fuel 2. Price of organic feed 3. Soil moisture (excess or drought) 4. Cost of organic seed	**Livestock Other than Dairy** 1. Cost of fuel 2. Price of organic feed 3. Availability of local organic processing 4. Soil moisture (excess or drought)

We posed questions about organic research needs in different enough ways each year that we are reporting the data for 2007 and 2009 separately (Table 14). In 2007, we asked respondents to identify the "top 4" research needs for organic agriculture in Minnesota. In 2009, we asked them to rate each topic as "not important," "slightly important," "moderately important," or "very important." Since we assume 2007 respondents would have considered their "top 4" research topics to be "very important," that is the 2009 data we are reporting here. Several of the topics respondents identified as most urgent were consistent across both years: weed management, soil topics, and nutritional studies on organic foods.

Table 14. Research Priorities, by Year

2007: Topics rated in respondents' "top 4"		2009: Topics rated "Very important"	
Weed management	58.0%	Soil health/biology	57.2%
Soil fertility	45.9%	Nutritional studies on organic foods	57.0%
Soil health/biology	43.0%	Weed management	55.7%
Nutritional studies on organic foods	33.3%	Soil fertility	55.6%
Insect pests	30.4%	Food quality/safety studies on organic foods	52.3%
Food quality/safety studies on organic foods	25.1%	Crop breeding/variety selections	50.2%
Yields	23.2%	Yields	45.4%
Economics of organic farming	22.7%	Organic variety trials	44.4%
Crop breeding/variety selections	22.2%	GMO pollen drift	43.2%
Organic variety trials	19.8%	Economics of organic farming	42.1%
Marketing	19.3%	Soil water holding capacity	40.1%
Livestock health management	18.4%	Marketing	39.9%
Plant diseases	8.7%	Milk quality	39.6%
Milk quality	5.8%	Insect pests	38.1%
		Livestock health management	35.8%
		Plant diseases	33.2%
		Transition to organic (best practices)	32.3%

When we look at the top four research issues by type of respondent (Table 15), we see overlap in areas like soil topics, weed management, and organic nutrition and safety.

Table 15. Research Priorities by Type of Respondent, 2009

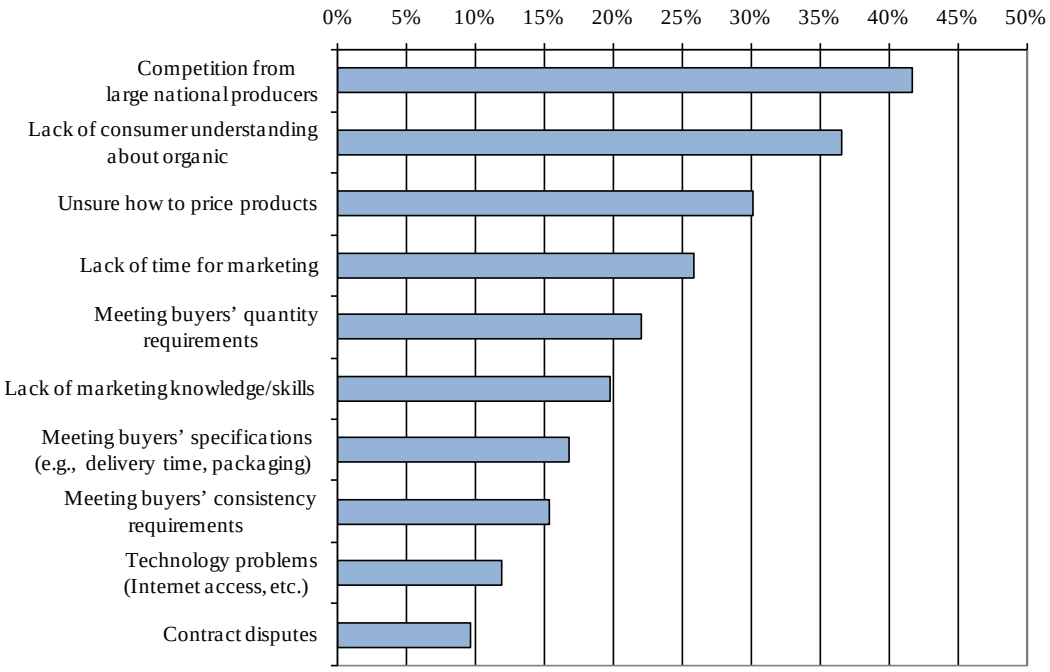
Cash Crop	Fruit, Vegetable and Orchard
1. Weed management	1. Nutritional studies on organic foods
2. Soil fertility	2. Soil health/biology
3. Soil health/biology	3. Organic variety trials
4. Seed breeding/variety selections	4. Food quality/safety studies
Dairy	**Livestock Other than Dairy**
1. Nutritional studies on organic foods	1. Nutritional studies on organic foods
2. Weed management	2. Marketing
3. Soil health/biology	3. Food quality/safety studies
4. Soil fertility	4. Economics of organic farming

Marketing

UMN research fellow Gigi DiGiacomo used data from the 2007 survey to produce a report entitled *Minnesota's Certified Organic Farmers Confident When it Comes to Marketing*. DiGiacomo concluded that producers are interested in marketing direct and generally feel confident making marketing decisions (DiGiacomo and Jewett, 2008). The full report is available at www.misa.umn.edu/vd/Organic_Marketing_Report_208.pdf

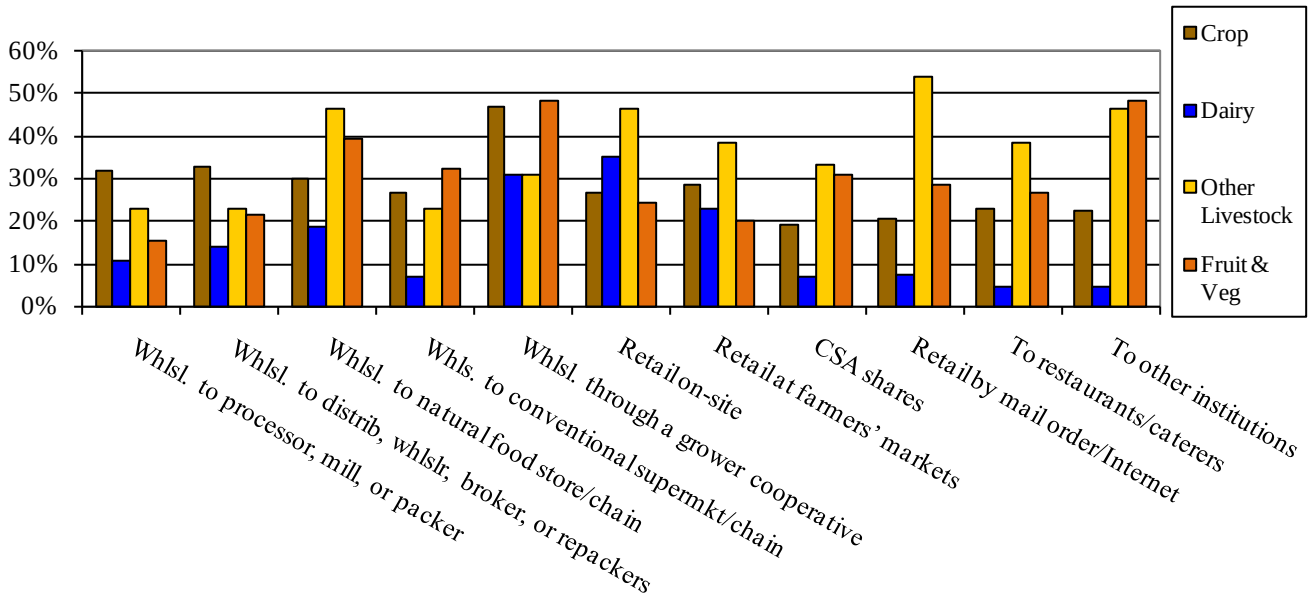
The marketing questions on the 2009 survey focused on two areas: marketing challenges producers encountered and their level of interest in expanding or entering into new markets. The top five challenges reported by all respondents were: competition from large operations; lack of consumer understanding about organic; uncertainty about product pricing; lack of time for marketing; and difficulty meeting buyer requirements (Figure 14).

Figure 14. Marketing Challenges Identified by 2009 Respondents as a "Big" or "Medium" Problem



Respondents reported interest in a wide variety of marketing options. Figure 15 shows the percentage of growers who said they were "very" interested in various marketing channels, broken down by the type of product they produce. Fruit and vegetable growers appear to be most interested in wholesaling through grower cooperatives and selling to institutions (e.g. schools, hospitals), which is not surprising considering the level of interest that "local food" and farm-to-school were attracting by early 2009. Nearly 50% of cash crop producers also indicated strong interest in marketing through grower cooperatives. Dairy producers indicated the most interest in retailing product themselves, and producers of livestock other than dairy indicated a high level of interest in several methods: retail or Internet sales; retail on-site, wholesaling to natural food stores or chains; and selling to institutions.

Figure 15. Level of Interest in Entering/Expanding Into Various Markets During the Next Five Years (2009)



Current State and Federal Programs Directed Toward Organic Agriculture

In 2003, the MDA coordinated a Memorandum of Understanding on Organic Agriculture (MOU), the first state level partnership of its kind in the nation. Five public sector signatories— MDA, USDA Minnesota Natural Resources Conservation Service (NRCS), USDA Minnesota Farm Service Agency (FSA), the UMN College of Agriculture (CFANS), and University of Minnesota Extension (UME)—agreed to cooperate on organic program activities that involved the conservation of natural resources, expansion of economic opportunity, and enhancement of consumer choice for products grown organically in Minnesota.

In 2008, the MOU was renewed and expanded to ten members. The Minnesota Department of Natural Resources (DNR), Minnesota Pollution Control Agency (MPCA), USDA Minnesota Risk Management Agency (RMA), USDA Minnesota Rural Development, and the University of Minnesota Agricultural Experiment Station (UMAES) joined the original signatories in agreeing to work collaboratively to provide assistance to organic producers, processors/handlers, and buyers/consumers (Appendix C). Reports from many of these Organic MOU partners are provided here.

Minnesota Department of Agriculture

The MDA is advised by a 15-member Minnesota Organic Advisory Task Force (OATF) as provided in M.S. 31.94 subd (c) and offers a number of programs to directly and indirectly assist organic farmers and those in transition.[2] The following is a partial list of MDA organic activities and initiatives.

1) **Organic Certification Cost Share** - Certified organic farms must pay for costs associated with certification, an expense non-organic farmers do not bear. (While organic farmers incur a cost to verify that they are organic, non-organic farmers do not have to pay to prove that they are not organic.) In 1990, in order to provide some regulatory relief to organic farmers, the Minnesota Legislature initiated the first organic certification cost share program in the nation. Until 2006, certified organic farmers were eligible for a reimbursement of up to 2/3 of certification-related costs with a maximum of $200. For a brief time (2004 and 2005), funds from a federal program reimbursed 75% of farmers' and handler/processors' costs up to $500 per operation. In 2007, federal funds were not available, so state funds were used. Legislative changes in 2007 made both farmers and handler/processors eligible for state reimbursement of 2/3 of certification-related costs, with a maximum of $350. For 2008-09, federal funds were again available and reimbursed 75% of costs with a maximum of $750. Participation and payments are summarized in Table 16.

Table 16. Organic Certification Cost Share Program Participation and Disbursements

Reimbursement year	# farmers assisted	Total disbursed to farmers	# handlers assisted	Total $ disbursed to handlers	Funding source, reimbursement formula
2005-06	178	$35,575.54	Handlers did not qualify in 05/06	--	State funds* 2/3 of qualifying costs, max $200
2006-07	308	$75,109.83	47	$9,894.10	State funds** 2/3 of qualifying costs, max $350
2007-08	353	$210,412.52	53	$36,179.21	Federal funds 75% of qualifying costs, max $750
2008-09	396	$235,755.95	77	$52,889.39	Federal Funds 75% of qualifying costs, max $750

** In 05-06, funds were insufficient. Claims were paid on a first come-first served basis and applicants were alerted when funds were exhausted so they would not apply. Even so, 27 claims were denied for lack of funds.*

*** In 06-07, funds were insufficient as well. Total demand equaled $119,509.85, exceeding the $85,000 available by 41%. On the advice of the OATF, the MDA elected to pro-rate reimbursements rather than awarding them first come-first served.*

[2] *In 2008, the OATF's authority was expanded to advise the University of Minnesota as well as the Department of Agriculture.*

Table 17. MDA Expenditures on Organic Activity by Fiscal Year.

State Fiscal Year	State Funds	% of MDA State Budget	Federal/Other Funds	Total
2006	$55,429	0.13%	$105,832	$161,261
2007	$95,062	0.13%	$92,248	$187,310
2008	$146,636	0.27%	$137,434	$284,070
2009	$182,867	0.23%	$349,418	$532,285

2) Organic Farm Business Management Scholarship Project

This is a continuing project that has been funded by the USDA Risk Management Agency since 2005. The project goals are improving farmers' financial literacy and publishing data about the profitability and productivity of organic farming. The project provides tuition scholarships to certified organic farmers who enroll in farm business management education and agree to provide their privacy-protected data for public database benchmarking. Scholarships start at 80% of tuition cost (currently approximately $1,500/year) and decrease by 10% every two semesters. Privacy protected financial data are summarized and published online at www.finbin.umn.edu and in printed annual reports entitled *Organic Farm Performance in Minnesota.* To date, 128 farmers have participated in the project. In Fall 2009, 93 were enrolled. Selected data are presented in the "Economic Performance" section of this report.

3) Directory of Minnesota Organic Farms

In 2006, 2008, and 2009, MDA published a voluntary organic farmer directory to make producers more visible to intermediate buyers (processors, brokers, feed mills, restaurants, etc. and to make it easier for organic producers to identify and contact each other. The prototype directory was funded by a grant from USDA Risk Management Agency and proved so popular that it was continued with state funds in years when funds were available. The 2009 edition listed 258 operations and was organized by county, by product (e.g., yellow corn, flax, dairy replacement heifers), and by last name of operator. There is an online version at www.mda.state.mn.us/organic. Wisconsin recently published a similar directory modeled on Minnesota's.

4) Directory of Certifiers Operating in Minnesota

Each year, MDA surveys USDA accredited certifiers to identify those accepting clients in Minnesota. Nearly 100 agencies are accredited by USDA to provide certification services, but not all take clients in MN. The directory is posted online at www.mda.state.mn.us/organic and distributed at meetings and conferences.

5) Minnesota Grown Organic

This new label was created in 2009 and can be used by Minnesota Grown members who are certified organic to identify their products as local and organically grown.

6) "Organic Farm Please Do Not Spray" Signage

At the suggestion of right of way pesticide applicators, the MDA designed and produced signs organic farmers can use to identify their land as organic. These are distributed to organic farmers that request them, along with information about how to post signs properly. The Department of Natural Resources provided advice on sign design, and USDA-NRCS county offices helped with distribution.

7) Minnesota Organic Conference

The MDA has coordinated a Minnesota Organic Conference since 2003. This farmer-directed, two day event is held in Saint Cloud and features several plenary sessions with nationally known speakers, at least 30 topical breakout sessions, and a trade show. Special arrangements are made for organic meals with ingredients sourced primarily from farmers in Minnesota and neighboring states, and these efforts are noted and appreciated by the attendees. In some years, a pre-conference workshop is offered. Attendance was estimated at 425-450 in both 2009 and 2010. There is nearly a 1:1 ratio of new (first or second year) and repeat attendees.

Minnesota Pollution Control Agency

The MPCA supports organic agriculture for a number of reasons. Organic farming reduces synthetic chemical inputs into the environment, providing fewer risks to contamination resulting in cleaner water and improved soil conditions. It also ensures that less impact due to creation of these chemical impacts will occur.

As part of its commitment to the Minnesota Organic MOU, the MPCA has pledged to continue to support practical research and education into the ways manure is managed so that a reliable and sustainable source of nutrients for organic agriculture production is available and to provide information on organic farming as part of the agency's outreach to farmers and consumers.

Since 2006, the MPCA has coordinated the Eco Experience display at the Minnesota State Fair, where more than 1 million visitors have been exposed to information about clean water, saving energy, organic and local food, transportation, green construction, and ways to lead more eco-friendly lives. Organic information is included in the Eco Experience exhibit. In 2009, a market that featured organic, Minnesota-grown food items was added, as was an exhibit by Peace Coffee, a local organic coffee roaster and distributor. The Eco Experience has become the second most popular exhibit at the Fair.

In addition, between 2002 and 2009, the MPCA was the primary organizer of the annual Living Green Expo, an event that draws about 25,000 attendees each year with an enormous trade show and workshops that promote green living. Each year, the Living Green Expo includes organic topics, foods, and farms.

Using Federal Economic Stimulus funding, a group of Minnesota GreenCorps members have been working to assist farmers' markets in four areas of the state. All of these markets likely include some organic growers.

In the workplace, the MPCA encourages its staff and employees from the Board of Water and Soil Resources and the DNR to join community supported agriculture (CSA) farms, which deliver produce weekly to the agency's building. Two of the three participating CSAs are certified organic. The MPCA also offers an E-Victory Garden program, a summer long initiative to encourage staff to plant their own home organic vegetable gardens. The MPCA website includes a page called "Consider Organics" in its *Living Green* section.

Minnesota Department of Natural Resources

The DNR supports organic agriculture for a number of reasons that are reflected in its mission. Among these are that organic farming:

- Eliminates (or significantly reduces) the use of chemical fertilizers and pesticides, which results in cleaner groundwater and less high-nutrient runoff to lakes and streams;
- Is sustainable, in that it conserves water and ensures that our natural resources are used wisely;
- Fosters biodiversity (one study done in the UK found that the organic farms studied had five times as many wild plants and a total of 57% more species); and
- Uses less fossil fuel overall, employing crop rotation and soil nutrient-building to sequester carbon.

As part of its commitment to the Minnesota Organic MOU, the DNR has pledged to offer opportunities for DNR staff to learn about the benefits of organic agriculture, develop opportunities to meet the needs of organic farmers, and to continue involvement with the UMN's Minnesota Institute for Sustainable Agriculture, which has been involved with organic research and education.

University of Minnesota

The UMN contributed the following information about organic research, education, and outreach activity relating to organic agriculture to this report:

► Educated graduate students to multiply the impact of faculty researchers and create the intellectual talent to fill the demand for academics with research experience in organic and sustainable agriculture. Because of funding in the 2007 Agricultural State Special, graduate research assistantships have been awarded in these areas:
- Improving the production and quality of organic vegetables and organic cropping systems;
- Alternative and pasture-based livestock options (including organic);
- Using high tunnels to extend growing season of crops such as greens interplanted with raspberries (including organic); and
- Economics of organic agriculture and sustainable food systems.

► Created new faculty positions to increase the knowledge base about organic agriculture and share this information with the organic agriculture community. These include:
- An organic dairy extension and research faculty member based at the West Central Research and

Outreach Center (WCROC), Morris; and
- An organic cropping extension and research faculty member (a search is underway for this position) based at the Southwest Research and Outreach Center (SWROC), Lamberton.

► In addition to these two new positions, other faculty members conduct research and education on organic topics such as the economic aspects of growing and marketing organic and alternative food, and alternative livestock systems, including organic. The SWROC employs a half-time organic outreach specialist and a half-time organic research specialist.

► Provided funding for initiatives focused on organic agriculture including:
- Organic dairy conversion at the WCROC. This investment will add to the UMN's leadership in the number of certified organic acres at a land grant university.
- Organic high tunnel production for demonstration and research at the SWROC, focused on fertility management, cover cropping, crop quality, yield, and the economics of season extension.
- Support and staffing for the OATF, charged by the Legislature to advise the Commissioner of Agriculture and the UMN.
- Ongoing support of the UMN research and development of non-GMO soybean varieties (use of genetically modified seed by organic farmers is prohibited).
- Student organic farm on the St. Paul campus.
- St. Paul Farmers' Market on the St. Paul campus (satellite location).
- Publication and distribution of "Organic Certification of Vegetable Operations" booklet.
- Field days at the SWROC, which has certified organic land.
- Engagement with the University's Healthy Foods, Healthy Lives Institute on ways to integrate organic food and farming research into the institute's research agenda, educational events, etc.
- Formation of an Organic Initiative working group to coordinate the UMN's organic programming.
- Working with the University's Water Resources Center and with MDA, presentations about organic practices and certification requirements were given to NRCS employees and technical service providers.
- Displayed material and made presentations at state and regional organic conferences.
- Faculty and staff involvement with eOrganic.info, a national, multi-university project providing research-based information on organic production to the national extension website.

USDA Minnesota Farm Service Agency (FSA)

Each year, the FSA provides financial support for the Minnesota Organic Conference. The agency also provides an educational exhibit about FSA services and staff speakers for breakout sessions. Selected FSA employees are permitted to attend the annual conference to gain knowledge and skills that will help them improve the services they provide to organic producers. The agency's 79 local offices help advertise the conference.

FSA makes direct and guaranteed operating and farm ownership loans to eligible farmers and ranchers. While organic producer portfolios in FSA's direct and guaranteed loans is small compared to conventional producers, there are organic producers that have accessed FSA loans to improve their organic operations. For example, in Stearns County, four organic entrepreneurs were able to access direct and guaranteed operations loans. FSA is making concerted efforts in marketing and outreach to increase the participation of organic producers in all its programs including credit services. A Farm Storage Facility Loan program provides low interest financing that producers can use to build or upgrade storage or handling facilities. In addition, the Noninsured Crop Disaster Assistance Program provides financial assistance to producers of organic and conventionally grown crops that do not qualify for coverage under traditional crop insurance plans.

USDA Minnesota Natural Resources Conservation Service (NRCS)

This federal agency works with farmers to evaluate alternative conservation systems and to implement landowners' decisions that protect the natural resources. Organic farming standards offer one path of decision-making that strongly considers natural resource protection. Assistance is provided through the technical expertise of resource professionals; financial assistance to share the cost of installing conservation practices and during transition to organic farming; easement programs that help promote landscape diversity; and through technical information such as soil surveys, plant databases, and other technical releases. NRCS also supports workshops on organic agriculture and related topics.

In 2009 and 2010, NRCS offered a special Environmental Quality Incentives Program (EQIP) Organic Initiative to organic and transitioning farmers. In 2010, NRCS also offered cost share funding to organic (and other) operations for high tunnel construction (Table 18).

Through the Resource Conservation and Development (RC&D) program administered by NRCS, NRCS staff members work with local nonprofit RC&D Councils throughout Minnesota. RC&D is based on the idea that local people know what their areas need and can create solutions that will work for them and their communities. They have led efforts to support educational, marketing, and promotional needs of organic growers. These efforts include organizing grazing workshops, co-hosting the annual Midwest Value Added Conference, "Buy Fresh-Buy Local" organization membership, co-sponsoring training on Japanese Agricultural Standards, and support of organic agriculture conferences and workshops.

USDA Minnesota Rural Development

Value-Added Producer Grants (VAPG) may be used for planning activities and for working capital for marketing value-added agricultural products and for farm-based renewable energy. Eligible applicants are independent producers, organic producers, farmer and rancher cooperatives, agricultural producer groups, and majority-controlled producer-based business ventures.

USDA Rural Development awarded almost $2 million in VAPGs in 2008 for eight projects in Minnesota. One award went toward the marketing of ciders, sauces and fruit preserves made from organic fruits. Another was awarded to help a company market its natural beef products. Since the VAPG program's creation in 2001, Minnesota has been awarded over $14 million in grants.

Renewable Energy and Energy Efficiency Program grants and loan guarantees are available to small businesses and farmers to install renewable energy systems or make efficiency upgrades. Since this program's inception in 2003, Minnesota has been awarded over $23 million to build wind turbines, install geo-thermal and solar systems, purchase grain dryers, and make other efficiency improvements on farms and small businesses.

USDA Rural Development of Minnesota has discussed the Organic MOU agreement and has advertised Rural Development programs to potential organic producers at several public events. Examples include roundtable Farm Bill discussions with staff from Senator Amy Klobuchar's office and Representative Tim Walz's office, Farm Bill discussions with the Farm Service Agency and other agriculture leaders from throughout the state, meetings with the MDA to discuss a cross section of agriculture and rural development programs, trade shows and conferences including the Minnesota DEED Conference, and Farmfest.

Table 18. NRCS Financial Assistance to Minnesota Organic Farmers

EQIP Organic Initiative						
Year	**# Organic applications**	**# Organic Contracts**	**Value**	**# Transitional applications**	**# Transitional Contracts**	**Value**
2009	70	61	$1,367,000	46	37	$816,197
2010	45	45	$740,000	20	20	$288,000
Pilot High Tunnel Initiative						
2010	24	22	$99,900	12	12	$56,300

Source: Minnesota NRCS

Recommendations

Prior Recommendations – Progress Toward Goals

The table below reflects MDA activity and progress on recommendations put forth in the last *Status of Organic Agriculture in Minnesota* report.

Table 19. Prior Organic Recommendations

RECOMMENDATION	PROGRESS	SAMPLE INDICATORS
New Policies or Programs		
Technical and financial assistance to help growers during their transition to organic.	+	NRCS county staff received organic training to implement EQIP Organic Initiative and wrote 98 conservation contracts for organic and transitioning farmers in 2009.
A voluntary registration and affidavit program to provide state documentation to organic growers who are legally exempt from certification requirements under §205.101 of the National Organic Standards (7 C.F.R., Part 205).	++	New "Minnesota Grown Organic" label created.
Organic educational materials and presentations for consumers.	+	Public presentations and workshops to consumer, citizen groups.
A Minnesota organic buyer directory (processors, brokers, shippers, traders, etc.).	+++	Directory of Organic Buyers published by UMN.
Policies or Programs to Continue or Enhance		
State assistance to defray the cost of certification for certified organic Minnesota farmers and processors.	+	Line item veto eliminated funding for this program in 2010. However, federal cost share funds were distributed to farmers and processors in 2008, 2009, and 2010, administered by MDA.
Information and technical assistance to help growers learn about certification requirements, organic practices, and resources available to them.	++	MDA has offered public presentations, workshops, publications, website. UMN has provided educational programs to undergraduates and via Extension programming, field days, website, etc.
Information and technical assistance help organic farmers understand, evaluate, and implement marketing options.	+	MDA marketing division works with producers using two distribution models.
Assistance to farmer groups to help them to explore and pursue value-added organic business opportunities.	-	Little activity
Minnesota Organic Conference.	+++	Conference is self supporting. Attendance increases each year. Trade show had waiting list in 2009 and 2010.
Low-interest loans to organic farmers through the Shared Savings Loan Program (SSL) administered by MDA.	-	Nine SSL loans totaling $128,333 made to organic farmers between 2006 and 2009.
Directory of Minnesota Organic Farms.	+++	Print and web editions produced in 2008 and 2009. Number of listed farmers increased to 256.
Enforcement of Minnesota state labeling law with regard to organic product claims.	n/a	No complaints received for MDA follow up.
Farmer-to-farmer networking programs.	-	MOFIE mentor program has not expanded
Collaboration, networking, and complementary efforts by federal, state, university and nonprofit stakeholders.	++	Minnesota Organic Network; MOU staff meetings. MDA, DNR, NRCS, Extension, DNR, FSA and others share knowledge, resources, collaborate on training, outreach, etc.
Learning from efforts and experiences in other states.	++	MDA has participated in National Assn of State Organic Programs.
Expansion of the current five-partner MOU on Organic Agriculture.	+++	Minnesota MOU on Organic Agriculture renewed and expanded in 2008.

KEY: +++ substantial progress + little progress ++ modest progress - no progress

Current and Future Research Needs		
Assess the current organic processing capacity for Minnesota-grown organic products and identify opportunities for, major barriers to, and recommendations concerning the expansion of organic production and processing infrastructures in Minnesota and concomitant economic development impact.	++	UMN assembled directory of organic buyers. Agricultural Utilization Research Institute green jobs opportunities study included organics.
Increase long-term applied organic cropping systems and organic livestock research by faculty at the UMN and other post-secondary institutions on topics of importance to Minnesota organic farmers.	+++	UMN hiring agronomy and dairy science faculty members with organic emphases. Half of WCROC dairy herd has transitioned to organic.
Encourage farmer-initiated, farmer-directed on-farm research and in-field of organic management practices through programs such as the MDA Sustainable Agriculture Demonstration Grant Program.	++	Eight grants totaling about $90,000 made to organic projects between 2006 and 2009.
KEY: +++ substantial progress + little progress ++ modest progress - no progress		

Current Recommendations – Looking Ahead

The following recommendations are based on input contributed by the Minnesota OATF, survey responses by organic farmer stakeholders, the experiences of organizational partners, and other direct input to MDA from the organic community.

Education and Information

Information – Continue annual Minnesota Organic Conference. Maintain Minnesota organic farmer and buyer directories.

Economics – Continue the Organic Farm Business Management Scholarship program to document costs and profitability of organic farming. Expand program to transitioning farmers.

Environmental Impact – Investigate and quantify environmental consequences of various organic farming methods on greenhouse gas emissions and climate change. Develop organic management practices to reduce any negative environmental impacts and promote organic management practices that are environmentally sustainable.

Nontraditional Farmers – Increase outreach to nontraditional farming communities (immigrant farmers, farmers of color, beginning farmers, urban farmers).

Marketing and Promotion

Infrastructure and Distribution – Encourage the expansion of certified organic processing and distribution capacity to increase the value of organic products grown in Minnesota.

Organic Product Information – Provide clear information about organic methods and foods that helps organic farmers market their products and that will help consumers make informed choices about selecting organic, particularly in light of competing claims such as “natural” and “sustainable.”

Marketing – Help Minnesota organic farmers improve their marketing skills. Help Minnesota organic food companies identify and capitalize on new customers and new markets.

Promotion – Encourage the purchase of local organic products through programs like Minnesota Grown.

Leadership and Capacity Building

Collaboration – Encourage collaboration, networking, and complementary efforts by federal, state, university, and nonprofit stakeholders through the Minnesota MOU on Organic Agriculture and other relationships, including connections between OATF and Wisconsin Organic Advisory Council. Pursue multi-partner research and outreach projects.

Professional Development – Investigate reciprocal training opportunities (e.g., cross train organic inspectors and food inspectors on organic and food safety requirements for manufactured foods) to reduce contradiction and duplication.

Technical and Financial Assistance

Transition Assistance – Develop programs to provide technical and financial assistance to farmers during transition.

Financing – Increase the number of organic farmers participating in the MDA Shared Savings Loan program. Continue to administer an organic cost share reimbursement program.

Policy and Regulation

Laws and Regulations – Keep Minnesota agricultural leaders, organic farmers, and consumers informed about proposed changes to organic laws and regulations that will affect them and comment when appropriate.

Organic Crop Insurance – Monitor and comment on USDA efforts to assess and reform equitability of crop insurance available to organic farmers.

Enforcement – Cooperate with the National Organic Program on enforcement of the National Organic Standards and state misbranding statute.

Exempt Registry – Create a state registration program or mechanism for organic farms exempt from the requirement to certify under §205.101 of the National Organic Program Final Rule.[3]

Organic Integrity – Help organic farmers protect themselves from chemical spray drift by helping them identify their land as organic through the use of "no spray" signs and an organic/sensitive crops land registry, and providing them clear avenues for reporting drift.

Research

Identify farmers' research priorities and share with UMN researchers, educators, extension staff, and MnSCU faculty as well as agency leaders, policymakers, funders, etc. Growers of all types of organic products consistently identify weed management, soil biology and fertility, and nutritional studies on organic foods as priority research areas. In 2009 and 2010, the MDA observed an increasing level of conversation and concern about the need to develop seed varieties using classical breeding methods and the disproportionate public and corporate investment in development of conventional germplasm (typically using GMO technology and therefore not useable by organic farmers) compared to varieties that will do well in organic systems.

In addition to the specific priorities identified by 2009 organic survey respondents in Tables 14 and 15, organic stakeholders have identified other research topics, including:

- Energy conservation in organic systems;
- Carbon sequestration strategies;
- Social and economic impacts of organic farming on rural communities;
- Research and testing of purchased organic agricultural inputs (e.g., fertilizers, pesticides, etc.) to test product claims;
- Development of added value products or product ingredients (e.g. food ingredients, processing aids, body care products, etc.);
- Cover cropping strategies.

Funding

Secure funding for Minnesota organic research, promotion, and organic industry development. Explore funding options including federal, state, dedicated (license plate), and commodity check-offs.

NOTE: The MDA considered pursuing a check-off on organic commodity sales to be used for organic research and promotion. Only 50% of certified organic farmers responded favorably to the idea of such a check-off (2007 Minnesota Organic Farmer Survey), so the MDA has elected not to pursue the idea further at this time.

[3] *Farms that follow all provisions of the organic rule but have less than $5,000 per year in organic sales.*

References and Citations

Agricultural Marketing Service. 2010. Upper Midwest organic grain & feedstuffs report (bi-weekly). Livestock and Grain Market News. United States Department of Agriculture. Des Moines, IA. www.ams.usda.gov/mnreports/nw_gr113.txt

Alternative Farming Systems Information Center. 2008. Should I purchase organic foods. Part B. United States Department of Agriculture, National Agriculture Library. Beltsville, MD.

Avery, Alex. 2009. Organic farming can't feed the world, we need modern methods. Spiked-online.com. 14 Oct. www.spiked-online.com/index.php/debates/fof_article/7569/

Avery, Dennis. 2007. The consequences of organic farming: recent rains washed out land made prone to erosion by the practices that were employed. Editorial. Star Tribune. September 5. www.startribune.com/opinion/commentary/11149951.html

Benbrook, Charles, Xin Zhao, Jaime Yanez, Neal Davies, and Preston Andrews. 2008. New evidence confirms the nutritional superiority of plant-based organic foods. March. The Organic Center. Boulder, CO. www.organic-center.org/reportfiles/Nutrient_Content_SSR_Executive_Summary_FINAL.pdf

Benbrook, Charles, Donald R. Davis, and Preston K. Andrews. 2009. Organic Center response to the FSA study. July. The Organic Center. Boulder, CO. www.organic-center.org/science.nutri.php?action=view&report_id=157

Borlaug, Norman. 2009. Farmers can feed the world. Wall Street Journal. July 30. http://online.wsj.com/article/SB10001424052970203517304574304562754043656.html

Cavigelli, Michael, John R. Teasdale, and Ann E. Conklin. 2008. Long-term agronomic performance of organic and conventional field crops in the mid-Atlantic region. Agron. J. 100:785-794.

Chavas, Jean-Paul, Joshua L. Posner, and Janet L. Hedtcke. 2009. Organic and conventional production systems in the Wisconsin integrated cropping systems trial: II. Economic and risk analysis 1993–2006. Agron J. 101:288-295.

Clancy, Kate, Michael Hamm, Alan Levine, and Jennifer Wilkins. 2009. Organics: evidence of benefits lacking. Science. Vol 325, p. 675. August 7.

Clark, Samuel and Corrinne Alexander. 2010. The Profitability of transitioning to organic grain crops in Indiana. Purdue Agricultural Economics Report. February. Purdue University. West Lafayette, IN. www.agecon.purdue.edu/extension/pubs/paer/2010/february/alexander.asp

Dangour, Alan D., Sakhi K Dodhia, Arabella Hayter, Elizabeth Allen, Karen Lock, and Ricardo Uauy. 2009. Nutritional quality of organic foods: a systematic review *Am. J. Clin. Nutr*. July 29. doi:10.3945/ajcn.2009.28041.

Delate, Kathleen, Michael Duffy, Craig Chase, Ann Holste, Heather Friedrich, and Noreen Wantate. 2003. An economic comparison of organic and conventional grain crops in a long-term agroecological research (LTAR) site in Iowa. American Journal of Alternative Agriculture, 18:59-69.

Delate, Kathleen and Cynthia Cambardella. 2004. Agroecosystem performance during transition to certified organic grain production. Agron. J. 96:1288-1298.

Demeritt, Laurie. 2009. Current state of the organic consumer. Webinar. September. The Hartman Group, Inc., Bellevue, WA. www.hartman-group.com/webinar/current-state-of-the-organic-consumer

Desjardins, Ellen. 2007. Nutritional value of organic food: what do we know? Growing up organic conference. February 17. Toronto, Canada. www.cjly.org/deconstructingdinner/EllenDesjardins-NutritionalValue_000.pdf

DiGiacomo, Gigi and Jane Grimsbo Jewett. 2008. Minnesota's certified organic farmers confident when it comes to marketing. University of Minnesota Institute for Sustainable Agriculture, Saint Paul, MN. www.misa.umn.edu/vd/Organic_Marketing_Report_208.pdf

Dimitri, Carolyn and Lydia Oberholzer. 2009. Marketing U.S. organic foods: recent trends from farms to consumers. USDA Economic Research Service Economic Information Bulletin No. (EIB-58), September. www.ers.usda.gov/publications/eib58/

Economic Research Service. 2008. New organic product introductions, 1988-2008. United States Department of Agriculture, Washington, D.C. www.ers.usda.gov/Briefing/FoodMarketingSystem/new_product.htm

Economic Research Service. 2009. Sales of organic food by category, *2000-2010E*. Organic agriculture: maps and images gallery. Updated September 1, 2009. United States Department of Agriculture, Washington, D.C. www.ers.usda.gov/Briefing/Organic/Gallery/OrganicSales.htm

Economic Research Service. 2010. Organic production, data files, table 4. Updated March 30, 2010. United States Department of Agriculture, Washington, D.C. www.ers.usda.gov/Data/Organic

Food Marketing Institute. 2007. FMI backgrounder: organic and natural foods. Arlington, VA. www.fmi.org/media/bg/natural_organic_foods.pdf

Foster, C., K. Green, M. Bleda, P. Dewick, B. Evans, A. J. Mylan. 2006. Environmental impacts of food production and consumption: a report to the Department of Environment, Food and Rural Affairs. Manchester Business School. Manchester, England. http://randd.defra.gov.uk/Document.aspx?Document=EV02007_4601_FRP.pdf

Howie, Michael. 2004. Research roots out myths behind buying organic foods. Feedstuffs. March 24. Reprinted at www.organicconsumers.org/organic/millions033004.cfm

Kimmell, Arwyn. 2010. Beyond organic and natural. Webinar. April. The Hartman Group, Inc., Bellevue, WA. www.hartman-group.com/webinar/natural-organic-2010

Lawrence, John D., Margaret Smith, and Nicolas Acevedo. 2006. Organic, natural and grass-fed beef: profitability and constraints to production in the Midwestern U.S. Leopold Center for Sustainable Agriculture, Ames, IA. www.iowabeefcenter.org/content/Organic_Natural_Grass_Fed_Beef_2006.pdf

Mariott, Emily E. and Michelle M. Wander. 2006. USA total and labile soil organic matter in organic and conventional farming systems. Soil Sci. Soc. Am. J. 70:950-959. Published online April 19. http://soil.scijournals.org/cgi/content/abstract/70/3/950

Minnesota Department of Agriculture. 2007. Minnesota organic farmer survey.

Minnesota Department of Agriculture. 2009. Minnesota organic farmer survey.

Minnesota Department of Agriculture. 2010. 2009 Organic farm performance in Minnesota. Saint Paul, MN. www.mda.state.mn.us/fbm

Minnesota Organic Advisory Task Force. Public meeting. January 14, 2010. www.mda.state.mn.us/food/organic/oatf.aspx

Minnesota Organic Advisory Task Force. Public meeting. December 3, 2008. www.mda.state.mn.us/food/organic/oatf.aspx

Mitchell, Alyson E., Yun-Jeong Hong, Eunmi Koh, Diane M. Barrett, D. E. Bryant, R. Ford Denison, and Stephen Kaffka. 2007. Ten-year comparison of the influence of organic and conventional crop management practices on the content of flavonoids in tomatoes. J. Agric. Food Chem., 55 (15), pp 6154–6159. http://pubs.acs.org/doi/full/10.1021/jf070344%2B?cookieSet=1

Monsanto. N.D. Are GMO food and organic foods an either/or proposition? www.monsanto.com/biotech-gmo/asp/guests.asp?id=WhatsForLunch#

National Agriculture Statistics Service. 2009. 2007 Census of Agriculture. United States Department of Agriculture, Washington, D.C. www.agcensus.usda.gov

National Agriculture Statistics Service. 2010. Organic production survey (2008). February. 3:2. AC-07-SS-2. United States Department of Agriculture, Washington, D.C. www.agcensus.usda.gov/Publications/2007/Online_Highlights/Organics

Natural Marketing Institute. 2007. Organic consumer trends report summary. Harleysville, PA. www.nmisolutions.com/r_organic.html

Nordquist, Dale. 2010. 2009 FINBIN report on Minnesota farm finances. April. Center for Farm Financial Management, University of Minnesota, Saint Paul, MN. www.cffm.umn.edu/Publications/pubs/FarmMgtTopics/2009MinnesotaFarmFinancialUpdate.pdf

Northeast Organic Dairy Producers Alliance. 2009. Organic milk pay price update. August 1. www.nodpa.com/payprice_update_080109.shtml

Organic Farming Research Foundation. 1999. Third biennial national organic farmers' survey. Santa Cruz, CA. www.ofrf.org/publications/survey.html

Organic Farming Research Foundation. 2004. Fourth national organic farmers' survey. Santa Cruz, CA. www.ofrf.org/publications/survey.html

Organic Trade Association. 2009. The Organic Trade Association's 2009 organic industry survey. Executive summary. May. Greenfield, MA.

Organic Trade Association. 2010. The Organic Trade Association's 2010 organic industry survey. Executive summary. April. Greenfield, MA.

Pimentel, David, Paul Hepperly, James Hanson, David Douds, and Rita Seidel. 2005. Environmental, energetic, and economic comparisons of organic and conventional farming systems. BioScience. July. 5 (7): 573-582. Posted online on December 18, 2008. http://caliber.ucpress.net/doi/abs/10.1641/0006-3568%282005%29055%5B0821:RFPAC%5D2.0.CO%3B2

Pimentel, David. 2006. Impacts of organic farming on the efficiency of energy use in agriculture: an Organic Center state of science review. August. http://organiccenter.org/reportfiles/ENERGY_SSR.pdf

Porter, Paul M., Dave R. Huggins, Catherine A. Perillo, Steven R. Quiring, and R. Kent Crookston. 2003. Organic and other management strategies with two- and four-year crop rotations in Minnesota. Agron. J. 95:233-244.

Posner, Joshua L., Jon O. Baldock, and Janet L. Hedtcke. 2008. Organic and conventional production systems in the Wisconsin Integrated Cropping Systems Trials: I. Productivity 1990–2002. Agron J. 100:253-260.

Sayre, Laura. N.D. Organic farming combats global warming -- big time. Rodale Institute, Emmaus, PA. http://rodaleinstitute.org/ob_31

Shepherd, Mark, Bruce Pearce, Bill Cormack, Lois Philipps, Steve Cuttle, Anne Bhogal, Peter Costigan, and Roger Unwin. 2003. An assessment of the environmental impacts of organic farming. Review of Department of Environment, Food and Rural Affairs funded project OF0405. London, England. http://orgprints.org/6784/2/OF0405_909_TRP.pdf

Soil Association, 2009. Soil Carbon and Organic Farming. Soil Association. November. Bristol, England. www.soilassociation.org/LinkClick.aspx?fileticket=SSnOCMoqrXs%3d&tabid=574

Taylor, James M. 2007. Organic farming strains environment. Environment & climate news. May 1. The Heartland Institute, Chicago, IL. www.heartland.org/policybot/results/20945/Organic_Farming_Strains_Environment.html

Versteegen, Margaret and Suzanne Neubauer. 2008. Organic foods: are they a safer, healthier alternative? Nutrition in Complimentary Care, a Dietetic Practice Group of the American Diabetic Association. 11:2.

Appendices

A. 2007 Minnesota Organic Farmer Survey

B. 2009 Minnesota Organic Farmer Survey

C. Minnesota Memorandum of Understanding on Organic Agriculture

D. Minnesota Organic Legislative History

Appendix A

2007 Minnesota Organic Farmer Survey

Dear Organic Grower: February 2007

Every couple of years, the Minnesota Department of Agriculture surveys organic farmers to learn about how organic agriculture is developing in Minnesota and what organic farmers need.

This survey asks 30 questions about you and your operation. Please complete (only one survey per farm) and return in the enclosed envelope before March 31, 2007. **If a question does not apply to you, just leave it blank.** If you have any questions or know a friend or neighbor who needs a survey, please call Meg Moynihan at 651-201-6616. All responses will remain confidential. Thanks.

1. Circle your age range: under 20 20-30 31-40 41-50 51-60 61-70 70+

2. What type of farm enterprises do you have? (mark all that apply)

- ❑ Crop
- ❑ Dairy
- ❑ Other Livestock (including beef, poultry, sheep, goats, etc.)
- ❑ Vegetables, Fruits, or Orchard

3. Was <u>any part</u> of your farm certified organic in 2006? ❑ Yes ❑ No

4. Acres farmed in 2006:

	# Acres Owned	# Acres Rented
Certified organic	_____	_____
Organic, not certified	_____	_____
Transitional	_____	_____
Conventional	_____	_____

5. If you are certified organic, why? (mark all that apply)

- ❑ A. Price premiums
- ❑ B. Health/safety reasons
- ❑ C. Environmental/conservation reasons
- ❑ D. Personal satisfaction - I enjoy farming this way
- ❑ E. Philosophical/ethical reasons
- ❑ F. Other (explain) _____

6. If you farm organically but are not certified, why not? _____

7. If you raised certified organic livestock in 2006: A. % of feed you grew _____, % purchased _____.
B. % of forage you grew _____, % purchased _____.

8. Do you buy crop insurance for your organic production? ❑ Yes ❑ No

9. Do you use farm financial management software? ❑ Yes ❑ No

10. In 2006, what was your total <u>gross annual income</u> **<u>from farming</u>**?

- ❑ A. Less than $50,000
- ❑ B. $50,001-$100,000
- ❑ C. $100,001-$250,000
- ❑ D. $250,001-$500,000
- ❑ E. $500,00-$1,000,000
- ❑ F. Over $1,000,000

11. In 2006, what percent of this **gross annual farm income** came from the sale of **organic** products? _____%

12. In 2006, did any adult in your household earn off-farm income? ❑ Yes ❑ No

13. Based on your experience and that of other people you know, how do **you** think organic farming compares with conventional?

i. **Profitability:** ❑ A. More profitable than conventional ❑ B. About the same ❑ C. Less profitable

ii. **Production Costs:** ❑ A. Higher than conventional ❑ B. About the same ❑ C.. Lower

14. Do you think you or a family member will be farming...

A. In 5 years? ❑ Yes ❑ No
B. In 10 years? ❑ Yes ❑ No
C. In 20 years? ❑ Yes ❑ No

15. In 2006, how big a challenge to your organic operation were the following? (circle your replies)

Scale: ***NP*** *- no problem* ***SP*** *- slight problem* ***MP*** *- medium problem* ***BP*** *- Big problem* ***NA*** *- Not applicable*

A. GMO contamination	NP	SP	MP	BP	NA
B. Herbicide/pesticide drift	NP	SP	MP	BP	NA
C. Difficult relationships with neighbors	NP	SP	MP	BP	NA
D. Soybean aphid	NP	SP	MP	BP	NA
E. Insect pest management (other than soybean aphid)	NP	SP	MP	BP	NA
F. Weed control	NP	SP	MP	BP	NA
G. Availability of organic feed	NP	SP	MP	BP	NA
H. Price of organic feed	NP	SP	MP	BP	NA
I. Availability of organic seed	NP	SP	MP	BP	NA
J. Availability of local organic processing (meat)	NP	SP	MP	BP	NA
K. Availability of local organic processing (other)	NP	SP	MP	BP	NA
L. Availability of transportation	NP	SP	MP	BP	NA
M. Labor (availability, cost, etc.)	NP	SP	MP	BP	NA
N. Public confusion about what "organic" is	NP	SP	MP	BP	NA
O. Poor crop quality	NP	SP	MP	BP	NA
P. Production volume (i.e., didn't have volume required by buyer)	NP	SP	MP	BP	NA
Q. Immature markets (difficult to find buyers)	NP	SP	MP	BP	NA
R. Lack of price transparency	NP	SP	MP	BP	NA
S. Lack of marketing knowledge/confidence	NP	SP	MP	BP	NA
T. Competition from organic imports	NP	SP	MP	BP	NA
U. Availability of financing	NP	SP	MP	BP	NA
V. Enforcement of national organic standards	NP	SP	MP	BP	NA

16. In your opinion, which FOUR research areas are **most important** to organic agriculture in Minnesota? (please mark **only** four)

❑ A. Weed management
❑ B. Insect pests
❑ C. Storage
❑ D. Irrigation
❑ E. Plant diseases
❑ F. Soil fertility
❑ G. Soil health/biology
❑ H. Yields
❑ I. Composting
❑ J. Crop breeding/variety selections
❑ K. Organic variety trials
❑ L. Nutritional studies on organic foods
❑ M. Food quality/safety studies on organic foods
❑ N. Economics of organic farming
❑ O. Milk quality
❑ P. Livestock health management
❑ Q. Marketing
❑ R. Other (explain) _____

17. About how much did you pay for organic certification in 2006? (including all application, inspection, user fees, etc.)

❑ A. $300 or less ❑ B. $301-$500 ❑ C. $501-$750
❑ D. $751-1,000 ❑ E. $1,001-$2,500 ❑ F. More than $2,500

18. What is the name of your certifying agency? _____

19. Did you apply to Minnesota Department of Agriculture (MDA) for organic certification cost share in 2006?

❑ A. Yes ❑ B. No ❑ C. Never heard of it

20. Which other MDA services have you used in the last year? (mark all that apply)

❑ A. *Greenbook*
❑ B. Attended MDA organic or sustainable agriculture field days
❑ C. Listed in or used *Directory of Minnesota Organic Farms*
❑ D. Used MDA web site
❑ E. Used MDA directory of certifiers
❑ F. Attended Minnesota Organic Conference in St. Cloud
❑ G. Called to request information
❑ H. Minnesota Grown Program
❑ I. International marketing assistance
❑ J. Other (specify) _____

21. In 2006, about what percent of your total organic sales did you receive from each of the following? (leave blank if none)

Crops - Grains, oilseeds, beans, etc.

___ % forward contracts
___ % Broker(s) for cash/spot sales
___ % Direct sales at the farm
___ % Farmers market
___ % Direct contact w/retail stores
___ % CSA (Community Supported Agriculture or subscription farm)
___ % Other (specify) _____

Livestock - Beef, hogs, dairy, poultry, etc.

___ % forward contracts
___ % Broker(s) for cash/spot sales
___ % Direct sales at the farm
___ % Farmers market
___ % Direct contact w/retail stores
___ % CSA (Community Supported Agriculture or subscription farm)
___ % Other (specify) _____

Vegetables, fruits, and other produce

___ % forward contracts
___ % Broker(s) for cash/spot sales
___ % Direct sales at the farm
___ % Farmers market
___ % Direct contact w/retail stores
___ % CSA (Community Supported Agriculture or subscription farm)
___ % Other (specify) _____

Value-Added Products - Processed grain, produce, livestock products, etc.

___ % forward contracts
___ % Broker(s) for cash/spot sales
___ % Direct sales at the farm
___ % Farmers market
___ % Direct contact w/retail stores
___ % CSA (Community Supported Agriculture or subscription farm)
___ % Other (specify) _____

22. If you contracted product in **2006** for future delivery, approximately what percent of contracted sales did you arrange in advance of harvest?

❑ A. 100% ❑ B. More than 50% ❑ C. 25-50% ❑ D. Less than 25% ❑ E. None

23. How much certified organic product did you sell as "organic" versus "conventional" in 2006?

❑ A. Less than 25% as organic ❑ B. 25-50% as organic ❑ C. 51-75% as organic

❑ D. 76-90% as organic ❑ E. 91-100% as organic

24. How do you identify/locate organic buyers currently? (mark all that apply)

❑ Word of mouth
❑ Organizational meetings
❑ Conference trade shows
❑ Internet/web sites
❑ Other (specify) _____

25. Which ONE marketing channel would you prefer to use in the future?

❑ Forward contracts ❑ Broker(s) for cash/spot sales
❑ Direct sales at the farm ❑ Farmers market
❑ Direct contact w/retail stores ❑ CSA (Community Supported Agriculture or subscription farm)
❑ Other (specify) _____

26. What type of marketing information would be most helpful to you?

❑ Information about buyer purchasing patterns/preferences
❑ Directory that lists organic buyers
❑ Market price reports (what kind? specify crops, livestock, produce)
❑ Other (explain)_____

27. Would you support a voluntary checkoff on organic commodities if you knew the funds would be used specifically for organic research and promotion? ❑ Yes ❑ No

Your comments: _____

28. On previous surveys, many organic farmers have said spray and pollen drift pose problems for them. Should the State help organic growers publicize the fact that their land is organic by conducting a voluntary survey of organic acreage and making the information available to road commissions, custom operators, certifiers, and others?

❑ A. Yes ❑ B. Maybe ❑ C. No

29. Should ***exempt*** growers (those who are not required to certify because they follow the National Organic Standards and sell less than $5,000 of organic product/year) be registered with the State as "organic, exempt from certification?"

❑ A. Yes, require registration ❑ B. Yes, make registration voluntary ❑ C. No ❑ D. Don't care

30. What challenges are Minnesota organic farmers currently facing? _____

_____

_____

_____

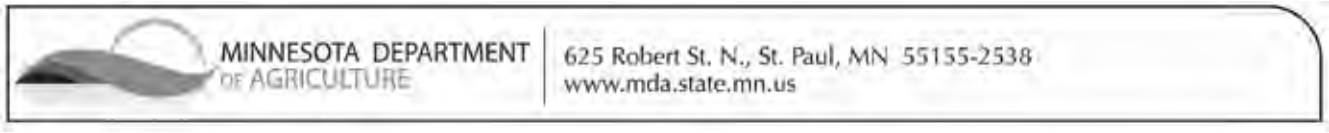
_____

_____

_____

_____ (add pages if necessary)

Appendix B



2009 Minnesota Organic Farmer Survey February, 2009

Dear Organic Grower:

Every couple of years, the Minnesota Department of Agriculture surveys organic farmers to learn about how organic agriculture is developing in Minnesota and what organic farmers need. You can see results of the 2007 survey at www.mda.state.mn.us/food/organic.

This year's survey asks 29 questions about you and your operation. We invite the **principal operator** to complete the survey (only one survey per farm) and return in the enclosed envelope before **March 31, 2009**. If a question does not apply, just leave it blank. If you have questions please call Meg Moynihan at 651-201-6616. All individual responses will remain confidential. Thanks for your help.

1. How old were you on December 31, 2008? _____ years

2. How many years have you operated a farm? _____ 2a. How many years have you farmed organically? _____

3. In 2008, was <u>any part</u> of your farm **certified organic**? ❑ Yes ❑ No
If yes, name of certifying agency:_____

4. How did you start farming organic?

❑ a. Started out as conventional and transitioned to organic
❑ b. Have always farmed organically
❑ c. Other _____

5. What was your **primary** organic farming enterprise in 2008? (mark only **ONE**)

❑ a. Cash crop (grains, oilseeds, and/or hay, etc.)
❑ b. Dairy
❑ c. Other livestock (including beef, poultry, sheep, goats, etc.)
❑ d. Diversified crop and livestock
❑ e. Vegetables, Fruits, or Orchard
❑ f. Other: _____

6. Please mark any/all 2008 certified organic farm products:

❑ Grains/Oilseeds ❑ Pasture/Hay ❑ Vegetables ❑ Fruit ❑ Poultry
❑ Dairy (cow) ❑ Dairy (other) ❑ Beef ❑ Hogs ❑Sheep/Lambs

7. In general, was your 2008 production: ❑ normal ❑ above normal ❑ below normal

8. During the next 5 years, do you intend to:
❑ a. Increase organic acreage or livestock numbers
❑ b. Decrease organic acreage or livestock numbers
❑ c. Maintain current organic acreage or livestock numbers

9. Based on your experience and that of others you know, how do you think organic farming compares with conventional?

i. <u>Profitability</u>..... ❑ a. More profitable than conventional ... ❑ b. About the same ..... ❑ c. Less profitable

ii. <u>Production Costs</u>..... ❑ a. Higher than conventional ..... ❑ b. About the same ..... ❑ c. Lower

10. How many people, including you and other family members, work on the farm? a. Full time: ____ b. Part time: ____

11. In 2008, did any adult in your household earn off-farm income? ❑ Yes ❑ No

12. Do you buy crop insurance for your organic production? ❑ Yes ❑ No

13. Do you use farm financial management software? ❑ Yes ❑ No

14. Do you think you or a family member will be farming…
a. In 5 years? ❑ Yes ❑ No
b. In 10 years? ❑ Yes ❑ No
c. In 20 years? ❑ Yes ❑ No

15. How important are the following in **your** decision to farm organically?

	Not Important	*Slightly Important*	*Very Important*
Price premiums	❑	❑	❑
Lower production costs	❑	❑	❑
Health/safety (self, family, farm employees)	❑	❑	❑
Think organic food is healthier or higher quality	❑	❑	❑
Environmental/conservation reasons	❑	❑	❑
Personal satisfaction - I enjoy farming this way	❑	❑	❑
Philosophical/ethical reasons	❑	❑	❑
Other (explain) _____	❑	❑	❑

16. Have you noticed any differences in the environment or wildlife since you started farming organic? Explain.

_____

_____

17. In the past 5 years, did you have a CRP contract expire?

❑ a. Yes, it's now in crops ❑ b. Yes, it's now in pasture ❑ c. No ❑ d. Other _____

18. In 2008, how big a challenge to your organic operation were the following?

	Not a Problem ▼	*Slight Problem* ▼	*Medium Problem* ▼	*Big Problem* ▼	*Doesn't Apply* ▼
Availability of loans/financing	❑	❑	❑	❑	❑
Availability of local organic processing	❑	❑	❑	❑	❑
Availability of organic seed	❑	❑	❑	❑	❑
Cost of organic seed	❑	❑	❑	❑	❑
Cost of fuel	❑	❑	❑	❑	❑
Cost of purchased inputs other than seed and fuel	❑	❑	❑	❑	❑
GMO pollen drift	❑	❑	❑	❑	❑
Herbicide/pesticide drift	❑	❑	❑	❑	❑
Soybean aphid	❑	❑	❑	❑	❑
Pest management—other than soybean aphid	❑	❑	❑	❑	❑
Labor (availability, cost, etc.)	❑	❑	❑	❑	❑
Availability of organic feed	❑	❑	❑	❑	❑
Price of organic feed	❑	❑	❑	❑	❑
Public confusion about what "organic" is	❑	❑	❑	❑	❑
Competition from organic imports	❑	❑	❑	❑	❑
Soil moisture (excess or drought)	❑	❑	❑	❑	❑
Transportation	❑	❑	❑	❑	❑
Weed control	❑	❑	❑	❑	❑

19. How confident are you that the National Organic Standards are being fairly and adequately enforced?

❑ a. Very confident ❑ b. Somewhat confident ❑ c. Not at all confident

20. In your opinion, how important are the following **research** topics to organic agriculture in Minnesota?

	Not Important ▼	*Slightly Important* ▼	*Moderately Important* ▼	*Very Important* ▼
Seed breeding/variety selections	❑	❑	❑	❑
Economics of organic farming	❑	❑	❑	❑
GMO pollen drift	❑	❑	❑	❑
Insect pests	❑	❑	❑	❑
Livestock health management	❑	❑	❑	❑
Marketing	❑	❑	❑	❑
Milk quality	❑	❑	❑	❑
Nutritional studies on organic foods	❑	❑	❑	❑
Food quality/safety studies	❑	❑	❑	❑
Organic variety trials	❑	❑	❑	❑
Plant disease	❑	❑	❑	❑
Soil fertility	❑	❑	❑	❑
Soil health/biology	❑	❑	❑	❑
Soil water holding capacity	❑	❑	❑	❑
Transition to organic (best practices)	❑	❑	❑	❑
Weed management	❑	❑	❑	❑
Yields	❑	❑	❑	❑
Other (explain) _____	❑	❑	❑	❑

21. In 2008, what was your <u>total gross annual income **from farming**</u>?

❑ a. Less than $4,999 ❑ b. $5,000-$49,999 ❑ c. $50,000-$99,999
❑ d. $100,000-$249,999 ❑ e. $250,000-$499,999 ❑ f. $500,000 or more

22. In 2008, what percent of this **gross annual farm income** came from the sale of **organic** products? _____%

23. How much certified organic product did you sell as "organic" vs. "conventional" in 2008?

❑ a. Less than 25% as organic ❑ b. 25-49% as organic ❑ c. 50-74% as organic
❑ d. 75-89% as organic ❑ e. 90-100% as organic

24. Do the following create problems when marketing your organic products?

	Not a Problem ▼	*Slight Problem* ▼	*Medium Problem* ▼	*Big Problem* ▼
Meeting buyers' specifications (e.g., delivery time, packaging)	❑	❑	❑	❑
Meeting buyers' quantity requirements	❑	❑	❑	❑
Meeting buyers' consistency requirements	❑	❑	❑	❑
Am unsure how to price products	❑	❑	❑	❑
Technology problems (Internet access, etc.)	❑	❑	❑	❑
Contract disputes	❑	❑	❑	❑
Lack of marketing knowledge/skills	❑	❑	❑	❑
Lack of time for marketing	❑	❑	❑	❑
Lack of consumer understanding about organic	❑	❑	❑	❑
Competition from large national producers	❑	❑	❑	❑
Other:_____	❑	❑	❑	❑

25. Which organic markets are you interested in entering or expanding into during the next 5 years?

	Not Interested	*Slightly Interested*	*Moderately Interested*	*Very Interested*	*Already Use this Market*
Wholesale markets					
To processor, mill, or packer	❑	❑	❑	❑	❑
To distributor, wholesaler, broker, or repackers	❑	❑	❑	❑	❑
To natural food store/chain	❑	❑	❑	❑	❑
To conventional supermarket/chain	❑	❑	❑	❑	❑
Through a grower cooperative	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑
Consumer-direct					
On-site (e.g., farm stand, U-pick)	❑	❑	❑	❑	❑
Farmers' markets	❑	❑	❑	❑	❑
CSA shares	❑	❑	❑	❑	❑
Mail order/Internet	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑
Direct-to-retail					
To natural food stores (cooperatives and supermarkets)	❑	❑	❑	❑	❑
To conventional supermarkets	❑	❑	❑	❑	❑
To restaurants/caterers	❑	❑	❑	❑	❑
To other institutions (e.g., hospitals, schools)	❑	❑	❑	❑	❑
Other _____	❑	❑	❑	❑	❑

26. What kind of Internet access does your farm have? ❑ a. Dial-up ❑ b. High speed ❑ c. None

27. Which other MDA services have you used in the last year? (mark any/all that apply)

- ❑ a. *Greenbook*
- ❑ b. *Directory of Minnesota Organic Farms*
- ❑ c. *MDA Directory of Certifiers Operating in MN*
- ❑ d. Used MDA web site
- ❑ e. Called MDA to request information
- ❑ f. Attended MDA sustainable agriculture field days
- ❑ g. Attended Minnesota Organic Conference in St. Cloud
- ❑ h. Received Organic Certification Cost Share Payment
- ❑ i. Minnesota Grown Program
- ❑ j. International marketing assistance
- ❑ k Other marketing assistance
- ❑ l. Other (specify) _____

28. What challenges are Minnesota organic farmers currently facing?

_____

_____

_____

_____

29. What specific actions should the Minnesota Department of Agriculture or other state agencies take to address these problems?

_____

_____

_____

_____

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Appendix C

Minnesota Memorandum of Understanding on Organic Agriculture

This Memorandum of Understanding (MOU) is entered into by the undersigned Minnesota-based state, federal, or tribal agency(ies) or publicly-funded institution(s) of higher learning (*hereinafter referred to as* ***Partners***). The Partners are engaged in compatible activities to enhance the productivity, profitability and environmental responsibility of the traditional and nontraditional agricultural and rural sectors in Minnesota. Areas of Partner responsibility and expertise include production, processing, marketing, natural resource conservation and management, land use planning, community development, education, and research. Effective cooperation can aid significantly in advancing the missions of the Partners to include reaching underserved clientele in Minnesota.

I. AUTHORITY

This MOU is entered into in accordance with Minnesota Statute 31.94 subd (d) (3-5) which outline statutory duties of the Commissioner of Agriculture to direct programs of the department to work toward the promotion of organic agriculture in Minnesota, to inform agencies of how state or federal programs could utilize and support organic agriculture, and to work with appropriate organizations to identify opportunities and needs as well as ensure coordination and avoid duplication of state agency efforts regarding research, teaching and extension work relating to organic agriculture; as well as in accordance with the Soil Conservation and Domestic Allotment Act, as amended (Public Law 74-46, 49 Stat. 163, U.S.C. 590a-f); which established the Soil Conservation Service to conserve soil and water nationwide by providing technical assistance to farmers and ranchers among other things.

II. BACKGROUND

A. Organic Sector Growth and Development

Organic agriculture is experiencing a significant growth from both farmers and consumers. The USDA and trade groups have tracked organic sales growth at nearly 19 percent per year since 2000. Land in certified organic production has more than doubled in Minnesota since 1997, and as of 2008, the Minnesota Department of Agriculture estimates that 560 certified organic farms are in operation in Minnesota, along with 171 certified organic handling operations. Through ecologically-based farming methods that emphasize soil and livestock health, farmers are producing food and other products for which a growing number of consumers will pay more. Preserving the identity of organically grown foods and agricultural products through processing and handling is crucial, and creates opportunities for new on-farm, rural, and tribal business enterprises in Minnesota to sell to local, regional, national and international buyers. It is the intention of the MOU Partner organizations to undertake complementary efforts that will help Minnesota farmers, Minnesota-based business enterprises, and Minnesota consumers make the most of the opportunities presented by this rapidly growing sector.

B. MOU Partner Organizations

A state, federal, or tribal agency or publicly-funded institution of higher learning may join this MOU as a Partner at any time by submitting a signed and dated joining statement to the Minnesota Commissioner of Agriculture. The statement must describe the organization's interest in joining the MOU and include one or more examples of how the organization anticipates fulfilling the responsibilities set forth in section IV. The Minnesota Department of Agriculture will provide the MOU document and maintain a current list of Partners on its web site at www.mda.state.mn.us

C. Areas of Need

Opportunities for cooperative organic agriculture efforts among Partners exist in a number of areas cited in a 2006 report to the Minnesota Legislature entitled The Status of Organic Agriculture in Minnesota. These areas include:

1. education and information,
2. marketing and promotion,
3. business development,

4. regulatory support,
5. technical and financial assistance,
6. policy and program support, and
7. research.

III. PURPOSE

The purpose of this MOU is to establish a framework for cooperation among Partner organizations and agencies on organic program activities that involve the conservation of natural resources, expansion of economic opportunity, and enhancement of consumer choice specifically related to products grown and processed organically in Minnesota.

IV. RESPONSIBILITIES

A. The Partners agree to work collaboratively to provide assistance to organic producers, processors/handlers, and buyers/consumers in the State of Minnesota as follows:

1. To support time and efforts of staff in organic professional development, service delivery, and outreach efforts, both on behalf of the Partner itself and in collaboration with other MOU Partners.
2. To formally notify all employees about the organization's status as an MOU Partner.
3. To prominently acknowledge the organization's status as an Organic MOU Partner on its organizational web site.
4. To encourage and support organic research, demonstrations, and field days to showcase production practices, conservation measures, economic performance, and other considerations related to organic production.
5. To support an annual Minnesota Organic Conference by providing funds, speakers, and/or other resources, and to encourage selected staff to attend the conference for professional development.
6. To share information about organic conferences, newsletters, and training opportunities.
7. To appoint and empower one staff person to participate in MOU-related discussions and decision-making on behalf of the Partner and attend an annual meeting of Partner organizations.
8. To contribute a summary of the Partner's MOU-related activities and other topical content, as appropriate to the Partner's technical expertise, for inclusion in the Status of Organic Agriculture in Minnesota report to the Minnesota Legislature, which is compiled by the Minnesota Department of Agriculture on a biennial basis.

B. It is understood by the Partners that:

1. This MOU is neither a fiscal nor funds obligating document. Any endeavor by any party that involves the reimbursement, contribution of funds, and transfer of anything of value between or among the parties will be handled in accordance with applicable laws, regulations, and procedures. Such endeavors shall be outlined in separate agreements; shall be made in writing by authorized representatives; and shall comport with appropriate statutory authority. This MOU does not provide such authority.

2. This MOU in no way restricts any party from participating in similar activities with other public or private agencies, or organizations, and individuals.

3. Each party agrees it will be responsible for its own acts and results thereof and shall not be responsible for the acts of the other parties and the results thereof. Each party therefore agrees that it will assume all risk and liability to itself, its agents or employees, for any injury to persons or property resulting in any manner from the conduct of its own operations, and the operations of its agents or employees, under this MOU, and for any loss, cost, damage, or expense resulting at any time from failure to exercise proper precautions, of or by itself or its own agents or its own employees, while occupying or visiting the projects under and pursuant to this MOU. The Federal Government's liability shall be governed by the provisions of the Federal Tort Claims Act (28 U.S.C. 2671-80), and the State's by the Minnesota Tort Claims Act (Minnesota Statute §3.736).

V. DURATION

This MOU shall become effective upon the date of signature and continue in effect until April 30, 2013 or until modified or terminated. This MOU may be modified or amended upon written consent of all Partners. Any party may terminate its commitment to the MOU with 30-day written notice to all other parties.

VI. PROVISIONS

A. All activities and programs conducted under this MOU shall be administered in accordance with the requirements of title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, the Department of Justice (DOJ) regulations enforcing nondiscrimination requirements, and departmental rules and regulations. Compliance ensures access to all aspects of program delivery of benefits and services to the public without regards to their race, color, national origin, religion, sex, age, disability, marital status, familial status, parental status, sexual orientation, or because all or part of an individual's income is derived from any public assistance program.

B. All activities conducted under this MOU shall be in compliance with the Drug-Free Workplace Act of 1988 (Public Law 100-690, Title V, Subtitle D).

*Accepted at Saint Paul, Minnesota on May 28, 2008 by the following:**

Gene Hugoson, Commissioner, for Minnesota Department of Agriculture

Mark Holsten, Commissioner, for Minnesota Department of Natural Resources

Brad Moore, Commissioner, for Minnesota Pollution Control Agency

Perry Aasness, State Executive Director, for USDA – Farm Service Agency (Minnesota)

John Beckwith, Acting State Conservationist, for USDA – Natural Resources Conservation Service (Minnesota)

Duane Voy, Deputy Director, for USDA – Risk Management Agency (Minnesota)

Steve Wenzel, State Director, for USDA – Rural Development – (Minnesota)

Al Levine, Dean, for University of Minnesota College of Food, Agricultural, and Natural Resource Sciences

Bev Durgan, Dean, for University of Minnesota Extension

Bev Durgan, Director, for University of Minnesota Agricultural Experiment Station

**Signed document on file*

Appendix D

Minnesota Organic Legislative History

1985 Chapter 237 §§ 3-6

- Defines organic food.
- Defines requirements for growth, composition and storage of organic food.
- Authorizes the commissioner of the Department of Agriculture to enforce labeling, sale and advertising of organic food.
- Allows the commissioner to adopt rules to further clarify organic food standards and marketing practices.
- Chapter becomes effective April 1, 1986.

1987 Minnesota Rules Chapter 1555.0005 – 1555.0012

- Defines state organic food and marketing standards.

1988 Chapter 688 article 8 § 1, article 21 § 3

- Authorizes the commissioner to designate organizations located in the state to certify organic products in the state.
- Authorizes the commissioner to set certification fees charged to organic producers.
- Requires certification organization to provide certification to a person whose production meets certification standards and who has paid membership dues and certification fees.
- Allows certification organizations to draft rules for implementation of the organic certification program for submission to the commissioner.
- Appropriates $100,000 for a grant to a certification organization for start-up and initial administrative costs.
- Appropriates $50,000 to the Department to administer and enforce the organic food law.

1989 Chapter 350 article 20 § 14

- Appropriates $100,000 for a grant to a certification organization to continue the certification process authorized above.

1990 Chapter 547 §§ 3-4

- Allows the commissioner to designate certification organizations outside Minnesota to certify organic products in the state.
- Removes the commissioner's authority to set certification fees.
- Removes the requirement to pay membership dues as a certification requirement.
- Requires that Minnesota grown organic products must be certified by a designated certification organization in order to be labeled "certified."
- Requires that certified organic products sold in the state must be certified by a designated certification organization or by a certification organization approved by the commissioner
- Establishes the Minnesota organic advisory task force.
- Requires the commissioner to seek evaluation and recommendation of the task force before approving certification organizations.

1990 Minnesota Rules Chapter 1556.0200 – 1556.0227

- Provides the requirements for certification of products produced, processed and distributed under Minnesota organic standards.

1999 Chapter 231 §§ 11, 26-27, 56-57

- Appropriates $50,000 per year to the Department for annual organic certification cost share payments to farmers and for organic market and program development.
- Adds two organic farmers to both the sustainable agriculture grant review panel and the shared savings loan review panel.

- Expands the duties of the commissioner to promote opportunities for organic agriculture by surveying producers to assess research and information needs, demonstrate organic practices, coordinate department organic activities with other state agencies and the University, and report on the status of organic agriculture on a biennial basis.
- Specifies membership categories for the commissioner's organic advisory task force and extends the task force expiration date to June 30, 2003.

2003 Chapter 107 §§ 15-19

- Adopts federal organic standards and rules as the organic food production law and rules of Minnesota.
- Brings state organic statutes into conformity with federal law by repealing any existing state laws that conflict with federal law.
- Retains current agency duties and strengthens the agency's ability to provide technical, financial, and marketing services to support organic farmers and the organic industry.
- Requires the agency to report on economic and health aspects of organic farming.
- Authorizes the agency to register state organic production and handling operations, and certification agents operating in the state.
- Expands the Commissioner's Organic Advisory Task Force to better reflect the organic food industry by adding one more organic food processor representative, one more representative of the organic food wholesaler/retailer/distributor sector, and a representative of the USDA
- Reauthorizes the Organic Advisory Task Force until June 30, 2005.

2005 Minnesota Session Laws 2005, First Special Session, Chapter 1 § 61

- Reauthorizes the Organic Advisory Task Force until June 30, 2009.

2007 Minnesota Session Laws 2007, Chapter 45 § 3

- Appropriates $100,000 per year to the Department for annual organic certification cost share payments to farmers and processors with a payment rate of 2/3 of the cost of certification, not to exceed $350, with any excess appropriation for organic market and program development.
- Limits eligibility to receive state organic cost share reimbursement to five years.

2008 Minnesota Session Laws 2008, Chapter 297 § 63

- Appropriates $100,000 per year to the Department for annual organic certification cost share payments to farmers and processors with a payment rate of 2/3 of the cost of certification, not to exceed $350, with $15,000 for organic market and program development.
- Limits eligibility to receive state organic cost share reimbursement to five years.

2009 Minnesota Session Laws 2009, Chapter 94 § 3

- Appropriates $10,000 per year to the Department for annual organic certification cost share payments to farmers and processors who do not receive federal cost share payments. Specifies a payment rate of 2/3 of the cost of certification, not to exceed $350, with any excess appropriation for organic market and program development.
- Limits eligibility to receive state organic cost share reimbursement to five years.
- Authorizes the use of vouchers for the purchase of cost-neutral organic WIC allowable food.
- Expands the Organic Advisory Task Force's charge to advise the University of Minnesota
- Revises the composition of the Organic Advisory Task Force with a total of 15 members to serve staggered terms.
- Reauthorizes the Organic Advisory Task Force until June 30, 2013.