MINNESOTA FOOD PRODUCTION SECTOR: GROWING GREEN JOBS

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The following report was produced by the Agricultural Utilization Research Institute upon the request of the Minnesota State Legislature.

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FOREWORD

January 15, 2010

Because of our strong connection to rural Minnesota, our expertise in renewable energy development, and our familiarity with the agriculture industry, the Agricultural Utilization Research Institute was asked to serve on the Minnesota Green Jobs Task Force following the 2008 legislative session. We were pleased to share our insights and participate in this exploration of emerging opportunities.

As part of the Minnesota Green Jobs Task Force Action Plan, AURI and several other members of the task force were determined to learn more about how trends in the green economy could impact jobs in the food production sector. During the 2009 Legislative session, AURI was tasked with developing an analysis of green job opportunities in each of the following agricultural sectors: organics and organic value-added processing and local, conventional, natural, traditional, and urban farming.

For the past eight months, AURI has worked with Russell Herder, a Minnesota based market research firm, in an effort to systematically garner insights from industry experts on what they see as opportunities for the future of the food production sector in Minnesota and how those opportunities are influenced by trends towards a "green economy." We have gathered recommendations on job opportunities, information on market challenges and suggestions for ways Minnesota can support high quality job growth and entrepreneurship in food production sector.

I want to thank Carol Russell of Russell Herder, who has played a vital role in the design and development of this report. We thank her and her team for their work on this project. Additionally, I would like to thank members of agriculture and the food production sector who have shared their insights and expertise throughout the development of this report. The depth of this report is due to the wonderful and diverse team of individuals who have contributed greatly along the way.
Thank you.

AURI staff has worked to make this report reflective of all Minnesota agriculture. We understand that the issues of agriculture and the food production sector are complex and multifaceted. We hope that this report can be used as a tool for policymakers, economic developers, educators, and job seekers as a means of understanding where the food production sector is headed. Most importantly, we hope to generate excitement, conversation and innovation as we work together to ensure Minnesota continues to be a global leader from "farm to fork."

Sincerely,

Teresa Spaeth
Executive Director
Agricultural Utilization Research Institute

PROJECT TEAM

Teresa Spaeth, Executive Director, Agricultural Utilization Research Institute (AURI)
Katherine Paris, AURI, Lead Project Development Director

STUDY RESEARCHERS/AUTHORS
Carol Russell, CEO, Russell Herder
David Buchholz
Michael Howie
Jessica Quinn
Southwest Marketing Advisory Center, Southwest Minnesota State University

Dan Spillman, Art Director, Russell Herder

RESOURCES
Bill Bauer, Owner, Bauer Berry Farm
Terri Bennis, Vice President of Fresh Food Operations, Kowalski's Markets
JoAnne Berkenkamp, Program Director for Local Foods, Institute of Agriculture and Trade Policy (IATP)
Brian Buhr, Professor of Applied Economics, University of Minnesota
Cargill
Karen Clark, Minnesota State Representative
Del Monte
Beverly Durgan, Dean and Director, University of Minnesota Extension
Ecolab
General Mills
Jack Gerten, Manager, St. Paul Farmer's Market
Catherine Greene, Agricultural Economist, USDA/ERS
Hal Hamilton, Co-Director, Sustainable Food Lab
Rod Hamilton, Minnesota State Representative
Mike Hartwell, Corporate Health and Safety Director, SunOpta
Reginaldo Haslett-Marroquin, Executive Director, Rural Enterprise Center
Chuck Hassebrook, Executive Director, Center for Rural Affairs
Randy Hilliard, Project Development Director, Agricultural Utilization Research Institute
Gene Hugoson, Commissioner, Minnesota Department of Agriculture
Paul Hugunin, Program Coordinator, Minnesota Grown
Dick Joerger, Minnesota Farm and Small Business Management Education Program Director, Minnesota State Colleges & Universities
Amy Johnson, Senior Program Manager, BioBusiness Alliance
Al Juhnke, Minnesota State Representative and Chairman of the Agriculture Finance Committee
Dawn Kier, Agricultural/Wetlands Manager, White Earth Reservation
Rob King, Professor of Applied Economics, University of Minnesota
Jeremy Lanctot, Minnesota Dairy Initiative Director, Sustainable Farming Association of Minnesota
Al Levine, Dean, University of Minnesota College of Agriculture
Daryn McBeth, President, MN AgriGrowth Council
John Monson, Vice President of Rural Finance, AgStar Financial Services
Meg Moynihan, Ag Diversification Specialist, Minnesota Department of Agriculture

Helene Murray, Executive Director, University of Minnesota Institute for Sustainable Agriculture (MISA)
Bob Olson, Director, Food Alliance Midwest
Kevin Paap, President, Minnesota Farm Bureau
Thom Petersen, Director of Government Relations, Minnesota Farmers Union
Collin Peterson, Congressman and Chair, U.S. House of Representitives Agriculture Committee
Jim Riddle, Organic Outreach Coordinator, University of Minnesota
Jean Ronnei, Director of Nutrition Services, St. Paul Public Schools
Michael Sparby, Senior Project Development Director, Agricultural Utilization Research Institute
Sarah Stokes Alexander, Director of Sustainability and Leadership Programs, The Keystone Alliance for Sustainable Agriculture
SYSCO
Dennis Timmerman, Senior Project Development Director, Agricultural Utilization Research Institute
Jennifer Wagner-Lahr, Project Development Director, Agricultural Utilization Research Institute
Joan Wynia, Alexis Bailly Vineyard
Neal Young, Economic Analyst, Minnesota DEED

EXECUTIVE SUMMARY

Minnesota's food and agriculture industry is broad, diverse and economically powerful. As well, the issue of green employment within it is complex and multifaceted.

For generations, agriculture has remained one of Minnesota's economic cornerstones. With a 22 percent share of the state's total exports, food and agricultural production generates nearly one-fifth of the state's overall economic activity. While Minnesota grows its share of conventional crops and animal agriculture, the state also produces a wide variety and abundance of specialty crops, fruits, vegetables and livestock products. In fact, Minnesota is among the national leaders in a wide range of agricultural products, indicating a breadth of production and expertise that is unmatched in many states.

An impressive 40 percent of the state's farm production is purchased by the Minnesota food industry for further processing. In fact, Minnesota is home to some of the world's largest food processing companies – including the international corporate headquarters of many. As well, Minnesota agriculture contributes to many related industries. Every agricultural production job supports an additional 1.5 jobs in all economic sectors. This "multiplier effect" generates $55 billion in economic activity for Minnesota and supports more than 367,700 jobs.

> "With **agriculture** at **20%** of **our state's GDP**, it's important we **grow awareness** for this industry. It's more than just **growing** and **processing** – agriculture is **economic development.**"
>
> *- Al Juhnke, Minnesota State Representitive and Chairman of the Agriculture Finance Committee*

The face of Minnesota's farms is changing, however. Trends are leaning toward a more diverse agricultural landscape – demographically and economically. Once simply a way of life, food production and processing have become serious market forces. Opportunity for continued growth remains, despite the uncertainty delivered by what's been called the worst recession since World War II. The dynamics of how this stands to impact job growth, in what arguably could be called the original 'green' industry, could be critical factors in the state's future prosperity.

"**Changing attitudes** about **food**, its impact on **health** and **well-being**, and **growing opportunities** for small farmers have **sparked a movement** across the country."

- Collin Peterson, Congressman and Chair, U.S. House of Representitives Agriculture Committee

At the request of the Minnesota State Legislature, the Agricultural Utilization Research Institute (AURI) embarked on a study of the evolving employment environment within the agricultural food sector. With the intent of ensuring Minnesota remains a strong global leader in food and agriculture, the project was designed to serve as an informational tool in guiding decision-makers on issues and opportunities facing sector-specific green job growth.

An extensive review of secondary literature was undertaken in development of this report, along with extensive industry interviews and a quantitative survey among farmers across the state.

The following report suggests industry prosperity isn't always about creating more jobs. Successful economic growth may at times come from refocusing – thus retaining – existing jobs to embrace new developments. Emerging job opportunities in one sector may, indeed, take away from another. One fact remains clear, however. Employment within food and agriculture will continue to be a critical ingredient in Minnesota's economic mix – and one that will help ensure prosperity and stability for the entire state.

Three overarching opportunities, and the factors that are currently defining them, have been identified relative to green workforce growth within Minnesota agriculture's food sector:

Opportunity: Emerging markets such as local food distribution, organics, urban agriculture and alternative farming techniques offer opportunities for small business ownership and employment.

Observations

- Sustainability is a growing, industry-wide consideration.
- Demand for local foods is growing and diversifying.
- The ability to make local or regional purchases is often limited by the structure of the food distribution system.
- Food service is a high-potential market for local food sales if distribution issues can be resolved.
- Organic demand is growing but some barriers still exist for market entry.
- Consumer concerns about food health and safety are shaping the food industry at every level.
- Access to healthy and affordable food must be a priority within urban neighborhoods.

Opportunity: Animal and conventional agriculture are under-recognized as promising career opportunities.

Observation

- Livestock production's impact on economic development is at risk.

Opportunity: Minnesota has potential to create many career and business ownership opportunities that would advance the farming industry, if issues are addressed.

Observations

- Youth "brain drain" away from rural communities could seriously impact fulfillment of workforce needs.
- Agricultural awareness and education are statewide needs.
- Industry and job opportunities are emerging in research, development, and innovation.
- Financial stresses in Minnesota's food sector are significant.
- Regulatory issues are adding to an already complex, costly environment.
- Industry employment success may be realized as job refocus versus job growth.

Addressing these issues will require a synergy of expertise and initiatives including the following, among others:

- **Retain and grow jobs** in livestock and protein production and processing, traditional crop production, food processing and marketing, renewable fuels development, and organic production.
- **Embrace job opportunities** in research and development, waste recycling, food science and genetics, bio-technology, culinology, business entrepreneurship, profit-oriented biomass, boiler operators, mechanics, and more.
- **Build on Minnesota's capacity** for research and development, innovation and economic growth through partnerships between private and public sector entities.
- **Identify and encourage appropriate best-in-class organizations** and agencies to align priorities and create a system of service from "farm to fork" for each market sector.
- **Work with Extension, SBDCs, AURI** and other appropriate resources to begin a series of forums, such as roundtables, across the state to generate excitement and increase awareness about available resources in the areas of production, business planning, marketing, and product development.
- **Work with industry** to increase efficiencies and refine government processes using the principles of business management to ensure that the State of Minnesota can keep up with the speed of business.
- **Develop capacity** to "shepherd" businesses and entrepreneurs through the resources and regulations of Minnesota, focusing on quality of the contact and establishing a fast track mentality.
- **Consider educational forums** for Minnesota agricultural bankers to increase understanding of financial and operational issues involved in emerging or niche food production.
- **Continue the work** of the Minnesota Agricultural Educators Leadership Council and others to bring together industry support for agricultural literacy education.
- **Support a tandem approach** of strong Extension outreach with the accessible flexible opportunities for online and offline education. Expertise and ongoing education needs to be as diverse as Minnesota agriculture to ensure that organic, local, traditional, urban and conventional producers are all receiving the assistance they need.

INTRODUCTION

The following study was conducted under the auspices of the Agricultural Utilization Research Institute (AURI), at the request of the Minnesota State Legislature, to study the evolving environment for green jobs within the agricultural food sector. With the intent of ensuring Minnesota remains a strong global leader in food and agriculture, this project is designed to serve as an informational tool in guiding decision-makers on issues and opportunities facing sector-specific green job growth.

In addition to a review of secondary literature and studies, extensive interviews were conducted with representatives of the farming, processing and distribution sectors, as well as within academia and industry associations. Quantitative research was also undertaken among farmers across the state.

Minnesota's food and agriculture industry is broad, diverse and economically powerful. As well, the issue of green employment within it is complex and multifaceted. The following report suggests industry prosperity isn't always about creating more jobs. Successful economic growth may at times come from refocusing – thus retaining – existing jobs to embrace new developments, versus adding more employment. Emerging job opportunities in one sector may, indeed, take away from another.

One fact remains clear, however. Green jobs within food and agriculture will continue to be a critical ingredient in Minnesota's economic mix – and one that stands to help ensure prosperity and stability for the entire state.

Definitions

Green jobs have been stipulated by the Minnesota Green Jobs Task Force as *"the employment and entrepreneurial opportunities that are part of the green economy, as defined in Minnesota statute 116.437J1, including the four industry sectors of green products, renewable energy, green services and environmental conservation. Minnesota's green jobs policies, strategies and investments need to lead to high-quality jobs with good wages and benefits, meeting current wage and labor laws."*[1]

For the purposes of this report, "green" agricultural jobs will be defined as involving conventional, traditional, natural, urban, local and organic farming; food production; and distribution and sales of produce, meat, dairy, eggs, beverage and fish.

The vocabulary of food production has changed within modern agriculture – and with it, new opportunities and challenges related to emerging markets.

While these niche agricultural markets continue to grow and offer the potential for job creation, one cannot ignore the value of conventional crop and livestock production in the state, which serves as a powerful economic engine for Minnesota and provides the raw commodities upon which the entire food production and processing sector relies.

This new food vocabulary is creating challenges in communicating and marketing food products, and in meeting end-user expectations. As one foodservice representative said: "When I'm talking to a national account about sustainable products and that person uses the words 'organic', 'local' and 'sustainable' interchangeably, I know I'm in trouble."

The following definitions are utilized in this report:

Community Supported Agriculture (CSA): A partnership between a farmer and a group of consumers in which consumers pay in advance of the growing season for "shares" in the harvest. Shareholders provide the CSA farmer with a stable income and market, mitigating some of the inherent financial risks in farming.

Conventional Agriculture: An agricultural system characterized by an increasing emphasis on minimizing crop inputs with the goal of maximizing productivity and profitability.

Local Foods: Food produced and/or processed as close as possible to where it is consumed. There is no "set" distance that defines "local"; some choose to view "local" as more regional than in close proximity.

Organic: Food that is labeled organic in the United States must be certified by a USDA accredited agency, whether grown domestically or imported. Standards dictate that organic foods be grown without most synthetic fertilizers and pesticides, sewage sludge, genetically modified seeds or irradiation. Feed for organic meat and poultry must also be grown organically. Organically certified animal products cannot be treated with antibiotics or added hormones.

Sustainable Agriculture: The concept of "sustainability" is the subject of much debate in terms of its meaning and scope; and, therefore, is defined in a number of ways by a wide variety of groups. Fundamentally, it is generally considered to be the ability to meet the needs of the world's current human population without compromising future generations' ability to provide for themselves.

Traditional Agriculture: An indigenous form of ecologically-based farming.

Value-Added Food Products: A raw or pre-processed commodity whose value has been increased through the addition of ingredients or processes that make them more attractive to the buyer and/or more readily usable by the consumer. It is a production/marketing strategy driven by customer needs and perceptions. About 15,000 new value-added products are introduced each year, according to the USDA.

Urban Agriculture: Food grown on urban land either through cooperatives or community gardens. This may also include private companies and individuals growing food in non-rural environments.

MINNESOTA'S AGRICULTURAL LANDSCAPE

For generations, Minnesota's food and agriculture industry has remained one of the state's economic cornerstones. With a 22 percent share of the state's total exports, food and agricultural production generates nearly one-fifth of the state's overall economic activity. The industry accounts for nearly 14 percent of the state's value-added income, and 14 percent of the state's personal income and employment.

According to a January 2010 Minnesota Department of Agriculture report, Minnesota ranks sixth nationally for agricultural production; seventh in agricultural exports; and eighth in livestock production. Farm income mainly comes from crops at $9.75 billion, while livestock follows at $6.09 billion.[2]

Especially impressive is the diversity of food production in the state. Minnesota ranks first in the nation in the production of turkeys, sugar beets, sweet corn and green peas. The state is in the top five in production of corn, soybeans, honey, spring wheat, oats, wild rice, hogs, canola; and in the top 10 in potatoes, wheat, dairy production, and cattle.

MINNESOTA'S NATIONAL RANKING IN AGRICULTURAL PRODUCTION (2008)

1st:	sugarbeets, turkey, sweet corn for processing, green peas for processing
2nd:	spring wheat, oats, canola, cultivated wild rice, dry edible beans
3rd:	hogs, soybeans
4th:	corn, sunflowers, flaxseed, total crop production
5th:	total cheese, mink pelts, honey
6th:	dairy, red meat, barley
7th:	all wheat, potatoes, total ag exports
8th:	all livestock production
10th:	cattle and calves

Source: Minnesota Department of Agriculture, "Agriculture – The Foundation of Minnesota's Economy," January 2010

MINNESOTA AGRICULTURAL FACTS

- Minnesota is the sixth largest agricultural producer in the U.S. (2008)
- Farm land: 26.9 million acres (53% of Minnesota's total land area)
- Average farm size: 332 acres
- Farm income from agricultural marketing:
  - Crops: $9.75 billion
  - Livestock: $6.04 billion
  - Total: $15.84 billion
- Crops and livestock are equally important to Minnesota's agriculture; they complement each other and are interdependent, making a diverse and well-balanced production agriculture.

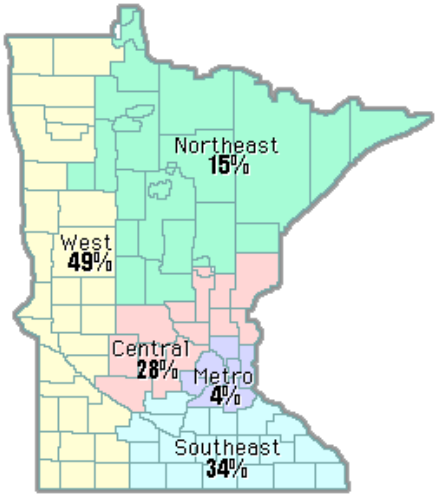
Source: Minnesota Department of Agriculture, "Agriculture – The Foundation of Minnesota's Economy," January 2010

The **face** of Minnesota's **farms** is **changing.**

The face of Minnesota's farms is changing, however. Trends are leaning toward a more diverse agricultural landscape – demographically and economically.

Average farm size in Minnesota dropped from 350 acres in 1997 to 332 in 2007. Small farms (99 acres or fewer) increased from 32.8 percent of total farms to 40.4 percent in that 10-year period, while farming enterprises (100-999 acres) decreased.

More than one-third (36 percent) of all farms are defined as residential/lifestyle farms; 21 percent are considered retirement farms.



Percentage of agricultural jobs by region

The long-term trend calls for a continued, moderate decline in employment of self-employed farmers and ranchers of about eight percent. Slight change is expected in the number of agricultural managers.[3]

Ironically, progress is contributing to this downtrend. Innovations such as more sophisticated farm machinery have transformed agricultural production from a labor-intensive to a capital and technology industry.

This transformation has made an impact on the farm as well as off, as a growing number of Minnesota farmers supplement their agricultural occupations with other employment. In fact, many say that no longer is there such a thing as an average Minnesota farmer.

According to the Bureau of Labor Statistics Occupational Outlook Handbook, these often smaller, entrepreneurial farms are successfully serving emerging markets by product, distribution and service enhancements, such as:

- Personalized, direct contact with their customers;
- Organic food production that is the fastest growing segment in agriculture;
- Use of farmers' markets which allows farmers to capture a greater share of consumers' food dollars (nearly 3,000 new farmers' markets have emerged in U.S. cities since 1994 according to the USDA Economic Research Service Organic Briefing Room);
- Collectively owned marketing cooperatives that process and sell their product; and
- Community-supported agriculture cooperatives (CSAs) that allow consumers to directly buy a share of a farm's harvest.

Farm size and composition aren't the only factors undergoing change. According to the 2007 Census of Agriculture, the average age of farm operators in Minnesota has increased from 51 in 1997 to 55.3 in 2007. The number of Minnesota women listing farming as their primary occupation increased from 4,205 in 1997 to 7,361 in 2007 – an astonishing 75 percent.

Minnesota agriculture also supports many related industries and their workers. The food and agriculture sector purchases a large percentage of its supplies from local businesses – nearly twice as much as the next-largest user, according to the University of Minnesota. These dollars cause a ripple effect that impacts the future of both new and sustained jobs. According to MDA, every agricultural production job supports an additional 1.5 jobs in all economic sectors. This "multiplier effect" generates $55 billion in economic activity for Minnesota and supports more than 367,700 jobs.[2]

Some argue that Minnesota's economy benefits most when "value-added" processes are performed within the state. To that end, an impressive 40 percent of the state's farm production is purchased by the Minnesota food industry for further processing. In fact, Minnesota is home to some of the world's largest food processing companies – including the international corporate headquarters of many.

As of 2005, "29 of the top 50 U.S. food companies had operations located in Minnesota, including such giants as Cargill, General Mills, Hormel, and Land O'Lakes. Additionally, many of the minor and major agricultural companies with crop protection and seed and trait products have a presence in Minnesota."[4]

MINNESOTA AGRICULTURE'S CONTRIBUTION TO THE STATE ECONOMY

Minnesota's agricultural industry (including production and processing) is the second-largest economic sector in Minnesota.

Largest Industries in Minnesota:

1. **Manufacturing**
2. **Agriculture**
3. **Services**
4. **Wholesale and retail trade**
5. **Finance, insurance and real estate**
6. **Construction**
7. **Transportation, communication and public utilities**
8. **Mining**

EMPLOYMENT FAST FACTS

- **Agriculture is the second-largest employer in Minnesota.**
- **Employment in agriculture and the food industry accounts for 15% of total jobs.**
- **In rural Minnesota, agricultural employment comprises 24% of all jobs.**
- **Even in metro areas, agricultural employment accounts for 13% of all jobs.**
- **Over 80% of all agricultural jobs are off-farm: in processing, distribution, supply and service sectors.**

Source: Minnesota Department of Agriculture, "Agriculture – The Foundation of Minnesota's Economy," January 2010

TOTAL ECONOMIC IMPACT

The economic contribution of Minnesota's agricultural industry reaches far beyond the agricultural sector due to the "multiplier effect."

- Output impact:
  Minnesota's agricultural production and processing generates **$55 billion** in economic activities for the state.
- Employment impact:
  Minnesota's agricultural production and processing supports over **367,000 jobs**.

Source: Minnesota Department of Agriculture, "Agriculture – The Foundation of Minnesota's Economy," January 2010

MINNESOTA AGRICULTURE & GREEN JOBS
OPPORTUNITIES, OBSERVATIONS, ACTION ITEMS

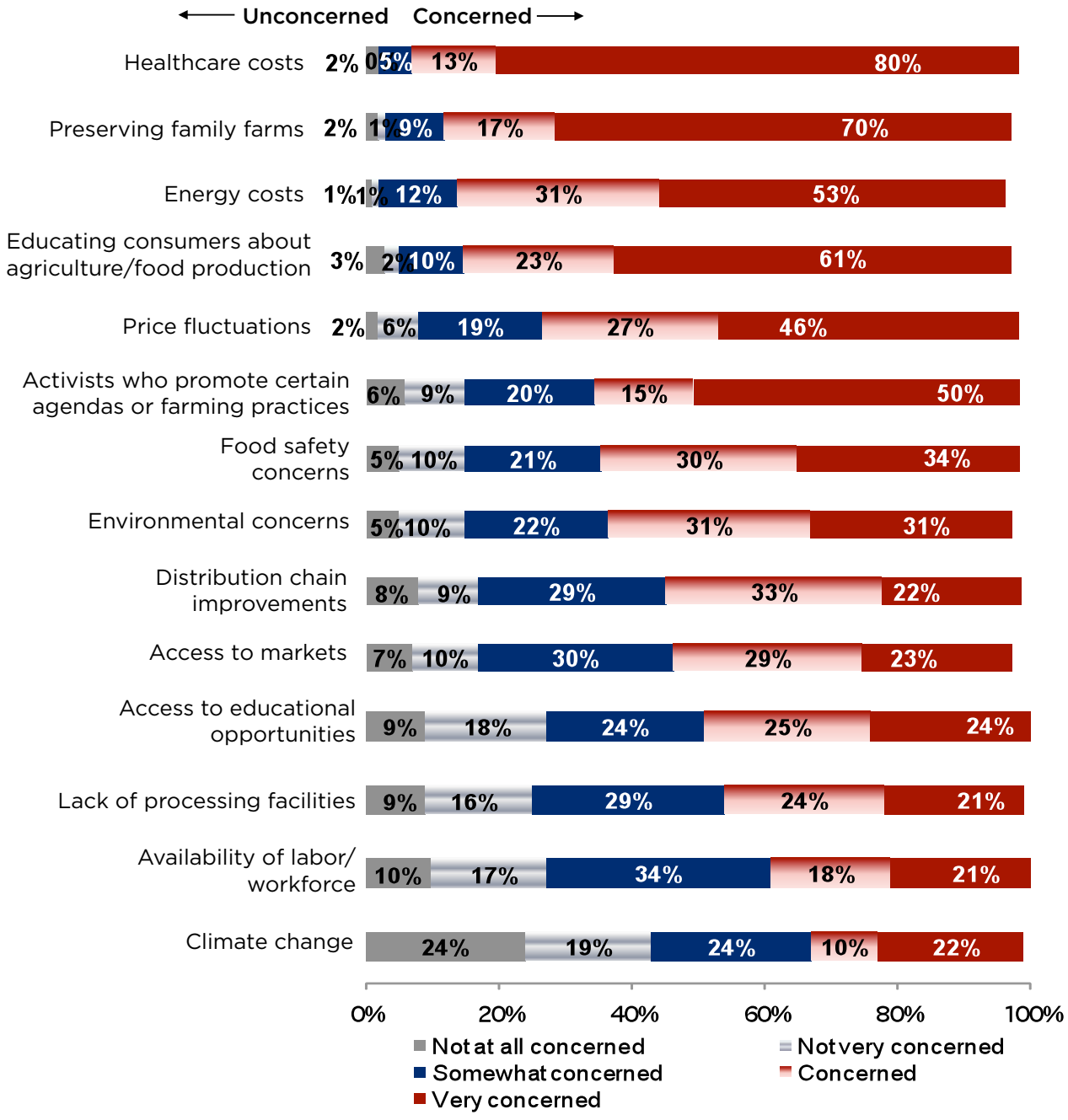
The diversity of Minnesota agriculture is one of the state's core strengths. While Minnesota grows its share of conventional crops and animal agriculture, the state also produces a wide variety and abundance of specialty crops, fruits, vegetables and livestock products. In fact, as noted earlier, Minnesota is among the national leaders in a wide range of agricultural products, indicating a breadth of production and expertise that is unmatched in many states. Each of these products offers its own unique opportunities for added value, entrepreneurship and job growth.

Moreover, some of the world's leading food processing and marketing companies have a significant presence in the state. This combination of production and processing should be leveraged to position Minnesota as a global leader "farm to fork". Doing so successfully is the key to a promising economic future and prospects for employment.

Embracing market opportunities does not come without its challenges, however. Participants in a recent AURI research study conducted with crop and livestock farmers across Minnesota said the top five issues that need addressing within Minnesota's agriculture and food industry are healthcare costs; preserving family farms; energy costs; educating consumers about agriculture and food production; and price fluctuations.[5]

The following is an exploration of the issues, observations and action steps that have been identified relative to green workforce growth within Minnesota agriculture. Clearly, there are implications to the action steps defined in this report; each will have to be weighed appropriately to determine viability and anticipated outcome.

Producer Perceptions of the Significance of Issues Related to the Success of Minnesota's Agriculture/Food Industry



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Agricultural Utilization Research Institute, Agricultural Survey, 2009

OBSERVATIONS ACTION ITEMS

OBSERVATION:
Sustainability is a Growing, Industry-Wide Consideration.

Sustainability, by whatever definition, is an integral factor in food production and processing, and is destined to become more important as consumer concerns grow about the environment and food sources. Addressing this reality is a complex – but important – issue, extending from farm to market and may fuel future, sustainability-oriented job growth.

The green movement has gained salient momentum across the country in the last few years, induced by a number of major players. Consumers are concerned about the impact the development and distribution of food products make on the environment. Businesses more and more frequently are asking suppliers to reveal how they manufacture their products, often driven by employees wishing to align their personal values with those of the companies for which they work.

Banks are factoring environmental variables into their loan decisions and offering reduced rates to companies who prove their environmental interest. Insurance companies are increasingly viewing environmental risks as business threats. Stock market analysts are studying environmental performance as a sign of management quality.[6]

"The more the consuming public is concerned about climate change, the more they tune into environmental issues in general – and that likely increases their interest in sustainability," said Hal Hamilton, co-director of the Sustainable Food Lab. "That may cause them to reach for that organic or local or sustainably produced product more quickly than they may have otherwise."

According to a Sustainable Food Laboratory report, 48 percent of the top 50 food producers issue public reports that outline their initiatives in sustainability. For example, Cargill has established a goal of reducing greenhouse gas emissions by eight percent from the baseline over the next 10 years – and aims to receive 10 percent of its energy from renewable resources. Some brands in Europe have even begun to put carbon footprint information on their product packaging.

From a food processor's standpoint, the greening of the industry is complex. "One of the challenges with sustainability is that it doesn't have that core focus or certification that organic has. Everybody knows what organic means, but nobody knows what sustainability means. And in order for a lot of these bigger – or less typical – projects to go, you have to be able to put a value on it. Will a consumer pay half a cent a can or a penny a can or a box?"

As an example, food and beverage firms are part of this agricultural reform movement, as they search for new ways to run a business profitably while diminishing adverse impacts on nature. A Harvard University report illustrates that food and beverage companies are working on securing the supply chain; developing alternative and innovative food ingredients; satisfying

demand for sustainable food and beverage products; creating better access to local foods; improving food distribution; and shaping an ethos of social advancement.[7]

"Three big constraints are looming for agriculture: energy, water and population," said Brian Buhr, professor of applied economics at the University of Minnesota. "You see this confluence of constrained resources with increasing demand. How are we going to achieve that global food sustainability and balance the environmental aspects?"

According to a report from the Sustainable Food Laboratory, there are significant trends toward "traceability" – knowing where food comes from, and the "water footprint" of food products.

Traceability is becoming important as companies start paying greater attention to every aspect of their supply chains. Consumers are becoming more aware of "food miles" – the distance required to transport food. A component of this, Bill Bauer of Bauer Berry Farm in Champlin said, is high energy costs. Should energy costs become very high, it may not make sense to ship food across the country when it is available locally. This could, he said, drive more diversity into farms, particularly those that are close to larger communities or metropolitan centers.

Projected water scarcity is also driving changes in policy and protocols by food companies in some parts of the U.S., since water availability affects supply chain stability and the cost of production from field to market. Citing growing concerns over water, Bauer said California may not be the breadbasket in the future. "Enterprising people will take up the banner for local food production," he said. "I really believe we're going to see an explosion of small local farms throughout the entire country. How much are people going to be willing to pay for products that require high energy costs just to get shipped to them?"

But as one food processor observed, "going green" isn't an independent initiative, it is something that typically pervades the organization at all levels: "There are synergies between running an efficient business and being sustainable, whether you are reducing the cost, reducing your product or reducing the amount of time it takes for an employee to do their job and the energy they use – but it's a balance."

> "We're learning about **sustainability**, yet we're probably **five years away** from seeing the true impacts on whether it **drives jobs.**"
>
> *- Food Processor*

The point is this: Sustainability, as perceived or defined by the industry and consumers, is clearly not a fad. It has become an integral factor in food production and processing, and may become more important as consumer concerns grow about the environment and food sources. As shoppers learn more, they will demand more and make purchasing decisions based on a product's characteristics.

A focus on sustainability will, in fact, change food production at every stage of the supply chain – including on the farm. If one looks at this with "glass half full" optimism, there is significant opportunity for niche agriculture focused on local or regional sources of food – from farmers' markets to CSAs to urban agriculture to cooperatives.

Yet, as one food processor observed, “We’re learning about sustainability, yet we’re probably five years away from seeing the true impacts on whether it drives jobs.”

ACTION ITEMS

- **Ensure that food processors have access to assistance regarding processes and technology** that can be utilized to improve their operations and assure future sustainability.

- **Provide food processors and farm producers access to expertise and support** in addressing water, energy and traceability concerns as well as access to product development expertise.

- **Provide technical assistance** to producers for the purpose of expanding the growing season to overcome “seasonality issues for local foods.”

- **Ensure processors can address opportunities** throughout the supply chain, develop alternative and innovative food ingredients, satisfy demand for sustainable food and beverage products, create better access to local foods and improve food distribution channels.

- **Ensure support for developing farmers** from CSAs to urban and conventional production agriculture.

- **Consider expanding Minnesota Job Skills Partnerships opportunities** to serve groups of agricultural producers and similar food processors.

- **Avoid creating more programs**, instead aligning with what Minnesota already has. Choose the appropriate organization to lead the initiative, then expect performance.

OBSERVATION:

Demand for Local Foods is Growing and Diversifying.

Buying local is more than just a niche business. As consumers become increasingly aware of the origin of their food, many are seeking food grown and produced closer to home. Farms and retailers are stepping up to fulfill this demand, both because of the financial benefit and the opportunity for brand differentiation. If this sector continues on a growth path, new employment options will likely develop – particularly within retail and other areas that may need additional sourcing/purchasing expertise.

In many ways, one could say the market is coming full circle. Buying food from local growers and producers used to be a way of life across much of America. As globalization and distribution advancements occurred, however, consumers became intrigued with the option of purchasing Chilean grapes, Mexican tomatoes or apples from Argentina. Certainly these products are still pervasive throughout the retail environment, but times are beginning to change.

Consumers are increasingly aware of the origin of their food and what it took to get it from farm to plate. "People want to get more connected to where their food comes from," said Helene Murray, executive director of the Minnesota Institute for Sustainable Agriculture (MISA) at the University of Minnesota. "They think about fair trade, about people being paid a fair wage."

Local foods also tend to be perceived as being fresher, more nutritious and safer; not everyone agrees. "Just because food is grown organically doesn't mean it's safer. Just because food is grown locally doesn't mean it's more sustainable. But consumers perceive these to be true," said a foodservice industry representative.

According to a report written for the W.K. Kellogg Foundation, community-based food systems (CBFS) generated estimated total sales of more than $7 million in 2001. While small, they are "emerging spontaneously in more than 130 locales around the U.S."[8] The importance of locally-grown foods is widespread. The Kellogg Foundation report explains that not only do consumers trust local foods, some low-income people are looking at locally grown to offer healthy food to their communities.

Consumers are **increasingly aware** of the origin of **their food** and what it took to get it from **farm to plate**.

Local foods can also strengthen local economies. According to the Land Stewardship Project, "Locally grown fruits and vegetables are usually sold within 24 hours of being harvested." Such product is often felt to contain more nutrients, since local farmers can put more effort toward producing fruits and vegetables for taste and freshness, rather than ensuring that the product can withstand shipping and shelf life. The average plate of food is said to now travel 1,300 miles from farm to table, and for every food calorie consumed, nine calories of energy are expended. This data suggests that local foods may require less energy and create less pollution.[9]

According to the study "Made in MN 2009" by Lee Eggerstrom and Katie Mertz, several unique "grown locally" food and beverage sectors show great potential for spurring the state and local economy - grapes (wines), beer, apples and cheese. As the report noted, "The multiplier effect of boosting the state and local economies is even greater when these high-quality, locally-produced products substitute and replace imported products - often of inferior quality - that send most of the consumers' retail dollars out of state."

The grape and wine industry had a $36.2 million impact on the Minnesota economy in 2007, according to University of Minnesota economic research that factored in the employment and business activity from grape growing, winery operations, winery-related tourism and retail sales – including 155 jobs extending from tourism spending.

Eggerstrom and Mertz observed that the increasing popularity of Minnesota-developed grape varieties and the expansion underway within the Minnesota wine industry suggests "impressive growth potential for this small sector of the Minnesota food and beverage industries."

Further, the Minnesota beer industry - one of the state's oldest processing and manufacturing sectors – is experiencing renewed interest, particularly within high-quality craft beer. Overall, the beer industry in Minnesota is valued at $2.5 billion, yet still only accounts for about 4.5 percent of state beer sales.

> " **'Grown locally'** food and beverage sectors show **great potential** for **spurring** the **state** and **local economy.**"
>
> *- "Made in MN 2009"*

An example of a successful initiative to increase the perception and purchasing of Minnesota agricultural products is Minnesota Grown, an umbrella program begun more than 20 years ago that unites the marketing efforts of several commodity/market groups. As a program with the Minnesota Department of Agriculture's Marketing Services Division, the entity promotes Minnesota products within the state and in other domestic markets, including farmers' markets, community supported agriculture (CSA) farms, garden centers, wineries, fruit and vegetable growers, pick-your-own farms, livestock and meat producers, Christmas tree growers and producers of honey, wild rice, maple syrup, cheese and other gourmet products. Efforts include developing promotional/advertising programs for producer groups.

According to Paul Hugunin, Minnesota Grown program coordinator, participation recently topped 1,000 members. Approximately 10 to

15 percent are certified organic producers, while others utilize such principles but have not formally undertaken the certification process. "Essentially, our role is to promote what Minnesota grows and where to find it," Hugunin said. One of the ways the program does this is by licensing and cost-sharing the Minnesota Grown logo for use on qualifying products. Ideally, the goal is to encourage consumers to look for and buy such products, thereby generating greater purchasing by stores that carry them.

The St. Paul Farmers' Market (SPFM), a Minnesota Grown member, operates in downtown St. Paul year-round, thus supporting growth for meat, dairy and eggs. There are more than 160 vendors in 19 markets throughout the metro area, attracting more than one million shoppers during the year. The main downtown market will see 25,000 customers on a peak-season Saturday.

A $2.2 million renovation in 2004 helped spur the 20 to 40 percent annual growth that SPFM has seen over the past 13 years.

More than half the producers at SPFM are Hmong, who are providing more ethnic foods to consumers. The Hmong community is a positive growth opportunity for employment as many of these entrepreneurial families do not rely on social programs; such commerce helps them assimilate into the community more quickly.

Jack Gerten, SPFM manager, inspects all growers on a three-year rotation to ensure that products are actually being produced on the farm. He sees this as a key differentiator between SPFM and supermarkets promoting "local" produce. "They can't prove if the products are local, but we can provide that assurance because most of our farmers will invite consumers to come to the farm and visit," he said.

The St. Paul Farmers' Market is considering a new program in which consumers could choose seasonal product online and then pick them up at a central location. This would help SPFM improve consumer convenience, which is a key benefit of such community supported agriculture (CSA) programs.

> "You're seeing a **tidal wave of interest** in **local and sustainable foods** … it feels as if the rock is at the top of the hill and beginning to roll down … gravity is pulling it **very, very quickly** – and **the momentum is quite amazing.**"
>
> *- JoAnne Berkenkamp, Program Director, IATP*

CSAs have seen tremendous growth in Minnesota, especially in the metro areas. "Most CSAs have waiting lists," says Jim Riddle, organic outreach coordinator with the University of Minnesota.

Minnesota Grown's Paul Hugunin agrees about the potential of CSAs, as well as growth within other direct to consumer marketing efforts. The Minnesota Grown directory of farmers targeting consumers has evolved to 736 listings in 2009, up from 678 in 2008 and 398 in 1998. In fact, since the 2009 directory was printed, 31 new listings have been added to the online edition.

Similar to Minnesota Grown in concept, the Intertribal Agriculture Council (IAC) promotes

the "Made by American Indians" trademark as a means to successfully and clearly identify actual American Indian products from federally recognized tribes. The IAC currently lists over 500 licensed trademark users. The organization was founded in the late 1980s "to pursue and promote the conservation, development and use of our (Native American) agricultural resources," saying such is vital to the economic and social welfare of many Native tribes. "The harmonies of man, soil, water, air, vegetation and wildlife that collectively make-up the American Indian

MINNESOTA GRAPE PRODUCTION: TENDING A GROWTH INDUSTRY

An example of a Minnesota agricultural subsector that is likely benefiting as knowledge of local foods grows is grape production. There has been a significant increase in the number of vineyards, planted acreage and planted vines, though concern has been raised about crop utilization.

A 2008 University of Minnesota study prepared for the Minnesota Grape Growers Association noted that while grape production may increase significantly in the coming years, if issues such as enhanced marketing are not addressed, vineyards may experience oversupply. The report noted that there were 632 vineyards in Minnesota in 2007 with only three percent established prior to 1990. The industry doubled within the previous five years, making the total economic impact of the grape and winery industry in Minnesota $36.2 million in 2007.

Market growth for products produced from these grapes varies. Alexis Bailly Vineyard, the first commercial winery in Minnesota, began selling wine in 1978 from its Hastings location. Although the enterprise has achieved award-winning success, business in Minnesota hasn't always been easy.

According to Alexis Bailly management, an obstacle to market expansion is industry regulation. Minnesota wines must be made from 51 percent Minnesota-grown grapes, a stipulation that does not exist in all states. Plus, northern weather has been challenging to crop production, making access to certain types of grapes less dependable than in more temperate regions. Still, Alexis Bailly is making its contribution to Minnesota's economy by producing some 3,000 cases of fortified and table wine a year and hosting hundreds of visitors every year in agri-tourism.

agriculture community, influence our emotional and spiritual well being," IAC statements indicate.

Red Lake Nation Foods, a member of the Intertribal Agriculture Council, began in 2003 offering wild rice (and blends). The line has since been expanded to include wild berry jellies, jams and syrups; all natural batter mixes, and more. An enterprise of Red Lake Nation Foods is the Red Lake Fisheries, the oldest and largest freshwater walleye processing plant in the United States. Red Lake, located in northern Minnesota, is the sixth largest natural, freshwater lake in the United States.

Another example of a local success is White Earth Land Recovery's subsidiary business, Native Harvest, which buys local products for a fair price from tribal members and markets those products nationally. The organization produces and sells traditional foods such as wild rice, hominy, maple syrup, and jellies.

One of the most familiar products to most consumers is wild rice, a cereal grain cultivated in the northern third of Minnesota in such counties as Aitkin, Beltrami, Clearwater, Polk, Cass, Crow Wing, Itasca, Koochiching, Lake of the Woods, Pennington, and Red Lake. Wild rice has been successfully cultivated on a commercial basis in the state since the 1960s.

In the past, natural stands of this plant provided a staple in the diets of local Native American tribes. Now this grain is grown and used in a variety of products worldwide. Although there are no official USDA estimates of Minnesota's wild rice area, many analysts believe the state has nearly twice as much acreage devoted to wild rice as California. Actual production is estimated to be about equal, however. The U.S. produces 10-12 million processed pounds of cultivated wild rice annually.

Today, there are two wild rice communities. Native Americans who hand-harvest, lake grown wild rice by traditional methods, and commercially grown paddy rice where mechanical harvesting is done by specialized combines. Minnesota produces over 6 million pounds of commercial wild rice, typically sending much of the grain to food processors that market it in blends with white rice.

Besides utilizing different processing methods, philosophical differences of opinion exist between the two sectors. Many in the Native American community, such as White Earth Land Recovery Project and all the Ojibwe bands within the state of Minnesota, are opposed to genetic modification of the grain and have worked to bring together traditional rice harvesters from Minnesota, Wisconsin and Michigan to meet with members of the academic, scientific and non-profit communities to discuss such science, plus promote fair trade for traditionally hand harvested natural lake wild rice.

According to the U.S. Census of Agriculture, there were 413 American Indian (or Alaska Native) 'farm' operators in Minnesota, though fewer than half indicate agriculture is their primary occupation.

According to JoAnne Berkenkamp, program director for local foods at the Institute for Agriculture and Trade Policy (IATP), "You're seeing a tidal wave of interest in local and sustainable foods." Berkenkamp believes consumer interest has reached a tipping point. "The situation is very different than five years ago. Now it feels as if the rock is at the top of the hill and beginning to roll down," she said. "Gravity is pulling it very, very quickly – and the momentum is quite amazing."

Will this interest spur green job growth in Minnesota? Very likely, say the experts who believe that the resulting economic impact would reach beyond farm and field. According to The Land Stewardship Project, farms receive an average of only 19 cents of every consumer food dollar for their work. The remaining 81 cents goes to packaging, transportation, processing, wholesaling and food preparation. Buying

locally, they assert, has the potential to keep food dollars invested in communities and local farms.[9]

"Changing attitudes about food, its impact on health and well-being, and growing opportunities for small farmers have sparked a movement across the country," observed Collin Peterson, Congressman and Chair, U.S. House of Representatives Agriculture Committee. "With this demand for more locally grown foods, farmers and rural communities can benefit from a variety of new opportunities. The farm to school program, linking local agricultural producers to school lunch and breakfast programs, is growing in Minnesota. Farmers markets and food co-ops are springing up all over the state and in grocery stores; Minnesota Grown and locally grown labels are being sought out by shoppers."

To build upon this interest, Peterson will host a special event February 15-16 in cooperation with numerous academic and other organizations. "The Home Grown Economy 2010 – Equipping You to Build Community Based Food Systems" conference will be held in Marshall and feature such topics as how food networks can thrive and strengthen local economies.

ACTION ITEMS

- **Ensure coordinated services** are available to support local food farmers, especially immigrant. Support should include consideration that English may be a second language.
- **Provide cross-industry assistance** with issues such as aggregation, risk, insurance, etc.
- **Support research on greenhouse and other emerging technologies** that expand the growing season.
- **Encourage local food processing** in addition to local food production (farming).
- **Continue support** for Minnesota Grown.
- **Encourage a network of support for grocers** interested in exploring Minnesota options for local foods.
- **Promote and support network opportunities** that build capacity such as the annual Home Grown Economy conference, sponsored by Congressman Collin Peterson.
- **Ensure that agricultural producers are aware** that local food production poses an opportunity to expand their conventional operations.

OBSERVATION:

The Ability to Make Local or Regional Purchases is Often Limited by the Structure of the Food Distribution System.

The current system for moving food from farms to markets is fragmented and inefficient – especially for local foods, which often lack the infrastructure to supply wholesale volumes into urban markets. Only limited amounts of local foods are distributed through direct farmer-to-consumer retail sales at farmers' markets, farm stands, community supported agriculture (CSA), and small-scale, direct-to-restaurant sales. It is highly likely, therefore, that green job growth could occur in areas such as aggregation and purchasing.

Consumer interest in locally grown and produced foods is on the rise across Minnesota. From grocery stores to restaurants, farmers' markets to community supported agriculture (CSA) programs, demand is being driven by both health concerns and a shift toward "values-based" purchasing.

Retailers, in general, agree that there is strong consumer interest for local products and are making efforts to fulfill this purchasing desire. But doing so isn't always easy. Lack of sufficient variety and the short Minnesota growing season can be challenging.

Also, determining consumer preferences and willingness to pay for locally grown produce is very important because producers must determine what type of product to grow and sell; what to emphasize in marketing efforts; and what to ultimately charge. According to a recent report by Chengyan Yue and Cindy Tong at the University of Minnesota - Twin Cities, Horticultural Science and Applied Economics, 83 percent of participants in a consumer survey felt freshness, food safety and supporting the local economy were key purchasing motivations.

According to the "Marketing Study of Opportunities for Foods Grown Locally or Sustainably in Minnesota," sponsored by AURI and the Minnesota Farmers Union, the larger grocery store chains rely on their merchandising staff to make decisions on the growers and the brands they want to carry. In the fresh produce category, that may mean five to 10 local growers, depending upon the variety of produce. Often the growers are expected to deliver directly to the stores, though some stores prefer to work through their authorized distributors.[10]

In natural foods stores and cooperatives, department managers usually develop relationships with a number of growers and communicate their expectations for the product they desire. These staff also work with approved distributors to ensure adequate variety and supply.

A study of grocery stores conducted by the Minnesota Institute for Sustainable Agriculture indicated that Minnesota grocers use a variety of suppliers to source organic food products: wholesalers, distributors, brokers and farmers. Survey results implied that independent grocers, and to a lesser degree chains, have the flexibility to source direct from farmers though

HELPING LOCAL FOODS GO MAINSTREAM

An example of an entity that has embraced the full spectrum of opportunity in local foods is Kowalski's Markets, a Twin Cities-based grocer that has been supporting local agriculture for years. The company uses the tagline "Local. Natural. Organic." to promote not only fresh fruits and vegetables, but such packaged foods companies as Anderson Maple Syrup and Angelina's Kitchen. The company's website offers the statement, "When we opened our doors over 25 years ago, we knew that a big part of our focus would be on supporting local growers, businesses and nearby communities. It's always been important to our family to support honest, hard-working people who go the extra mile to ensure a higher-quality product, and who adhere to the same higher standards that we do, including sustainable practices."

According to Terri Bennis, Vice President of Fresh Food Operations at Kowalski's, finding and selling local foods makes sense, not only because such products are perceived to be fresher but because it helps retailers such as theirs differentiate themselves from competitors.

Kowalski's prides itself on developing relationships with local farmers, thus allowing the ability to track food from farm to store. The company visits and tours producer operations to ensure the products are originating locally, maintaining quality standards and are pesticide-free.

Seasonality is a **constraint** that regularly precludes **greater direct purchasing.**

they identified seasonality as a constraint that regularly precluded more direct purchases.[11]

Other purchasing obstacles noted included insufficient volume, lack of specific product/variety, poor communication and distribution or transportation issues. Grocers, who did purchase direct from farmers, said they did not use the Internet, conferences/trade shows, or farmers' markets to identify farmers. Instead, they purchased products from those farmers who initiated contact with the store – something they said they preferred to see happen.[11]

Increasing food production in Minnesota is an important goal in that doing so increases the number of enterprises growing food to meet consumer demand – especially in the areas of local and organic foods. But more small farmers mean more food sources which can be a problem.

"One of the real challenges we have in our local food system is the aggregation of relatively small quantities of special products that are grown in geographically diverse parts of the state," said JoAnne Berkankamp with the Institute for Agriculture and Trade Policy.

Some see the ability to aggregate product from various farms as a critical component in developing niche agriculture markets in organics and local foods. The culinary sector agrees, in that their ability to make local or regional purchases is often limited by the current structure of food distribution.

The Chefs Collaborative is a nonprofit network that promotes advocacy, education and collaboration within the broader food community. Melissa Kogut, executive director of The Chefs Collaborative, said, "Having strong regional food distribution networks that increase access to locally and sustainably produced meat, seafood, produce and artisanal products is key."[12]

A 2008 study conducted by Katie Appel of the University of Michigan's Erb Institute for Global Sustainable Enterprise on behalf of the Chefs Collaborative assessed the performance and success of distribution models within a local network. The current system for moving food from farms to restaurants and other end-users is fragmented and inefficient, the study observed. This is especially the case for local foods, which often lack the infrastructure to supply wholesale volumes into urban markets. Limited amounts of local foods can be distributed through direct farmer-to-consumer retail sales at farmers' markets; farm stands; community supported agriculture; and small-scale, direct-to-restaurant sales.[12]

Culinary experts believe that there is a need for smaller, independent distributors who will make sourcing local food more cost effective for chefs and more financially lucrative for farmers.[9]

Large retail outlets may be contributing to growth in emerging market retail sales. The question remains, however, whether smaller producers can sustain this demand to be part of the larger retail segment. There is some concern that as local and organic foods grow in availability at "big box" retailers, smaller retailers may not have access to as much of these foods as they would like to sell.

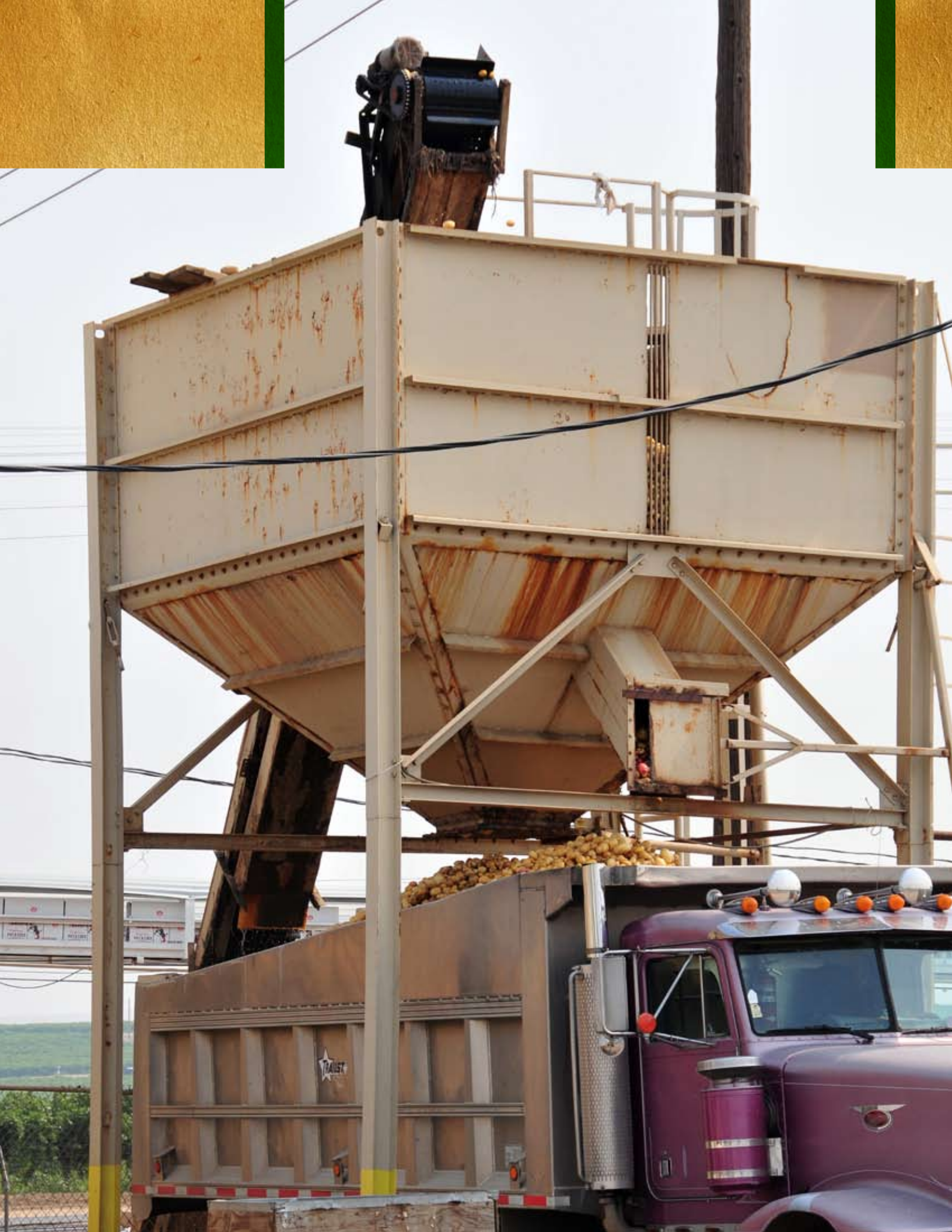
"The little boutique is going to have more patience to work with individual farmers, but they're very unusual and will be higher-priced than all of the other foodservice outlets," said Hal Hamilton of the Sustainable Food Lab, a consortium of business, nonprofit and public organizations working together to accelerate the shift of sustainable food from niche to mainstream.

ACTION ITEMS

- **Encourage and support** the development of a regional food distribution network.
- **Encourage existing food distribution organizations** to consider local foods as a viable component of their marketing plans.
- **Identify and support** organizations that can be "market makers" between farmers and grocers.
- **Support research** on greenhouse and other emerging technologies that expand the growing season.

"Having **strong regional food distribution networks** ... is **key.**"

- Melissa Kogut, Executive Director, The Chefs Collaborative



OBSERVATIONS ACTION ITEMS

OBSERVATION:

Food Service Offers a High-Potential Market for Local Food Sales if Distribution Issues Can Be Resolved.

Strong potential exists for producers of local food to sell product to food service entities such as schools, hospitals, business cafeterias, restaurants and more. The desire to buy such product exists. The issues that need to be resolved to build this market, however, include addressing cost, aggregation, traceability, access and processing – all of which could result in new employment opportunities.

Food service in Minnesota – a sector comprised of such entities as restaurants, colleges, business cafeterias, schools and hospitals – also represents a significant purchasing force for local food sales. Some organizations within this category outsource their food operations to management companies (e.g., Sodexho, ARAMARK), while others manage such operations in-house. In both instances, however, interest in local foods is growing, both to meet consumer demand and to differentiate their brand offerings.

Chefs at independent restaurants and foodservice directors at food service management companies typically work through distributors for their produce, dairy and protein food products, but in some instances, they prefer to work direct – if the producer can supply the quality and volume needed on a consistent basis.

As one foodservice industry representative noted, to succeed, local food needs to not only be consistently accessible, it must be full-scope and far broader than produce. "The entire local foods momentum is all about supply and sales of local food, which is an entire breadbasket of products. It should include protein. It should include further processed products," he said.

> "There is a need for **intermediaries** who can face **both ways effectively.**"
>
> *- Hal Hamilton, Sustainable Food Lab*

Products available at farmers' markets are not necessarily what a retailer or foodservice company wants. This is due, in part, to the specific requirements a retailer or foodservice company may have. It also lends to the issue of a foodservice company or retailer's ability to work effectively with a large number of farmers. In the AURI/Minnesota Farmers Union report on local foods, seven key requirements were identified for farmers to successfully work with retail and foodservice distributors.

NECESSARY TO DO BUSINESS WITH RETAIL AND FOODSERVICE DISTRIBUTORS

- Greater reliability of local supply
- Wide variety of local products that reflect understanding of market demand
- Season extension
- Aggregated supply (before product reaches the distributor)
- Strong post-harvest handling and initial processing capacity
- Ability to meet food safety and traceability requirements
- Greater coordination with farmers

Source: "Marketing Study of Opportunities for Foods Grown Locally or Sustainably in Minnesota," 2009

Many retailers or foodservice providers simply do not have the capabilities, or desire, to deal with multiple growers for a wide variety of local or regional products – nor can they often buy from those who do not have liability insurance.

"The big need is in the middle of the chain," said Hal Hamilton of the Sustainable Food Lab. "There is a need for intermediaries who can face both ways effectively – face toward the farmers and help them produce the right things at the right time with the right quality and the right specifications; and face toward the buyers and provide what they need as well. It's a tricky place to operate..."

This is particularly true where there are language and coordination barriers.

An aggregator could likely solve many of these problems. By representing a number of farmers who are a reliable source of quality products, and by carrying insurance, they could effectively satisfy the retailer's or foodservice company's needs.

"One of the biggest issues is the fact that farmers cannot afford liability insurance," said a foodservice industry spokesperson. "We're finding that an aggregator can provide that function as well as coordinate the orders; supply product information; represent the farms at market shows; and provide other support that farmers don't know how to provide or are unwilling or unable to provide."

"Once producers get past the point of being able to sell all of their production through a farmers' market environment, there's a big jump involved in getting into wholesale," said IATP's JoAnne Berkenkamp.

According to Paul Hugunin of Minnesota Grown, however, if entities such as school districts were to have the authority to buy a certain percentage of their food purchases "off contract," volume – and opportunity – could increase.

The 2008 Minnesota School Food Service Director Survey: Farm to School, sponsored by the Minnesota School Nutrition Association and the Institute for Agriculture and Trade Policy, found overall interest in buying local foods is high. Sixty-three percent of school food service directors that were surveyed said they were "very interested" in purchasing local food through a distributor; another 41 percent indicated that they were "very interested" in purchasing directly from farmers.[13]

Realizing this potential farm revenue isn't far off. Some 46 percent of those surveyed said they plan to buy local foods during the 2009-10 school year.[13]

Why the interest? School food service directors said that they want to support local farms and the economy, and increase student consumption of fresh fruits and vegetables, among other reasons. Their desire to buy local isn't coming without barriers, however. The top issues they are dealing with, they said, are finding farmers, liability and safety concerns, and logistical challenges with backdoor deliveries. Cost also plays a big role in the ability for local food to grow in food service.[13]

Organizations like St. Paul Public Schools (SPPS) could hold strong buying potential for Minnesota's agricultural market, but for these types of entities, food must arrive in a form that is user friendly. Today's schools are typically structured to cook food, not prepare it – meaning that efficiency in most school kitchens depends on ingredients arriving with little or no chopping, sorting, washing, labor required, etc. This creates challenges in terms of accepting raw food products directly from farmers.

St. Paul Public Schools (SPPS) has a large central kitchen for cooking and baking, and then transports the food to individual school kitchens where minimal final processing is done. SPPS does not peel and chop vegetables due to limited resources. In other words, schools need an intermediary. Processors have the ability to work with farms to plan production, allowing for efficiencies in growing the produce; they know how much, and what type of processing is needed by the schools for each product.

Persons or entities serving in the role of aggregator can help drive improvements in efficiency and, by doing so, expand food sales and job opportunities. "Job growth is going to come with the kind of scale that is required to get into the mainstream outlets rather than in the farmers' market arena," said Hal Hamilton of the Sustainable Food Lab. "Farmers' markets will typically provide supplementary income for small entrepreneurial farmers, but if you're talking about hiring people, you're talking about medium-sized farms instead of little ones. And you're talking packing sheds and coolers and distribution."

Bob Olson of Food Alliance Midwest points out another barrier to the growth of niche foods among such foodservice entities as schools, colleges and institutions. "We find that in some locations, the marketing fees that come back to the institution from the food supplier represent a huge revenue source," he said. "That presents a strong disincentive for management companies to change their mix. The suppliers want to maintain access to those large foodservice accounts and they are willing to pay to keep it."

> "The loss of smaller scale **creameries** and smaller scale **meat processing/ slaughter facilities** is a huge **issue.**"
>
> *- JoAnne Berkenkamp, Program Director, IATP*

On the positive side, retailers from grocery stores to mass merchandisers such as WalMart are more actively promoting Minnesota grown products. While entry points to those retail markets have decreased due to industry consolidation, there appears to be increased opportunity for Minnesota produced product.

Saint Paul Public Schools has established a partnership with Food Options for Children in Urban Schools (FOCUS), funded by the W.K. Kellogg Foundation. Thanks to this partnership, SPPS has created the Farm2School program offering food from local Minnesota farms to the mouths of 30,000 students in the city. This

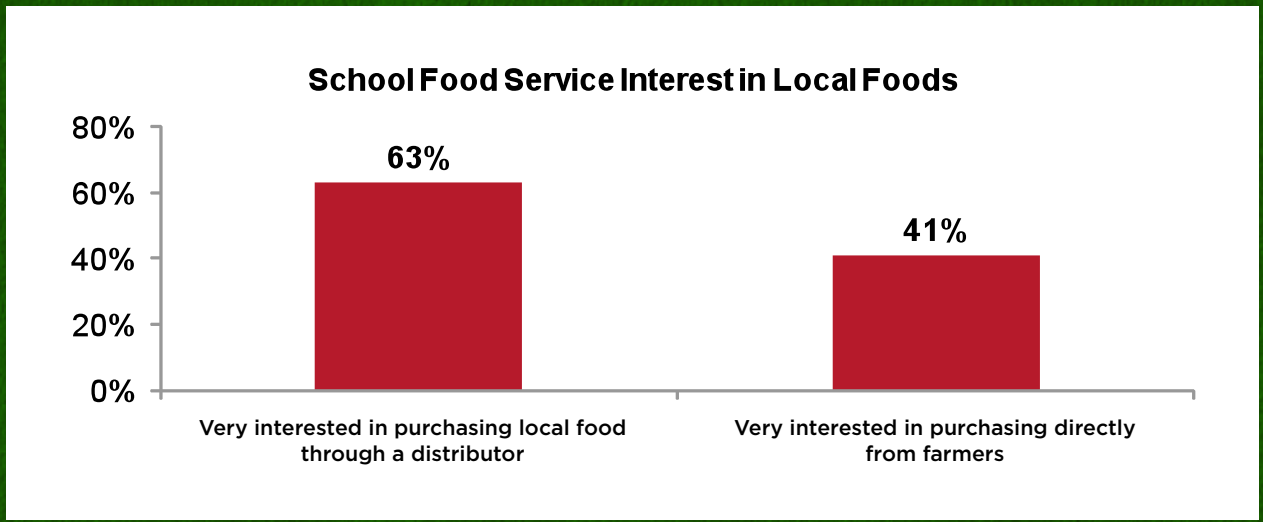
program currently brings in seasonal fruits and vegetables from four family farms, with the intent to add more farms in the future.

In 2008, the U.S. government implemented the farm bill which provided, among other things, support for organic and locally grown food. Some $33 million was earmarked to expand opportunities for direct producer-to-consumer marketing through the Farmers' Market Promotion Program. The fund provides competitive grants to improve and expand direct producer-to-consumer market opportunities. An additional $22 million was allocated for the USDA's cost-share program that organics can access.[14]

Organic foods may still not be a viable option for some school systems, however. Since lunches are subsidized by the federal government and driven by USDA commodity purchase, the higher cost of organics may make it difficult to offer all of the required nutrients to students via organic fresh fruits and vegetables.

> "...it's **increasingly important** to think about **where** you're going to **sell.**"
>
> *- Meg Moynihan, Organic Specialist, MNDA*

Because processors need a continuous, reliable supply of product for optimum efficiency, the relatively small supply of niche food products (meat, dairy and produce) makes it difficult for small processors to survive. "The loss of smaller scale creameries and smaller scale meat processing/slaughter facilities is a huge issue. If you're a small-sized meat producer, you may



Agricultural Utilization Research Institute, Agricultural Survey, 2009

have to drive live animals 150 miles to get to a processing facility that will work with you," said JoAnne Berkenkamp with the Institute for Agriculture and Trade Policy.

In order for farmers to preserve the organic claim and capture the additional value, organic grains and crops must be processed in certified organic processing facilities. "You can't just take the product to the local elevator and dump it," said Jim Riddle of the University of Minnesota. "So there are transport costs. There is not a widespread purchasing and processing infrastructure in place."

But niche processing is a difficult industry in which to succeed. "There are frequent stories in the news about farmers who pooled resources to establish a meat processing plant – and the plant eventually fails and now sits empty," said Bob Olson of Food Alliance Midwest. "You can incent all you want, but the fact is it has to make economic sense."

In both production and niche agriculture, however, marketing is key. "Farmers are traditionally production oriented because, in a commodity marketplace, there's always been somebody to buy what you're selling," said Meg Moynihan, organic and diversification specialist with the Minnesota Department of Agriculture.

"Now it's increasingly important to think about where you're going to sell. Even if you're a commodity producer, do you want to be focused on identity preserved commodities? Do you want to do high-lysine, high-oil, non-GMO seed production?"

ACTION ITEMS:

- **Identify and empower** an organization that can help meet the logistical and technical needs of food service organizations by linking potential local food producers with local food processors.
- **Ensure expert technical assistance** is available for organizations and individuals interested in exploring food service opportunities and barriers.
- **Provide Minnesota's local foods industry** with easier access to liability insurance.
- **Ensure that adequate support systems** are in place to assure Minnesota's local foods are safe and wholesome for food distributors and food service organizations.

NECESSITIES FOR DOING BUSINESS WITH RETAILERS AND FOODSERVICE OPERATORS

- High-quality products provided on a consistent, dependable basis
- Good communication between supplier and operator
- Extension of the production season
- Liability insurance in the amount of $2–$5 million
- HACCP plan for handling food products
- Marketing plan for product promotion

Source: "Marketing Study of Opportunities for Foods Grown Locally or Sustainably in Minnesota," 2009

OBSERVATION:

Organic Demand Is Growing, But Some Barriers Still Exist For Market Entry.

National organic food sales have more than quintupled, increasing from $3.6 billion in 1997 to $21.1 billion in 2008. Minnesota ranked ninth in the U.S. with nearly $40 million in sales of organic crops, livestock, poultry and related products (2007). To capitalize on growing output and demand, mainstream grocers/retailers are now the largest channel for distribution. What this means is that consumers are more and more likely to find organic foods where they typically shop for food. Realizing significant category growth, however, will depend upon innovation and technical assistance – two areas that could produce employment opportunities.

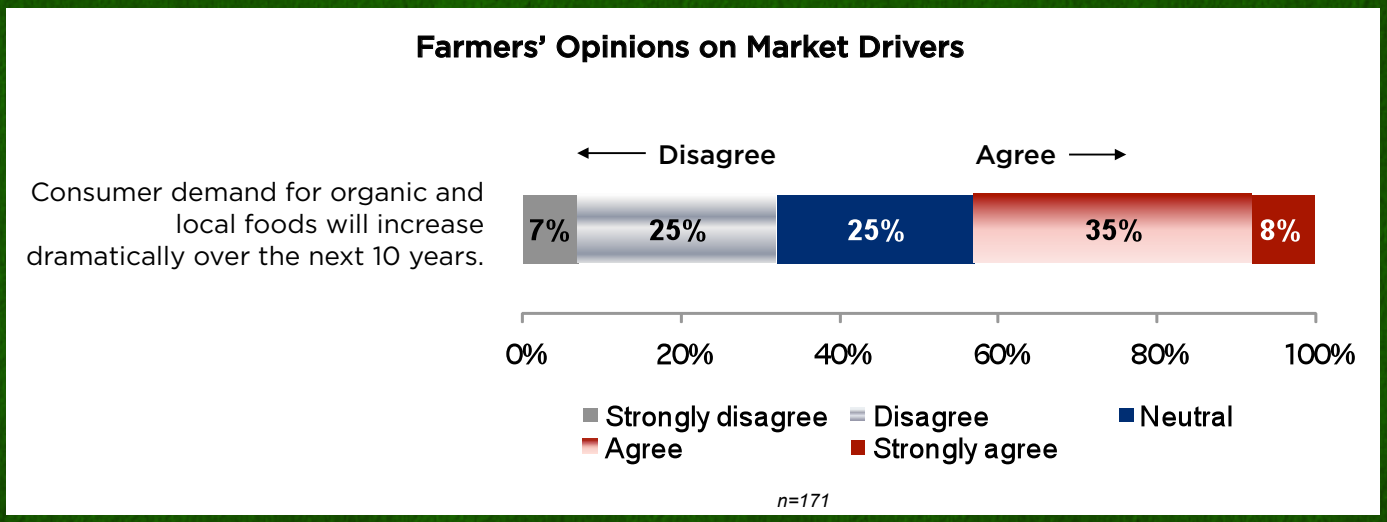
According to SARE (Sustainable Agriculture Research and Education), on a national scale, "the value of organically produced commodities was $1.71 billion, generated from 18,211 operations" across the U.S. "Farmers reported 2,577,418 organic acres, including more than 616,000 converted by nearly 12,000 operations." A total of 1,288,088 organic acres were harvested in 2007.[15] By comparison, the 2007 Census of Agriculture sets the total market value of U.S. agriculture products sold at $297 billion, total farms at 2.2 million, total farmland at 922.1 million acres and total harvested cropland at 309.6 million acres.[16]

According to the U.S. Census, there were 718 Minnesota farms that used at least part of their land for organic production in 2007, comprising a total of 96,342 acres. Minnesota ranked ninth in the U.S. with nearly $40 million in sales of organic crops, livestock, poultry and related products in 2007.

[Note: 2007 was the first year that USDA National Agriculture Statistics Service (NASS) asked respondents about organic production. Consequently, accurately gauging the growth of niche agriculture in Minnesota is difficult. According to Neal Young, economic analyst with the Minnesota Department of Employment and Economic Development (DEED), many data sources simply don't include numbers on family farms or those "agripreneurs" involved in local food production and farmers' markets. Additionally, Young said that labor figures for family farms tend to be inaccurate. Anecdotal evidence, however, indicates a significant growth trend in Minnesota in terms of organic production, local foods, cooperatives and other niche food production markets.]

Cathy Greene with ERS/USDA notes that, while organic retail sales will be down this year from the double-digit growth rates over the past dozen years, they are still projected to grow in the nine percent range. "That's nothing to sniff at in this weak economy," she said. Additionally, Nutrition Business Journal projects growth in organic retail sales will return to double-digit rates in the next couple of years.

According to the Organic Trade Association, more than two-thirds of U.S. consumers buy organic products at least occasionally; 28 percent buy weekly. To help support this



Agricultural Utilization Research Institute, Agricultural Survey, 2009

demand, one million acres of certified organic crop and pasture were added in the U.S. between 1997 and 2001; the number of farming operations with certified organic acreage, excluding subcontractors, increased by 2,000.[17]

At one time, organic products were available only in niche natural food stores. Now, the USDA Economic Research Service reveals, such products are available in nearly 20,000 natural food stores, and in nearly three of four conventional grocery stores.[18] A report from the International Federation of Organic Agriculture Movements (IFOAM) and the Research Institute of Organic Agriculture (FiBL), in fact, indicated mainstream grocery stores and supermarkets represent the largest channel for organic foods, accounting for 38 percent of sales in 2006.

Still, the marketplace for purchasing such food is diverse. Food cooperatives, one access point for organic and sustainable foods in Minnesota, remain strong. Located throughout the state in large communities and small, co-ops are jointly-owned and democratically-controlled enterprises that provide organic produce, dairy, soy, juices, grains and other products.

One successful example is the Wedge, started in 1974 in South Minneapolis. The first certified organic retailer in Minnesota, the organization has grown to over 14,000 members. In 1994, the Wedge and Mississippi Market Co-op in St. Paul co-founded Midwest Food Connection, a program that presents lessons about food and farming to thousands of area school children.

In addition, the Wedge's wholesale distribution department, Co-op Partners Warehouse, is now a major distributor of perishable products to co-ops in four states, and works closely with local and regional producers to help get their products to market. Co-op Partners is able to deliver many products direct from the producer, including fresh grass-fed beef, natural pork and poultry, and Middle-Eastern deli products.

SALES GROWTH IN U.S. CERTIFIED ORGANIC FARMLAND ACREAGE, LIVESTOCK NUMBERS, FARM OPERATIONS

Category	Percent Growth 1997-2005
Total	201%
Pasture/rangeland	370%
Cropland	103%
Total livestock	961%
Total poultry	1,623%
All operations	69%

Source: USDA/ERS

All told, according to the USDA Economic Research Service, only seven percent of organic sales are through farmers' markets, foodservice and non-retail channels.[18] A USDA survey of market managers found that demand for organic products was strong or moderate in most of the farmers' markets surveyed around the country.[18]

"It's important to note that these food sectors are growing rapidly from a small base, but still the growth is impressive," said Bob Olson, director of Food Alliance Midwest. "Progressive, educated consumers are looking for these products."

In a recent AURI research study conducted with Minnesota crop and livestock farmers across Minnesota, some 43 percent believe consumer demand for organics and local foods will increase dramatically over the next 10 years; 25 percent were unsure; and 32 percent disagreed that such would occur.[5]

According to USDA Economic Research Service, by 2005, every state in the U.S. had some organic agriculture, including over four million acres of dedicated farmland (1.7 million acres of cropland and 2.3 million acres of rangeland and pasture.)[19] Acreage devoted to organic production more than doubled between 1992 and 1997, and again doubled between 1997 and 2005.[19] Organic produce is the strongest sector in organics, but many specialties such as dairy and poultry, are gaining market share.

O*NET, an occupational information network sponsored by the U.S. Department of Labor/ Employment and Training, claims that in terms of employment projections, there will be an increased demand for individuals skilled in organic farming methods and the development and research of alternative, non-synthetic pesticides.[20]

Klonsky and Greene, in the report "Widespread Adoption of Organic Agriculture in the U.S.: Are Market-Driven Policies Enough," said that accelerated sales and growth rates suggest that the organic food market could expand via four factors: "1) increasing the number of retail outlets with respect to type and number, 2) increasing the number of organic products available in each outlet type, 3) entry of mainstream food manufacturers into organic, 4) branding of organic and 5) increased export."[21]

The coordinating committee for the Organic Agriculture: Innovations in Organic Marketing, Technology, and Research Symposium stated that expansion of "ecologically diverse farming systems, including organic systems," is inhibited by a shifting agricultural arrangement. This current configuration makes widespread adoption arduous for organic and other "ecologically diverse" farming systems.[22]

In the "Green Jobs in Minnesota" report, GSP Consulting was unable to identify significant data documenting the level of employment activity in Minnesota's natural and urban farming. GSP estimated that approximately 500

of the state's 97,013 farm jobs are with organic farms, but projected a larger number of jobs associated with organic farming will develop as such agricultural production increases.[14]

A 2008 report entitled "Organic Farm Performance in Minnesota," funded by a research partnership grant from the USDA Risk Management Agency, noted that while it might be expected that organic farms would have higher profit margins than conventional commodity producers, such was only marginally true in 2009. In reality, organic farms had an operating profit margin of 22.5 percent, compared to 21.8 percent for conventional farms. Conventional farms were found to generate more income per dollar of investment with an average asset turnover rate of 48.1 percent compared to 39.7 percent for organic farms.[23]

The USDA report focused upon those involved in the Minnesota Organic Farm Business Management Project. Of the 74 farms participating in 2008, 48 were listed as "completely organic," meaning that products produced met organic certification criteria. Of these, 14 were crop farms and 26 were dairy farms; the other eight raised either organic hog or beef.[23]

Consistent with a similar study done in 2007, the organic crop farms were the most profitable as with median net farm income of $98,337 and a rate of return on assets of more than 13 percent.[23]

> "**Minnesota** has **historically** been a **leader**, and certainly in **the top five**, for the production of **organic soybeans** and **corn, dried beans, buckwheat** and **small grains.**"
>
> *- Jim Riddle, Organic Outreach Coordinator, UofM*

"Minnesota has historically been a leader, and certainly in the top five, for the production of organic soybeans and corn, dried beans, buckwheat and small grains. Those are things that do well and fit a good organic rotation," said Jim Riddle, Organic Outreach Coordinator for the University of Minnesota. "The feed market has also provided a strong base. The growth of organic meat has created a good market for the feed grains and forages needed for meat to comply with certification standards."

One of the organizations closely following the growth of organics in the state is the Minnesota Institute for Sustainable Agriculture (MISA).

> "**Small operators** could have a tough time if the **large processors** get into organics in a big way. A **niche market** is only **profitable** as long as it is a niche."
>
> *- Gene Hugoson, Commissioner, MDA*

MISA is a partnership between the University of Minnesota College of Food, Agriculture and Natural Resources and its extension education arm along with five non-profit groups: The Land Stewardship Project, the Institute for Agriculture and Trade Policy, the Minnesota Project, the

Minnesota Food Association and the Sustainable Farming Association of Minnesota.

Executive Director Helene Murray said MISA began in the late 1980s when a group of citizens challenged the University to create an integrated system for developing organic agriculture and sustainable practices in the state. "We're looking at the community, production, economics and environmental practices in a holistic manner," she said.

Gene Hugoson, Commissioner of the Minnesota Department of Agriculture believes organic development will likely continue as a dynamic environment. "Organic production has been successful because it is no bigger than it is," he observed. "Small operators could have a tough time if the large processors get into organics in a big way. A niche market is only profitable as long as it is a niche."

"We can't be pitting **one sector against another**. We're all in it **together.**"

- Rod Hamilton, Minnesota State Representitive

"There's probably a lot of room for Walmart to make money and still be the low-cost retailer of organics," said Chuck Hassebrook, Executive Director of the Center for Rural Affairs. "Walmart entering into organics and natural meat is a big deal because it means it's moving into a high-volume, low-cost category."

He added that retailers such as Whole Foods, who want to maintain a high-value niche, will need to find different sources of food products than those that mass retailers use. "That could create an opening for farmers to provide something of higher value."

"There are those who argue that the globalization and 'big boxification' of organic food will lead it down the path of becoming a commodity and farmers will be in the same powerless place they were before," said Meg Moynihan with the Minnesota Department of Agriculture. "But there are others who contend that the more snack bar companies that make organic products, the more organic ingredients will be needed – and thus the market will grow. There are healthy differences of opinion in this area."

One of the sectors hit hardest in the economic recession was organic dairies. Shifting from a traditional dairy to an organic operation is a three-year process in which both cows and the crops to feed them must be transitioned to meet organic certification. "By the time organic dairy farmers had increased numbers to sufficiently meet market demand, the U.S. economy began to weaken and they were among the hardest hit," said Catherine Greene with the U.S. Department of Agriculture.

While some U.S. producers are embracing organic farming, the subsector faces challenges – perhaps why, as The USDA Economic Research Service states, "While adoption of organic farming systems showed strong gains between 1992 and 2005 and the adoption rate remains high, organic production is still only about 0.5 percent of all U.S. cropland and 0.5 percent of all U.S. pasture."[19]

Organic certification is a key issue for many farmers who use organic practices, but cannot afford to earn certification. USDA organic certification is required for those with annual sales of over $5,000. Farmers who produce using organic methods, however – but who are not marketing their products as organic – are not required to earn certification.[24]

This can be an issue as some consumers are not fully educated about this process. For

instance, someone wanting to purchase organic food could bypass an option that was, in fact, produced organically but simply not marketed as such.

Minnesota was the first state in the nation to offer cost-share rebates for the expense of farmer certification, according to Meg Moynihan, Organic and Diversification Specialist for the Minnesota Department of Agriculture. "The burden of certification is a time burden, but it's also a cost burden – anywhere between $500 and several thousand dollars depending on the scope, scale and value of the operation," she said. Recent farm bills have included cost-sharing support from a federal level.

Rob King, professor of applied economics at the University of Minnesota, said, "The organic cost share program has been very positive and has helped Minnesota be at the forefront in terms of the rate of conversion to organic production."

The USDA Economic Research Service has found that, in this decade, inadequate organic supply has become a bigger issue for farmers than limited demand.[25] Limited reliable supplies for organic raw materials have contributed to reticent business growth. In testimony from the OTA in an April 2007 congressional public hearing, the OTA described an OTA membership survey where more than half (52 percent) of its members reported that "a lack of dependable supply of organic raw materials has restricted their company from generating more sales of organic products."

In a 2004 Economic Research Service survey, 44 percent of organic handlers (brokers, distributors, wholesalers or manufacturers) reported short supplies of needed products. An additional 13 percent were unable to meet market demand for at least one of their organic products.[25]

Organic imports have increased substantially since 2002 to meet a growth in organic demand that has exceeded domestic supply. The smallest U.S. organic farms, however, have maintained a stable share of the organic sector. They have seen the least impact from competition with distant suppliers because of organic consumers seeking explicitly locally grown organic products.[25]

Illustrative of this issue is a 20 percent annual rate of organic deregistration in California.

OBSTACLES FARMERS FACE IN CONVERTING TO ORGANIC PRODUCTION

- High managerial costs, risks of shifting to a new way of farming
- Limited knowledge of organic farming systems
- Lack of marketing and infrastructure
- Inability to capture marketing economies
- Production, input and agricultural policy risks

Source: USDA

While the majority of organic farmers studied in research conducted by the California Institute for Rural Studies cited organic market potential (39 percent) or environmental concerns (17 percent) as reasons for transitioning to organic farming, organic regulatory issues accounted for the majority (45 percent) of deregistration. Production issues (16 percent), market issues (16 percent), management issues (8 percent) and price (8 percent) were also key factors. Of those who were still farming, regulatory challenges were the single most important factor for discontinuing organic registration (63 percent).[24]

Issues such as paperwork or certification were faced by 30 percent of the organic farmers surveyed. Farmers in the California study said they may have continued farming organically

if they had regulatory-related assistance (41 percent) in the form of certification cost-share programs, paperwork reduction, help with the application process, registration simplification, and more trained and experienced organic certifiers. Other assistance needs cited were in the form of production (21 percent), market (21 percent), and management (17 percent).

The Department of Agricultural and Resource Economics at the University of Maryland noted there are many risks – such as production – that organic farmers face.[17] Weather, climate, diseases, insects and weeds can all be issues. Many farmers utilize crop diversification, a specific planting timeline and other organic methods to help alleviate some of these challenges.

Experts from the Department of Agricultural and Resource Economics, the Department of Natural Resource Sciences at the University of Maryland, and the Economic Research Service of the USDA say that there is a need for risk management assistance. Some believe that the USDA needs to support long-term research on organic farming systems, especially for small producers. Land grant extension agents should have some additional training. Farmers new to organics need transitional help, educational programs, subsidies for the transition and assistance with certification costs. Crop insurance would also prove to be a significant form of assistance.[17]

Likewise, food processors are finding both opportunity and challenges in the organic sector. "Mainstream food production has embraced organic as an option. But it's still less than one percent of the total food buy."

"When the markets exploded in 2008, organic agriculture grew at an even faster pace. All of a sudden, the spread between conventional and organic products got too wide. So the growth in organic went the other direction because, 'Wait a minute. I will pay 50 cents a box more but I won't pay $2 a box more.' And the $2 a box was real," a Minnesota food processor noted.

"Then you fight a quality issue with organic because of our climate. It's much easier to grow organic out West and irrigate it. You don't have the pests. You don't have the insects. You have controlled water. You get a much more uniform product in the West than you do growing it in the Midwest. That's why any growth in organics that we have tends to be outside of Minnesota."

It's also important, according to Minnesota State Representative Rod Hamilton, to remember that while organics are showing strong growth potential, they are simply another dimension of Minnesota's agricultural landscape. "We can't be pitting one sector against another. We're all in it together," he observed.

ACTION ITEMS

Increased Market Expansion for Organics Will Require Technical Assistance, Innovation.

Organic food production is projected to increase over the coming years in response to consumer – and retail – demand. To maximize the opportunities, experts say the following must be addressed, among other issues:

- Research and development;
- Access to viable, approved processing options;
- Aggregation;
- Increased exporting;
- Greater demand from mainstream food manufacturers;
- Management risk strategies; and
- Continuing education in market, production, management.
- Ensure that Minnesota's producers and food industry representatives are able to easily communicate their concerns and issues through food industry forums.

OBSERVATIONS ACTION ITEMS

OBSERVATION:

Consumer Concerns About Food Health And Safety Are Shaping The Industry At Every Level.

Consumers and regulators alike are sharpening focus on how food is grown, processed and produced – all with a goal of ensuring good health. The process of attaining such will impact best practice procedures; compliance standards that ensure they are followed; and, ultimately, employment.

Consumers' growing concern about the health and safety of food consumed by their family is emerging as a significant industry driver. In fact, in a recent AURI research study conducted with crop and livestock farmers across Minnesota, the majority (69%) said they believe consumers are driving change in agriculture and food production.[5]

A Minnesota food processor agreed, saying, "We're seeing people think about additives that make their food products healthier. It relates, not just to obesity issues, but healthier lifestyles, aging population and people worrying about different things. So that's a big driver. And that gets into research and development, where I think Minnesota really has great opportunities with the University of Minnesota and Minnesota State Colleges and Universities. What we can do here is amazing."

"We have a soy milk product that does not require refrigeration. We couldn't give it away when we introduced it," said Hartwell of SunOpta. "But when its health benefits began taking hold in the consumer marketplace, demand grew. More people buy soy milk because of that education – and because of this grassroots, consumer-driven market."

> "**Everyone** is **scrambling** for the **perfect 'green' food**."
>
> *- Mike Hartwell, Corporate Health and Safety Director, SunOpta*

Not only are producers and processors expected to disclose ingredients, but there is greater interest in how food products are grown and manufactured.

"Healthy food is no longer a trend; it is commonplace in the diet," said Mike Hartwell, Corporate Health and Safety Director for SunOpta. "Innovation in the food industry is on fire. Everyone is scrambling for the perfect 'green' food."

Food safety is also a major concern. Consumer lack of confidence – or fear – about food safety has the potential of impacting food demand, profitability of companies in the supply chain, the economy and legislation on how the industry does business. A recent J. Walter Thompson

study found that 60 percent of Americans believe the food supply isn't as safe as it used to be. In fact, fewer than one in four consumers now believe the U.S. food supply is safer than it was a year ago.[26]

"Consumers' confidence is critical to [consumers'] peace of mind, as well as to the economic health of the entire food industry. Consumers' reaction to food-borne illness and recalls informs the design of the food safety strategies and regulations. This is a unique measure because we are continuously tracking changes in confidence in the safety of the food supply and linking it to media exposure about food safety issues," said Jean Kinsey, Professor of Applied Economics at the University of Minnesota and Director of The Food Industry Center, in a 2009 press announcement.

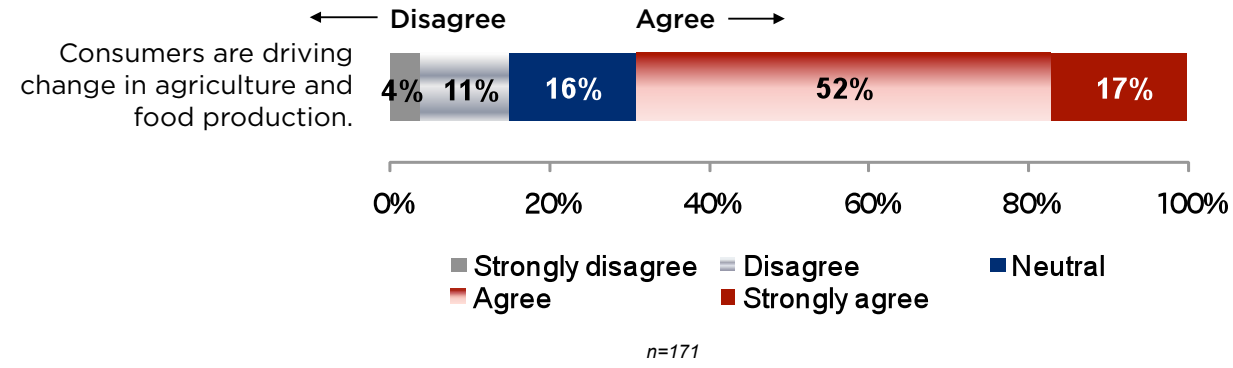
Some food processors are proactively addressing traceability concerns so that any issues can be tracked and resolved quickly. For example, Frito-Lay has a "chip tracker" by which you can enter your zip code and information from the bag to determine where the potatoes that went into your chips were grown and produced.

Consumers' confidence is critical ... to the **economic health** of the **entire food industry**.

- Jean Kinsey, Director, The Food Industry Center

"There are opportunities for businesses to be created in the food safety and defense arena and a tremendous potential for those businesses to be created within Minnesota. There is a definite concentration of skill sets here that could lead to companies that track and trace food through the supply chain or develop technologies to measure food freshness or determine contaminant levels," said Amy Johnson, BioBusiness Alliance of Minnesota, noting that key academic disciplines

Farmers' Opinions on Market Drivers



Agricultural Utilization Research Institute, Agricultural Survey, 2009

and technologies such as bioinformatics, systems biology, genomics, proteomics and nanotechnology are critical to the growth of food production in Minnesota.

"They (skill areas) may not seem to be related to the food industry, but they truly are – and they need to be supported."

ACTION ITEMS

- **Continue to support and encourage best practices and food safety training** for local food processors through organizations such as AURI, the Minnesota Department of Agriculture Food Inspection Division and University of Minnesota Department of Food Science.

- **Assist producers in their efforts** to provide consumers with information about the source of their food and the production practices used by Minnesota's local food producers.

- **Continue to provide food safety training** for processors and producers.

OBSERVATION:

Livestock Production's Impact on Economic Development is at Risk.

Significant external threats to animal agriculture could have a dramatic impact on not only Minnesota's livestock production, but also on the grain producers and food processors that rely on this sector.

Livestock and poultry account for over half of U.S. agricultural cash receipts, often exceeding $100 billion per year. Such production is also big business in Minnesota. "Destination 2025: Minnesota's Animal Health Industry" reports that the dairy, turkey, chicken, sheep, deer/elk and swine industries employ more than 100,000 people and contribute more than $54 billion to Minnesota's economy. In addition, Minnesota Department of Employment and Economic Development data shows that 1,287 people were employed by the animal food manufacturing industry in 2006, which had sales of more than $215 million.[27]

While the livestock industry is significant, it is not always the state's most embraced sector. "If a widget-making factory comes to town, officials will crawl all over each other to get to the ribbon cutting, but open a dairy with the same number of jobs and there's no recognition for the economic impact of that operation," said Kevin Paap, President of the Minnesota Farm Bureau. This comment summarizes the often mentioned disconnect that is all too often evident in terms of assessing the value of animal agriculture as an economic development driver for Minnesota, especially in rural areas.

According to Paap, however, the true opportunity for increased job growth in Minnesota – and the economic development it brings – lies in animal agriculture.

While the **livestock industry** is **significant**, it is **not always** the state's **most embraced** sector.

"A 400-head dairy generates more jobs than a 4,000-acre crop farm," he said. "It also has an impact on grain farmers for feed demand, veterinary services and other enterprises throughout the community, which creates even greater job growth."

Also, growth in protein consumption in industrialized countries could contribute to a future employment up-trend, as a shift occurs in diets away from staples such as roots and tubers towards more livestock products.

According to a September 2009 report from the Minnesota DEED, the state ranks third nationally in pork exports, with 2007 sales of nearly $300 million – and exports as a percentage of total production have doubled from seven percent in 1997 to 14 percent in 2007. Total employment growth in Minnesota's pork production industry grew 44 percent from the third quarter of 2000 to the third quarter of 2008. "The total impact of hog and pig production is much larger in that these figures do not include self-employed farmers who have no employees. Nor do these figures highlight the close connection of the industry to the local production of beans, corn and grain for feedstock," the report notes.

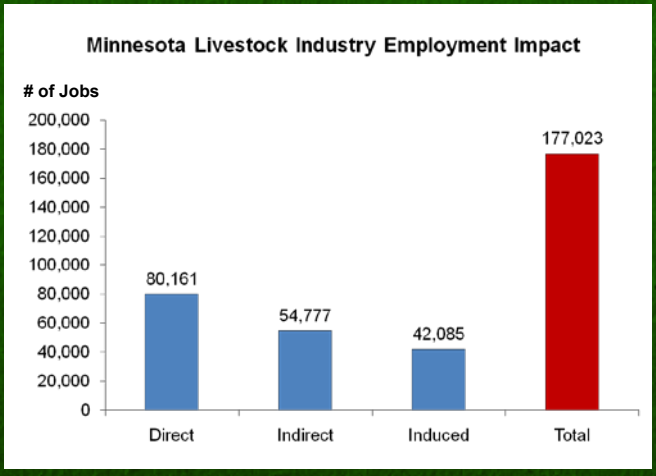
Jim Riddle with the University of Minnesota observed that there is potential in developing livestock breeds for emerging ethnic populations. "Goats and sheep are traditional food sources for the Hmong, Somali and Latino communities," he said. While this is a viable point, some indicate that pursuing such would require special processing considerations.

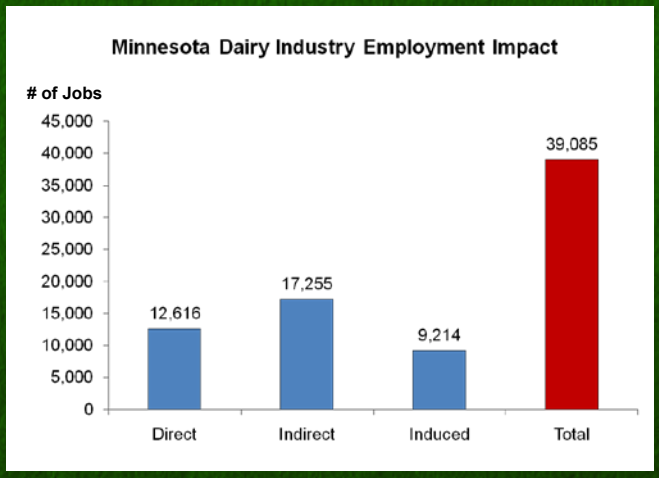
Misunderstandings about animal agriculture could have a **dramatic impact** on not only **livestock production** in the state, but also the grain producers and food processors that **rely** on this **agricultural sector.**

Others point to potential for livestock growth for medical research – such as harvesting heart valves from pigs.

Although opportunities within the livestock industry in Minnesota remain strong, the state's competitive position is far from guaranteed.

According to Destination 2025, "cultural and demographic trends are likely to raise concerns regarding current practices in the





Source: Minnesota Department of Agriculture, Minnesota Dairy Industry Profile, 2009

industry" – such as waste management, genetic modification and other modern biotechnologies in animal and plant breeding. Also, emerging consumer pressure to buy products that ensure appropriate animal care may prompt increased regulation in the U.S.

Misunderstandings about animal agriculture could have a dramatic impact on not only livestock production in the state, but also the grain producers and food processors that rely on this agricultural sector. Consider, for instance, that the growth of organic livestock/meat production requires a feed supply of grains that is also organic.

As was explained in a November article about Buhr's viewpoints in the Minnesota Agri-Growth Council newsletter, "Whereas consumer-driven agriculture focuses on product attributes that have a direct benefit to the consumer, externality-driven agriculture focuses on the actions taken to make a product and how those actions affect others."[28]

"Quite simply, we haven't done a good job of telling our [agricultural] story," said Minnesota State Representative Rod Hamilton. "We are often combating fallacies. If there are isolated cases or issues out there, then they should be dealt with accordingly. But everyone involved needs to help educate people."

> "Quite simply, we **haven't** done a **good job** of telling our **[agricultural] story**"
>
> *- Rod Hamilton, Minnesota State Representitive*

Animal rights organizations such as the Humane Society of the United States and People for the Ethical Treatment of Animals are behind state-by-state initiatives designed to significantly change the way animal agriculture is managed – and some say these organizations are out to ban animal agriculture in the U.S. as we know it. If successful in Minnesota, such initiatives could far outweigh any profitability and job growth advances in niche livestock and meat production. "It will be interesting to see whether humane-based standards take off because, if they do, that could have more impact on changing animal agriculture than any of the 'natural' stuff did," said the Center for Rural Affairs' Chuck Hassebrook.

Brian Buhr, Professor of Applied Economics at the University of Minnesota, noted that agriculture, especially animal agriculture, has become "externality driven" by such groups as activists and NGOs. "The impacts are coming from factors based on psychographic values," he said. "We're starting to see preference-driven traits that are going to have a huge impact on how livestock is managed."

Environmental regulations and other compliance issues have become a fact of life for animal agriculture producers – and in that may be the opportunity for employment growth. "Job growth may not be on the farm itself, but in assisting farmers with these issues, whether it's through the supply chain, through crop advisory services or other resources," said Sarah Alexander with the Keystone Alliance.

ACTION ITEMS

- **Share accurate information** about modern animal farm practices with consumers, policy-makers and the media.
- **Develop markets** designed to serve certain ethnic populations (e.g., Hmong, Somali and Latino communities). Understanding that doing so, however, would require matching demand with appropriate, cost-effective livestock product and processing.

- **Identify and empower** an organization that can provide information and support to economic developers regarding the importance of agricultural processing to jobs, business ownership and economy recovery.
- **Ensure that the livestock food industry has the opportunity** to identify and convey industry concerns through development of an organized food industry forum.

CREATING ENTERPRISES ONE RELATIONSHIP AT A TIME

The challenge of growing jobs within the food production sector, particularly within niche food production, is being addressed at the Rural Enterprise Center (REC), a program of the Main Street Project – and livestock production is the key.

Now in its third year of a pilot project in Northfield, the Rural Enterprise Center is focused on creating an integrated, sustainable food production system with a particular focus on the Latino community. This system, which is being formed in a very methodical and deliberate manner, will eventually involve free-range poultry production, community gardens, poultry processing and marketing/distribution operating in what Reginaldo Haslett-Marroquin calls a "natural, symbiotic relationship" – all focused on engaging low income families in food production, and thus creating economic development for their communities.

This project employs a system of metrics that involves precisely defined productive units that lead to economic units, which lead to economic clusters – eventually resulting in eight families engaged in some aspect of poultry production, all doing so in a manner that is sustainable in terms of both resources and profitability.

Haslett-Marroquin directs the program – and he is quick to point out that the objective is not to create jobs. It's to create *enterprises*. "An entrepreneur is not a job seeker," he said. "The ratio between an enterprise and the jobs it creates is almost one-to-one. The goal should be to create more enterprises – to maximize the strengths and potential of these families that have been lying dormant in our rural communities."

He, too, pointed out the critical role that livestock plays. "There is no sustainable system without livestock," he said. "We started with poultry production so we could have the manure supply needed to fertilize the community gardens."

OBSERVATION:

Access to Healthy and Affordable Food Must Be a Priority Within Urban Neighborhoods.

Some see local and sustainable food systems as a way to maximize good health and community self-reliance. The opportunity exists to assist local communities and families in building a sustainable food network that is both equitable and ecologically sound.

A local and sustainable food system is not only considered by some to be good for nutrition and health, but it also can be a crucial building block for social justice. As an example, urban agricultural projects are opening new labor markets in many communities. The Chicago Food Advisory Council initiated a project that calls for "...a systematic change that focuses on creating self-reliance for all communities in obtaining their food and to create a system of growing, processing, manufacturing, making available and selling food that is regionally based."[29] In other words, the program aims to increase the amount of locally grown food available as well as generate regional agricultural jobs.[30]

The report "Urban Agriculture and Sustainable Cities" indicated that, as worldwide demand for food continues to grow, cities that largely import food may need to discover alternative methods for agriculturally producing food within the urban area.[31]

Small-scale, urban agriculture is on the rise, according to Bob Olson with Food Alliance Midwest. "We are seeing the entry of highly educated, liberal arts graduates with the work ethic and desire to connect with the land getting into 'sub-acre' farming," he said. "This sector is somewhat over-marketed in relationship to what it actually produces, but it is on a growth trend." Karen Clark, Minnesota State Representative and Executive Director of the Women's Environmental Institute (WEI), believes maximizing the potential of agriculture in Minnesota is an issue that should be about much more than creating jobs. "We need to assist local communities and families in building sustainable food systems that are equitable and ecologically

> "I think one of the **fundamental questions** we need to address is how we can make **small urban gardens economically viable.**"
>
> *- Karen Clark, Minnesota State Representitive*

sound," she commented. To realize this, Clark and WEI are working in collaboration with Milwaukee-based Growing Power, Inc., a national nonprofit organization, to establish a regional outreach training center – the Little Earth of United Tribes Urban Farms. The project, which was launched in 2009, will be developing a five year strategic plan to support the development and sustainability of community food systems both in Minnesota's urban inner city communities and in economically challenged rural communities.

"Will Allen [founder of Growing Power] talks about 'food deserts,' which means some people are unable to find easy access to healthy food," Clark commented. As Allen pointed out in a recent MPR interview, for low-income communities and communities of color, good food is not only out of reach geographically, it's expensive, which can affect residents at the most basic levels of nutrition and health.

"Urban agriculture – helping people grow, process and even market local foods – is a way

FARMING IN THE CITY: URBAN SUSTAINABILITY

Innovation in farming sometimes happens at its most fundamental level – and sometimes far from rural land.

The Women's Environmental Institute (WEI) is bringing the economic and health benefits of locally grown food to inner city neighborhoods through development of a farm campus and education program designed to provide training, workshops, classes and volunteer opportunities for developing organic urban and rural farming and food justice communities. Central to the effort was the 2009 announcement of Little Earth of United Tribes Urban Farms in Minneapolis, a collaborative effort with Growing Power, Inc. – a national, grassroots, nonprofit organization and land trust supporting people from diverse backgrounds by helping to provide equal access to healthy, high-quality, safe and affordable food.

The Institute's vision doesn't end there, however. Its plan encompasses a farmer learning campus, a demonstration organic farm, student/internships, a farm retreat center, and a high functioning CSA farm and orchard. In 2010, the organization hopes to expand its agriculture educational program with plans to build a new 100-foot hoop house heated by composting piles and passive solar. Long-term, the project calls for creation of an aquaponic organic greenhouse system for fish, vegetables and herbs.

WEI also plans to support several small plot heritage farming research projects in 2010 that will include Minnesota grown peanuts, Hmong vegetables and herbs, sweet potatoes and okra, Native American tobacco, amaranth and squash, and Mexican herbs and vegetables.

to help address this," Clark said.
In addition, Clark referred to farm-to-school programs, community supported agriculture (CSAs) and farmers' markets as positive agricultural initiatives. "I think one of the fundamental questions we need to address is how we can make small urban gardens economically viable. They can and should be an important component of our agricultural landscape in Minnesota in that they help provide equal access to healthy, high-quality, safe and affordable food," she said.

"Community gardens exist in code, but uses of urban land for food production on a commercial basis don't exist," notes JoAnne Berkenkamp of the Institute for Agriculture and Trade Policy.

She noted that the City of Minneapolis is currently looking at ways to support the development of a topical plan for urban agriculture. "It will lay the foundation for individuals or groups of businesses to be able to start pursuing commercial food production. We're not going to feed the city of Minneapolis, but we can provide young people and hard-to-employ adults with job experience, teamwork and access to fresh, nutritious food," she added.

A report on urban agriculture and sustainable cities by Tjeerd Deelstra and Herbert Girardet claims that urban agriculture needs governmental support to thrive. Deelstra and Girardet wrote that tangible actions for creating successful urban farms should include developing a plan and policy that can be enforced and utilized by a municipal group, like a health department, planning department, local economic development group, etc. Food sold in urban environments should be labeled appropriately to show how and where it was produced. In addition, they recommended, awareness programs should be developed to encourage people to purchase locally-grown foods.[31]

ACTION ITEMS
Urban Agriculture Can Be A Strategy For Assuring Affordable, Accessible Food.

Industry analysts have suggested the following be addressed:

- **Provide knowledge** about the opportunities of urban agriculture to both farmers and consumers.
- **Protect areas of the city** that could be used for agricultural purposes.
- **Ensure support and assistance for the remediation** of Brownfield sites to agriculture production sites.

OBSERVATION:

Youth "Brain Drain" Away from Rural Communities Could Have a Serious Impact on Workforce Needs.

Minnesota, like many Heartland states, has experienced the migration of its educated and talented young people to metropolitan areas in search of greater opportunity. Because local skills and innovation will be critical to the future of agriculture in the state, there is a growing concern that the departure of youth and young families from small farming communities has the potential of impacting not only the farm-related workforce, but far beyond.

Out migration is a very real **phenomenon** in **Minnesota**.

"Out migration" is a very real phenomenon in Minnesota. In 1990, five times as many college graduates moved to the Twin Cities region from elsewhere in Minnesota as those who have moved in the opposite direction – a trend that continues today. From 2000-2006, nearly half of Minnesota's counties experienced net population declines – the second highest percentage in the Midwest. These trends echo the national scene where, since 1980, more than 700 rural counties have lost 10 percent or more of their population.

According to Patrick Carr and Maria Kefalas, authors of "Hollowing Out the Middle: The Rural Brain Drain and What It Means for America," young people do not understand the opportunities that lie within their local communities, resulting in the fact that they therefore often leave. "Though the small town claims an iconic place in the American psyche, we are considerably less alarmed by the emptying out of prairie and plains towns than by the endangered status of the polar bear, an altogether more universally vulnerable symbol and one that our kids can easily comprehend and mourn the loss of," they wrote.

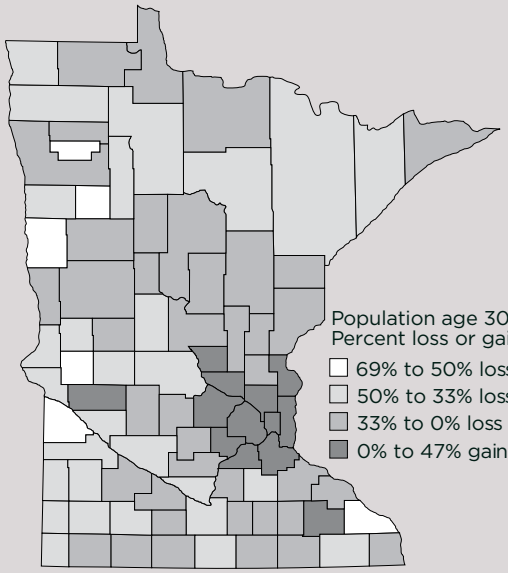
The reasons young people give for leaving rural communities often include the following, among others:

- Lack of employment opportunities;
- Low wages;
- Lack of affordable housing;
- Limited social amenities; and
- Lack of higher education opportunities.

As important is the loss of much needed expertise of any age. If a skilled individual (e.g. management, technology) leaves a rural area, they are often extremely difficult to replace.

Young people do not understand the **opportunities** that lie **within** their **local communities.**

URBAN AREAS LIKELY TO GAIN YOUNG ADULTS AT EXPENSE OF MOST RURAL COUNTIES BY 2010



Note: Projections are based on the 1995 population of 15- to 19-year-olds, who will be 30 to 34 in 2010.
Source: State Demographic Center at Minnesota Planning

To help address Minnesota's evolving employment landscape, University of Minnesota Extension is working with organizations in rural communities to ensure new residents feel welcomed. "The fact is that rural Minnesota isn't going to look like it does now," said Beverly Durgan, Dean and Director, University of Minnesota Extension, referring to the changing population base. "We are working with schools, communities, 4-H and others to help integrate these newcomers."

According to the University, 85 percent of Minnesota's cities are small towns, generally defined as having a population under 5,000.

"For 20 of the past 30 years, people have been choosing to live in rural areas at a higher rate than urban areas...but idyllic ideas [about rural living] tend to overshadow some of the challenges these areas face," said Ben Winchester of the Center for Small Towns at the University of Minnesota, Morris in a newsletter article. As some experts have agreed, small towns need to plan for change. "It's no longer ag policy, but rural policy," one commented. "Minnesota needs to look at it (broadband) like we did rural electric coops. It's simply a necessity today is you want to start a business, bring people back and have access to certain educational resources," she said.

"The **health** of **small towns** ... **matters** because without them, the country **couldn't function in the same way** that a body **cannot function without a heart.**"

- Patrick Carr and Maria Kefalas, 'Hollowing Out the Middle'

Extension is also addressing the needs of young people by encouraging a greater emphasis on science and technology. Leadership training is also key, Durgan believes, for all ages.

"What is happening in many small towns – the devastating loss of educated and talented young people, the aging of the population, and the erosion of the local economy – has repercussions far beyond their boundaries. Put simply, the health of the small towns that are dotted across the Heartland matters because, without them, the country couldn't function in the same way that a body cannot function without a heart," observed Carr and Kefalas in "Hollowing Out the Middle."

pointed out that if alternative forms of energy and food production are the waves of the future, then the Midwest and rural areas more generally will be ground zero for the rolling out of the green economy and sustainable agriculture," Carr and Kefalas wrote.

A third alluded to the historical centrality of the region to the health of the nation and said that, "despite the recent downturn in manufacturing and the wholesale reordering of agriculture, the Heartland and its thousands of towns could, with the right policies in place, once again thrum with success."

> "Despite the **recent downturn** in manufacturing and the **wholesale reordering** of agriculture, the Heartland and its **thousands of towns** could, with **the right policies in place**, once again **thrum with success.**"
>
> *- Patrick Carr and Maria Kefalas, 'Hollowing Out the Middle'*

Because local talent and innovation will be critical to the industry's future, this youth "brain drain" has the potential of impacting not only the agricultural workforce, but far beyond. "One person [we interviewed] talked about how much of the nation's natural resources and the world's food comes from this region and said that this alone should be incentive to devote attention to the challenges facing the countryside. Another

ACTION ITEMS

Rural Minnesota's Out-Migration Must be Addressed Within Rural Communities to Ensure the Future Employment Base.

To adequately meet workforce needs, it will be imperative to provide both the rationale and the very real return for staying/moving to rural Minnesota. Potential strategies could include...

- **Ensure DEED and the regional secondary and post-secondary schools** are in continual communication regarding coming career trends and opportunities.
- **Ensure industry and education**, especially at the local level, are aligned for future developments and planning.
- **Foster entrepreneurship** in value-added agriculture and food processing.
- **Build partnerships with colleges and universities** to offer accessible education and training.
- **Work with local economic development groups** and school systems to ramp up activity and participation in FFA and entrepreneurship training among secondary school students.

OBSERVATION:
Agricultural Awareness and Education are Statewide Needs.

The need for quality educational programs pertaining to agriculture continues to be strong, in part because of the evolving nature of the industry. Awareness and training should encompass the entire spectrum, from grower/producer to consumer.

Minnesota is a state committed to its educational system. From academic research to career training, the state's colleges and universities have long worked closely with the agricultural industry. Experts say that while this is commendable, the need for quality education – at all levels for all ages – must continue to be a priority to ensure industry success.

As an example, in order for farmers to play a larger role in providing local foods to organizations such as schools, hospitals and institutions, they need a firm understanding of the management and planning required growing and delivering within these sectors.

A recent research study conducted with crop and livestock farmers across Minnesota would seem to concur with this observation. Those surveyed said that a number of topics should be considered priorities for producer education. Those surveyed said the most beneficial learning opportunities for Minnesota farmers would relate to calculating the true cost of production (88%); succession planning for farm ownership (83%); developing an overall business plan and finance fundamentals (82% each); how to begin a niche agriculture business (63%); and regulations and compliance (61%).[5]

Consider the situation experienced by St. Paul Public Schools (SPPS) in its Farm2School program, which originally began through a partnership with the Farmers' Markets of Minnesota. SPPS had an agreement with Farmers Market farmers to provide fruits and vegetables to the school. Unfortunately, farmers did not fulfill their commitment and failed to grow the vegetables. Farmers were not accustomed to growing food under the terms of the agreement – volume, delivery and consistent, reliable supply. As a result, SPPS had to explore alternatives to getting local foods.

> "There are some **real questions** about where **profitability** really is **in the system.**"
>
> *- JoAnne Berkenkamp, Program Director, IATP*

As Brett Malone of the Agriculture and Land-Based Training Association stated in an article about agricultural education, "access to high-quality information and continuing education for farmers is essential for them to remain competitive and viable in today's marketplace."[32]

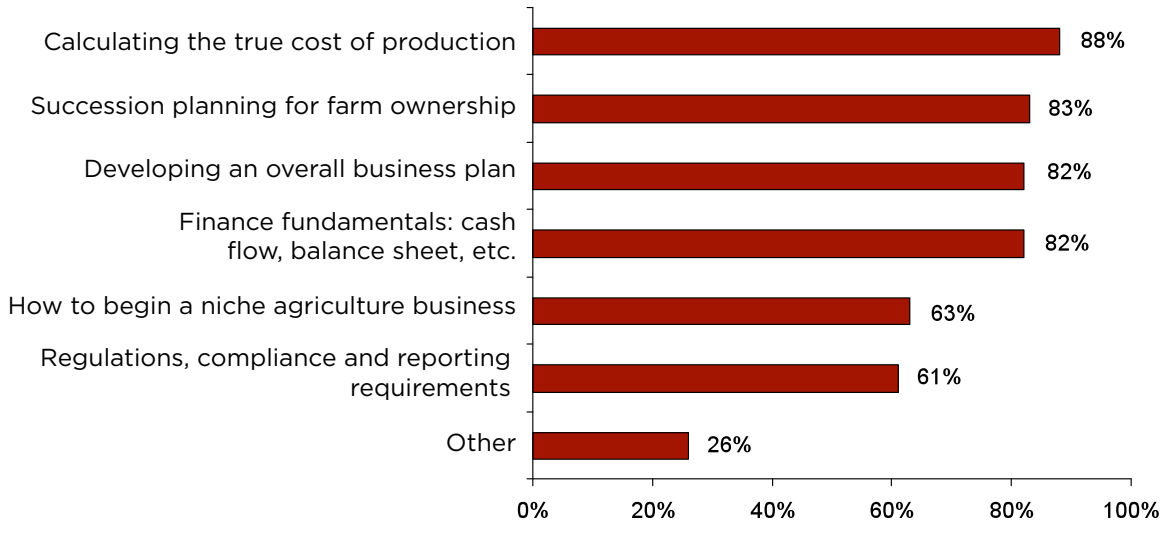
Teaching school foodservice operations how to write menus and source foods will also be an important step in creating Minnesota-wide acceptance of locally sourced foods in schools, according to Jean Ronnei, director of Nutrition Services for St. Paul Public Schools. She suggests that a "training camp" or university-based training program would be helpful in educating those responsible for school lunch programs on how to plan and source local foods and, just as importantly, have them processed to their specifications. While such education wouldn't address the inherent financial issues that may exist in such purchasing, training would be a solid first step in initiating change.

Gene Hugoson, commissioner of the Minnesota Department of Agriculture, said that Extension services from the University of Minnesota are the "hands, eyes and ears of state agriculture." In that role, extension is and should be at the vanguard of providing educational leadership in helping nurture emerging food production. Funding cuts and the challenge of keeping up with rapidly changing trends, however, has made that difficult. "One strategy may be to establish regional experts in key categories and have them travel across the state," he added.

Jim Riddle, organic outreach coordinator with the University of Minnesota, agrees. "While the growth of niche food production creates more opportunities for farmer-to-farmer mentoring, more extension resources are needed," he said. "At this point, many non-governmental organizations (NGOs) are taking the lead and filling this gap in education."

Dr. Richard Joerger, director of the Minnesota Farm and Small Business Management Education Program at Minnesota State Colleges and Universities (MnSCU), believes online education will play an increasingly important role in providing producer access to business

Producer Opinions: Most Needed Education



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Multiple responses allowed

* See Appendix for full list of other responses

Agricultural Utilization Research Institute, Agricultural Survey, 2009

and production management education. However, he acknowledged that while tailored education for producers is key, online education is another viable option. "As educators, we may be missing a market among those who don't have the opportunity to travel," he commented, underscoring the need to deliver education and training when and where the market exists.

The Minnesota State Colleges and Universities system provides agricultural and natural resource education via more than 15 two-year colleges and five four-year universities across the state. The Farm Business Management Education Program, alone, annually enrolls over 3,000 farmers – an important, but still not overwhelming, percentage of the potential market within Minnesota agriculture. Expanding this base may require scholarship support or greater infrastructure funding, particularly in a down economy when most available farm dollars are seemingly tapped.

Like others in the industry, Joerger projects that job growth will likely come in part from emerging career opportunities – food science and genetics, bio-technology, culinology, business entrepreneurship and profit-oriented biomass. "There's a transformation going on in the industry that is shaping the needs within training and education," he observed.

An excellent example of an emerging career opportunity that is being addressed by MnSCU is Southwest Minnesota State University's degreed Culinology® program. Said to be the only degree of its kind in the world, course of study is defined as "the collaboration between culinary expertise and food science and how this collaboration affects the food we prepare and serve for consumption." Graduates are prepared to serve as research and development chefs, research technologists and more at major food manufacturers, custom manufacturing facilities, restaurant chains, etc.

Helping address fiscal concerns is as critical as assisting with food production. One challenge is that many farmers do not account for all costs within their operation and thus cannot determine a true cost of production. "Farmers don't assign adequate value to their labor," said JoAnne Berkenkamp of the Institute for Agriculture and Trade Policy. "There are some real questions about where profitability really is in the system."

> "It is **absolutely critical** to bring **agricultural education** into the **classroom** at an early age … We need to **share** the fact that this is **who we [farm industry] are** and this is **what we do.**"
>
> *- Rod Hamilton, Minnesota State Representitive*

"There is not enough capacity and funding to help small agricultural businesses do the business development work they need to do," said Berkenkamp. "Feasibility studies, business planning, board development, early mentoring – there would be a role for the State to help provide these business development services. That would be a huge help."

Examples of such existing assistance are Minnesota's Small Business Development Centers, the Agricultural Utilization Research Institute (AURI) and Enterprise Minnesota. SBDCs are a great resource for business plan development and identifying capital. AURI provides expertise to increase value, demand and market opportunities for agriculturally-based products – whether it be through technical assistance, entrepreneurial skill development or network collaboration. AURI also is available to provide feasibility studies – an important dimension in the planning process. Enterprise Minnesota, among other things,

provides technical expertise in such areas as lean manufacturing.

As Denny Timmerman, Senior Project Manager at AURI explained, such assistance is vital. "Having been a producer, I understand the challenges of splitting your time between production, marketing and distributing your product. At AURI, we strive to provide technical assistance to farmers dealing with those concerns. Minnesota's farmers produce some of the best food grown anywhere. We need to connect that production to the marketplace."

Smaller, rural school districts throughout Minnesota could also benefit from learning a systematic approach to local foods. It is not uncommon for local farms to donate food to schools in these areas, but there is no infrastructure in place to process the food to a usable product. For example, a local business may donate sweet corn to a school, but there is not enough manpower to shuck and prepare the corn. It will be important to educate school districts on ways to incorporate seasonal, local foods into their school lunch programs.

Helene Murray with the Institute for Sustainable Agriculture notes that "season extension" is showing significant promise. Through the use of relatively inexpensive protective structures, growers are able to start growing earlier and keep growing longer – improving volume of production and providing a consistent supply to the marketplace. Terri Bennis of Kowalski's Markets agrees. She says that one of the significant issues the retailer is facing is the short Minnesota growing season. More farmers with access to specialized greenhouses may allow an extended growing season, helping Kowalski's and others offer more local foods year-round. As more is learned about this management practice, the information needs to be shared with other farmers.

Some believe that enhancing the role of extension professionals would be a significant opportunity to educate and inform the public, consumers and producers. Greater education could, in turn, lead to market growth, they said, particularly in certain sectors such as local foods.

About five years ago, University of Minnesota Extension underwent a major reorganization. While offices remain in every county, specialized expertise is provided via 16 regional offices across the state. This configuration is a trend taking place elsewhere in the country, among states such as Iowa, Colorado and Ohio.

Technically, Extension is a partnership between the University and state, federal, and county governments to provide scientific knowledge and expertise to the public. According to Beverly Durgan, Dean and Director, University of Minnesota Extension, the organization serves over two million Minnesotans on an annual basis, including approximately 125,000 involved in youth programs.

"Our reorganization was done to better meet the needs of those we serve," Durgan commented, adding that Extension provides research-based educational programs in sustainable agriculture, organics and smaller, more specialized farming, among other topics.

"Because of its **diversity**, the context of the agricultural food and fiber system provides **great foci** for **teaching students** with **personal** and **career interests** in and outside of the **AFNR (Agriculture, Food and Natural Resources) industries**."

- Richard Joerger, MnSCU

The organization is also one of the educational providers in Minnesota for food handler certification training, including addressing the language and cultural needs within Spanish, Somali and Hmong communities. Because the program involves hiring locally, Extension is adding to the employment base and helping food service entities stay compliant with food safety standards.

The need for education extends beyond the existing workforce, however. According to Minnesota State Representative Rod Hamilton, the challenge is far broader. Increasing awareness of career opportunities in the farm food sector should also be a high priority, he said. "It is absolutely critical to bring agricultural education into the classroom at an early age for many reasons," he said. "We need to share the fact that this is who we [farm industry] are and this is what we do."

MnSCU's Richard Joerger agrees. "While about 30,000 Minnesota students are already enrolled in agricultural education courses, all students in our schools need to have access to agricultural education," Joerger commented, adding that what Minnesota needs are the resources to support teachers of agricultural education in all high schools and middle schools. Agricultural literacy; technical agriculture concepts, theories and management; entrepreneurship and small business management; and personal growth and leadership development are just a few of the subjects that can and should be addressed, he said.

"Because of its diversity, the context of the agricultural food and fiber system provides great foci for teaching students with personal and career interests in and outside of the AFNR (Agriculture, Food, and Natural Resources) industries."

According to a W.K. Kellogg Foundation report entitled "Mapping Rural Entrepreneurship," education is also critically needed in the area of "homegrown development." As authors noted, "Many observers see entrepreneurship as being a critical, if not major piece of rural economic development." The study team defined the need for entrepreneurship education in kindergarten through the 12th grade, at the post-secondary level, as well as technical assistance and peer support for those already in the field.[33]

Essential to promoting entrepreneurial success, authors said, are partnerships between universities, community development financial institutions and others; supportive public policy; and inclusiveness of a broad range of enterprises.[33]

Educational needs extend to the processing sector as well. When it comes to boiler operators, mechanics, electricians and other specialized people needed to sustain manufacturing, some say they are bringing them in-house for training. "Our school system isn't preparing the workforce for that area."

Also, as processors recognize, the jobs are different now than they used to be. "Twenty years ago you could hire a farmer part-time. You could go work in town in a plant – they would give you two hours of training and you were working. Today, you need technical training. Most of the manufacturing is done by computer. We still need to turn the wrenches and fix things, but we are fixing things that are much more complicated. So, the level of education needed in that area [is higher]. It is no longer a menial job. You walk through a plant today and talk to the employees; they know twice as much as you do. It's scary how much they need to know to run that plant."

What is needed in Minnesota, food processors said, is the need for strong partnerships – whether they are within the industry itself, or with universities or governmental entities. "There already are a million programs. What we don't need is the state to try and create more. That's not going to help. What we need is some serious matchmaking to connect business needs with training solutions."

Organizations such as Life Science Alley, the Minnesota Renewable Energy Roundtable and others work to further such relationships and networking. Identifying the needs and opportunities, however, is a continual industry-wide responsibility.

ACTION ITEMS

Educational Delivery and Economic Development Assistance Needs to Reach Markets Where They Are.

- **Ensure efforts are community driven**, regionally centered, entrepreneurial focused and promote continuous learning in a comprehensive, goal driven system.
- **Ensure agricultural literacy training**, career exploration and technical education are available in all Minnesota schools.
- **Foster a greater understanding of agriculture and food development** as economic development. Create a vision for what the future of Minnesota agriculture can bring to the state.
- **Deliver education** when and where it is needed. Scholarship support or greater infrastructure funding could help address this issue.
- **Provide strong training** to support a workforce capable of filling the roles of chemists, cereal scientists, food product developers, etc.

Entrepreneurial

- **Provide a mechanism for entrepreneurs** to develop a professional network.
- **Implement relevant educational and business development programs** for producers and others in food production.
- **Implement an aggressive and comprehensive** entrepreneurial development initiative.

Technical Assistance

- **Continue to provide the technical assistance necessary** to support small to mid sized business research and development. Assistance such as business planning, feasibility assessments and early mentoring is vital to the success of small to mid-sized business. We must also encourage strong partnerships between businesses, universities, government, and nonprofits in the delivery of these services.
- **Work with Extension, SBDCs, AURI and other appropriate resources** to begin a series of forums, such as roundtables, across the state to generate excitement and increase awareness about available resources in the areas of production, business planning/marketing, product development, etc.
- **Consider educational forums** for Minnesota agricultural bankers to increase understanding of the financial and operational issues involved in emerging or niche food production.
- **Coordinate with the federal delegation** and federal agencies to better ensure alignment and maximum utilization of funding.
- **Assign an agency or organization** with state responsibility to develop the appropriate contacts with USDA and federal delegation to ensure issues are coordinated.
- **Identify initiatives that can bring external dollars** into Minnesota in alignment with federal delegation.

OBSERVATION:

Industry and Job Opportunities are Emerging in Research, Development and Innovation.

Minnesota has long been known for its strength in agricultural research and development. With market demand growing for innovations such as food that provides disease prevention and general health attributes, the state is well positioned to add sector technical employment both to maintain the industry that already exists here as well as capitalize on emerging opportunities.

"Not only do we want to have a sustainable approach to our products, but we also have to have a strong research and development presence to stay ahead of the curve in regards to those products. That's always going to be a demand or a pressure for companies. If Minnesota can help promote R and D, it helps," one Minnesota processor noted.

> "**Not only** do we want to have a **sustainable approach** to our products, but we also **have to have** a **strong research development presence** to stay **ahead of the curve** in regards to those products."
>
> *- Minnesota Food Processor*

A number of challenges exist when it comes to the growth of food production and processing jobs in Minnesota. But as one might expect, these obstacles also create opportunities for new businesses, new ideas and new technologies that can result in job and economic activity. Value-added innovation not only stands to be a driver of success in agriculture, it may also be the source of job growth.

In the food processing sector, for instance, heightened demand for food safety, process improvement and new product development are just a few of the demands that could benefit from new solutions.

"Why am I [our company] in Minnesota? Geographically we're north of everything. We're not logistically located in the right place. Research and development is a major benefit that Minnesota can provide from a technological standpoint – our strong link to biotech. The reality is that there is no reason we have to do research and development here, however. We're just doing it because it's a legacy. Minnesota needs to continue to ensure that we're investing in each of our companies," the processor said.

AURI's food products laboratory is one example of a resource that helps turn inspiration into commerce – and, eventually, jobs. Managed by food scientist Charan Wadhawan, the lab

provides small businesses and entrepreneurs with food product development services including analysis of the chemistry, interaction and shelf-life of ingredients, evaluating sensory attributes, assisting with regulatory issues and sourcing ingredients.

Such assistance is critical, especially since getting a new product into the highly competitive retail market is difficult. The USDA estimates that at least two out of every three new food products introduced into the market fail due to lack of customer appeal – a situation that could be addressed, at least to some degree, with greater planning.

"Companies are going to provide what their customer wants; you can see more and more organic products coming. There are so many beverages with health advantages and all these big companies are working on that. It becomes really hard for small businesses to compete. Somehow their product needs to be better than competitors and not easily replicated," said Charan Wadhawan, Food Scientist, AURI.

Having access to outside resources and thinking is critical to Minnesota companies because innovation doesn't always come from within. As one food processor noted, "A typical R and D guy would say, 'My lab is my world.' [We have] turned that the other way to say, 'The world is my lab.' So, what you are seeing is that innovation is originating from a lot of other places. We have thousands of suppliers. How do you trap or capture the innovation coming from there and combine it with yours? That's a whole different mindset than existed even five years ago – the recognition that we don't know everything. It's worldwide innovation, not just local innovation anymore."

Opportunities for innovation aren't relegated to only food processing. The sheer volume in acres of production agriculture, for instance, appears to hold great promise for transforming Minnesota's abundant row crop production (e.g., corn, soybeans) into value-added products based on advancements in bioscience – and creating high-quality jobs in the process. The focus thus far has largely been on renewable fuels, but advancements in food science hold significant potential for new jobs and economic growth.

"Minnesota **needs** to continue to **ensure** that we're **investing** in **each** of our companies"

- Minnesota processor

For example, the emergence of "functional foods" is an area in which Minnesota could assume national and global leadership thanks to its powerful combination of research capability, food processing prowess and production diversity. Functional foods development involves identification of compounds in plants and crops that can protect against or prevent disease – and then growing plants specifically for the purpose of generating these compounds.

According to Destination 2025, there are demographic and cultural factors propelling an increased demand for food that provides disease prevention and general health attributes. These factors include an increased emphasis on healthy living, lifestyle-related conditions like obesity and an aging population.

John Monson with AgStar notes that the Hormel Research Institute, the University of Minnesota and the Mayo Clinic, among others, are involved in collaborative research and development on functional food compounds, which are already in demand among food processors, including many in Minnesota. "In some cases they are paying $5,000 to $6,000 per gram from other regions of the world. Rather than having them purchase these foods from other parts of the

world, we believe we can replicate the weather environment and stressors that bring forth the compounds to protect plants that contain properties that have medicinal or therapeutic value," he said. "The revenue opportunity is astronomical."

Mike Hartwell with SunOpta agrees. "Our key mission statement is to develop functional food ingredients – a core component in foods. We focus on products that add real value, not just filler."

The emergence of **functional foods** is **an area** in which Minnesota could assume **national and global leadership** thanks to its powerful **combination** of **research capability, food processing prowess** and **production diversity**.

"We believe Minnesota should try to position itself as a leader in food science, food processing and health and wellness," said Amy Johnson of the BioBusiness Alliance of Minnesota. "The Richardson Center for Functional Foods and Nutraceuticals in Manitoba is a good model of public-private collaboration – there's no reason Minnesota should not have something similar." She added that an initiative of this type would have strong potential for spinoff technologies that would benefit the food industry – and would likely expand to include niche food crop production for the animal health and biopharmaceuticals industry.

Destination 2025 claimed that the food industry needs innovation to better assess microbial spoilage in proteins. Genomics and proteomics are going to play a key role in this area. The report also indicated that although Minnesota has strong research in the genomics area, it lacks the capability to commercialize the technology.

While the realm of functional foods holds strong promise for Minnesota, such would likely require new regulations and labeling requirements in order for a consumer to match their personal health need with their food choices.[4]

In its May 2009 report entitled "Southern Minnesota's Economic Future," the Center for Regional Competitiveness at the Rural Policy Research Institute says: "Southern Minnesota has all the right factors in place to create the first rural region where medical science, agricultural science and farm productivity blend into a brand new industry."

ACTION ITEMS

Minnesota could position itself as a leader in food science, food processing, and health and wellness, providing strong potential for spinoff technologies that would benefit the food industry – and would likely expand to include niche food crop production for the animal health and biopharmaceuticals industry. While the realm of functional foods holds strong promise for Minnesota, any increased regulatory issues

"We believe Minnesota should try to **position itself** as a **leader** in **food science, food processing** and **health and wellness.**"

- Amy Johnson, BioBusiness Alliance of Minnesota

should be identified and addressed at the onset. Also, production agriculture appears to hold promise for transforming Minnesota's row crop production into value-added products. Advancements in food science hold significant potential for new, high-quality jobs and economic growth.

To convert innovative thinking into realizable revenue, however, the following steps should be taken:

- **Identify and address** regulatory issues at the onset.
- **Promote technical assistance** to processors and producers.
- **Create support** to build system-wide networks that address issues from idea to implementation.

COLOR-FULL CORN

Nearly seven million pounds of synthetic red dyes, worth over $2 billion, are added to foods, beverages, cosmetics and medicines every year. One of the most popular products, FD&C Red No.40, is derived from fossil fuel. As more and more consumers want foods with no artificial ingredients, demand for plant-based color additives is surging. In fact, natural-red colorant sales are rising 10 percent a year – more than three times the rate for synthetic red food dyes.

Enter Sayela™ Colorant, a patent-pending color additive made from corn that is being introduced by Minnesota food ingredients company, Suntava. The natural plant dye is derived from Suntava™ Red Maize, a non-GMO corn variety bred by Red Rock Genetics of Lamberton. The magenta-colored hybrid is full of valuable red pigments known as anthocyanins.

Besides being preferred to other plant-based colorants for its innate qualities, Suntava Red Maize has agronomic advantages, too. It is grown, harvested and stored just like conventional yellow corn.

Suntava also plans to produce nutraceuticals – food additives that promote health, since Suntava Red Maize contains high levels of three powerful antioxidants widely used in dietary supplements, power bars and drinks, breakfast cereal and other fortified foods: cyanidin-3-glucoside, pelargonidin and peonidin.

Source: AURI, Ag Innovation News, July 2008

OBSERVATION:

The Financial Stresses in Minnesota's Food Sector are Significant.

There are many factors that threaten the long-term health of Minnesota's food and agricultural economy, including farmland valuation; weakened recessionary demand; government interventions in commodity or capital markets; and volatile energy costs which result in higher farm expenses.

There is some concern that Minnesota's success in farming is unsustainable, according to Lee Egerstrom of Minnesota 2020. Price bubbles are forming around farmland and commodities that threaten the long-term health of Minnesota's huge food and agriculture economy.[34] There are many factors that can contribute to a drop in farm income, including weakened demand in a recession; government interventions in commodity or capital markets; and escalating energy costs which result in escalating, variable costs of fuel, fertilizer, grain drying and related farm expenses.

JoAnne Berkenkamp with the Institute for Agriculture and Trade Policy believes banking is one area that would benefit from learning more about new food production systems. "They are very familiar with conventional corn, soybean and dairy production. But they have relatively little understanding of specialty crops, produce production and organic approaches," she said. "They may tend to assume the risks are greater than they are, so they shy away from these lending opportunities."

"If I'm a corn or soybean farmer who decides to shift production into hazelnuts or pumpkins, my banker is going to want to have a little talk with me about cash flow and exactly what my plan is," said Thom Petersen, Director of Government Relations for Minnesota Farmers Union. "Bankers have significant influence over a farmer's ability to make a change of this nature."

Another challenge is obtaining insurance for specialty crops. "A tornado wiped out about 50 Hmong farmers," Petersen added. "Two acres of ginseng can be worth $40,000 – and they lost it all. But insurance is expensive and many of these farmers don't necessarily understand how insurance programs work."

If innovation is going to occur in financing emerging food production enterprises or new value added food-related businesses, it's going to happen on the equity side rather than the debt side, according to John Monson, Vice President of Rural Capital Network at AgStar. "What we're trying to do is create a regional equity fund that would allow regional experts to identify the best opportunities and leverage traditional venture capital in other parts of the country to invest in our region," Monson said. "This is brand new thinking."

The great irony is that, in many parts of Minnesota, there is significant wealth. Much of it, however, is in the form of farmland. Monson, who serves on the board of the Center for Rural Policy in Minnesota, said that group is doing

research on how to create an equity fund based on agricultural land. “We want to take a fixed asset – land – and transform the equity in it into a liquid cash investment,” he said. “This would be an equity fund that can be used to grow new opportunities.”

Paul Hugunin of Minnesota Grown observed that meat processing plants are facing their unique issues. Many need to bring their plants up to current USDA standards, thus presenting a potential capital barrier. Loan guarantees and/or reduced interest rates could be an incentive to undertake such projects.

Financing food production operations is especially challenging in minority cultures, such as within Hispanic and Hmong communities where cash transactions, not credit, are typically the norm. There is no credit history on which banks can make lending decisions.

“Hmong growers want to live in the city, so finding land near the metro area is important to them,” said Thom Petersen of Minnesota Farmers Union. These smaller farmers don’t want 400 acres, they want 10. “When commodity prices rose, many of them lost access to their land because the landowner could convert those acres back into corn or soybeans and make a lot more money than he could renting,” he added.

Jim Riddle with the University of Minnesota sees value in nurturing food production among ethnic communities. “They come from cultures where hard work is not shunned and they have knowledge of food production they bring with them. The more we can do to plug into their expertise, resources and provide access to capital, land and equipment, we’re going to preserve a food production heritage that will be lost if we don’t take steps to better assimilate them.”

Riddle added that unique methods of slaughter and handling of food in these cultures requires special processing infrastructure as well.

“Access to land is a big challenge, since any kind of support that is provided tends to get capitalized into the land,” said Rob King professor of applied economics at the University of Minnesota. “If people believe that opportunity exists, the price of the land gets bid up.” King said a certain number of people are really committed to changing the food system and being part of that change. “So, I think they’re willing to pull back a little in terms of comforts and income level, but it’s still a challenge to be able to pay for the land and be able to keep it,” he said.

> “This is **brand new thinking.**”
>
> *- John Monson, Vice President, Rural Capital Network, AgStar*

A common theme among many interviewees – from university officials to government to farmers – was the crippling cost of healthcare. “Healthcare is a huge issue for farmers because you just don’t know what your income is going to be and the risk is significant,” said Thom Petersen of Minnesota Farmers Union. Additionally, many agricultural jobs tend to be part-time or seasonal – jobs which typically do not include healthcare benefits.

“Farmers tell me they have a heck of a time finding anybody to work for them. One dairy I know is continually searching for a herdsman because they can’t afford the healthcare

> "**Healthcare** is a **huge issue** for farmers because you just **don't know** what your **income** is going to be. The **risk is significant.**"
>
> *- Thom Petersen, Minnesota Farmers Union*

package that would retain somebody for the long term," said Meg Moynihan with the Minnesota Department of Agriculture.

Rob King of the University of Minnesota added, "A lot of direct marketers of food products can make a good living, but being able to get to a volume that can pay health insurance and pay a good living wage is a challenge." Helene Murray, executive director of the Institute for Sustainable Agriculture at the University of Minnesota, agrees. "Health insurance is enormous. It keeps people working at the farm even if they don't want to be on the farm."

When it comes to organics, governmental efforts have been successful in helping pave the way to market expansion. Uniform standards were created by the USDA national organic program in 2002.[35] In addition, Congress included provisions in the 2002 Farm Act aimed at expanding market opportunities for producers. This includes a cost-share program to help defray certification, research and marketing costs. The Food, Conservation, and Energy Act of 2008 called for a five-fold increase in mandatory funding for organic programs like the cost-share program, but also included provisions to help producers make the transition to organic farming systems.[25]

ACTION ITEMS

- **Consider educational forums** for Minnesota agricultural bankers to increase understanding of the financial and operational issues involved in emerging or niche food production.
- **Coordinate with the federal delegation** and federal agencies to better ensure alignment and maximum utilization of funding.
- **Assign an agency or organization** with state responsibility to develop the appropriate contacts with the USDA and federal delegation to ensure issues are coordinated.

PROCESSING WASTE FOR FUEL

The old proverb "waste not, want not" is potentially taking on a new meaning for at least one Minnesota community and its resident food processors.

Perham hopes to pool food-processing waste and send it to an anaerobic methane digester where it would be converted to renewable biofuel. AURI and Minnsota corn and soybean grower groups are helping evaluate the idea's technical and economic feasability. Digesting organic waste could relieve Perham's overburdened municipal wastewater treatment system. A community digester could also cut industries' waste disposal costs and provide a new revenue source.

Anaerobic digestion is a microbial process that produces methane and carbon dioxide, or biogas, from organic materials. A natural-gas substitute, biogas can be burned in a furnace or purified to power a generator. Anaerobic digestion has long been used in food processing and waste treatment plants, but those digestion systems are designed mainly for wastewater cleanup rather than fuel production.

Now there is a growing interest in the renewable energy potential of anaerobic digestion. Dairy farms, for example, have started digesting manure to generate electricity. In addition to abundant supplies of organic waste from such sources as local turkey and poultry farms, Perham has several potential markets for biogas, including burning the gas in the city's garbage incinerator, which sells steam to local food processors.

Source: AURI, Ag Innovation Update, April 2009

OBSERVATION:

Regulatory Issues are Adding to an Already Complex, Costly Environment.

Concerns about climate change, sustainability and food safety are being manifested not only in public policy and regulations, but in buyer/seller relationships as well. Increasing demands are being placed on growers/producers and the companies that process their products to meet continually evolving standards. While there are opportunities that are on the verge of realization, some in the industry believe that streamlining governmental assistance is necessary to make any real progress in industry growth and employment.

Issues such as sustainable food production are not only impacting how food producers and processors market their products. Such concerns are also fueling a patchwork of regulations that some say is burdening the industry at every level.

Take food safety, for example, that relates to the practices and protocols of everyone who handles it; smaller producers are as responsible for ensuring integrity and safety as larger producers. That may present a challenge in terms of compliance and documentation. "No one should get a 'pass' when it comes to food safety," said the University of Minnesota's Jim Riddle. "But regulations should be both scale- and risk-appropriate."

"Farmers are going to have to deal with food safety because the buyers and the lawyers in the system require that it be dealt with," said Hal Hamilton of the Sustainable Food Lab. "The lack of capacity to train farmers in Good Agricultural Practices (GAP) standards is a big challenge and a major obstacle. It's a role that extension can play, and that state legislators should consider funding to a greater degree."

With the increasing focus on best practices to verify that farms are producing fruits and vegetables in the safest manner possible, third-party audits are being utilized by the retail and food service industry to verify their suppliers are in conformance to specific agricultural standards. Since 1999, the USDA Agricultural Marketing Service has been actively involved with the industry offering auditing services to

> "**Farmers** are going to **have to deal** with **food safety** because the **buyers** and the **lawyers** in the system require that it **be dealt with.**"
>
> *- Hal Hamilton, Sustainable Food Lab*

verify that best practices are being followed. While the audits are technically voluntary, there's a growing emphasis being placed by such market sectors as food service distributors.

As local and regional food sources become more important, GAP standards could, like liability insurance, become a requirement for aggregators or farmers that supply these companies. The audits can be time consuming. If there was some type of cost-sharing or subsidy for undertaking a GAP audit, market participation in certain sectors could potentially be broadened.

Currently, there is the potential that numerous different GAP audits could be developed over time. Those who support the growth of these markets, though, would prefer different organizations come to terms and agree on one audit standard among all retailers and food service companies. If there was consensus, the next issue would be having enough auditors available to ensure compliance.

> "**More and more people** are **not involved** in agriculture, but **more and more of them** are involved in **creating** or **initiating regulations** that affect **food production.**"
>
> *- Kevin Paap, President, Minnesota Farm Bureau*

While he has not seen problems specific to distribution due to the direct-from-the-farmer position of St. Paul Farmers' Market (SPFM), Jack Gerten is concerned that pending government regulations related to refrigeration and chemical sanitation of foods could drive up costs. These regulations may require more detailed record keeping, a different approach to packaging, and may even affect the types of transportation used both on farms and to move product from farm to market.

"There are some gaps in the food safety chain in terms of trucking and transportation – ensuring that the folks moving food products back and forth are providing safe and secure transit," said Amy Johnson, senior program manager for the BioBusiness Alliance of Minnesota. "Some firms have technologies on the trucks to preserve the integrity of the product, but smaller companies may find it more difficult to adopt these precautions."

"The processors are so focused on trying to create public reassurance about the quality of their products that they are developing a lot of independent food safety standards that they are pushing all the way down to the farm level," said JoAnne Berkenkamp of the Institute for Agriculture and Trade Policy. "As far as we can tell, many of these standards are not based on risk assessments and are not scale neutral. The cost of meeting those standards is going to be disproportionately higher for small- and medium-sized operations."

> "We have to be **very careful** in **this state** that we don't make **so many rules** that we **can't operate.**"
>
> *- Minnesota Food Processor*

Access to resources – and the talent to staff them – is key. Many small food companies, for

instance, need a system to understand the requirements that govern their industry and their specific processes. AURI is one such resource. The organization's technologists/scientists provide consulting and technical services with respect to product and process development; product evaluation and testing; and sourcing materials, equipment and services. Likewise, services are available on a confidential basis, to assist with scale-up, nutritional assessment and production for market assessment. Such technical assistance not only enables new products to come to market, it also helps small entrepreneurial food companies address their product safety issues.

"We're the first generation of culture to be so disassociated from agriculture on such a massive scale," said Sarah Alexander, director of sustainability and leadership programs for The Keystone Alliance for Sustainable Agriculture. Kevin Paap, president of Minnesota Farm Bureau, adds: "More and more people are not involved in agriculture, but more and more of them are involved in creating or initiating regulations that affect food production."

Concerns about climate change, sustainability and more are being manifested not only in a patchwork of public policy and regulations, but in corporate relationships as well. "Major retailers are starting to tell food processors that they want to know the full life cycle analysis of a box of corn flakes," Alexander said.

A well-known Minnesota food processor agrees: "We have to be very careful in this state that we don't make so many rules that we can't operate. If I've got X amount of capital to spend in the year, I can either grow the business with that money or I can just play catch up on the next regulation that is coming forward. Minnesota is very top-heavy on regulations."

Another global food processor pointed to the "need to recognize that Minnesota has a more challenging business climate in terms of taxation, regulation and compliance than other states." As he said, "That applies across all sectors indefinitely and the agricultural and 'green' jobs sector as well. As a corporation, we've been looking at a few fairly big sustainability-type things. What I'm finding is, compared to other states like Wisconsin, we don't have a very good support structure for renewable energy. They have Focus on Energy over there. Within 90 days they can basically tell you yes or no on a project. You can apply for grants, get your permits and move forward. If I had to choose where to build a project today, I would probably go to Wisconsin. Because within half a dozen phone calls, I'd have most of the things I would need."

> "[We] need to **recognize** that **Minnesota** has a **more challenging business climate** in terms of **taxation, regulation** and **compliance** than **other states.**"
>
> *- Global Food Processor*

While some Minnesota food processors believe that there are opportunities that are on the verge of realization once the economy improves, they also feel that streamlining governmental assistance is necessary to make any real progress. "We [processing companies] can give you a billion examples of how lean processes in our operations have actually created more opportunities because we've been able to redirect those resources to higher-value output.

"I think the **biggest missed opportunity** is **retaining what we've got.**"

- Minnesota Food Processor

We don't see the government doing that. They need to apply a continuous improvement process to all of their work processes [to] deliver more. And right now they are not [pursuing that]."

"What it comes down to is we have facilities throughout the Midwest and the West Coast. If I can't do a project in a timely manner, one of the other three very possibly can. We're in competition with our own company," he said.

Will this result in job growth? "I think the biggest missed opportunity is retaining what we've got. We've all recommitted [to staying in Minnesota], but how long is that recommitment going to happen unless we are aggressive at saying 'how do we continue to do this?'"

Property taxes and land value also present challenges. Minnesota law requires assessors to value property at its estimated market value, which is based on the "highest and best use" of the land under existing codes that govern that property. This changed, to a degree, when the legislature passed the Agricultural Property Tax law (Minnesota Statutes, section 273.111), allowing qualifying farmers to pay real estate taxes based on the agricultural value of their land, rather than on its potential value as a housing development or freeway. Jack Gerten with the St. Paul Farmers' Market says that, if the "green acres law" is changed in some way, it could have an adverse effect on the growth of food production in the state, especially among small- to medium-sized operations.

To qualify for the preferable tax treatment, however, requires a minimum of 10 acres, according to Bill Bauer of Bauer Berry Farm. While this may work in some suburban and rural communities, he believes it would be more difficult for someone looking to develop a farm system in a more urban setting.

ACTION ITEMS

The Regulatory "Patchwork" Must Be Reviewed and Streamlined.

- **Explore some type of cost-sharing** for undertaking GAP audits to broaden market participation in certain sectors.
- **Increase awareness of technical assistance** that is available to entrepreneurial companies to help food producers and processors understand the regulatory environment and how to address relevant issues.
- **Encourage government to work closely with food processors** to understand both their needs and how to streamline processes to address them. One way to do this would be to provide a forum for food processors, food producers and policy makers to discuss regulations, approval processes and timelines in an effort to position Minnesota as a "fast track" state when it comes to approval of new products, processes or production facilities.
- **Encourage and support a study** that compares the development of a food processing firm in Minnesota to the same type in surrounding states to identify potential bottlenecks and improvements to the process.
- **Review regulations** to ensure they are both scale- and risk-appropriate.
- **Create collaborations between food processors, educational institutions, producers, technical service providers and policy makers** to ensure that Minnesota's unique set of innovation assets are maximized.

OBSERVATION:

Industry Employment Success May Be Realized as Job *Refocus* Versus Job *Growth.*

Innovation not only stands to be a driver of success in agriculture, it may also be the source of job growth. Heightened demand for food safety, process improvement and new product development are just a few of the demands that could benefit from new solutions. The "net" benefit may be one of job refocus versus employment growth.

Minnesota is home to a large number of successful food processors that, by their diversified, complex nature, are maintaining – even in a challenged economy. According to one processor, industry sector growth is heavily dependent on sales. "We are a very demand-driven organization. So, the more you buy our products, the more we expand. It's a very consumer-driven thing for us. It's not driven by what the states grow or what the farmers grow or anything like that. It's driven by what we can sell – entirely. If we can sell more, we'll build more plants and buy more ingredients and more products," she commented.

> "**Modern farmers** are **small businesspeople** who must be as **skilled** in **heirloom genetics** as **marketing.**"
>
> *- Fast Company*

This may translate into job growth, but not necessarily on the manufacturing floor. "Innovation is what's driving our employment growth in Minnesota for what I call 'A' jobs. We're really expanding our headquarters' jobs here. It's in our research and development, our customer-driven innovation."

Despite the fact that research and development could be a hotbed for emerging career development, the "net" benefit may be one of re-engineered jobs versus job growth. "Innovation does do things. It creates new products, market share and keeps your company going. But it isn't always a big job creator. It tends to re-focus jobs that might have otherwise been lost. Personally, I don't see the big, new, 100-new-employee-type opportunities. You are going to replace something that already exists that is less sustainable, instead of having much more for headcount."

Innovation is impacting headcount beyond the lab also. When it comes to production agriculture, the trend in row crop production is toward more production from fewer acres with fewer inputs – including labor. Through precision ag technology, improved hybrids, and reduced tillage, "The focus among farmers and ranchers is to not have labor – and to produce more with less," said Bob Olson with Food Alliance Midwest.

Another area in which processors noted jobs may emerge is waste recycling. "All of us [processors] create waste of some sort but, with sustainability, you want to reduce that and get to a zero-waste environment. We are discovering thousands of uses for waste that didn't exist before – whether you make fuel out of it, burn it for electricity or make fiber out of it," one processor observed.

Likewise, opportunity exists for some processing companies willing to develop products for family pets – a category that appears to have remained stable even within a recessionary economy. "We're at 51 percent pet food now," said a well known consumer food plant manager. "We are finding that people are willing to spend on pets even if they're not willing to spend on themselves. So, that side of our business is developing probably as fast as or faster than our consumer products divisions."

According to Fast Company, farming will be one of the top green jobs for the next decade: "Modern farmers are small businesspeople who must be as skilled in heirloom genetics as marketing," they wrote, suggesting growth in farming and such related careers as urban gardeners; farmers market and CSA coordinators; artisanal cheese makers; and other food producers.[36]

The Bureau of Labor Statistics, that has stated about 80 percent of the nation's current farmers are self-employed, made similar observations, citing upcoming employment opportunities lie within the growth of horticulture, small-scale and organic farming.[3]

In the recent AURI research study conducted with crop and livestock farmers across Minnesota, a somewhat different perspective emerged. Those queried said that they felt the greatest opportunities for market expansion included renewable energy (77%); traditional crop production (73%); locally grown food initiatives (68%); crops grown for specific health/industrial use (65%). Following close behind were community supported agriculture (62%); alternative farming methods (60%); agri-tourism (58%); organics (57%); beef and dairy production (55% each).[5]

When asked which offered the greatest opportunity for job growth, those surveyed said renewable energy options (81%); locally grown food (65%); crops grown for health/industrial use (63%) and agri-tourism (61%).[5]

High-tech is also predicted by some to be a factor in future agricultural job market growth. The U.S. Department of Labor/Employment and Training Administration's project, O*NET, indicates that new technology is being applied in farming to facilitate efficient land use and management. Geospatial technology, or "precision farming," uses geospatial data and information systems to plan, manage and evaluate farming processes, thus maximizing crop yields.[20] Such practices are leading to dramatic decreases in the amount of fertilizer, pesticides and water needed to grow a crop – and to the types of people needed to facilitate such.

O*NET maintains that because precision farming techniques involve geospatial technology, there will be a need for workers with specific skills and knowledge in this area, such as geographic information systems and global positioning systems. There will be a need for workers to build, manufacture and install super soil system

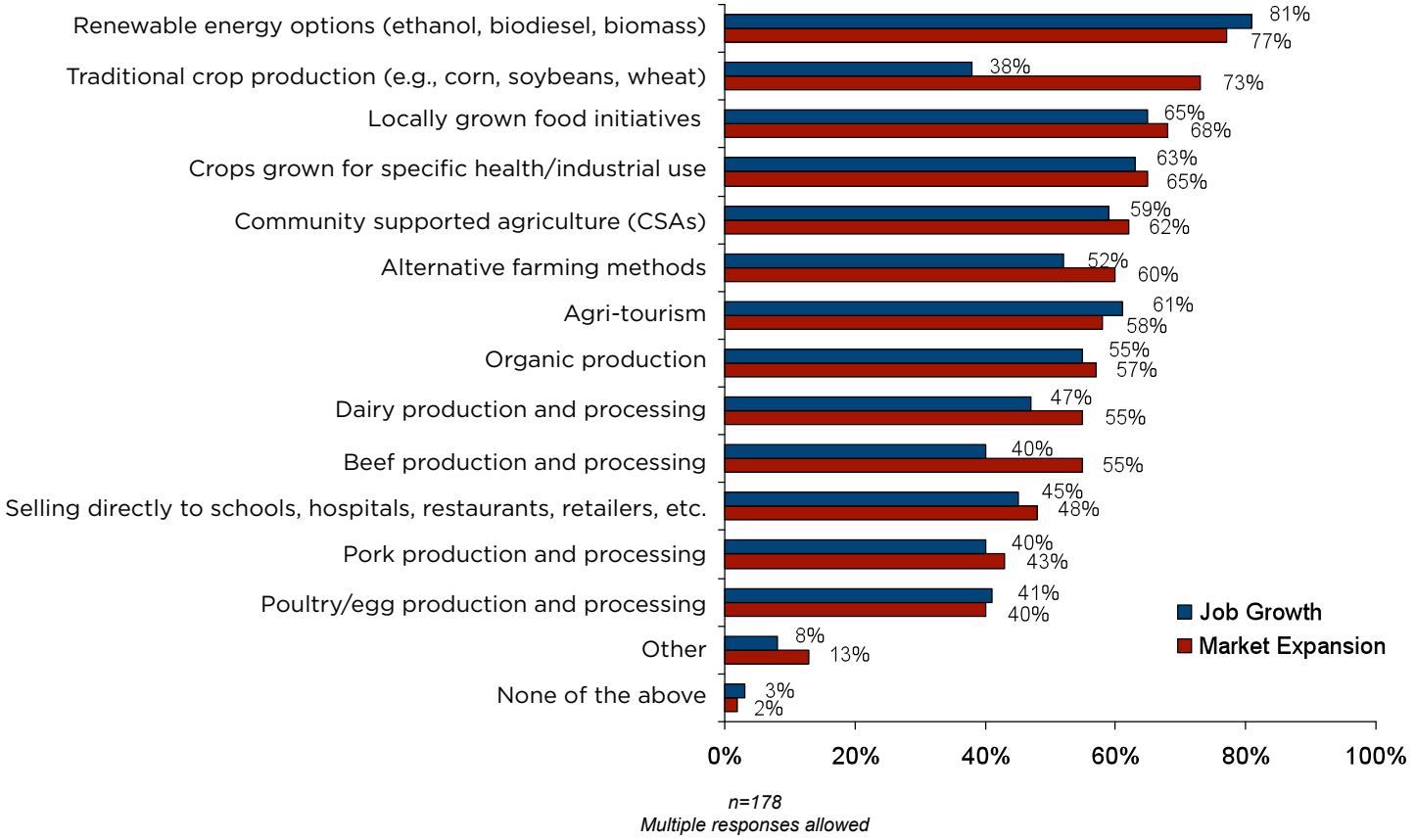
"Farmers just want a **decent price** for their **product** whether they're **conventional** or **organic.** They want to be able to **provide a living** for themselves **from their farm.**"

- Thom Petersen, Minnesota Farmers Union

technology components (e.g., large tanks used for "digesting").[20]

O*NET reports increased demand in three categories of green jobs: green increased demand, green enhanced skills, and green new and emerging occupations.[19] As food safety grows in popularity, there will be an increased demand for green employment of agricultural workers and inspectors, agricultural and forestry supervisors, farm product purchasing agents and food product inspectors. There will also likely be an increase in occupations requiring enhanced skills related to the green movement, including farmers and ranchers with new tasks and competencies, energy crop farmers, environment friendly landscape designers, indoor and outdoor landscape architects, landscaping and urban gardening specialists, permaculture designers and contractors, solid waste engineers and managers, sustainable agriculture specialists and sustainable landscape architects.[20]

Producers' Opinion:
Greatest Opportunities for Job and Market Growth



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Multiple responses allowed

Agricultural Utilization Research Institute, Agricultural Survey, 2009

Still, traditional row crop farmers can benefit from niche markets as well. A good example are farmers of all sizes that contract to produce specialty grains like non-GMO (non-genetically modified) and organic soybeans that are shipped from Minnesota around the world.

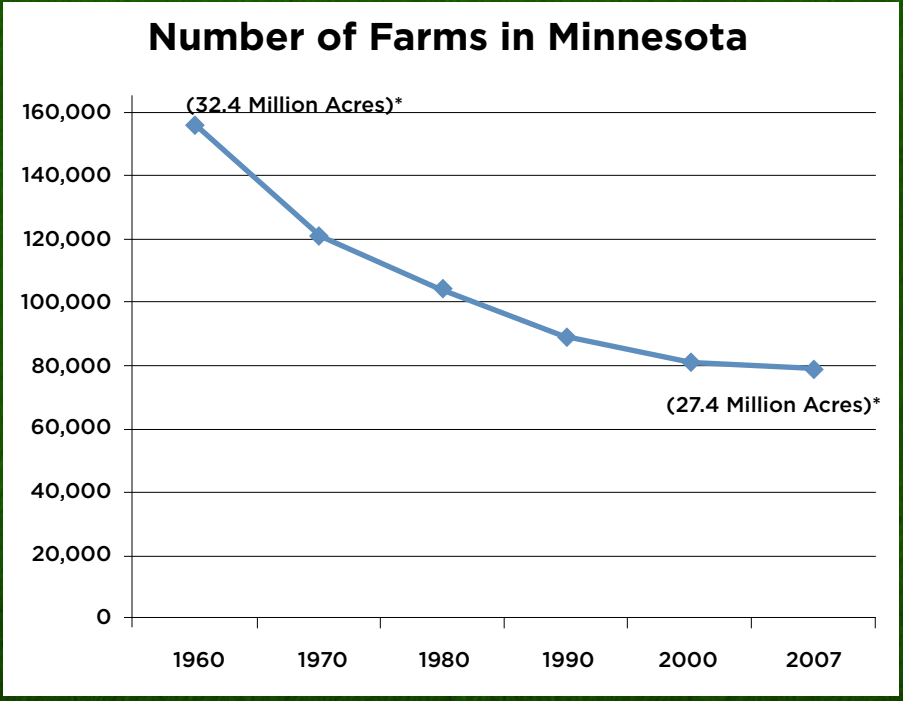
SunOpta's Mike Hartwell said his company contracts directly with farmers to produce the non-GMO and organic soybeans it needs to meet projected demands. "We're talking, thousands and thousands of acres of soybeans that we contract early in the growing season," he said.

SunOpta takes a "cradle to grave" position by selling farmers the seeds and then buying back the finished product at a set price. This allows the company to know a year in advance, depending on weather, what its harvested tonnage will be and from what types of seeds.

"We look for more [farmers] as our business grows," he said, adding that farmers and the Midwest are willing to participate once they learn the benefits of producing specialty soybeans for export.

Thom Petersen, Minnesota Farmers Union, believes it's a fundamental proposition: "Farmers just want a decent price for their product whether they're conventional or organic. They want to be able to provide a living for themselves from their farm."

According to the Bureau of Labor Statistics, however, as the agricultural industry continually gains efficiencies, there will be a need for fewer agricultural workers. And, as farmers begin to retire or opt-out of the profession, land will become available. Only farmers with enough capital or corporations, they observe, may have



**The 5 million acre decline in Minnesota farmland resulted from urban sprawl and from conservation and environmental land set-asides.*
Source: USDA, National Agricultural Statistics Service

the financial ability to buy this land because of the increasing cost of land, machinery, seed and chemicals. This will mark a shift to an increased number of larger, more productive farms which will be more capable of weathering climate effects and price fluctuations on farm output and income.

The owners of these large pieces of land, who in some cases live off-property, will increasingly look toward agricultural managers to utilize their expertise and operate their farms and ranches as a business.

According to Minnesota State Representative Al Juhnke, Chairman of the Agriculture Finance Committee, "We need to encourage agriculture-related jobs in Minnesota. There are emerging opportunities within the industry such as demand for new cuts of meat and goat products, but what can we do to fuel more development? As an example, there's JOBZ. Why not FarmZ?," he said, referring to Minnesota's Job Opportunity Building Zones (JOBZ), a key initiative to stimulate economic development activity in Greater Minnesota by providing local and state tax exemptions to new and expanding businesses.

"There are obstacles, such as the need for investment capital. Also, education is an issue. We've lost extension offices in some cities which creates a gap. And what about our universities? Are they doing enough?" he said.

An emerging success story in Minnesota agricultural education, according to Juhnke is the Academy for Sciences and Agriculture (AFSA) located in St. Paul. AFSA is a free public charter high school that prepares students for post-secondary education and careers in science, business, and technology by engaging learners in learning experiences and leadership opportunities within a science and agricultural context. The school, which is the first urban agricultural high school in the state, currently has 207 students.

Representative Juhnke observed that, "with agriculture at 20 percent of our state's GDP, it's important we grow awareness for this industry. It's more than just growing and processing – agriculture is economic development. There's a great deal going on, but sometimes I think there is an information gap. We need to create a perceived quality for Minnesota grown food."

According to Allen Levine, Ph.D., dean of the University of Minnesota College of Food, Agricultural and Natural Resource Sciences, there are numerous issues facing the industry – not the least of which being use of land in carbon sequestration, cap and trade, and making conventional practices more efficient. While organic has grown, such agriculture is still a relatively small sector; and there is still need, he said, to make it more productive and maintain nutritional value.

> "**What can we do** to **fuel more** development? ... there's **JobZ**. Why not **FarmZ**?"
>
> *- Al Juhnke, Minnesota State Representitive*

Looking forward, the Minnesota Department of Employment and Economic Development (DEED) projects that employment in the category of "Farming, Fishing and Forestry" will increase by 1.1 percent between 2006 and 2016, with the most significant workforce progress occurring in the animal slaughter and processing arenas. Relative to food-related manufacturing and processing, trends are anticipated as follows:

Meat: Jobs in animal slaughtering and processing (including egg and poultry processing) are expected to grow 3.6 percent

from 2006 to 2016 – from 15,447 jobs to 16,000 jobs.

Dairy: Jobs in dairy product manufacturing are projected to decline 9.8 percent – from 5,435 jobs to 4,900.

Produce: Jobs in fruit, vegetable and specialty foods manufacturing are projected to decline 8.3 percent – from 4,470 jobs to 4,100 jobs.

Beverage: Jobs in beverage manufacturing are projected to decline 5.3 percent – from 2,217 jobs to 2,100 jobs.

Fish: Jobs in seafood product preparation and packaging are expected to decline 1.0 percent from 303 to 300 jobs.

> "With **agriculture** at **20 percent** of our **state's GDP**, it's important we grow **awareness for this industry.** It's more than just **growing** and **processing** – agriculture is **economic development.**"
>
> *- Al Juhnke, Minnesota State Representitive*

According to the Bureau of Labor Statistics report, "Occupational Projections and Training Data" (February 2008), there are a variety of factors that will affect agricultural output and employment in the coming years – not just in Minnesota, but on a national scale:

- **Dairy product manufacturing:** Output expected to increase more slowly than GDP. Improved technology and productivity growth is expected to contribute to a slight decline in employment.

- **Animal slaughtering and processing:** Output expected to grow equal to GDP. Productivity rates expected to be small, employment projected to grow at a comparable rate to overall employment growth rate.

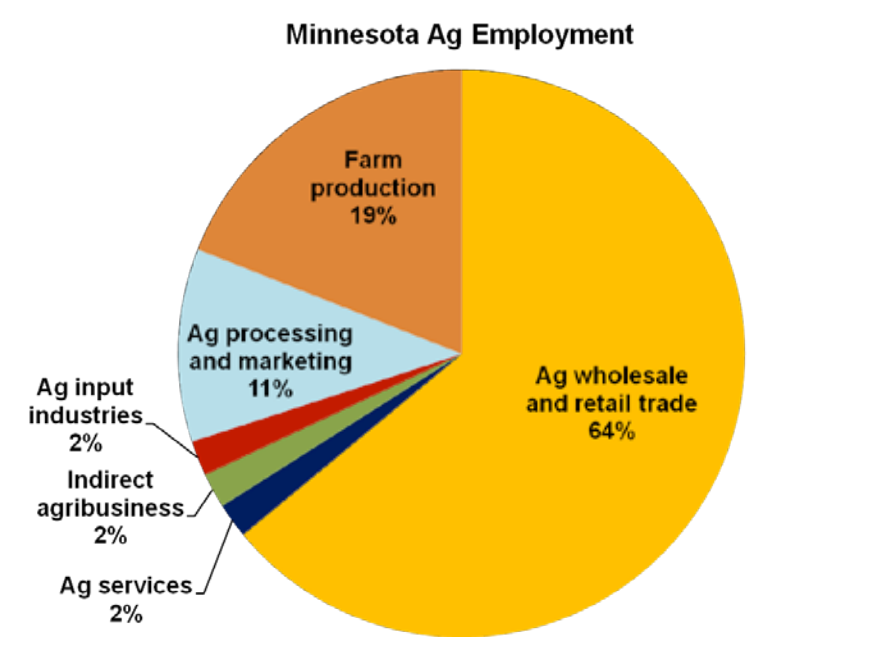
- **Crop production:** Output is expected to grow faster than GDP. Employment projected to fall as result of increasing productivity, foreign competition, increasing consolidation of farms, increased immigration enforcement, and decline in number of self-employed farmers and unpaid family workers.

- **Animal production:** Output expected to grow slower than GDP. Employment expected to decline due to consolidation of ranches. Increase in productivity expected to be offset as enforced immigration laws raise the official count of workers. Increase in official workers and re-opening of foreign markets for U.S. beef, boosting output, is expected to slow employment decline of previous decade and result in nearly flat job growth.

- **Support activities for agriculture and forestry:** Projected to grow more slowly than GDP. Employment expected to grow slowly as farms and ranches get larger and hire out specialized workers to perform tasks previously done by self-employed farmers.

- **Farm, ranch and other agricultural managers:** A moderate increase in crop production is expected due to consolidation of farms and increased demand for corn for ethanol.[37]

Minnesota food processors, among others, also point to an anticipated increase in research and development, biotech and other specialized areas critical to advancing overall agricultural success in the state.



Source: Minnesota Agriculture, The Foundation of Minnesota's Economy, 2007

ACTION ITEMS

It is Important to Retain and Grow Existing Jobs In...

- Livestock/protein production and processing
- Traditional crop production
- Food processing and marketing
- Renewable fuels development
- Organic production

And to Embrace Emerging Job Opportunities In ...

- Research and development
- Waste recycling
- Food science and genetics
- Bio-technology
- Culinology
- Business entrepreneurship
- Profit-oriented biomass
- Boiler operators, mechanics, electricians to sustain high-tech food processing/manufacturing
- Precision agriculture specialists
- Builders, manufacturers and installers of super soil system technology components (e.g., large tanks used for "digesting")
- Workers with specific skills and knowledge in geospatial technology, such as geographic information systems and global positioning systems
- Food safety
- "Foragers" in foodservice
- Regulatory compliance
- Agricultural workers and inspectors, agricultural and forestry supervisors, farm product purchasing agents and food product inspectors
- Occupations requiring enhanced skills related to the green movement, including farmers and ranchers with new tasks and competencies, energy crop farmers, environment friendly landscape designers, indoor and outdoor landscape architects, landscaping and urban gardening specialists, permaculture designers and contractors, solid waste engineers and managers,

sustainable agriculture specialists and sustainable landscape architects
- Developers and researchers of alternative, non-synthetic pesticides
- Aggregators that can understand and serve the needs of both producers and buyers

Emerging Career Opportunities Should Be Communicated and Supported By Both Academia and Industry.

- **Ensure availability of accessible, affordable continuing education** and career training.

- **Develop a series of agricultural development zones** in which niche agriculture, processing and aggregation could take place in a few strategic locations across the state. Public and private partnerships might involve the processors, government and education. These agricultural zones could also become the place where extension research and education take place, as well as the development of functional foods and distribution points for local/ organics, etc.

- **Enhance public awareness** about emerging career opportunities.

- **Increase understanding** that success should be measured by more than increased employee headcount.

- **Encourage MnSCU and DEED to work together** to build career ladders that link employers with labor markets.

Scientists Test Energy-Saving Microwaves To Dry Beet Pulp For Livestock Feed

Beet pulp, the vegetable matter remaining after sugar is extracted from sliced beets, is typically dried then sold as a nutritious, high-fiber livestock feed. However, because of beet pulp's high-moisture content, it is difficult to transport or store unless it is dried first.

AURI scientists from the AURI Co-Products Utilization Laboratory in Waseca recently tested a microwave dryer at Biomass Energy Conversion in Nevada, Iowa. They fed wet-pressed beet pulp from the Southern Minnesota Beet Sugar Cooperative in Renville into a microwave system and recorded variations in pulp throughout the drying process.

Microwave drying technology could save a significant energy. Traditional dryers, powered with natural gas, typically require 1,400 to 2,200 British thermal units to evaporate a pound of moisture. Microwave drying may be able to evaporate as much using only 1,000 BTUs or less. Also, microwave drying could retain more of the pulp's fiber and protein available for higher quality livestock feed. "Microwave drying technology is also very safe," says Doering, head of AURI's co-products lab. The system - "about 100 times more (powerful) than the average kitchen microwave" - is designed not to leak, Doering says. "The microwave uses an industrial frequency of 915 megahertz," about the same frequency as older cell phones.

AURI's Waseca lab is used for the development of new uses for plant and animal by-products that present environmental and economic opportunities. AURI staff can also assist in production runs, needs assessments and engineering processes.

Source: AURI, Ag Innovation Update, April 2009

GREEN JOB GROWTH WITHIN MINNESOTA AGRICULTURE

will require a synergy of the following government/business/private sector initiatives:

- **Fostering** a greater understanding of agriculture/food production as economic development.
- **Recognizing** entrepreneurial opportunities in rural areas based on food production.
- **Increasing** not only the number of jobs, but the number of enterprises.
- **Mitigating** the effects of increased regulatory compliance, environmental regulations and energy costs.
- **Implementing** aggressive and relevant educational and business development programs for producers and others in food production.
- **Improving** the ability for small farms to aggregate, distribute and market their products.
- **Ensuring** a robust animal agriculture sector in the state.
- **Investing** in research on functional foods, value-added agriculture, etc.
- **Creating** collaborations between food processors, educational institutions, producers and policymakers.
- **Capitalizing** on consumer trends and scientific advancement.
- **Protecting** and growing what we already have in the state.
- **Nurturing** growth markets and opportunities.
- **Creating** even greater diversity in Minnesota's food and agricultural production, processing and marketing.
- **Building** on the fundamental strengths that already exist, and leveraging them into economic vitality for Minnesota over the long term.

AT A GLANCE

OPPORTUNITY: *Emerging markets such as local food distribution, organics, urban agriculture and alternative farming techniques offer opportunities for small business ownership and employment.*

Observation: Sustainability is a growing, industry-wide consideration.
Action Items:

- Ensure that food processors have access to process the technological assistance to help improve their operations and assure future sustainability.
- Provide food processors and farm producers access to expertise and support in addressing water, energy and traceability concerns, as well as provide assistance with product development.
- Provide technical assistance to producers for the purpose of expanding the growing season to overcome "seasonality issues for local foods."
- Ensure processors can address opportunities throughout the supply chain, develop alternative and innovative food ingredients, satisfy demand for sustainable food and beverage products, create better access to local foods and improve food distribution channels.
- Ensure support for developing farmers from CSAs to urban and conventional production agriculture.
- Consider expanding Minnesota Job Skills Partnerships opportunities to serve groups of agricultural producers and similar food processors.
- Avoid creating more programs, instead aligning with what Minnesota already has. Choose the appropriate organization to lead the initiative, then expect performance.

Observation: Demand for local foods is growing and diversifying.
Action Items:

- Ensure coordinated services are available to support local food farmers, especially immigrant. Support should include consideration that English may be a second language.
- Provide cross-industry assistance with issues such as aggregation, risk, insurance, etc.
- Support research on greenhouse and other emerging technologies that expand the growing season.
- Encourage local food processing in addition to local food production (farming).
- Continue support for Minnesota Grown.
- Encourage a network of support for grocers interested in exploring Minnesota options for local foods.
- Promote and support network opportunities that build capacity such as the annual Home Grown Economy conference, sponsored by Congressman Collin Peterson.
- Ensure that agricultural producers are aware that local food production poses an opportunity to expand their conventional operations.

Observation: The ability to make local or regional purchases is often limited by the structure of the food distribution system.
Action Items:

- Encourage and support the development of a regional food distribution network.
- Encourage existing food distribution organizations to consider local foods as a viable component of their marketing plans.
- Identify and support organizations that can be "market makers" between farmers and grocers.

Observation: Food service offers a high-potential market for local food sales if distribution issues can be resolved.
Action Items:

- Identify and empower an organization that can help meet the needs of food service organizations by linking potential local food producers with local food processors.
- Ensure expert technical assistance is available for organizations and individuals interested in exploring food service opportunities and barriers.
- Provide Minnesota's local foods industry with easier access to liability insurance.
- Ensure that adequate support systems are in place to assure Minnesota's local foods are safe and wholesome for food distributors and food service organizations.

Observation: Organic demand is growing but some barriers still exist for market entry.
Action Items:

- To maximize opportunities and meet the projected increase in organic food demand, address the following: research and development, access to viable processing options, aggregation, increased exporting, greater demand from mainstream food manufacturers, management risk strategies, and continuing education in market, production, and management.
- Ensure that Minnesota's producers and food industry representatives are able to easily communicate their concerns and issues through food industry forums.

Observation: Consumer concerns about food health and safety are shaping the food industry at every level.
Action Items:

- Continue to support and encourage best practices and food safety training for local food processors through organizations such as AURI, Minnesota Department of Agriculture Food Inspection Division and University of Minnesota Department of Food Science.
- Assist producers in their efforts to provide consumers with information about the source of their food and the production practices used by Minnesota's local food producers.
- Continue to provide food safety training for processors and producers.

Observation: Access to healthy and affordable food must be a priority within urban neighborhoods.
Action Items:

- Provide knowledge about the opportunities of urban agriculture to both farmers and consumers.
- Protect areas of the city that could be used for agricultural purposes.
- Ensure support and assistance for the remediation of Brownfield sites to agriculture production sites.

OPPORTUNITY: *Animal and conventional agriculture are under-recognized as promising career opportunities.*

Observation: Livestock production's impact on economic development is at risk.

Action Items:

- Share accurate information about modern animal farm practices with consumers, policy-makers and the media.
- Develop markets designed to serve certain ethnic populations (e.g., Hmong, Somali and Latino communities). Understanding that doing so, however, would require matching demand with appropriate, cost-effective livestock product and processing.
- Identify and empower an organization that can provide information and support to economic developers regarding the importance of agricultural processing to jobs, business ownership and economy recovery.
- Ensure that the livestock food industry has the opportunity to identify and convey industry concerns through development of an organized food industry forum.

OPPORTUNITY: *Minnesota has potential to create many career and business ownership opportunities that would advance the farming industry if issues are addressed.*

Observation: Youth "Brain Drain" away from rural communities could have a serious impact on workforce needs.

Action Items:

- Ensure DEED and the regional secondary and post-secondary schools are in continual communication regarding coming career trends and opportunities.
- Ensure industry and education, especially at the local level, are aligned for future developments and planning.
- Foster entrepreneurship in value-added agriculture and food processing.
- Build partnerships with colleges and universities to offer accessible education and training.
- Work with local economic development groups and school systems to ramp up activity and participation in FFA and entrepreneurship training among secondary school students.

Observation: Agricultural awareness and education are statewide needs.

Action Items:

- Ensure efforts are community driven, regionally centered, entrepreneurial focused and promote continuous learning in a comprehensive, goal driven system.
- Ensure agricultural literacy training, career exploration and technical education are available in all Minnesota schools.
- Foster a greater understanding of agriculture and food development as economic development. Create a vision for what the future of Minnesota agriculture can bring to the state.
- Deliver education when and where it is needed. Scholarship support or greater infrastructure funding could help address this issue.

- Provide strong training to support a workforce capable of filling the roles of chemists, cereal scientists, food product developers, etc.

Entrepreneurial

- Provide a mechanism for entrepreneurs to develop a professional network.
- Implement relevant educational and business development programs for producers and others in food production.
- Implement an aggressive and comprehensive entrepreneurial development initiative.

Technical Assistance

- Continue to provide the technical assistance necessary to support small to mid sized business research and development. Assistance such as business planning, feasibility assessments and early mentoring is vital to the success of small to mid-sized business. We must also encourage strong partnerships between businesses, universities, government, and nonprofits in the delivery of these services.
- Work with Extension, SBDCs, AURI and other appropriate resources to begin a series of forums, such as roundtables, across the state to generate excitement and increase awareness about available resources in the areas of production, business planning/marketing, product development, etc.
- Consider educational forums for Minnesota agricultural bankers to increase understanding of the financial and operational issues involved in emerging or niche food production.
- Coordinate with the federal delegation and federal agencies to better ensure alignment and maximum utilization of funding.
- Assign an agency or organization with state responsibility to develop the appropriate contacts with USDA and federal delegation to ensure issues are coordinated.
- Identify initiatives that can bring external dollars into Minnesota in alignment with federal delegation.

Observation: Industry and job opportunities are emerging in research, development, and innovation.

Action Items:

- Identify and address regulatory issues at the onset.
- Promote technical assistance to processors and producers.
- Create support to build system-wide networks that address issues from idea to implementation.

Observation: The financial stresses in Minnesota's food sector are significant.

Action Items:

- Consider educational forums for Minnesota agricultural bankers to increase understanding of the financial and operational issues involved in emerging or niche food production.
- Coordinate with the federal delegation and federal agencies to better ensure alignment and maximum utilization of funding.
- Assign an agency or organization with state responsibility to develop the appropriate contacts with the USDA and federal delegation to ensure issues are coordinated.

Observation: Regulatory issues are adding to an already complex, costly environment.

Action Items:

- Explore some type of cost-sharing for undertaking GAP audits to broaden market participation in certain sectors.
- Increase awareness of technical assistance that is available to entrepreneurial companies to help food producers and processors understand the regulatory environment and how to address relevant issues.
- Encourage government to work closely with food processors to understand both their needs and how to streamline processes to address them. One way to do this would be to provide a forum for food processors, food producers and policy makers to discuss regulations, approval processes and timelines in an effort to position Minnesota as a "fast track" state when it comes to approval of new products, processes or production facilities.
- Encourage and support a study that compares the development of a food processing firm in Minnesota to the same type in surrounding states to identify potential bottlenecks and improvements to the process.
- Review regulations to ensure they are both scale- and risk-appropriate.
- Create collaborations between food processors, educational institutions, producers, technical service providers and policy makers to ensure that Minnesota's unique set of innovation assets are maximized.

Observation: Industry employment success may be realized as job refocus versus job growth.

Action Items:

- Retain and grow existing jobs in livestock and protein production and processing, traditional crop production, food processing and marketing, renewable fuels development and organic production.
- Embrace emerging job opportunities in research and development, waste recycling, food science and genetics, bio-technology, culinology, business entrepreneurship, profit-oriented biomass, boiler operators, mechanics and more.
- Ensure availability of accessible, affordable continuing education and career training.
- Develop a series of agricultural development zones in which niche agriculture, processing and aggregation could take place in a few strategic locations across the state. Public and private partnerships might involve the processors, government and education. These agricultural zones could also become the place where extension research and education take place, as well as the development of functional foods and distribution points for local/organics, etc.
- Enhance public awareness about emerging career opportunities.
- Increase understanding that success should be measured by more than increased employee headcount.
- Encourage MnSCU and DEED to work together to build career ladders that link employers with labor markets.

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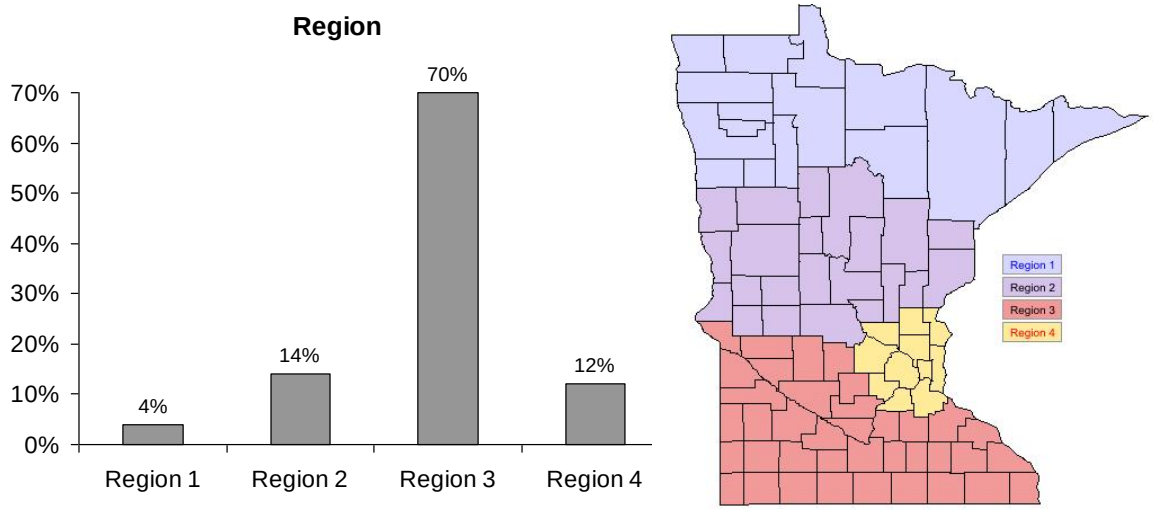
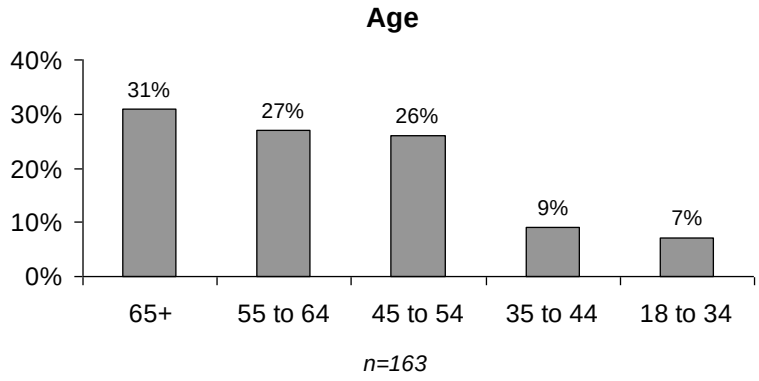
AURI FARM SURVEY

Methodology
To gain a greater understanding of how Minnesota's farming community feels about industry issues and priorities, a quantitative survey was conducted with a cross-section of producers. The survey was conducted in late 2009 on an online basis under the administration of Southwest Minnesota State University.

Farm Demographics
Seven in 10 farmers surveyed are located in southern Minnesota.



Farmers surveyed range in age, with the majority being 45 or older. About a third (35%) said they are a high school graduate and another third (34%) have some college or technical training. Twenty-eight percent said they have a college or post-collegiate degree.



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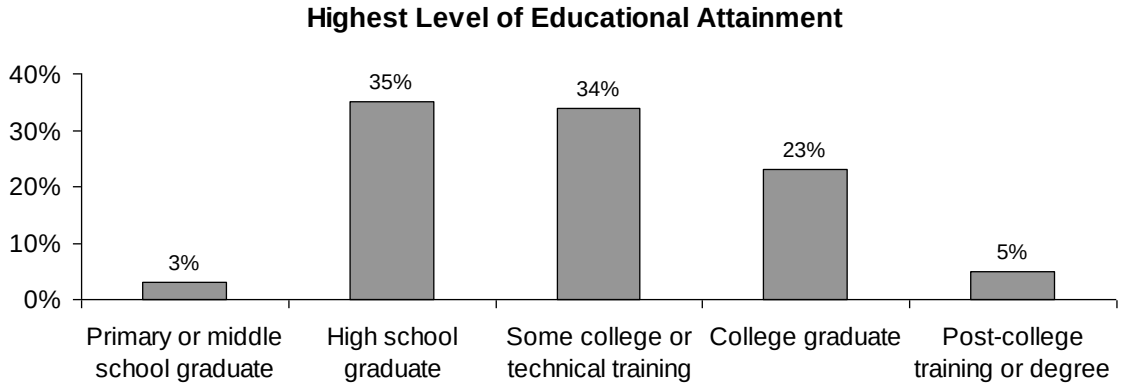

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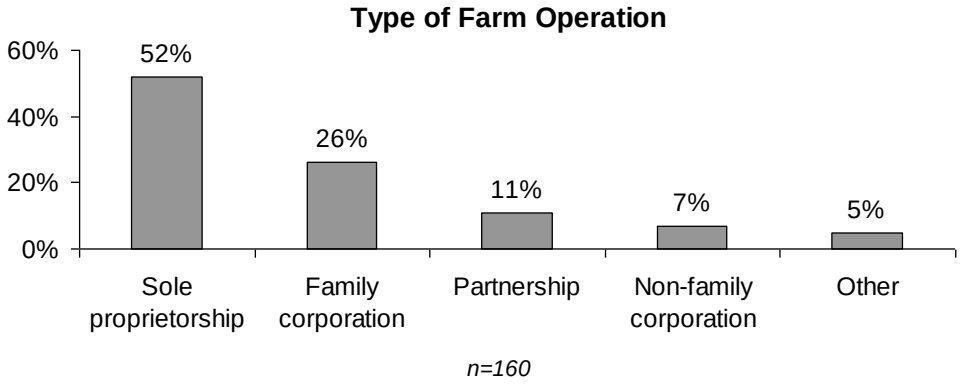
A slight majority (52%) of farmers surveyed said their operation is a sole proprietorship; 26 percent are family corporations. More than half of participants (52%) indicated that they have

owned their farm for 25 to 49 years; 35 percent have owned for 50 years or more. Nearly three in four (74%) said that farming/food production is their primary source of income.



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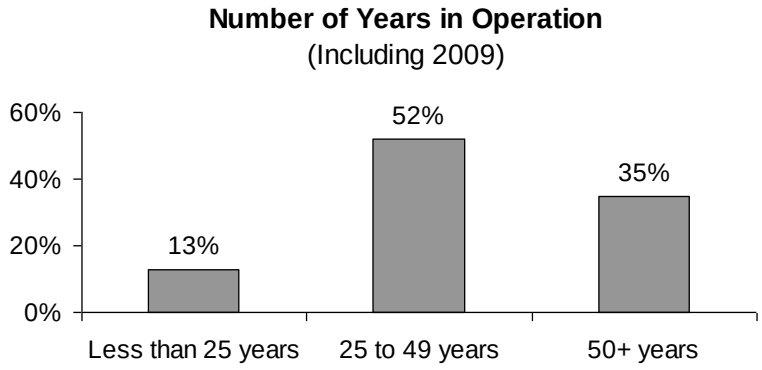

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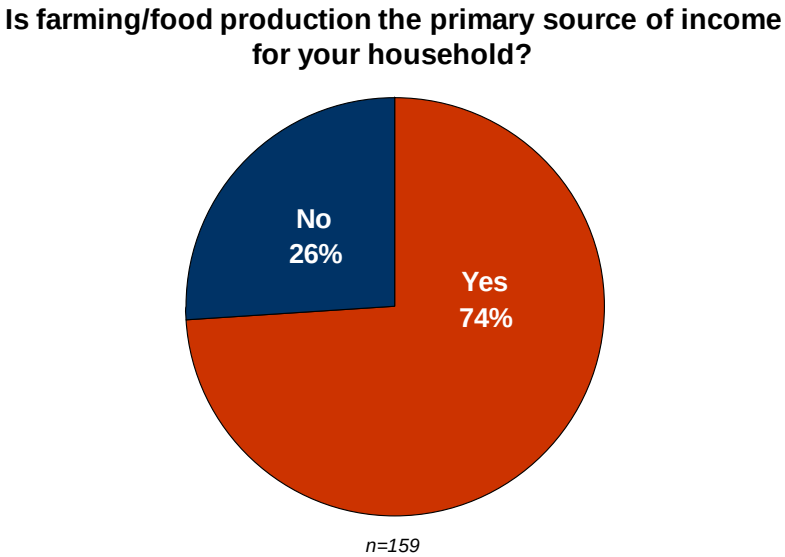

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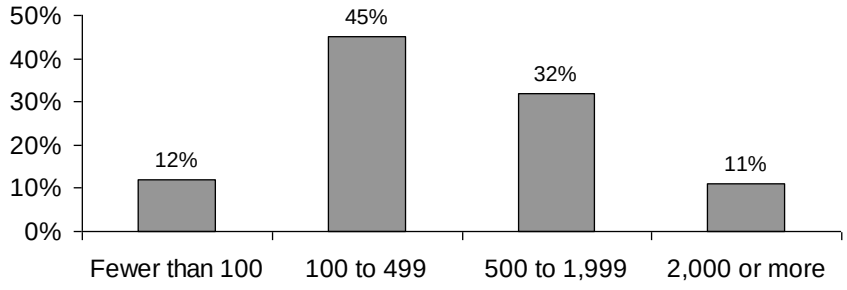
The greatest percentage (45%) of those responding to the survey said that their farming operation encompassed 100 to 499 acres; 32 percent, 500 to 1,999 acres; 12 percent, fewer than 100 acres; and 11 percent, 2,000 or more acres.

Number of farm acres encompassed



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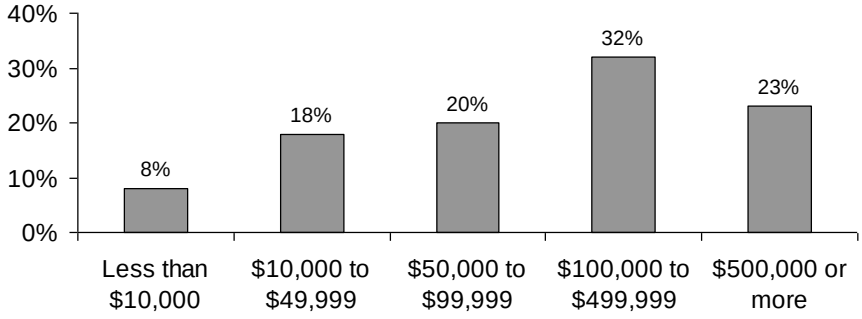
One in three reported annual gross income of $100,000 to 499,999; 23 percent, $500,000 or more; 20 percent, $50,000 to 99,999; 18 percent, $10,000 to 49,999; and 8 percent, less than $10,000.

Farm's Total Annual Gross Sales



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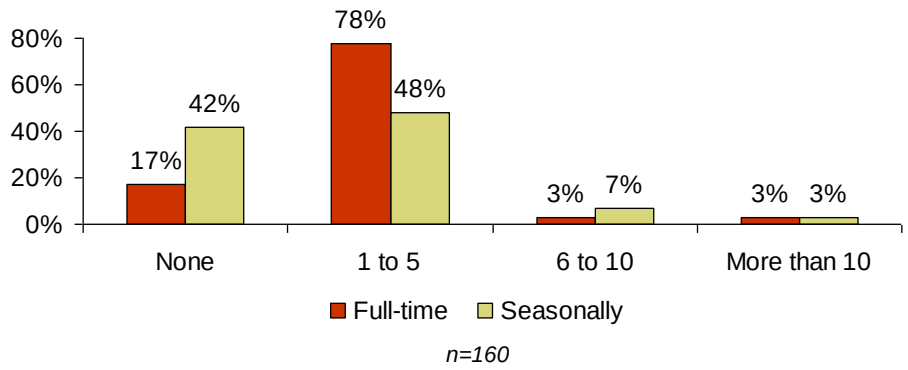
On average, those surveyed said that they employ 3.0 people seasonally and 2.4 on a full-time basis. Only 15 percent said they expect to add jobs in their operation over the next five years. Some 63 percent said they do not anticipate doing so, while 21 percent were unsure.

Number of People Employed
(Including Self and Applicable Family Members)



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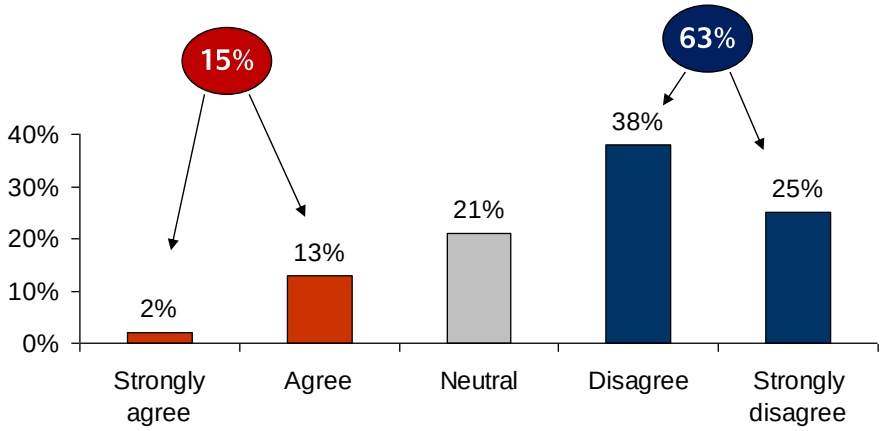
Agree or Disagree:
I expect to add jobs in my operation over the next five years.



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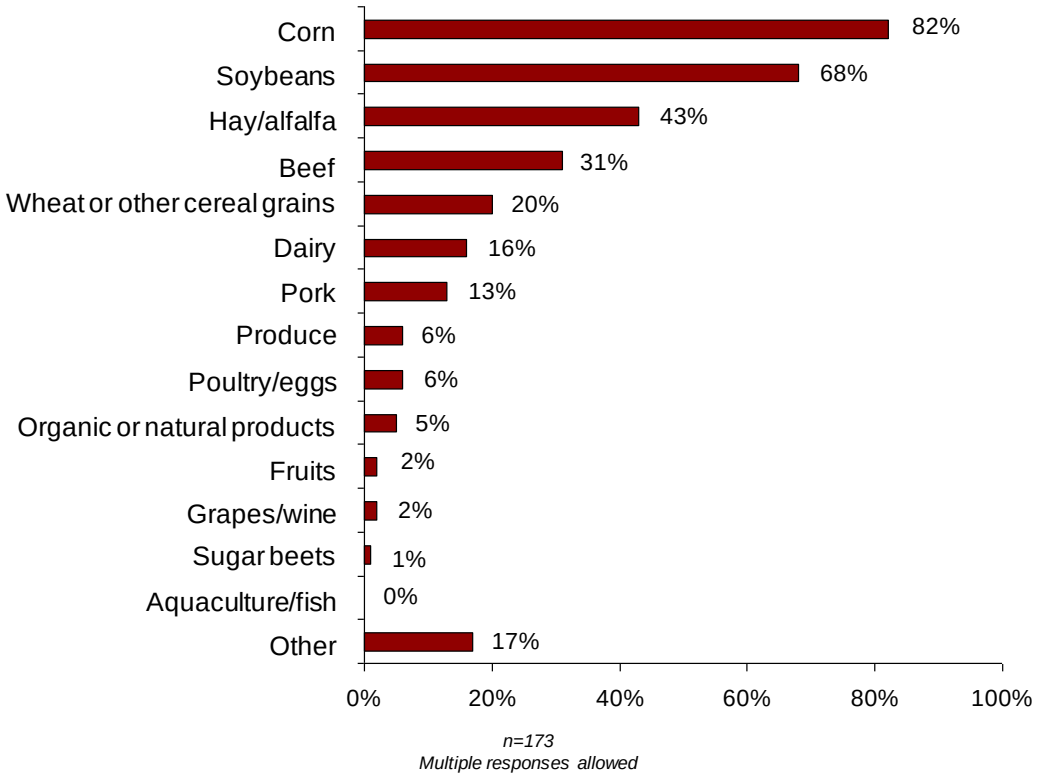
Production and Management
Eight in 10 (82%) said they grow corn, while 68 percent produce soybeans and 43 percent grow hay or alfalfa. Nearly a third (31%) of survey participants said they are beef farmers.

What types of products do you grow on your farm?



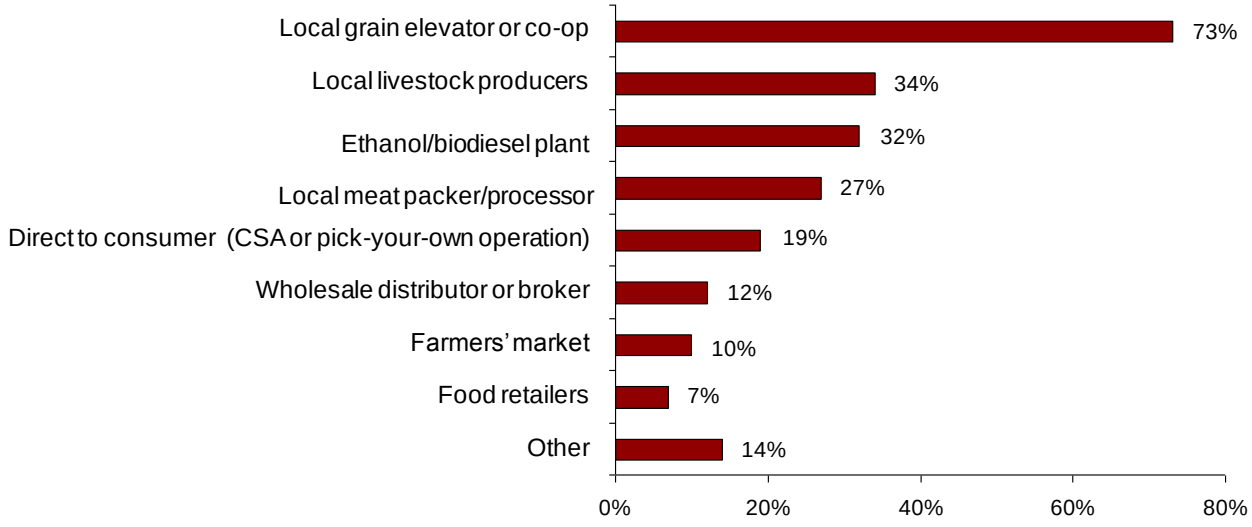
n=173
Multiple responses allowed

Other Responses

- Peas (5)
- Sweet corn (4)
- Oats (3)
- Sheep (3)
- Barley (2)
- Lamb (2)
- Straw
- FBM educator
- Distributor
- Edible beans
- Goats
- Radish, carrots, parsnips, vegetable farm
- Silage
- Pumpkin
- Grass

The majority (73%) said they market their crops/products at a local grain elevator or co-op, with others utilizing local livestock producers (34%); ethanol/biodiesel plant (32%); or local meat packer/processor (27%). About one in 10 (11%) cited involvement in agricultural processing of some sort.

Where do you market the products/crops you produce?



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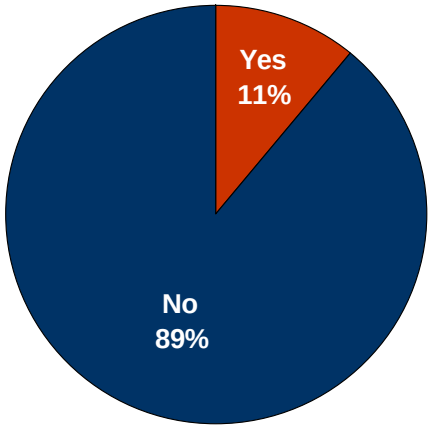
Multiple responses allowed

Other Responses

- Local sale barn
- ADM
- Processor/milk
- Cargill, grain merchandisers
- PV Grain Company (2)
- Personal use (3)
- Creameries
- Cargill, Harvest States
- Non-local co-op
- CHS
- Private trading
- River terminal
- Breeding stock, meat production
- Restaurants
- Feed yard
- Contract to finish the hogs
- Stockyards

Is your operation involved in any agricultural processing?



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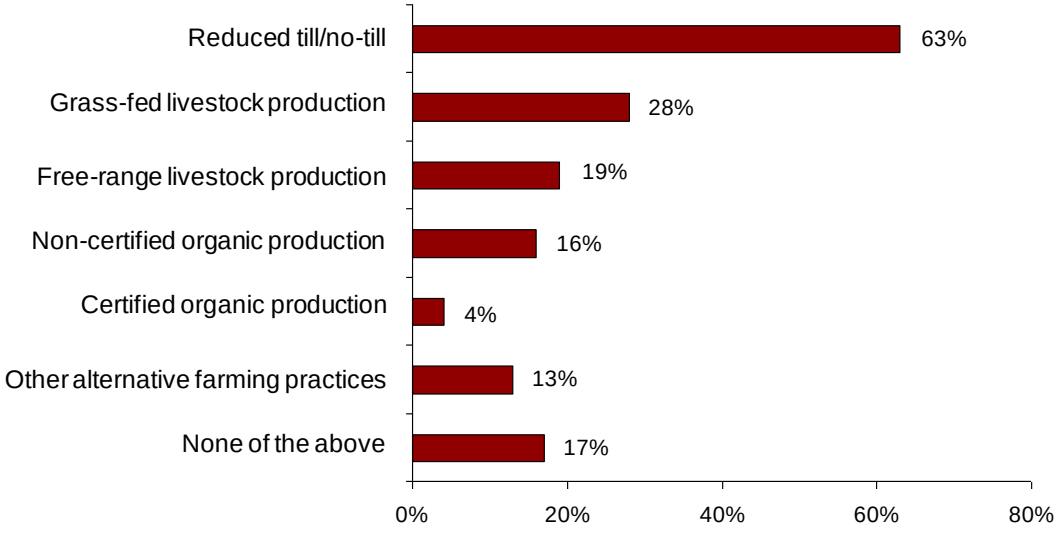
The most popular management practices on the farms surveyed were reduced till/no-till production (63%); grass-fed livestock production (28%) and free-range livestock production (19%). Sixteen percent indicated that they utilize non-certified organic production, while only four percent said they are certified organic farms. Few of those surveyed said they plan to increase use of these techniques.

Which of the following management practices do you implement in your operation?



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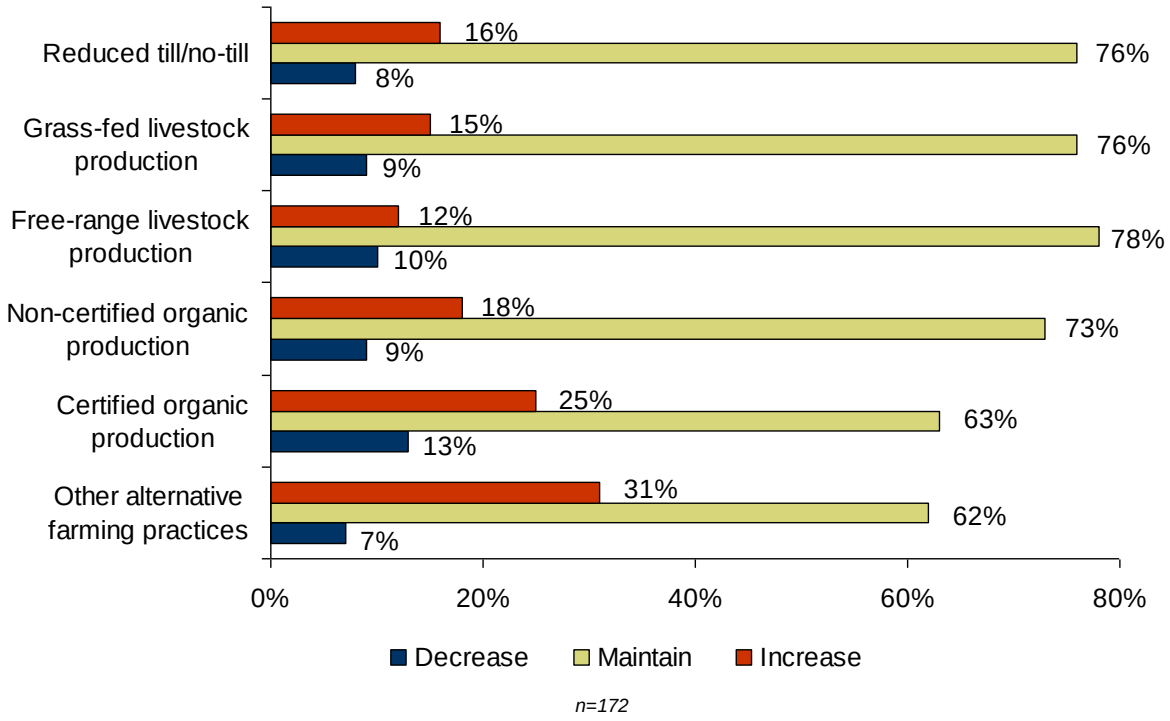
Multiple responses allowed

Other Responses

- Conventional farming (3)
- Crop rotation (2)
- Minimum tillage (2)
- Turkey litter, no commercial fertilizer
- Traditional tillage

- Wetlands
- Chisel plowing
- Raise seed
- Irrigate
- Pasture furrowing
- Graining
- CRP
- Conservation drainage, sustainable agriculture which is conventional agriculture
- Cover crop
- Less chemicals, environmentally friendly
- Strip farming
- Non-Gmo
- Precision farming

For each management practice you implement, do you plan to increase, maintain or decrease this type of production in the next two years?



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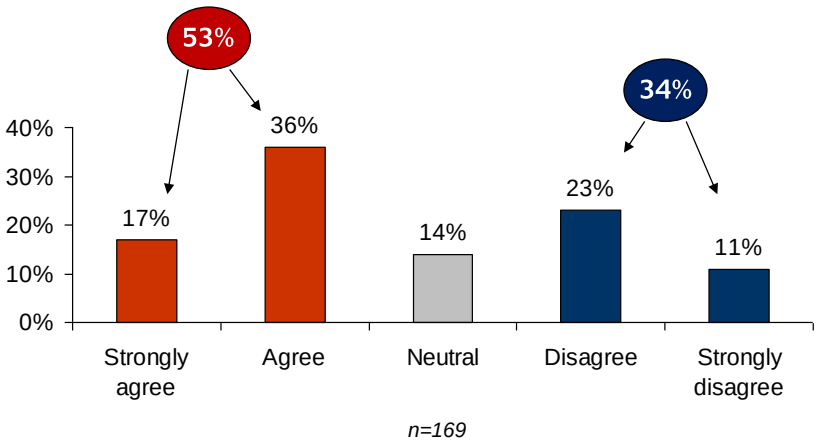
About half (53%) said that they have a succession plan in place for their farm; a third (34%) said they do not; and 14 percent were unsure whether that had been resolved.

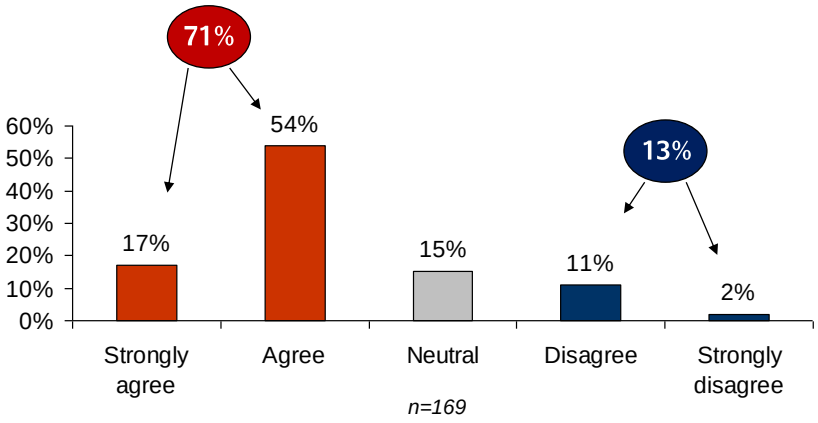
Agree or Disagree:
I have a succession plan in place for my farm when I retire.



n=169

Relative to business management and strategic business planning, 71 percent felt that they have a good understanding of such subjects, while 13 indicated that they do not and 15 percent were unsure.

Agree or Disagree:
I have a good understanding of business management and strategic business planning.



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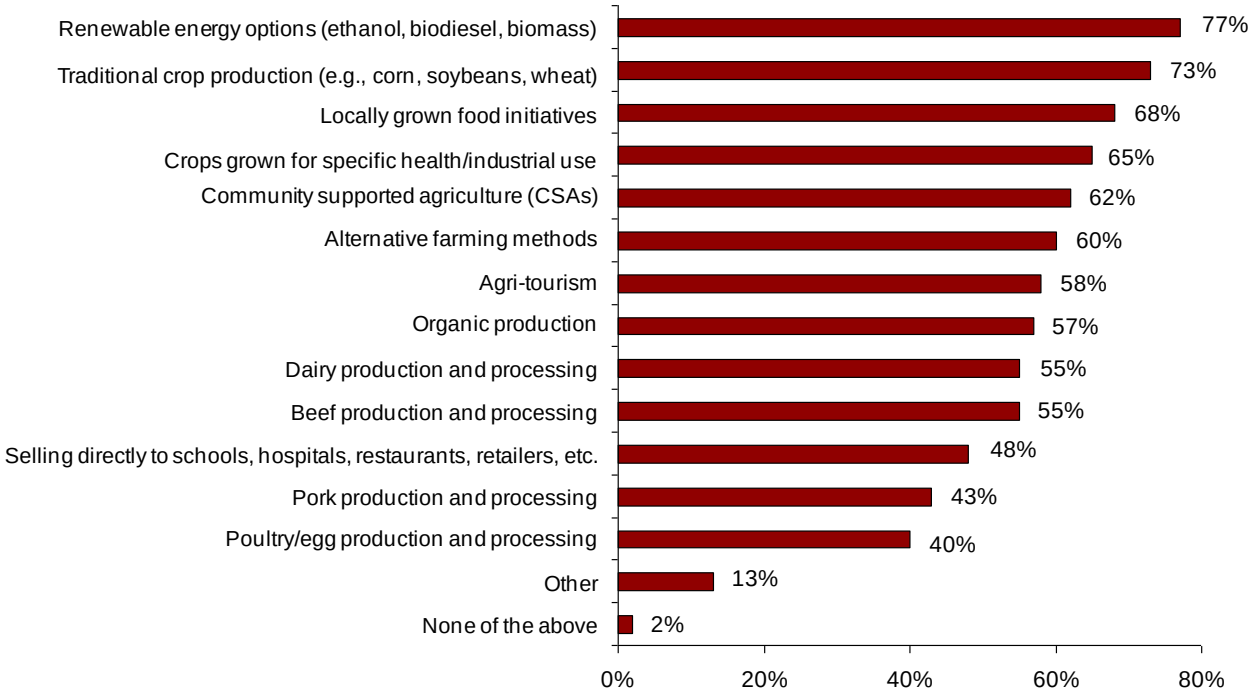
Perceptions on Market/Job Opportunities

Those participating in the study were asked where they felt the greatest opportunities lie within Minnesota agriculture in terms of market expansion. Approximately two-thirds or more felt the most promising sectors were renewable energy (77%); traditional crop production (73%); locally grown food initiatives (68%); crops grown for specific health/industrial use (65%). Following close behind were community supported agriculture (62%); alternative farming methods (60%); agri-tourism (58%); organics (57%); beef and dairy production (55% each).

In your opinion, where do the greatest opportunities lie within Minnesota agriculture in terms of market expansion?



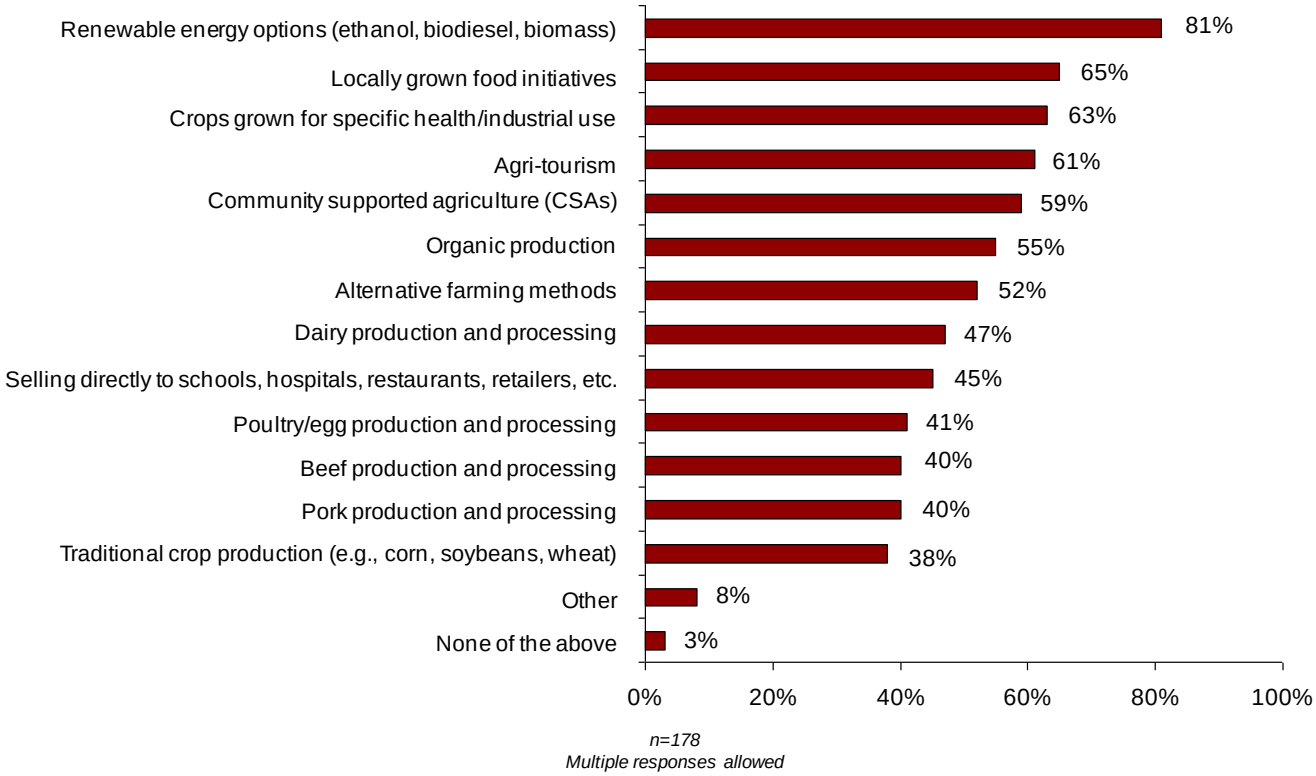
n=182
Multiple responses allowed

Other Responses

- Wind energy (2)
- Policy on concentration
- General farming and ranching
- Christmas trees
- Have the old guys retire
- Specialized vegetables crops, selling directly to consumer
- Selling to stores
- Biogas for electricity, methane, wind energy
- Non-traditional livestock, such as White Tail deer
- Wineries
- Algae, growing of hemp
- Niche markets/specialty markets (organic beef, pork)
- Producing pig organs to transplant into humans, other biotech uses
- Forestry
- Family farms
- Exploration of world markets
- Production of fuel

When asked which offered the greatest opportunity for growth, those surveyed said renewable energy options (81%); locally grown food (65%); crops grown for health/industrial use (63%) and agri-tourism (61%).

Which of the following areas offer the greatest opportunity for Minnesota job growth?



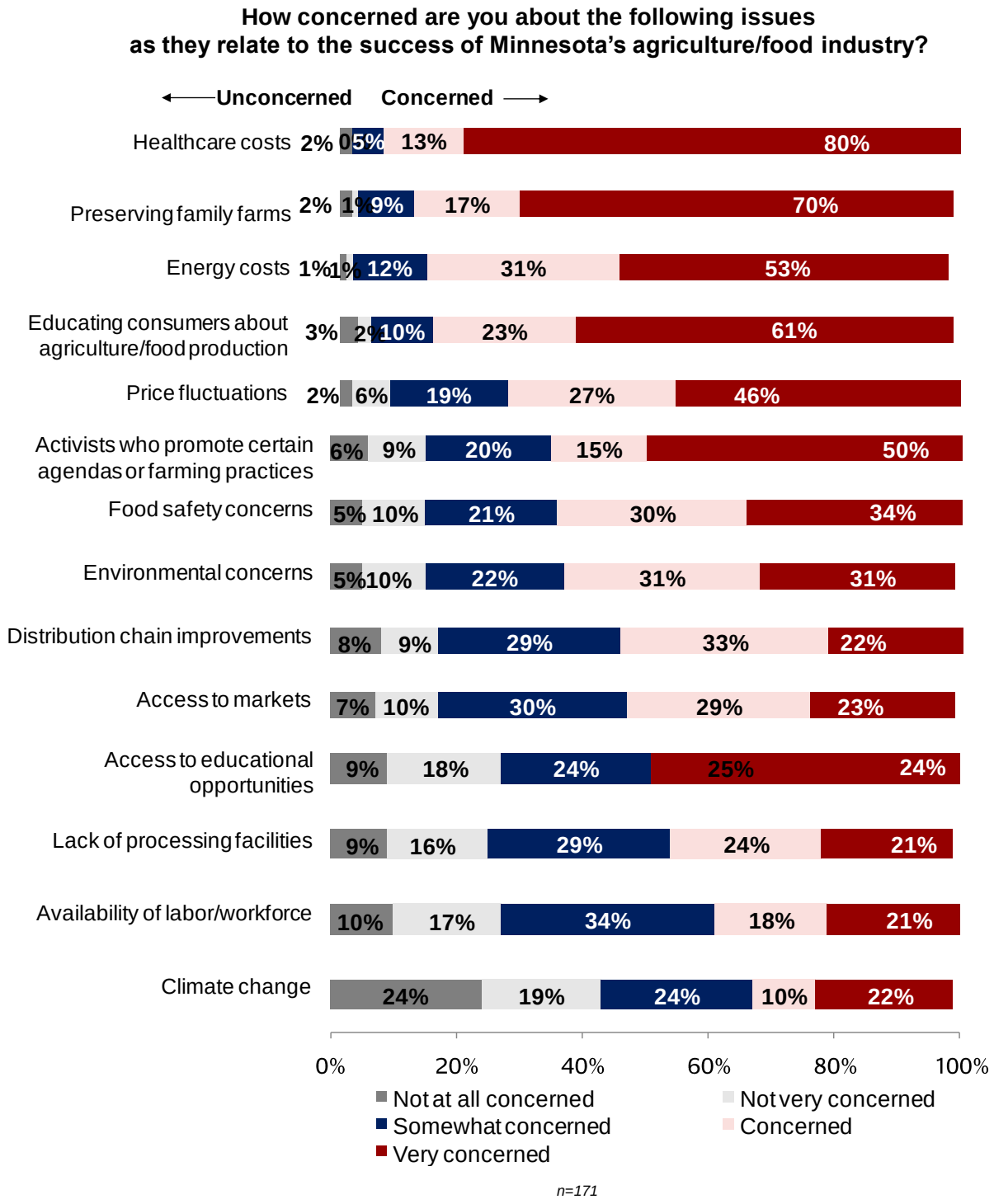
n=178
Multiple responses allowed

Other Responses

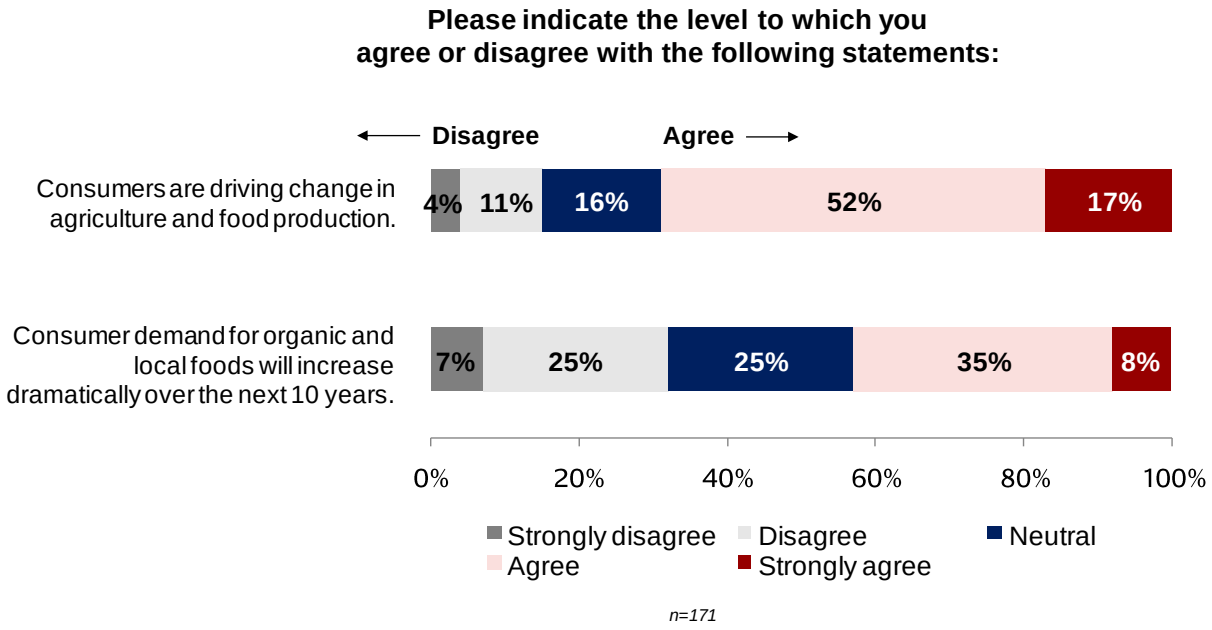
- Green energy- bio production of fuel.
- Succession planning.
- Limited manufacturing, limited amount of animals grown for specific reasons to accomplish something; supply of labor in rural communities.
- More industry in rural communities and more opportunities available for young people.
- Environment.
- Push to develop hunting preserves, there will be a large increase in that.
- Wineries.
- Cool concept (certified country of origin for beef, pork, poultry), organically grown non-Gmo and none- antibiotic meat and poultry production. We need to strengthen our initiative to locally slaughtered meat and poultry.
- Biotech uses for humans.
- Look at what fits the best in the area according to topography.
- Any retail line.

Industry Concerns

Embracing market opportunities does not come without its challenges, however. According to survey participants, the top five issues that need addressing within Minnesota's agriculture and food industry are healthcare costs; preserving family farms; energy costs; educating consumers about agriculture and food production; and price fluctuations.



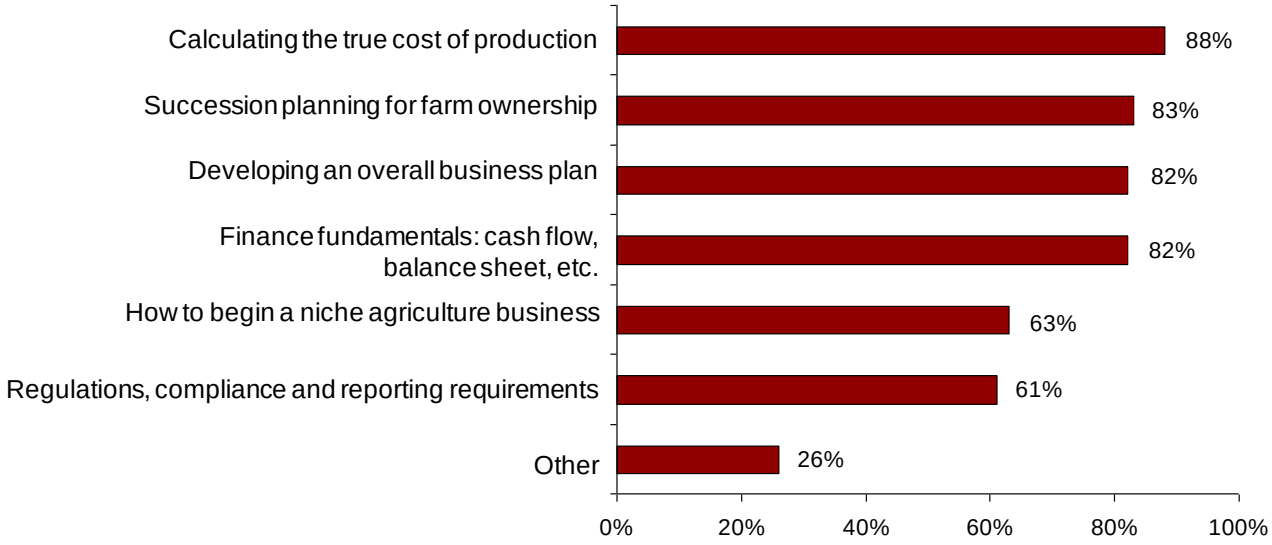
The majority (69%) said they believe consumers are driving change in agriculture and food production. Some 43 percent felt consumer demand for organics and local foods will increase dramatically over the next 10 years; 25 percent were unsure; and 32 percent disagreed that such would occur.



Educational Needs

Those surveyed said they believe the most beneficial education for Minnesota farmers would relate to calculating the true cost of production (88%); succession planning for farm ownership (83%); developing an overall business plan and finance fundamentals (82% each); how to begin a niche agriculture business (63%); and regulations and compliance (61%).

What type of education, if any, do you feel would be most beneficial to Minnesota farmers?



n=163
Multiple responses allowed

Other Responses

- Get the USDA to stop importing so many agricultural products.
- Educating the banker.
- Farm magazines related to area of expertise.
- Food safety.
- Grain marketing.
- Mentoring.
- Encouraging more people to go to school for an agricultural degree.
- Educate consumers who do not have ag background.
- Seeds/products that grow best in the area, animal fit in climate/environment.
- Agronomy knowledge.
- Experience before you are fully into it, working part-time/full-time before owning.
- General crop production education.
- Crop part of it, you need to be educated on it. Formal agronomy training.
- General agronomy and mechanics.
- Computer training.
- New trends, new offerings for hobby farmers to increase profit.
- Actual cost of purchasing a food item and what share the farmer receives.
- Education in market concentration and vertical integration and how it affects the bottom line in agriculture; research into how much profit is made on agriculture products after they have left the farm gate.
- Science, math, how to deal with people that want to regulate farmers out of business and then complain if food costs are high or food not available and businesses leave the state or country.
- Good bookkeeping system for a farm.
- Personnel relationships.
- Marketing the products.
- More education on the impacts of confined feeding of hogs and chickens.
- Land management, make sure the crops fit the topography of the area.
- Good farm program that is easy to understand (such as Quicken, but easier).
- Climate or ecology, how to preserve and not harm environment.
- Less government control.

- More in-depth accounting practices.
- Risk management practices.
- General business.
- Technology, always something coming up.
- Communication skills.
- Five-year planning, long-range.
- More involvement in younger grades with FFA or 4-H.
- Balance work load with family time.
- Starting from scratch.
- Marketing; cost reduction; latest farming technology.
- Applying for licenses for chemicals and fertilization.

USDA AGRICULTURAL PROJECTIONS FOR THE U.S. AND MINNESOTA[1]

This report outlined U.S. and Minnesota agricultural facts and projections. The USDA suggests some key assumptions that should be considered when looking at these projections, as follows:

- Economic growth: A 3.4 percent average global economic growth rate from 2010-2018 is expected. The U.S. economy is expected to grow in 2010 at 2.5 percent and increase by 3 percent average until 2018. This steady economic growth supports longer term gains in world food demand, global agricultural trade, and U.S. agricultural exports.
- Population: Global population growth is expected to slow an average of 1.1 percent per year through 2018. Global food demand will be affected by population gains, increased urbanization and middle class expansion in developing countries (which will be higher than those of the rest of the world).
- Value of the U.S. dollar: the strength of the U.S. dollar will increase moderately over 2010-2018. Relative to the early 2000s, the low level of the dollar is assisting projected gains in U.S. agricultural exports. The U.S. will be a competitive force in global agricultural markets, increasing cash receipts for U.S. farmers.
- Oil prices: The economic downturn weakened the price of crude oil, but prices are expected to recover and increase through 2018 as global economic activity increases faster than the general inflation rate. This increase in crude oil price will affect the costs of agricultural production and biofuel economics.
- U.S. agricultural policy: The 2008 Farm Act's Conservation Reserve Program (CRP) acreage was reduced from 39.2 million acres to 32 million acres, providing some additional cropland for potential use in production. This increased cropland availability, along with high commodity prices, will sustain high U.S. cropland use through 2018.
- U.S. biofuels: The U.S. ethanol industry is expected to continue its expansion, but corn-based ethanol is expected to grow more slowly. By the end of 2018, ethanol production is expected to account for 35 percent of corn use.
- Crops: A gradual shift away from non-corn crops is a result of high domestic corn-based ethanol production and gains in exports. Soybeans will decline over the coming few years. Wheat will decline. Feed use rises as meat production increases. Food and industrial grains (other than for ethanol) will be smaller than population increases because of consumer dietary concerns and other changes in preferences which are limited the use of corn for high fructose corn syrup, glucose, and dextrose. Domestic use of soybeans and soybean exports will continue to slowly rise, as a result of initially declining livestock sector, but will increase as a result of livestock gains in the long term.

Horticultural crop sales are expected to grow 2.1 percent annually until 2018. Vegetables and melons will continue to be the top in farm sales value. Fruits and tree nuts through 2018 will grow fastest at 2.6 percent, vegetables next at 2 percent, and nursery crops at 1.6 percent. Imports will continue to supplement domestic horticulture crops and products, and will climb 6 percent through 2018.

- Livestock and meat: A gradual rebuilding of U.S. beef exports to Japan and South Korea is expected. Higher feed costs will slow production of all meats in 2009 and 2010. Production for beef, however, will rise after 2012; pork will grow after 2011; and poultry production will increase the most after 2010. Milk production will rise but more slowly than in the past few years. Milk output per cow will increase after 2010, and "further development of specialized operations in most regions will contribute to a continuation of gains in output per cow." Cheese demand will rise from an increased consumption of prepared foods and away-from-home dining, but per capita consumption of fluid milk is expected to continue its slow decline.
- International policy: Long-term economic and trade reforms, among other evolving agricultural and trade policies, are expected to continue.
- International biofuels: Biofuel production in some countries has rapidly grown, especially in the European Union. This is a key factor in global demand for vegetable oils and oil seeds.
- Prices: The increase in global demand for agricultural products and the U.S. ethanol demand in the corn sector, and the EU biodiesel demand in vegetable oil sector keeps prices for corn, oilseeds and other related crops well above historical levels. High grain and oilseed prices will raise livestock feed costs, which will reduce U.S. production of meat and poultry and increase their prices. As the economy picks up, demand for biofuels and global foods will drive long-term projections of strong farm income. For foods consumed at home, the retail prices of foods related to cereals, bakery products, fats and oils are the highest. Food consumption away from home is expected to slow in the early part of the projection period (2009/2010), but income growth from a healing economy will support increases in this food consumption.

[1] USDA "Agricultural Projections to 2018," USDA Long-Term Projections, February 2009

Agricultural Statistics for U.S. and Minnesota

	U.S. Figures	Minnesota Figures	Other Minnesota Information
Number of Farms	2.2 million (+4 percent from 2002)	79,300	
Total Farm Acres	922 million	27.4 million	
Total Farm Sales	$297 billion	$9.3 billion	
Number of New Farms Since 2002	291,329		
Acres of New Farms Started Since 2002	201		
Acres on Average of All Farms	418	346	
Farms 1-49 Acres		20,614	+31 percent since 1997
Farms 1-99 Acres	54.4 percent		
Farms 50-499 Acres		45,867	-3 percent since 1997
Farms 100-499 Acres	31 percent		
Farms 500+ Acres	14.6 percent	14,511	-9 percent since 1997
Sales of New Farms Started Since 2002	$71,000		
Sales on Average of All Farms	$135,000	$48,498	
Farms with sales of less than $9,999	59.8 percent	49 percent	+10 percent since 1997
Farms with sales of more than $500,000	5.3 percent	8 percent	+4 percent
Total organic product sales	$1,709,111,000	$39,976,000	Average sales per farm: $62,855
Organic crop sales	$1,121,774,000	$17,604,000	
Organic animal sales	$109,943,000	$2,921,000	

Organic animal product sales	$19,451,000	$477,394,000	
Number of organic operations	18,211	718	
Total number of organic acres	2,577,418	96,342	
Number of converted to organic acres	616,358	20,702	342 farms being converted to organic production
Number of organic crop acres	2,577,418	74,299	
Number of organic pasture acres	975,380	15,146	
Number of farms using conservation methods	503,917		
Number of farms using rotational or management intensive grazing	388,912		
Number of farms generating energy or electricity on-site	23,451		
Number of farms marketing products through CSA	12,549		
Value of agricultural products sold direct to consumer	$1.21 billion		
Number of farms selling direct to consumer	136,817		
Number of individual/family farms	1,906,335/86.5 percent	70,055	+1 percent since 1997, 87 percent of total MN farms
Number of family-held corporation farms	85,837/3.9 percent	2,522	+8 percent since 1997, 3.1 percent of total MN farms
Number of partnership farms	174,247/7.9 percent	6,227	-4 percent since 1997, 7.7 percent of total
Number of non-family corporation farms	10,237/0.5 percent	326 (agri-forestry,	+29 percent since 1997, 0.4 percent

		non-food production)	of total
Others (coop estate/trust, institutional, etc.)	28,136/1.3 percent	1,862	
2006 Employment in Agriculture, Forestry, Hunting and Fishing Industry (NAICS Code 11)	2,139,000	24,789	
2016 Projected Employment in Agriculture, Forestry, Hunting and Fishing Industry (NAICS Code 11)	1,966,000 percent Change: -.8 percent	23,280	percent Change 2006-2016: -5.7 percent
2008 Employment in Agriculture, Forestry, Fishing and Hunting (NAICS Code 11)	1,169,195	17,798	
2006 Employment in Crop Production (NAICS Code 111)	898,000	8,279	
2016 Projected Employment in Crop Production (NAICS Code 111)	759,000 percent Change: -1.7 percent	7,000	percent Change 2006-2016: -15.4 percent
2008 Employment in Dairy cattle and milk production	87,430	30,039	percent of Ag Employment: 17.07 percent
2008 Employment in Aquaculture	6,051	ND	percent of Ag Employment: ND
2008 Employment in Food Manufacturing	1,474,113	42,817	percent of Ag Employment: 240.57 percent
2008 Employment in Grocery and Related Product Wholesalers	724,724	15,598	percent of Ag Employment: 87.64 percent

2008 Employment in Fruit and Vegetable Markets	39,946	178	percent of Ag Employment: 1 percent
2006 Employment in Animal Production (NAICS Code 112)	922,000	10,635	
2016 Projected Employment in Animal Production (NAICS Code 112)	904,000 percent Change: -.2 percent	10,500	percent Change 2006-2016: -1.3 percent
2006 Employment in Agriculture and Forestry Support Activity (NAICS Code 115)	155,000	1,882	
2016 Projected Employment in Agriculture and Forestry Support Activity (NAICS Code 115)	167,000 percent Change: 12 percent	2,050	percent Change 2006-2016: 8.6 percent
2006 Employment in Farming, Fishing and Forestry Occupations (SOC Code 450000)	1,039,000	21,605	
2016 Projected Employment in Farming, Fishing and Forestry Occupations (SOC Code 450000)	1,010,000	21,851	percent Change 2006-2016: 1.1 percent
Annual average job openings due to growth and replacement 2006-2016, Farming, Fishing & Forestry	231,000		
percent Change in Employment, 2004-2014 in Agriculture, Forestry and Fishing and Hunting *Industry*	-6.6 percent	-10.7 percent	
percent Change in Employment, 2004-2014 in Agriculture, Forestry and Fishing and Hunting *Occupations*	2.0 percent	-1.3 percent	

percent of employment in: • Farm production • Ag wholesale and retail trade • Ag processing and marketing • Ag input industries • Ag services • Indirect agribusiness		19 percent 64 percent 11 percent 2 percent 2 percent 2 percent	
Number of jobs in livestock		177,000	
Employment opportunities for soy diesel		5,668	

Color Source Code:

2007 USDA Census of Agriculture, SARE Fact Sheet
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MN Department of Employment and Economic Development LMI Employment Projections
"Minnesota Agriculture, the Foundation of Minnesota's Economy," Minnesota Department of Agriculture, 2007, www.mda.state.mn.us
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USDA NASS 2007 Census of Agriculture Minnesota Data
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