



BUSINESS INNOVATION IN FOOD,
AGRICULTURE, NATURAL
RESOURCES, AND THE BIOECONOMY

Agriculture as an Economic Driver in Michigan

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Economic Impacts of Michigan's Agri-Food-Energy System

- Current Economic Contributions
 - **\$71.3 billion** total annual economic activity (2007)
 - *Nearly 20% of Michigan's economy*
 - **1.05 million** jobs (24% of MI workforce) (2004)
 - **\$8.6 billion** in investment (2000-2005)
- Potential Economic Contributions (2006)
 - Nearly **\$1 billion** annual additions to direct activity;
\$1.6-2.4 billion to total activity
 - **12,000-23,000 annual additions to jobs**

Sources of Information

- Series of Product Center Reports
 - Economic Impact and Potential of Michigan's Agri-Food System (Jan. 2006 based on '02-'04 data)
 - Interim Update (Jan. 2008 based on '06 ag data)
 - Second Interim Update (Jan. 2009 based on '07 ag data)
 - www.product.msu.edu (market reports tab)
- Many contributors of information
 - Michigan Agricultural Statistics Service
 - Ag Census (2002)
 - U.S. Economic Census (2002)
 - Bureau of Labor Statistics (2004)
 - Michigan Department of Agriculture

Methods

- Input/output model
 - Accounting for flow of economic activity through the system
 - One industry's output is input to the next industry in the supply chain
 - Multiplier effects: ***Total = Direct + Indirect***
 - Ag input industry is a multiplier effect of farming
 - Ag processing is a multiplier effect of food manfg.
 - Elimination of double counting

**Table 1: Total Direct and Indirect Economic Activity Michigan
Agri-Food and Agri-Energy System 2007 (Millions of Dollars)**

Category	Direct	Indirect	07 Total	06 Total	% Change
Farming	5,705	2,546	8,251	7,122	15.9
Adjustment for Double Counting	(803)	(223)	(1,026)	(782)	
Net Farm Sector	4,902	2,323	7,225	6,340	14.0
Other Agri-Food (processing, wholesaling, retailing, etc.)	37,684	25,779	63,463	56,764	11.8
Total Agri-Food	42,586	28,102	70,688	63,104	12.0
Ethanol (value-added only)	378	216	594	594	NA
Grand Total	42,964	28,318	71,282	63,698	11.9

Components of Impact (2004)

Category	Total Annual \$	Total Jobs
Farming	\$6.7 B	103 K
Food Processing & Manufactg.	\$18.0 B	116 K
MI's Share Wholesale/Retail	\$11.8 B	278 K
Non-MI Share Wholesale/Retail	\$20.7 B	524 K
Other	\$2.9 B	27 K
TOTAL	\$60.1 B	1,048 K

The Impacts of Specific Projects

- Success Stories
- Economic Impact
 - Dairy Expansion
 - Cranberries
 - Ethanol
 - Supermarket

Success Stories

- Michigan now has more than 60 wineries and 74 breweries and brewpubs.
- Michigan's nursery floriculture industry is third in the nation (sales of \$366.6 million).

Individual Success Stories

- Gerber
 - \$75 million investment
 - 200 additional jobs
- Renewafuel – Marquette – Biobased coal substitute
 - \$10 million investment
 - 25 jobs

Success Stories (continued)

- Monsanto – Seed Corn
 - \$40 million investment
 - 500 seasonal jobs
 - 10 permanent jobs

Sources: MDA, Great Lakes Brewing News

Economic Impact - Dairy

- Ovid Plant Expansion
 - dry milk powder, butter, condensed skim milk

Economic Impact and Impact of Employment of the Ovid Expansion				
Impact	Direct	Indirect	Induced	Total
Economic (Millions of Dollars)	85.2	80.9	16.5	182.6
Employment (Number of jobs)	10	129	37	176

Economic Impact - Cranberries

- Two Scenarios
 - 500 acres of cranberry production
 - 2,500 acres of cranberry production which justifies a new juice facility

500 acres Cranberries

Economic Impact of 500 Additional Acres of Cranberry Production

Impact	Economic (\$1,000)	Employment
Direct	4,126	57
Indirect	690	8
Induced	1,118	10
Total	5,934	75

2,500 Acres Cranberries

Economic Impact of 2,500 Additional Acres of Cranberry Production

Impact	Economic (\$1,000)	Employment
Direct	20,632	288
Indirect	3,451	42
Induced	5,589	53
Total	29,672	383

Cranberry Juice

Economic Impact of Cranberry Juice Concentrate Production

Impact	Economic (\$1,000)	Employment
Direct	23,720	18
Indirect	8,831	59
Induced	2,784	26
Total	35,335	103
Less Value of Cranberries	20,632	
Total	14,703	103

Supermarket

Impact on Output and Employment of an Additional Supermarket

	Direct	Indirect	Induced	Total
Output (\$1,000s)	24,136	8,118	10,358	42,612
Employment	110	16	25	151

Ethanol

Economic Impact of an Ethanol Plant

	Direct	Indirect and Induced	Total
Economic Impact (Millions)	\$95.20	\$15.60	\$110.80
Employment	39	112	151

Learning from Specific Projects

- These figures reinforce the role and wide variety of activities that span the Michigan agri-food and bioeconomy sectors.
- Always remember that the aggregated sector numbers are built from the innovation and drive of specific projects led by specific businesses and entrepreneurs.

Example of ESO: MSU Product Center

The Product Center ***supports existing businesses and new entrepreneurs*** in the development and marketing of new products and services related to ***agriculture, food, natural resources and the bioeconomy***



- A ***network*** of resources to assist in the creation of new ventures
- A bridge between entrepreneurs and support services
 - Business & marketing resources
 - Technical & scientific resources
 - MSU & external partner resources
 - Blend of external partnering & internal expertise

SERVICES PROVIDED	SINCE 2004
Various educational programs	2,898
One-on-one client counseling	11,509 sessions
Assisted with business concept development	1,094 clients
Assisted with venture start-up (earliest stage of bus. dev.)	754 clients
Provided specialized services including product testing, market analysis, and feasibility studies	538 clients



- 127 known new businesses and business expansions:***
- Increased annual sales \$193.6 M (cumulative 1st year sales only)
 - Increased investment: \$201.3 M
 - Jobs created: 606
 - Jobs retained: 348

Legends of the Lakes





Autumn Berry Hills



Potential Impacts: Model Ventures

Category	Total Annual \$	Total Jobs
Ethanol Plant	\$111 M	151
Integrated Bio-diesel Plant	\$95 M	340
Small-scale Animal Slaughter	\$55 M	492
Major Food Processing	\$31 M	346
Large Dairy Farm (1,000 head)	\$7 M	51
Major greenhouse/nursery	\$3.5 M	76
Small-scale agri-food venture	\$0.7 M	14

Potential Impact: Scenario A*

Category	Total Annual \$	Total Jobs
Known Projects in Process (18)	\$871 M	5,445
Projected Initiatives (133)	\$701 M	6,786
TOTAL	\$1,572 M	12,231

**Scenario A* assumes that Michigan's agri-food system can continue to create new ventures at current known annual rates. (2006)

Potential Impact: Scenario B*

Category	Total Annual \$	Total Jobs
Large-scale projects (2)	\$61 M	692
Medium-scale projects (83)	1,817 M	11,604
Small-scale projects (766)	\$536 M	10,724
TOTAL	\$2,414 M	23,020

**Scenario B* assumes that Michigan's agri-food system can equal the annual rate of new venture creation of other production sectors. (2006)

Bioeconomy Potential

- Bioeconomy represents an emerging alternative to the petroleum economy.
 - Based on replacing petrochemical or fossil inputs with biobased or biomass inputs in a broad array of commercial & industrial products
- Bioeconomy products include:
 - Biofuels (ethanol, biodiesel)
 - Biomass (plant materials and animal waste)
 - Biomaterials (e.g., degradable plastics from corn starch)
 - Fine chemicals extracted from plant materials
 - Biobased pharmaceuticals

Michigan Assets

- Natural Resources
 - Diverse crop base, forest, water, climate
 - Good assets but not sufficiently strong for full competitive advantage.
- Industrial Infrastructure
 - Biomass handling capacity (forestry), labor, manufacturing capacity, transportation
 - Strong assets but at risk
- Intellectual Capabilities (public/private research)
 - Strong but not notably ahead of other states
- Leadership Commitment
 - Strong from Government, MSU and Ag Sector
- Can Michigan better innovate/manage/integrate????

Options for Policymaking Partners

- Fund the Julian-Stille Value Added Producer Grant Program
- Consistency in DEQ permitting and regulation
- MDA Market Development Programs
- Support Funding for MAES and MSUE
- Support efforts of Food Policy Council and Renewable Fuels Commission

Realizing the Potential

- Continued support of expansion and entrepreneurship in the agri-food system.
 - Supportive regulatory environment
 - Innovative IP from universities
 - Venture support services
- The business entrepreneurs themselves
- An effective venture development network