Michigan Agricultural Statistics 2003-2004

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UNITED STATES DEPARTMENT OF AGRICULTURE

Michigan
Agricultural
Statistics

Michigan
Department of
Agriculture

Michigan Department Of Agriculture 2003 Annual Report

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Michigan Agricultural Statistics 2003-2004

Michigan Agricultural Statistics

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Issued cooperatively by:

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Executive Office
Dan Wyant, Director

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JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF AGRICULTURE
LANSING

DAN WYANT
DIRECTOR

September 2004

The Michigan Department of Agriculture respectfully submits its Annual Report to the citizens and stakeholders of Michigan. This annual report is a record of the year's accomplishments and initiatives which form the foundation for a strong food and agriculture industry – one able to effectively address current issues and issues that will be important to our state's food and agriculture industry in the future. This report, combined with the 2003-2004 edition of Michigan Agricultural Statistics, outlines the important facets of Michigan agriculture, our state's second-largest industry.

In 2003, the department's top priorities were:

- Food Safety and Security
- Animal and Plant Health and Protection
- Environmental Stewardship
- A Viable Agriculture Economy
- Consumer Protection
- Homeland Security

These priorities have been aligned to ensure consistency with the Governor's priorities of Education, Economy, Environment, Health Care and Homeland Security, and the State of Michigan values of Integrity, Inclusion, Excellence and Teamwork.

The Michigan Department of Agriculture, created in 1921, has faced many challenges throughout the years, as technological advances, environmental issues and world events have shaped our lives and the way the food and agriculture industry conducts business. This year was no exception. The increased emphasis on the need to protect our food, land and water resources against the very real threat of bioterrorism has made the department's mission even more important in today's world. Additionally, the emergence of plant and animal diseases across the globe and right here in our state poses a challenge for our state's food and agriculture industry.

MDA continues to evaluate and improve its programs, focusing on four key areas: ensuring aggressive and comprehensive surveillance and inspection systems; effective consumer and industry education and communication; appropriate scientific and laboratory support; and well-organized emergency preparedness. MDA also remains committed to helping Michigan's agricultural community thrive while ensuring a fair and honest marketplace for Michigan citizens.

I hope you find this summary of the department's 2003 accomplishments informative and valuable. If you have questions or comments, or would like additional information, please contact the department toll-free at 800-292-3939, or e-mail us at mda-info@michigan.gov.

Sincerely,

Dan Wyant
Director

NASS
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UNITED STATES DEPARTMENT OF AGRICULTURE
in cooperation with the
Michigan Department of Agriculture

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September 2004

Our mission at Michigan Agricultural Statistics is to serve agriculture with timely, accurate, and useful information. This can be accomplished only when there is strong cooperation and support from growers and agribusinesses. The factual summary contained in this publication reflects the outstanding contribution survey respondents made during the year. A special thanks is extended to each person who voluntarily took time to provide this information. The compiled survey data becomes current, factual, unbiased, third party information which then can be used by decision makers to improve, promote, and expand Michigan agriculture.

Our message to those directly or indirectly associated with this great industry is that "Agriculture Counts." Census information which came out on June 3 shows that Michigan's 53,315 farms generated cash sales exceeding $3.8 billion in 2002. This level would have been higher but the fruit crop was devastated by freezing weather and low livestock prices. Additional information from the census shows there are fewer mid-sized farms with most either downsizing or expanding their operations. There has been a growth of more than 22 percent in operations selling directly to consumers. Organic sales, which were measured for the first time, exceeded $7 million. Additional information showing state and county results, summary highlights and profiles, and numerous demographic data can be obtained on the Internet at www.usda.gov/nass/ under 2002 Census of Agriculture.

During the past year, programs have been realigned and reduced due to state budget constraints. As a result, the county estimates data series will no longer include potatoes, navy and other dry edible beans, beef cows, all cows, hens and pullets of laying age, and sheep. State funding will continue to support county breakouts for milk cows, milk production, hogs and pigs, and hay. Also, the number of print copies of this publication will be limited due to costs. Making the information accessible and easily obtained remains a priority of the Michigan Department of Agriculture and the U.S. Department of Agriculture's National Agricultural Statistics Service. It can be viewed and printed on the internet at www.nass.usda.gov/mi/. If this is not convenient or does not fit your need, feel free to call us at 1-800-453-7501.

The Michigan office and enumerator staff appreciate your continued support and will work hard to provide you sound and reliable agricultural information. Call us anytime we can assist you in meeting your agricultural data needs. A parting thought to consider, "facts always outweigh perceptions or opinions".

Sincerely,

David D. Kleweno
Director

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Michigan Department of Agriculture

Annual Report

Fiscal Year 2003

(October 1, 2002 - September 30, 2003)

Jennifer M. Granholm
Governor

Dan Wyant
Director

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Snapshot of Michigan's Food & Agriculture Industry

Agriculture in Michigan contributes $37 billion annually to the state's economy, making it the second-largest industry. Our state's production agriculture and food processing businesses employ about 500,000 Michigan residents.

Michigan produces over 125 commodities on a commercial basis, making the state second only to California in agricultural diversity.

Michigan leads the nation in the production of 11 commodities (including tart cherries, blueberries, Niagara grapes, cucumbers for processing, geraniums, impatiens, petunias, flowering hanging baskets, and three varieties of dry beans) and ranks in the top 10 of 30 other commodities.

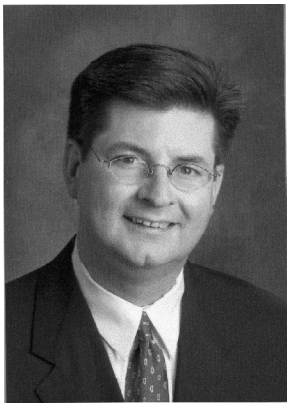
Field crops (corn, dry beans, soybeans, sugarbeets, hay, wheat) are the largest segment of Michigan agriculture, according to production valued at more than $1 billion annually. They are followed by the dairy industry, valued at more than $800 million annually, and the floriculture and nursery industry, at about $580 million annually.

Michigan exports about one-third of its agricultural commodities each year. In 2003, Michigan exported more than $842 million of agricultural products. Agriculture exports account for approximately one quarter to one third of the value of Michigan farm receipts. Michigan ranks 6th and 8th nationally in exports of fruits and vegetables, respectively. Michigan's largest export commodity is soybeans and soy products, which was valued at $236 million in 2003.

Michigan has about 10.1 million acres of farmland, and the state is home to 53,300 farms, averaging 189 acres each. There has been significant growth in the number of small farms over the past few years, as well as large farms. More than 40 percent of the state's total farmland is in some form of preservation agreement.

Michigan Department of Agriculture Summary of Accomplishments

Director's Summary



MDA Director Dan Wyant

The Michigan Department of Agriculture (MDA), created in 1921, serves, protects and promotes the food, agricultural, environmental and economic interests of the people of Michigan.

The department, one of the smaller agencies in state government with an approximate total budget of $95 million ($31 million of this from the general fund) and 700 full-time employees, oversees or administers a diverse array of programs that in some way impact all of us, every day. Each division of MDA strives to reach program goals that reflect the department's main priorities of:

- Food Safety and Security
- Animal and Plant Health and Protection
- Environmental Stewardship
- A Viable Agriculture Economy
- Consumer Protection
- Homeland Security

These priorities have been aligned to ensure consistency with the Governor's priorities of Education, Economy, Environment, Health Care and Homeland Security, and the State of Michigan values of Integrity, Inclusion, Excellence and Teamwork.

In addition to staff located at the downtown Lansing office, MDA maintains seven regional offices and two laboratories. MDA's field staff plays an important role in helping MDA meet its mission through service to the citizens of Michigan. Located throughout the state, local experts are available to offer assistance to industry, residents and consumers quickly and efficiently. In most cases, problems are solved at a regional level, allowing businesses to continue serving their customers effectively in accordance with state laws and regulations. MDA has also established an office in Atlanta to address bovine tuberculosis in Northeast Michigan; and four Emerald Ash Borer offices, in Brighton, DeWitt, Almont and Tecumseh, to effectively respond to this exotic pest devastating Michigan's ash resources.

MDA employees are proud to serve the citizens of Michigan and equally proud of the role they play in assuring the safety, economic viability and environmental stewardship of Michigan's food and agriculture industry. This report highlights MDA's key achievements during Fiscal Year 2003 (October 1, 2002 through September 30, 2003).

The department successfully implemented and enhanced programs to protect and preserve Michigan's food and agriculture industry and our state's natural resources. During FY 2003, MDA:

- Spearheaded Michigan's first Food Security Summit of 120 partners representing 63 organizations from the food, agriculture, public health and emergency response sectors, to discuss how to best protect Michigan's food and agricultural infrastructure from farm to fork. Five work groups were formed centering on the issues of inputs, production, processing, distribution/transportation and retail. The strategies developed at the summit were incorporated into a final draft and submitted to the Michigan Homeland Protection Board for review and inclusion in the state's overall Homeland Security strategy.

- Responded to the 2003 Blackout, which began on August 14, 2003 and lasted three days in parts of Michigan. To ensure the safety of the food supply, 40 MDA inspectors visited 1,532 food establishments, responded to 100 consumer complaints regarding food safety and quality, and seized a total of 394,000 pounds of food, valued at $734,600. Because the blackout affected the electric pumps at gasoline stations, inspectors also helped ensure a steady, unadulterated supply of gasoline at stations surrounding the blackout area. The blackout also affected the Michigan State Fair, which was scheduled to open August 15. MDA inspectors assured that fresh water was available at the fair for livestock and attendees, and that food safety standards were followed by the fair's food vendors.
- Secured and utilized federal funds for fighting Emerald Ash Borer in Michigan, to: help create the necessary infrastructure to handle response efforts; implement a large-scale survey effort to pinpoint the area of infestation; enforce the quarantine to prevent artificial spread of EAB; provide sanitation and disposal options; initiate research into the pest's biology to identify possible control options; and ensure community and homeowner outreach and awareness.
- Worked with the U.S. Department of Agriculture to develop a proposed rule for bovine TB split state status for Michigan; conducted bovine TB animal tests, livestock movement investigations and surveillance activities; and conducted compliance activities at privately owned cervid operations in Michigan. The state's Electronic Identification Program was also expanded to 12 counties affected by bovine TB, in an effort to track movement of livestock through saleyards and slaughter facilities.
- Co-hosted Agriculture's Conference on the Environment (ACE), as part of the Michigan Agriculture Environmental Assurance Program (MAEAP). MAEAP partners include the Michigan Department of Environmental Quality, Michigan Farm Bureau, Michigan State University, commodity organizations and federal and local units of government. About 650 people attended the conference, which featured workshops, general sessions and a trade show focused on ensuring environmental stewardship on the farm and preventing agriculture-related pollution.
- Verified 17 livestock farms and three crop farms in the MAEAP program, an innovative initiative to help prevent or minimize agriculture-related pollution. Participating producers are recognized for their use of effective stewardship practices that comply with state and federal environmental laws and standards. MAEAP provides proactive, comprehensive education, on-farm technical assistance, environmental risk assessments, and action plans that are site and farm specific.
- Participated in the Governor's Michigan Land Use Leadership Council as one of the six non-voting members from state departments that added to the Council's 26-member body. Represented food and agriculture interests by providing recommendations to the Governor and the Legislature designed to minimize the negative economic, environmental, and social impacts of current land use trends; promote urban revitalization and reinvestment; foster intergovernmental and public-private land use partnerships; identify new growth and development opportunities; protect Michigan's natural resources, including farmland and open space; and better manage the cost of public investments in infrastructure to support growth.

- Opened Michigan's sixteenth Clean Sweep site, located in Ingham County – the first site in mid-Michigan. The Clean Sweep program ensures safe and proper disposal of outdated, unused, unwanted, and potentially harmful pesticides; protects groundwater; and ensures safer farmsteads and households.

- Launched an enhanced "Select a Taste of Michigan" program with the Governor to promote Michigan grown and processed foods and connect local farmers with local retailers. A pilot promotion was held in West Michigan, with 68 retail stores and 152 growers participating in the 2003 campaign. Initial results are tremendous: a Michigan asparagus promotion increased product sales in Grand Rapids by 65 percent, and a Michigan blueberry promotion helped the industry obtain new distribution in 85 retail grocery stores.

- Worked with MSU and industry partners to obtain nearly $1 million in federal funds for a Product Center for Agriculture and Natural Resources at MSU. MSU was selected to house the new agriculture innovation center based on the strong partnerships that demonstrated a track record of achieving value-added agriculture successes, experienced personnel, a strong work plan and a commitment to measuring performance of value-added activities. The center will provide technical and business development assistance to increase and improve the ability of Michigan's agriculture producers to develop markets and processes for value-added Michigan-grown commodities and products.

- Launched a new web page to protect gasoline purchasers in Michigan. Through Executive Directive 2003-6, the Governor charged MDA and the Michigan Public Service Commission with tracking gasoline prices to help ensure Michigan families pay a fair price for gasoline. Since the April 2003 debut of the new page – www.michigan.gov/gasprices – the page has received nearly one million hits. Hundreds of complaints regarding potential gasoline price gouging have been filed and investigated via this site and the department's toll-free hotline for follow-up on gasoline quantity and quality concerns.

- Strived to be good community partners and maintain a positive organizational culture through special employee activities and programs that also tie to the Governor's Visions and Values. MDA established the "A-Team," our Agriculture team, to increase internal communication and promote teamwork. Department employees raised funds for the Michigan Harvest Gathering, Livestock Youth Scholarship Funds at the Michigan State Fair and U.P. State Fair, and the State Employees Combined Campaign. Staff also raised funds and coordinated agriculture-related activities for students at Walnut Street School in Lansing, a school MDA employees adopted almost 10 years ago. Walnut activities include field trips, mentoring, classroom reading days, providing turkeys for a Thanksgiving celebration, and hosting school families in need as part of Operation Santa during the holidays.

- Implemented department-wide administrative efficiencies and cost reduction measures in response to budget reductions. This included reducing state service contracts by nearly $20,000; terminating 66 cellular phone contracts at a $16,000 savings; restricting out of state travel, saving nearly $56,000 from the previous year; obtaining nearly $23,000 in savings due to mailing efficiencies; and reducing procurement card purchases by over $20,000. Total FY03 savings for the department equaled $135,000.

- Initiated a reorganization process to align the services offered by the department with available resources to meet the needs of industry and the citizens of Michigan. As part of this reorganization effort, the former Marketing and Communications Division was divided, with program areas moved to three existing divisions: communications and emergency management responsibilities were moved to the Executive Office; marketing responsibilities, including those of the Michigan Grape and Wine Industry Council, were blended with existing marketing programs in the Agriculture Development Division; and the Producer Securities program and Agricultural Marketing and Bargaining Board were transferred to the Fairs, Exhibitions and Racing Division.

Michigan Commission of Agriculture

Nora M. Viau, Chair
(517) 373-1052

Members of the Michigan Commission of Agriculture are appointed by the Governor to establish policies and provide administrative direction for the Michigan Department of Agriculture. The five Commission members are appointed for four-year terms, with confirmation by the Michigan Senate. The Commission holds meetings that are open to the public for attendance and comment. Approximately half of the meetings are held in Lansing, with the others held throughout the state. Commissioner Nora M. Viau, Escanaba, chaired the Commission in 2003. Commissioner William Pridgeon, of Montgomery, served as vice-chair and Commissioner James Maitland, of Williamsburg, served as secretary. Doug Darling, of Maybee, continued service on the Commission. In February 2003, Governor Granholm appointed James Byrum, of Onondaga, to complete the term left open with the untimely passing away of Commissioner Jordan B. Tatter.

Michigan Commission of Agriculture members (l to r): Doug Darling, James Maitland, William Pridgeon, Nora Viau, and Jordan Tatter. Insert: Commissioner James Byrum

The Michigan Commission of Agriculture met monthly in 2003 with the exception of May, August, October and December. Commission meetings were held in Grand Rapids (January), and East Lansing (March and July), with remaining meetings held in Lansing. The Commission met in conjunction with Agriculture and Natural Resources Week at MSU, Ag Expo at MSU, and the Michigan Association of Fairs and Exhibitions (MAFE) Annual Convention.

Prominent issues during 2003 were Emerald Ash Borer, Bovine TB, Generally Accepted Agricultural Management Practices (GAAMPs), Right to Farm issues, West Nile virus, Chronic Wasting Disease and the widespread power outage (blackout) in August.

Commission staff prepared meeting notices, agendas, minutes and director's reports for each meeting. The Commission conducted all meetings and other activities within its FY03 budget of $19,500.

Executive Office

Dan Wyant, Director
(517) 373-1052

MDA's Executive Office oversees the administrative and policy issues of the department, provides internal and external communications services, and coordinates communications and response activities for state agricultural and homeland security emergencies. The Executive Office consists of the director, deputy director, director of agricultural policy, legislative liaison, public information officer, media support, communications and emergency management staff, and administrative support staff.

Administrative Section

MDA Director Dan Wyant is the chief executive officer of the agency. The director was appointed by the Michigan Commission of Agriculture in October of 1996, and works with them on policy issues. The director also is a member of Governor Jennifer Granholm's Cabinet. During FY 2003, Wyant also represented Michigan on the National Fruit and Vegetable Advisory Committee, and served on the Governor's Land Use Leadership Council and Chronic Wasting Disease Task Force. The director also serves as chair of the Michigan Grape and Wine Industry Council and holds a seat on the Michigan State Fair Advisory Board.

MDA's deputy director, Keith Creagh, manages the day-to-day operations of the department, working closely with all the division directors and key program staff to oversee the functions of MDA.

The director of agriculture policy, Christine White, works with the director and other key personnel to review, revise and propose department programs and policies, and also serves as the key contact for federal issues and congressional contacts.

The legislative liaison, Brad Deacon, is MDA's link to the Michigan Legislature and the Michigan Office of Regulatory Reform. The liaison assists the Legislature in assessing and preparing legislation connected with agriculture. In 2003, the Legislature passed, and Governor Jennifer Granholm signed, a major piece of legislation, creating a grain insurance fund to help protect producers in the event of a business failure. Other legislation enacted in 2003 included initial steps on groundwater withdrawal, regulation of genetically engineered aquatic species, labeling requirements for ethanol, and increased regulation of anhydrous ammonia.

Office of Communications

Sara Linsmeier-Wurfel, Director

The Office of Communications (OC) is responsible for media relations, public information and internal and external communications for the director and the department. The public information officer (PIO) serves as director of this office and MDA's spokesperson. During 2003, the PIO issued 90 press releases, and made over 2,500 contacts with media resulting in extensive state and national exposure for the activities and programs of MDA.

OC staff works on a wide range of communication activities to create and maintain a public identity for MDA, including: creating key communication pieces; planning media and special events; directing critical communication tools at Constitution Hall, including a public meeting notice board, electronic "smart board" computer systems in conference rooms, and a satellite TV

system critical for effectively handling public emergencies; and researching video conferencing and providing audio/visual assistance to other divisions, as needed. During FY 2003, OC:

- Served as liaison with the Governor's Communications Office as well as PIOs in other state government agencies, and served on numerous joint communications committees with federal, state and local agencies as well as university, industry and other stakeholder groups on food, agriculture, public health and conservation issues and programs.
- Developed and implemented various crisis/urgent communications plans and corresponding activities for a variety of the issues that the Department addressed throughout the year, including the blackout of August, Bovine Spongiform Encepalopathy, Emerald Ash Borer and West Nile virus.
- Spearheaded message and information development for a variety of Department issues, programs and activities.
- Created communications tools to combat the spread of Emerald Ash Borer, including brochures, door hangers and posters; worker safety vests and hats for identification; banners and educational displays; and press releases and advisories. Served on the EAB Communications Committee, working with partners to develop a coordinated and effective communication strategy for the EAB eradication effort. Coordinated media events, took photos and wrote web articles about key components of the response effort, including firewood blitzes, survey activities, establishment of marshaling yards, tree removal projects, and quarantine issuances and expansions.

- Expanded the department's Internet site to provide cost-effective, easily updated information. Many publications were distributed electronically via the Internet, saving printing and distribution costs and time. The home page of the MDA web site was accessed nearly14,000 times per month.
- Enhanced and maintained the department's Intranet site that shares important and interesting internal information with MDA staff.
- Served as liaisons to MDA divisions, and researched and advised divisions on how to meet division and department communication needs.
- Provided writing, editing and design services to divisions for booklets, brochures and newsletters. Topics included: Emerald Ash Borer, Chronic Wasting Disease, bovine TB, West Nile virus, Right to Farm, Generally Accepted Agriculture and Management Practices, biosecurity, human health and food safety, groundwater protection, thoroughbred racing, fiscal stewardship, venison processing, analytical service testing fees, market development, and more.
- Provided graphic arts services for all divisions, including development and production of logos, ceremonial checks, original art for displays at the Michigan State Fair, certificates, banners, maps, pie charts, Power Point presentations, advertisements, posters, pictorial displays and more.

- Created a new, magazine-style web portal intended to showcase the many ways in which the department enriches the lives of the people of Michigan. The "Agriculture Every Day" site, officially launched in January 2003, featured new content each month, including information for the media, general public, teachers and children.

- Created and implemented the "A-Team" and events to improve internal communications and facilitate employee interaction. A-Team events included a kick-off rally, an employee appreciation and recognition breakfast, and a chili cook-off. Internal communication activities included development of an A-Team logo to identify internal communications efforts; implementation of "On the Same Page" on the MDA Web, which included weekly media contact summaries, legislative updates, transition information, and hot topics of interest to employees; coordination of "Coffee with the Director" opportunities for employees to meet one-on-one or as a division/region with the director; and implementation of an "Ask the Director" section of the MDA Web for employees to raise questions and concerns or get direct feedback on questions about department activities.

- Coordinated employee activities as part of MDA's Employee Recognition/Awards Ceremony, Special Events Committee events, and the Governor's Visions and Values Roll Out.

- Coordinated the 2003 State Employee Michigan Harvest Gathering fundraiser for the Food Bank Council of Michigan.

- Partnered with Walnut Street School in Lansing to help connected with urban kids with their food and agriculture roots. MDA employees adopted Walnut Street School nearly 10 years ago, and have hosted field trips to farms and horse shows, served as mentors and guest classroom readers, provided computer equipment and books for the school, sponsored Thanksgiving meals at the school, and sponsored school families in need as part of Operation Santa during the holidays.

Emergency Management Section

Bob Tarrant, Manager

The Emergency Management section coordinates MDA's response to serious incidents involving disasters or threats to food or animal safety and/or agricultural economic viability, emergency management and emergency response capabilities. During FY 2003, the section:

- Coordinated MDA's response to serious incidents involving disasters or threats to food or animal safety and/or agricultural economic viability. Of these incidents, six disaster requests were submitted to the Secretary of USDA.

- Coordinated participation of department emergency management staff in two drills and one exercise for the DC Cook Nuclear Power Plant in June and July.

- Developed continuous in-house emergency management training and exercising throughout the department. About one-fourth of MDA staff participated in some level of Incident Command System Training. Emergency Management staff coordinated approximately one exercise per month during FY 2003, including orientations, drills and table top exercises.

- Helped implement new department initiatives on Homeland Security, including establishment of protocols for emergency response based on the threat level, and representation on Homeland Security boards and committees.

- Coordinated continued development of MDA's emergency response capabilities to meet the challenges posed by threats to Homeland Security. Represented the department on the Michigan Homeland Security Task Force, and chaired the Agriculture and Food Supply Subcommittee of the Critical Infrastructure Protection Committee.
- Participated in the State Homeland Security Assessment process on both the local and state levels.
- Represented MDA on the Michigan Hazard Mitigation Coordinating Council, participating on the Planning Committee, and the Michigan Emergency Planning and Community Right to Know Commission.

Agriculture Development Division

Robert Craig, Director
(517) 241-2178

The Agriculture Development Division (AgD) serves as a catalyst in expanding value-added agriculture initiatives and marketing efforts to attract, expand or retain food processing and agriculture support businesses in Michigan. Other AgD priorities include: the development of new or enhanced domestic and international markets for Michigan food and agricultural products; strengthening profitability for Michigan's family farms; and enhancing opportunities for the state's food and agriculture industry. FY 2003 accomplishments, by program areas, included the following:

- Supported the development of the Michigan State University Product Center for Agriculture and Natural Resources to improve economic opportunities in the Michigan agriculture, food and natural resources sectors. The Product Center will deliver technical, marketing and business services to farmers, farm associations, agri-businesses, food processing firms, natural resources-based firms and entrepreneurs to develop new products, services and businesses. The Product Center received a $1 million federal grant in September 2003 to further bolster the contributions that MSU and other partners of production agriculture had invested in the Center. AgD staff members were trained as part of a value-added agricultural and natural resources innovation counseling network.

- Promoted the nine existing Agricultural Processing Renaissance Zones (APRZs) to firms both in and outside of Michigan. Supported new legislation to expand the number of APRZs available to 20, along with eliminating the sunset provision in the original legislation.

- Celebrated the expansion of two APRZ projects:
    * Zeeland Farm Services opened a new $5 million soybean oil refinery and bleaching plant in Zeeland, which generated 30 new jobs and retained 35 others. ZFS now produces food-grade soybean cooking oil, called "Select Oil." Future plans could include converting refined soybean oil into finished biodiesel fuel with a new biodiesel manufacturing facility.
    * Graceland Fruit Co-op announced the $21 million expansion of their value-added fruit and vegetable processing facilities in Frankfort, MI. The expansion is projected to create 45 new jobs by December 31, 2007, and at least 75 new jobs by 2017.
- Supported legislation that provides tax incentives for the manufacturing and blending of biodiesel fuel, along with labeling of ethanol blends at service station gasoline pumps that is consistent with national label standards.
- Provided digital pictures and other vital information on vacant food processing sites in Michigan, available through MISiteNet, to share with prospective out-of-state food processing companies, farmer-owned processing co-ops and others that want to get started quickly in the food business in Michigan.
- Celebrated the opening of two new dairy processing facilities in Michigan that renovated vacant food industry sites:
    * A new cheese plant was developed in Croswell by renovating a former pickle processing plant.
    * A new milk bottling facility opened in Battle Creek at a former Kellogg Co. research laboratory facility that they expanded and modernized. The plant, operated by Prairie Farms Dairy, an 800-member dairy cooperative in Carlinville, IL, will begin bottling a fluid line of skim to whole milk and chocolate milk in 2004.
- Provided $100,000 through the MDA International Market Development Grant Program to 11 Michigan food and agricultural organizations. These proposals have the potential to leverage nearly $326,000, or more than a 3-to-1 basis, in federal and private resources to develop or enhance overseas markets.
- Leveraged $90,000 in federal funds to promote Midwestern wines in Europe through Mid-America International Trade Council (MIATCO). Michigan wineries participated in promotional activities in Dusseldorf, Germany and London, England.

A Mexican chef utilizes some of Michigan's high quality fruit products.

- Coordinated the promotion of processed apple, blueberry, cherry and cranberry (ABCC) products targeting the Mexican baking industry. Three Michigan companies have obtained at least one distributor and made more than 20 new buyer contacts in Mexico. Michigan companies estimate an increase in sales of $55,000 of the fruits over the next year. Approximately $24,000 in sales was made directly at the trade show.
- Participated in an ABCC pavilion at ABASTUR, a hotel and restaurant show, which showcased the many ABCC products available from the U.S. Three seminars were also held in

Monterrey, Guadalajara and Cancun. These seminars trained Mexican chefs on the use of the ABCC products.

- Participated in the National Association of Convenience Stores (NACS) Buyers' Mission, providing Michigan companies with the opportunity to meet convenience store buyers from South Korea and Mexico. Michigan companies estimated an increase in export sales of $1 million in the next year.
- Assisted 26 Michigan firms in applying and qualifying for more than $209,500 in federal funds to reimburse their export development costs. Through its MIATCO membership, MDA enables Michigan food producers and processors to receive reimbursements of up to 44 percent of their export market development costs in the USDA Branded Market Access Program.
- Coordinated participation of 10 Michigan firms in the Michigan pavilion at the Food Marketing Institute/U.S. Food Export Showcase in Chicago, the largest grocery store trade show in the world.
- Provided technical assistance and market research to the Michigan Apple Committee (MAC) and the apple industry in efforts to open the Mexican market for Michigan fresh apple exports since adoption of the North American Free Trade Agreement (NAFTA). The division also encouraged representatives of a dozen Michigan apple shippers and the Michigan Apple Committee to work together and form the Great Lakes Fruit Exporters Association, an export trading company, which will allow them to negotiate international trade terms with the Mexican government without violating U.S. commercial anti-trust laws.
- Expanded the Select Michigan program and obtained USDA funding for the Select Michigan Foods: "Select a Taste of Michigan" Local and Organic Foods Program, a partnership among MDA, Cooperative Development Services, Michigan Integrated Food & Farming Systems (MIFFS), and many local partners. Select Michigan works to promote Michigan grown and processed foods and to connect local partners and retailers.

- Worked with MIFFS to develop field educational campaigns to promote Michigan-produced locally and organically grown products to Michigan consumers and retailers. Growers were recruited from across the state to produce product for partnering retailers.
- With the assistance of Governor Granholm, launched a pilot Select a Taste of Michigan advertising and marketing campaign in the Grand Rapids area. More than 30,000 consumers sampled Michigan products in 137 food demonstrations. Michigan products were featured in 300 in-store point-of-purchase displays. Preliminary sales data indicate that the Select a Taste of Michigan promotions increased sales of featured Michigan products by an average of 111 percent over the previous year's sales period. New distribution channels were also opened for several producers.
- Sponsored promotional events in Northville, Grand Rapids, Suttons Bay, Rochester, Howell, Brighton, Okemos and Ludington as part of the "Take Home a Taste of Michigan"

marketing program. More than 100 specialty food processors participated in the events. Featured Michigan products included jams, jellies, honey, gourmet coffee, pastries, ice cream, cheese, pickles, baking mixes, salsa and maple products. USDA Federal State Market Improvement Program funds helped offset the costs for exhibitors.

- Implemented activities of the Michigan Grape & Wine Industry Council (MGWIC), a 10-member council established by the Legislature to promote Michigan's wine and wine grape-growing industries. Due in great part to the research and promotional activities of the council, new wineries are starting up in Michigan every year; wine grape acreage continues to grow; sales of Michigan wines are increasing; and Michigan is gaining more national and international attention as a world-class wine region. The economic impact of the industry is more than $75 million, with $17 million of this attributed to secondary benefits of winery tourism.

MICHIGAN Grape & Wine INDUSTRY COUNCIL

- Assisted the MGWIC in a broad-based strategic planning activity to establish future direction for the council's work to stimulate this rapidly evolving industry.
- Facilitated five council meetings and several committee meetings to plan effective programs in the areas of promotion, research and education and to meet the long-term needs of the industry.
- Hosted a 10-day visit by internationally respected wine writer Tom Stevenson, who wrote a complimentary article in Decanter magazine upon his return to London, and hosted a tasting of Michigan wines for other European wine writers in January.
- Attended 95 percent of regular, special and annual meetings for Michigan's 15 legislatively established commodity groups, and worked with the Assistant Attorney General to review proposed programs, statutory issues, and unpaid or unremitted assessment funds. Staff also assisted several commodity groups in implementing program changes outlined in Public Act 232 of 1965, as amended, the Agricultural Commodities Marketing Act.
- Received preliminary results from a producer survey of more than 300 Michigan agritourism entities, in cooperation with a Western Michigan University federal grant, to study the economic impact of agricultural tourism in Michigan. Collected an additional 1,500 consumer surveys at numerous agricultural tourism operations throughout the state.
- Administered the Julian-Stille Value-added Agriculture Development Grant Program, created by Public Act 322 of 2000. The program strengthens Michigan agriculture by offering producers, food processors, agri-businesses and others the opportunity to leverage public funds with private investment to foster value-added agricultural initiatives in the specialty crops industry. The division monitored progress on 28 projects that were selected in 2002 to receive funding totaling $1.14 million and other federal specialty crops block grants.
- Presented a summary of the early successes of the Julian-Stille Value-added Grant Program at the Northwest Michigan Farm and Orchard Show as part of their "Bouncing Back!" program, sponsored by the Grand Traverse Fruit Council.

- Received six Federal State Marketing Improvement Program (FSMIP) grant applications from Michigan companies and forwarded them to the USDA FSMIP office for a nationwide competition for funds. This resulted in $96,615 awarded to two state projects involving compost marketing and promoting blueberries using food safety benefits.

Animal Industry Division

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The Animal Industry Division (AID) safeguards the health and welfare of livestock and domestic animals in Michigan. The division monitors animal disease, diseases transmitted to humans by animals, and food safety hazards to protect the health of Michigan residents. The division is responsible for administering reportable animal disease programs and overseeing toxic substance contamination incidents relating to animal health. AID also enforces the humane treatment of animals through the licensing and regulation of animal shelters, pet shops and riding stables. The state veterinarian administers the division, and supervises animal disease surveillance and eradication programs throughout the state.

The division remained very active in animal health programs in FY 2003. Major progress was made in the Bovine Tuberculosis Eradication Project as well as in addressing the threat of Chronic Wasting Disease. Michigan's animal health emergency management planning was also substantially strengthened in FY 2003. During FY 2003, AID:

- Maintained three zones in the state for the Bovine TB Eradication Project. The three zones were designated Disease Free, Surveillance, and Infected.
- Conducted 129,464 bovine TB animal tests using MDA, USDA, and fee-basis private veterinary practitioners. Five cattle herds were found infected with bovine TB in FY 2003, all in the known affected area of Northeast Michigan. As of September 30, 2003, 935,756 animals had been tested for bovine TB (cumulative number since project inception), representing nearly all of the state's total herds.

Michigan cattle are increasingly wearing electronic ID tags.

- Conducted 28 TB livestock movement investigations and imposed $2,146 in fines for illegal movement of animals.
- Expanded the Michigan Electronic Identification Program for livestock to include Emmet, Charlevoix and Antrim counties. This brought the total number of counties in the program to 12. Since 2001, nine sale barns have received stationary readers, which have read over 30,000 head of cattle. A total of seven livestock packing plants in four states have received stationary EID readers with over 7,000 head read by the readers.
- Conducted surveillance of livestock movement across the Mackinac Bridge to enhance the Bovine TB Eradication Project.

- Worked with USDA to develop a proposed rule for TB split state status for Michigan, which was published in the federal register in April 2003.
- Tested nearly 1,300 privately owned deer and elk for Chronic Wasting Disease (CWD). All tests were negative.
- Made compliance visits to 300 cervidae livestock operations to enforce compliance with registration of their facilities.
- Conducted 20 cervidae movement investigations. Eleven warnings were issued for violations found and nine investigations found no violations.
- Conducted Incident Command System (ICS) training (level 100) for AID and USDA Veterinary Services staff to help ensure emergency preparedness.
- Outfitted and equipped two trailers with emergency preparedness gear and supplies. The trailers will be crucial for the initial response to a large-scale animal disease outbreak or other emergency situation.
- Tested approximately 200 horses for Equine Infectious Anemia (EIA). Three horses tested positive, which resulted in issuance of five quarantines.
- Responded to West Nile virus (WNV) cases in 10 equine and two canines.
- Followed up on three cases of Eastern Equine Encephalitis (EEE) in horses.

MDA staff and Agriculture Commissioners gather in front of the Department's new fully-stocked mobile emergency response trailers.

- Followed up on 49 animals diagnosed positive for rabies.
- Maintained Pseudorabies Stage V Free Status for Michigan swine.
- Maintained Brucellosis Certified-Free State Status for cattle and swine.

Environmental Stewardship Division

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The Environmental Stewardship Division (ESD) administers programs related to environmental protection and agriculture pollution prevention. Environmental stewardship activities help ensure that farming operations protect land and water resources, and public health. A summary of FY 2003 program accomplishments follows:

- Funded 13 Conservation Reserve Enhancement Program (CREP) technicians through 11 grants. The technicians delivered technical assistance to landowners in the three watersheds and 29 counties with funding through non-point source grant partnerships with the Michigan Department of Environmental Quality (MDEQ). By the end of FY'03, Michigan landowners executed 4,052 CREP contracts representing 47,896 acres. Landowners enrolled 23,532 acres in Grass Filter Strips, and 1,723 acres in Riparian Forest Buffers. These 25,255 acres of corridor conservation practices, using an average 100-foot width, are reducing agriculturally related sediment, phosphorus, and nitrogen loading on over 2,000 miles of watercourses (streams, drains, rivers, and lakes), or the distance from Saginaw, Michigan to Los Angeles, California. Landowners also enrolled 9,768 acres of wetland restorations; 712 acres of shallow water area for wildlife; 7,702 acres of whole field grass plantings (e.g., introduced cool season grasses and native warm season grasses); and 892 acres of field windbreaks.

- Reimbursed producers for 100 percent of costs incurred for establishing conservation practices that control or exclude livestock access to surface waters through the Livestock Access Program (LAP), a state-sponsored component of CREP. By the end of FY'03, the program installed 27 limited access livestock crossings, 33 alternative watering sources, 58.3 miles of exclusionary fencing, and 43 acres of critical area treatment grass filter strips.

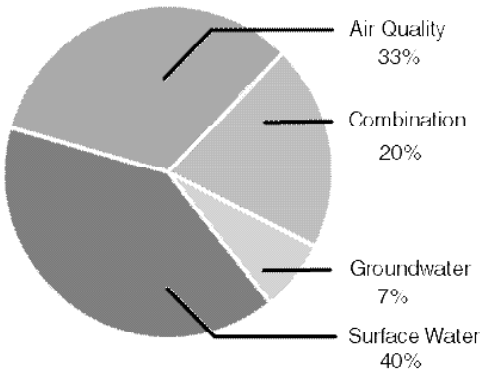
- Continued the Michigan Agriculture Environmental Assurance Program's (MAEAP) Livestock System on-farm verification, with a total program menu of educational sessions, Comprehensive Nutrient Management Plan (CNMP) assistance, and the development of farm-specific verification. Over 1,800 producers and technical assistance providers have attended Phase 1 educational sessions. Seventeen livestock farms have been verified to date. A MAEAP web site – www.maeap.org - was developed.

- Continued the MAEAP Farmstead System. Trained groundwater technicians to assist producers in assessing the risk of contaminating ground or surface water at the farmstead. Developed a farm-specific action plan to address risks identified for both livestock and non-livestock operations. Verified the first three Farmstead System farms.

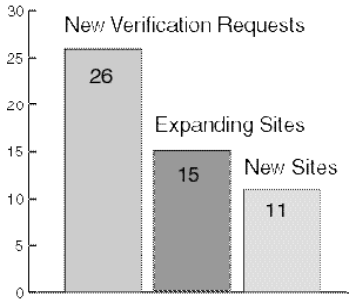
- Participated in planning Agriculture's Conference on the Environment (ACE), held in Lansing, with 650 attendees. The conference focused on environmental and conservation education for farmers and local resource technical assistance providers.
- Worked one-on-one with over 1,000 farmers through the Groundwater Stewardship Program to identify groundwater risks and to develop plans to reduce those risks. Technicians implemented a wide variety of groundwater stewardship practices, including 544 abandoned well closures, 700 emergency plans, 206 spill kits, 449 acres of custom pesticide application, 20,331 acres of pre-sidedress nitrate testing and 623 acres of integrated pest management.
- Recycled 36,900 pounds of properly rinsed pesticide containers at agri-business sites throughout the state, through the Michigan Pesticide Container Recycling Program.
- Collected, removed, and properly disposed of more than 156,260 pounds of pesticides and mercury. The Michigan Groundwater Stewardship Program, in cooperation with county and local units of government, has established 16 permanent Clean Sweep sites throughout the state.

Clean Sweep staff gather outdated and potentially dangerous pesticides for safe and proper disposal.

- Sampled 215 drinking water wells at no charge to well owners through the MDA Groundwater Monitoring program. The program continued to focus on sampling wells in areas surrounding contaminated wells to help ensure public health. Also screened 2,271 wells for atrazine and nitrate contamination at no charge to well owners.
- Administered grants; facilitated education, training, capacity building, and resource assessment; and assisted in local strategic planning, the development of annual work plans, and annual budget preparations for 83 conservation districts.
- Inspected and licensed 3,934 individual living units for migrant workers with a capacity of 22,731 workers at 847 locations. Administrated $285,000 through the migrant labor housing construction grant program, resulting in producers investing $906,000 in housing construction projects, with significant improvements to over 122 living units and the establishment of 41 new living units.
- Provided education and assistance to encourage the increased use of biosolids (nutrient rich by-products of wastewater treatment) recycling and application. Currently, 170 Michigan waste treatment facilities apply about 85,000 dry tons of biosolids on agricultural cropland annually.
- Partnered with the Michigan Water Environment Association to develop an to update industry members on information and technology for biosolids land application.
- Developed four quarterly newsletter *"Amendments,"* to improve awareness of the Michigan Biosolids Program and land application.



- Responded to 126 new environmental complaints through the Right to Farm complaint response program, which was a decrease in the number of complaints from the previous 12-month period. There were approximately 162 follow-up inspections conducted, and 26 verification requests for Site Selection and Odor Control on new and expanding livestock facilities were received.



- Participated in the annual MSU Ag Expo biosolids demonstration plot and display tent to provide biosolids information to producers.
- Distributed biosolids information packets to all Michigan Conservation District offices to provide producers and the public updated biosolids information.
- Facilitated 31 Intercounty Drain Petition Projects with an estimated project cost of $13.4 million. A total of 352,000 acres were served by these projects, affecting 97 miles of drain. Utilized $343,000 in Clean Michigan Initiative dollars for stream restoration and $261,750 in Federal Emergency Management Assistance grant monies for flood mitigation.
- Responded to 123 drain maintenance requests in 44 different counties, improving approximately 800 miles of drains serving almost 1,765,000 acres of multiple use watersheds at a cost of over $3 million. Eight of the drains are currently involved in multipurpose watershed projects, investing over $4.4 million in grants funded by the Clean Michigan Initiative, Section 319 of the Clean Water Act; the Great Lakes Coastal Restoration Grant; the Great Lakes Protection Fund; and the Federal Hazard Mitigation Grant.
- Processed the renewal of 3,014 farmland and open space preservation agreements, securing 241,120 acres from development. A total of 44,000 agreements are protecting more than 3.5 million acres in Michigan. Legislative changes improved the incentives for enrollment, resulting in an increase from an average of 155 new applications annually in the years 1997-2000, to 308 new applicants in 2003.
- Permanently protected 186 acres of farmland through the purchase of additional farmland development rights easements at a cost of $638,000. Three additional easements were donated, protecting an additional 354 acres. This brings the number of acres permanently protected in the state to 14,740, as of September 30, 2003.
- Received $193,900 in 2002-2003 for the Agriculture Energy Program. The Energy Conservation Program receives funding from oil overcharge settlements to implement energy conservation practices. This program has been in place at various levels since 1987. Over $138,000 was distributed in grants and contracts for programs and projects with an energy conservation component. Efforts from these programs and projects combined to save an estimated 0.743 trillion Btus.

- Administered the Forestry Assistance Program (FAP), which provides education and one-on-one technical assistance to private landowners and communities regarding local forest health issues, through grant monies provided by the Michigan Department of Agriculture. Conservation district resource professionals made 725 on-site assistance contacts with landowners representing 31,000 acres; referred 6,952 acres for harvest; facilitated actual timber harvests on 2,400 acres valued at $750,000; and coordinated 113,000 reforestation tree plantings on 1,250 acres.
- Completed 110 practices to elevate the protection of wells on Michigan golf courses, including: sealing abandoned wells, physically protecting wellheads from impacts, improving grading around wellheads and increasing security.
- Completed 371 practices on Michigan golf courses to increase the protection of groundwater and surface water from pesticides and fertilizers, including: installing mixing and loading pads, installing spill kits, developing drift management plans, constructing pesticide storage areas, providing secondary containment for pesticides, improving record keeping and posting practices.

Fairs, Exhibitions and Racing Division

Barbara Hensinger, Director
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The Fairs, Exhibitions and Racing (FER) Division oversees Michigan's state, county and local fairs; county horse racing programs; and horse racing breeding and owner assistance programs. The division also administers grant programs for the 89 fairs and the horse racing industry. FER staff, during 2003:

- Partnered with the fair and festival industry to present workshops to fair and festival management at their conventions on subjects such as animal health and ways to increase youth and volunteer involvement.
- Continued to lead a task force to study water safety issues at fairgrounds. Five studies were completed in 2003. The team visited each fair twice, once prior to the fair and again during the fair, to evaluate water supply, distribution system, cross-connection control, abandoned wells, hand washing and drinking water, sewage collection/treatment, animal washing, manure management, and chemical use/storage.

Michigan youth enjoy one of the state's many county and local fairs.

- Worked with the Michigan Thoroughbred Owners and Breeders Association to enhance the Youth Horse Racing Program. New in 2003, after the conclusion of the four county fair races, FER staff coordinated a championship race at Mount Pleasant Meadows, a premier pari-mutuel racetrack in Michigan. More than 20 of the 65 youth who participated in 2003 competed at the championship race.

- Awarded and supervised $120,000 in competitive livestock grants to 30 organizations. The program provides funding to increase the development and promotion of adult and youth involvement in the animal agriculture industry.
- Recommended changes to regulations monitored by FER to comply with the changing industry needs. Regulation 808, 811, 812, 813, 814, 816, 817, 820 and 823 were each opened and restructured.
- Worked with the Michigan Youth Livestock Fund to award six $1,000 scholarships to youth exhibitors at the Michigan State Fair. The fund also provided $21,000 in educational awards to 125 exhibitors.

Governor Jennifer Granholm participated as a "spotter" at the annual Youth Livestock Auction at the Michigan State Fair. The Grand Champion Steer was purchased by Kroger in 2003.

- Completed drug testing on horses at 13 draft horse pulls and 78 county fair harness races. Of the 1,427 samples collected at races, only six tested positive for illegal drugs. Only one of the 60 samples collected at the draft horse pulls tested positive for illegal drugs.
- Assisted with the Michigan State Fair, which ran from August 15 through September 1 in 2003. The fair length was extended from previous years, but opened one day late due to the widespread blackout that affected electrical service in parts of Southeast Michigan, the Eastern U.S. and Canada. A FER staff person served as superintendent of the Agriculture Building which houses agricultural entries, exhibits and vendors during the fair.
- Assisted the MSF superintendents, in conjunction with the Animal Industry Division, with animal health checks and records and steer DNA sample collection. Performed drug screening of champion livestock at both the MSF and the UPSF.
- Worked with the Youth Livestock Auction committees at the Michigan State Fair and U.P. State Fair to coordinate the auctions. MDA staff also contributed to the success of the auctions by raising over $4,465 internally, which was used to purchase lambs at both auctions. The lambs were donated to the Food Bank Council of Michigan.
- Monitored and administered incentives required to present successful fairs. In 2003, 64.3 percent of the total $1.5 million premiums paid was for competitive exhibits at all fairs throughout the state.
- Provided oversight for the U.P. State Fair. FER Division Director Barbara Hensinger served as the acting fair manager in 2003. Fair attendance and livestock exhibitors increased in 2003.

Finance and Administrative Services Division

David Bruce, Director
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The Finance and Administrative Services Division (FAS) administers business processes for the department, including budget, accounting, auditing, procurement, fiscal stewardship, resource management, facility management, fleet management, travel arrangements and mail operations. During 2003, FAS:

- Completed the first "early/accelerated" year-end book closing with fewer experienced staff (after early retirements) and with less overtime.
- Realigned and retrained Accounting Section staff to support Emerald Ash Borer needs with a dedicated staff person.
- Started work to bring program divisions into better alignment with Generally Accepted Accounting Principles matching principles, including working toward implementation of a rent allocation model.
- Increased focus and inputs into the Resource Management Team to pursue increased department-wide fiscal stewardship; educated customers and partners; and pursued continuous quality initiatives.
- Continued to improve controls over travel expenditures, including fine-tuning post audits (sample size, summarization, and communication of results) and began implementation of a supervisory review of travel procedure.
- Implemented budget cuts and closed with no overdrafts or supplementals, including handling the Michigan State Fair deficit.
- Negotiated statewide contracts for Emerald Ash Borer eradication efforts.
- Implemented the e-WARS project for time and activity reporting.
- Initiated department-wide Resource Stewardship Group meetings to further the division's fiscal stewardship efforts.
- Reduced leased warehouse space by 40 percent.

FAS staff were treated to a surprise visit from Governor Granholm. She stopped by to thank them for their extra effort in helping implement budget changes at the end of an especially challenging fiscal year.

- Complied with the statewide vehicle reduction efforts under the Governor's Executive Directive.
- Facilitated implementation of portions of the state's LINK Michigan telecommunications contract within MDA, to promote efficiencies and savings.

Food and Dairy Division

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The mission of the Food and Dairy Division (FDD) is to protect public health and ensure a wholesome food supply, while working to maintain a viable food and dairy industry. To achieve this end, the division administers food, beverage and dairy laws in Michigan. To ensure that these laws are enforced, FDD conducts regular inspections of food and dairy products and facilities. Inspectors visit and examine restaurants, farms, grocery stores and other food producing, manufacturing and sales establishments. FDD also gives support and assistance in order to maintain a viable food industry. FDD is committed to keeping consumers and stakeholders informed of recalls, outbreaks and other food and dairy-related issues. All of its functions support its primary mission - food safety. In 2003, the Food & Dairy Division accomplished the following:

- Responded to the biggest blackout ever to hit Michigan, on August 14, 2003. Food inspectors were dispatched to the affected areas to monitor retail food establishment efforts and conduct inspections. During a six-day period, 40 MDA staff visited 25 percent of the more than 6,000 food facilities in Southeast Michigan, issuing 117 seizures for 394,000 pounds of food, valued at approximately $734,600 and investigating 100 consumer complaints. FDD also monitored the 15 dairy plants (all had back-up power) in the affected area. Throughout the crisis, MDA provided consumers and retailers with proper food safety information, issued updates to newspapers, and radio and TV stations, and posted information to the department's and the State of Michigan's web sites. MDA officials spoke on radio stations throughout the affected region to alert consumers and retailers on ways to keep food safe.
- Conducted 31,005 inspections at food and dairy facilities; licensed 29,369 food service establishments and 12,745 retail food establishments; and conducted over 1,100 enforcement actions to address food safety violations including restaurants and cafeterias.
- Provided Foodborne Illness Response STrategy (F.I.R.ST.) training throughout the state to improve coordination during outbreak responses, to identify outbreaks early, to implement control measures promptly, and to prevent human illness. In 2003, the National Environmental Health Association and the Centers for Disease Control and Prevention adopted the F.I.R.ST. program as a national model for foodborne illness outbreak response training.
- Led a multi-agency initiative to evaluate the safety of water supplies at five fairs in Michigan and to identify effective risk and reduction practices.
- Created and distributed materials to producers and consumers including updated regulations on *Processing Guidelines for Venison*. Created on-going materials and education for food safety including numerous articles in newspapers, as well as extensive radio and TV.

MDA food inspector hard at work, checking a wide range of food safety requirements.

- Spearheaded the first Food Security Summit with food, agriculture, public health and emergency response partners, to discuss how to best protect Michigan's food and agricultural infrastructure. Five work groups were formed centering on the issues of inputs, production, processing, distribution/transportation and retail. Incorporated strategies into a final draft to be reviewed by the Michigan Homeland Protection Board.
- Played a leadership role in emergency preparedness events with Michigan food industry associations, governmental agencies, and others representing law enforcement, public health, outbreak investigation, food regulation, emergency management, health care, and public communication/media relations.
- Partnered with the Michigan Department of Community Health to conduct a one-year pilot project testing the feasibility of using the Michigan Health Alert Network (MIHAN). By this mechanism, partners can send and receive notification of potential and actual emergency or priority situations. They can share detailed emergency-related information via the MIHAN web portal.
- Inspected 23,046 food concession stands at county and state fairs.
- Provided oversight for: 96,095 inspections of 46,356 licensed food service establishments conducted by local health departments; the review of 2,076 plans; and the investigation of 5,274 non-illness and foodborne illness complaints.
- Provided training and consultation for local health departments and industry representatives who investigate foodborne illness outbreaks, on how to promptly implement control measures and identify steps to prevent similar outbreaks in the future.
- Collaborated with state and local public health offices, affected food industries, and federal law enforcement agencies concerning meat intentionally contaminated with a pesticide containing nicotine. The incident led to the recall of approximately 1,700 pounds of ground beef.
- Shared information on 77 recalls with food inspectors, local health staff and the general public.
- Provided consultation to the food industry, regulators and law enforcement officials during foodborne illness outbreaks, unintentionally caused or due to deliberate contamination, food recalls, and other food-related events.
- Conducted 7,959 dairy farm inspections and worked with dairy processors to provide safe, wholesome dairy products to consumers.
- Licensed two new dairy plants in Battle Creek and Croswell.
- Conducted electrical safety checks on over 30 percent of Michigan's dairy farms during routine farm visits during August and September, 2003.

Human Resources Division

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The Human Resources Division (HR) supports department personnel in a variety of program areas. The division is responsible for the selection, hiring and compensation of department employees, as well as the administration of employee benefits, position classification, labor relations and training. HR oversees programs that ensure equal employment and equitable representation of groups within the department's work force. Programs include: recruitment, student programs, career seminars, reasonable accommodation coordination, sexual harassment complaint investigations, health and safety coordination, and compliance with the Americans with Disabilities Act (ADA). During FY 2003, HR:

- Collaborated with the Michigan Department of Civil Service to identify appropriate routine human resource activities for centralization in the Human Resources Service Center, and to review and develop business processes for the service center. This program is jointly sponsored by the Executive Office; the Michigan Departments of Civil Service, Management and Budget, and Information Technology; and the Office of the State Employer, as a part of the Human Resources Optimization Project.
- Coordinated, with the Pesticide and Plant Pest Management Division, the development and staffing of the Emerald Ash Borer Incident Response Project.
- Coordinated and processed the hiring of 253 employees throughout the year. This included 101 full time employees; 42 non-career employees, such as students and fruit/vegetable inspectors; and 110 special personal service contractual employees in State Fair operations, conservation services, and horse racing operations.
- Continued to expand the implementation of the web-based Employee Self-Service feature of the Human Resource Management Network.
- Coordinated and conducted numerous training programs throughout the year. These included training in the areas of discriminatory harassment, workplace violence, performance management, targeted selection, and supervisory training.
- Collaborated with the department coaching and mentoring subcommittee to develop and launch the MDA Coaching and Mentoring program.
- Coordinated an annual Employee Recognition Ceremony to honor staff for their commitment to state government. Employees were recognized for years of service, promotions and special achievements. Awards included the Commission Awards for Excellence and Employee of the Year.

Director, Dan Wyant (left) presents the Employee of the Year Award to John Tilden, Food Safety Epidemiologist for MDA's Food and Dairy Division.

Laboratory Division

Steve Reh, Director
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The Laboratory Division performs scientific and analytical services that support MDA programs. The laboratory also performs tests and offers technical consultation services for other state and federal agencies, as well as fee-based services to Michigan industry and private citizens.

The Laboratory Division consists of two world-class facilities: the William C. Geagley Laboratory in East Lansing, and the E.C. Heffron Metrology Laboratory in Williamston.

The Geagley Laboratory performs more than 300 different biological, chemical and physical tests on a routine basis. The laboratory examines food samples, beverages, pesticides, seeds, fertilizers and animal feeds to ensure a safe food supply, verify labels, ensure compliance with state and federal regulations and to guarantee product quality. The Geagley Laboratory also monitors food and animal feed for contaminants, tests blood and urine from competing race horses for performance enhancing drugs and tests livestock samples in order to prevent the spread of infectious diseases.

MDA lab technician performs screening test for the presence of a viral disease in swine.

The E. C. Heffron Metrology Laboratory renders ultra-precise mass, volume and length calibration certification for Michigan businesses, and houses the consumer protection programs for Weights and Measures and Motor Fuels Quality. The Metrology Laboratory also conducts regulatory services; calibrating standards used for enforcement by the Michigan Treasury and Agriculture departments, Michigan State Police, and all county road commissions. The tests and analyses conducted by the lab assure that weights and measures in Michigan comply with national standards, making items eligible for international trade, and preventing economic fraud and deception. Division accomplishments for FY 2003 included:

- Completed a Laboratory Division Strategic Plan that identified five primary goals and numerous strategies for the division to accomplish in the next two years. Held a division wide meeting to present the Strategic Plan and discuss other issues such as budget, accreditation, safety and MDA program updates.
- Selected an off-the-shelf, web-based Laboratory Information Management System (LIMS) and began configuration work to implement the new LIMS in the Geagley Laboratory to provide future data handling requirements.
- Provided coaching and mentoring training for all division managers.
- Completed renovation of the greenhouse facility providing new glass panels, louvers and automatic environmental controls.
- Implemented or enhanced several internal administrative practices to help ensure smooth division operations, including:

    1. Successfully completed the first management review of the Administrative Section in September, 2003; no corrective actions were identified.

2. Wrote a division purchasing Standard Operating Procedure, which was approved by the Management Team, to meet ISO 17025 standards.

3. Conducted a financial audit under the provisions of the Single Audit Act in February, 2003, and implemented corrective action plans to address the findings.

4. Developed a new format for time and activity recording that distributes staff time, including leave times, to federal indexes and meets federal accounting requirements.

5. Provided administrative support assistance to implement the division's strategic plan which includes eWARS, Cyberlab and ISO 17025 accreditation.

6. Completed a review of standard supplies procedures and made changes to more accurately and uniformly distribute costs and provide substantial cost savings due to bulk ordering of items.

- Tested nearly 170,000 samples for Brucellosis, Equine Infectious Anemia, Pseudorabies, Johne's, Anaplasmosis and Bluetongue. Approximately 54,000 of these were service samples. Performed confirmation testing, in cooperation with the federal government, of Pseudorabies samples from the State of Alabama. Added a microbiologist to assist with tick tests for Rocky Mountain Spotted Fever and any unusual or developmental work in the laboratory.

- Initiated participation in a Johne's disease demonstration project, as part of a cooperative agreement with MSU and MDA's Animal Industry Division. The lab expects to receive and test approximately 4,000 of these samples during the project, which is ongoing.

- Celebrated the Animal Disease Surveillance section's successful completion of all annual federal proficiency and check test samples.

- Performed over 150,000 tests on approximately 23,000 samples in the Equine Drug Testing (EDT) laboratory. Over 14,000 of these samples were submitted for Total Carbon Dioxide (TCO2) testing only. The TC02 testing program has been operating since 1998 and over this past year, only one positive sample was found, indicating the program continues to have the desired effect on controlling abuses related to "milkshaking" in race horses.

MDA's Laboratory Division has state-of-the-art laboratory equipment and highly trained scientists and other staff to assure accurate results.

- In cooperation with Fairs, Exhibitions and Racing Division, EDT performed drug testing on approximately 1,500 harness horses racing at fairs and exhibitions throughout Michigan during the summer months.

- Participated in the "split-testing program", which offers confirmatory testing of samples that have been called "positive" in other states.

- Offered testing of animals at various livestock shows throughout Michigan and surrounding states to help ensure integrity in livestock competitions. This program has grown due to outreach efforts by the division at the annual Livestock Fair Shows Education Conference.

- Received and forwarded 18 samples to the FDA for mycotoxin or pesticide testing as part of a partnership agreement.
- Contracted with FDA to determine the suitability and performance of a rapid test kit for the detection of ruminant protein in animal feed and meat and bone meal.
- Received and tested forage samples for aflatoxin as part of a trace back investigation for a contaminated load of milk.
- Trained staff on microwave digestion equipment to speed up sample preparation for nutrient and metals analysis. Obtained updated chromatography software to facilitate increased drug residue testing in animal feeds.
- Continued progress toward full accreditation to the ISO 17025 standard for laboratory testing.
- Ensured accurate, timely sample test results were returned to customers through the data-related services of the laboratory's Information Services Group. In 2003, ISG provided: one-day turn-around support for 54,000 fee-generating samples for the Animal Disease Surveillance section; testing cards and final reports for 1,800 fee-generating seed samples and 1,110 official seed samples; and reports of analysis for 5,700 official samples for the Microbiology and Food, Feed and Fertilizer sections. The section also handled distribution for 21,000 EDT reports and 4,000 for Pesticide and Environment, Food, Feed and Fertilizer, Liquor Control and Motor Fuels Quality sections. Daily reports were also provided to MDA Finance and Administrative Services for billing for over 55,000 fee-generating tests.
- Retained the Microbiology Section's A2LA accreditation to ISO 17025 Standards in the field of biological testing through an on site audit that took place in June. An antimicrobial efficacy testing procedure was audited and added to the section's scope of accredited tests.
- Continued to work on two federally funded programs – Microbiology Data Program (MDP) and Antimicrobial Efficacy Testing. The MDP program received and tested (for *Salmonella* and *E. coli*) over 1,000 samples of tomatoes, celery, lettuce and cantaloupe in 2003. The Antimicrobial program received approximately 20 disinfectant samples during the fiscal year and successfully reported results on 28 product lots (some of the samples were collected during the previous year).

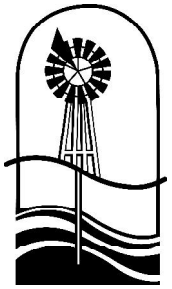
MDA inspector checks for gasoline quality and quantity.

- Received over 300 cider samples as part of a special cider project commissioned by the MSU National Food Safety and Toxicology Center. The samples were tested for coliforms, generic *E.coli*, standard plate count*, Salmonella sp., E. coli* O157:H7 and pH. Of those samples collected, 25 samples tested positive for generic *E. coli* with no pathogens being detected in any of the cider samples.
- Maintained certification for crucial dairy testing procedures through successful participation in yearly FDA proficiency samples.

- Responded to 1,025 consumer concerns about substandard gasoline and/or the wrong amount of gasoline. Retail investigations of gasoline marketers resulted in 75 administrative fines, 43 of those for sale of substandard fuels.
- Ordered the stop sale of gasoline at 62 retail stations because the gasoline contained water or otherwise failed to meet the state's quality standards. Over 720 warning letters were issued to firms who were found violating the law for licensing, water content, labeling and gasoline quality.
- Tested approximately 1,600 gasoline samples for octane, oxygenates, vapor pressure, sulfur content, and distillation range. Of those, 98 were found not to meet requirements for AKI Octane number.

- Obtained one ISL automated distillation apparatus that has aided tremendously in the unit's ability to maintain an acceptable analytical turnaround time.
- Monitored gasoline volatility at over 570 gasoline dispensing facilities to ensure that highly volatile fuels are not being sold in Southeastern Michigan reducing their contribution to air pollution in the summer months. This assisted the area in maintaining National Ambient Air Quality Standards. One gasoline dispensing facility was found to be dispensing high volatility gasoline during routine sampling and received a warning.
- Collected approximately 1,600 food samples for the Pesticide and Microbiological Data Programs (PDP, MDP) and the Triazole Sampling Project. Almost 70 percent of these samples were shipped to other states for analyses per the transshipping arrangement with USDA-PDP participants.
- Received 1,056 samples for pesticide residue analysis from food warehouses throughout the U.S., comparable to the 1,054 received in FY02. A total of 1,011 samples were reported with 623 found to contain pesticide residue, all well below federal tolerance levels.
- Developed and validated a new method for the analysis of sweet potatoes, which is more time and cost efficient and safer for employees. Michigan's Pesticide Data Program lab is the first in the nation to be able to switch to the new method. The MDA lab is analyzing for 30 percent more pesticide product residues in sweet potatoes than those analyzed in celery (USDA replaced celery sampling with sweet potatoes this year). Many of these are newer pesticides creating analytical challenges in their detection. The program continues to work toward meeting the variable needs of EPA in collecting data for registration of pesticides.
- Purchased two new analytical instruments (GC/MSD & LC/MS/MS) with federal funds to enhance pesticide residue testing capabilities. Both systems are up and running and are in the process of being validated. The Pulsed Flame Photometric Detector (PFPD) was validated and used for sweet potato analysis.
- Participated in three proficiency tests covering three commodities and 26 analytes, one from USDA-PDP and two from the Association of Official Analytical Chemists (AOAC). The PDP section performed well in all three. Internal proficiency checks were conducted by the Quality Assurance Section covering two commodities and 18 pesticide analytes this fiscal year.

- Progressed toward ISO 17025 accreditation with the completion by PDP staff of the Quality Manual and review of 71 of the 73 SOPs previously written. This resulted in 20 of these SOPs being archived. In addition, 13 new SOPs have been written. A GAP analysis has been completed by staff and most of the findings addressed. SOPs are now on a more rigorous schedule for review. Audits of the Section doubled in FY03 as compared to FY02.
- Analyzed multiple sample matrices for a broad range of pesticides.
- Analyzed 126 Use Investigation samples in support of investigations of complaints from the misuse of pesticides.
- Participated in an EPA funded Seed Corn Worker Protection Project. The joint project included MDA and Michigan State University to determine the exposure that farm workers receive from working in seed corn fields that were recently spayed with pesticides. A total of 162 samples were analyzed as part of the project.
- Analyzed groundwater samples submitted by the MDA Environmental Stewardship Division as part of the State Management Plan (SMP). The SMP is a partnership program of both MDA and EPA designed to monitor the possible exposure of groundwater to pesticides and fertilizers. Over 2,260 groundwater samples were screened for nitrates and triazine herbicides. Results of the screening tests identified 99 sites for additional confirmation testing.



- Analyzed cheese samples submitted by the MDA Food and Dairy Division to monitor for possible exposure of consumers to fat soluble pesticides. In FY 2003, 33 samples were analyzed, with no residues detected.
- Analyzed 46 pesticide formulation and 40 antimicrobial commercial products to ensure they met label claims.
- Conducted 9,383 weights and measures device inspections at 2,553 establishments. Investigated over 860 complaints involving allegations of short weight, short measure and item pricing violations. Of those inspected, 17.6 percent of the commercial devices failed to meet the requirements of state law.
- Issued 199 warning letters and held seven compliance meetings (compared with 127 and 12, respectively in 2002 and 121 and eight, respectively in 2001).
- Issued 26 consent agreements and conducted one prosecution for weights and measures, with fines and penalties assesses equaling $123,985.
- Fully implemented the new service registration program, with 186 servicepersons and 84 service agencies registered.
- Received continued accreditation for the E.C. Heffron Metrology Laboratory to the National Voluntary Laboratory Accreditation Program (NVLAP) and a Certificate of Measurement Traceability from the National Institute of Standards and Technology (NIST). NIST named the E.C. Heffron Metrology Laboratory as a regional small volume prover calibration laboratory and provided both technical and monetary support for the setup and accreditation of these calibrations.
- Tested over 11,000 commercial, law enforcement, and official legal metrology standards.

Michigan Agricultural Statistics

Dave Kleweno, Director
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Michigan Agricultural Statistics (MAS) is responsible for compiling Michigan's official agricultural information database, which was established under a formal agreement between Michigan and the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS).

MAS conducts numerous surveys and routinely prepares forecasts and estimates on acreage, yield and production of Michigan field crops, fruits and vegetables. Crop-weather information is provided weekly during the growing season to reflect current crop conditions and development progress. MAS also estimates Michigan's livestock, poultry and dairy populations, and tracks related commodity prices. The estimating program provides information on agricultural land values, farm numbers, land in farms, expenditures and labor. Growing areas, production, and value of Michigan's floriculture industry are published annually. Another significant survey component involves collection of agriculture pesticide use data. MAS also conducts the Michigan Census of Agriculture every five years; supplemental surveys are periodically performed for aquaculture, irrigation, horticulture, and land ownership. During 2003, MAS:

- Provided county estimates for 14 major crop and livestock commodities as part of a cooperative program with MDA.
- Published the results of the Michigan Turfgrass Survey, which collected turf management data for the first time from all sectors of the turfgrass industry. The survey, which began in the fall of 2002, shows the turfgrass industry annually contributes $1.8 billion to the state's economy.
- Collected data on the acreage, varieties, and rootstock of Michigan fruit crops. Questions were added to the survey to analyze the impact that abandoned orchards have on current operations. The results of the fruit tree inventory will be published in the summer of 2004.
- Prepared for the publication of the 2002 Census of Agriculture. Extensive analysis, summarization, and data preparation were involved for release of the information in February and June 2004.
- Prepared a special Michigan Farm Facts publication to provide a graphical snapshot of Michigan's agricultural industry based on the census of agriculture.

NASS
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UNITED STATES DEPARTMENT OF AGRICULTURE

- Provided support and the infrastructure necessary for growers to earn pesticide recertification credits for completing chemical use surveys. The PPPM Division approved three surveys in which growers could receive one credit for completing the survey. Many growers have expressed appreciation for this survey incentive and benefit.
- Collected chemical use information on corn, potatoes, six fruit crops, nursery crops, and floriculture crops. Survey data will be used to evaluate chemical use levels for the U.S. Environmental Protection Agency, which will in turn be used in setting worker safety standards and in administering the Food Quality Protection Act (FQPA).

- Partnered with the Michigan State University Project GREEEN (*Generating Research & Extension to meet Economic and Environmental Needs*) to collect 2003 chemical use information for grapes. Supplemental funding and program support allowed for the continuation of an uninterrupted data series, which has been published every two years beginning in 1991.
- Conducted the Farm and Ranch Irrigation Survey, a part of the Census of Agriculture. Irrigated farms were surveyed for information on crops irrigated and the practices being used. These data will be used extensively in establishing the state's water policy with respect to agricultural use.
- Released the annual agricultural statistics bulletin, which included details of 2002 production, stocks, inventory, disposition, utilization and prices of agricultural commodities. The publication included MDA's annual report, Michigan rankings, record highs and lows, county estimates, and chemical usage data. Due to budget limitations, a special four-page Highlights publication was produced to communicate the value of Michigan agriculture to a larger audience in a more economical fashion.
- Worked with the National Association of State Departments of Agriculture (NASDA), using telephone and field enumerator staff located throughout the state and employed by NASDA, to assist in collecting data from farmers and agribusinesses.

The Office of Racing Commissioner

Robert Geake, Racing Commissioner
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ORC stewards oversee every pari-mutuel horse race to assure fairness and safety.

The Office of Racing Commissioner (ORC) is an independent agency within MDA that regulates pari-mutuel horse racing in Michigan, in accordance with the state's Horse Racing Law and the rules of the Racing Commissioner.

The Racing Commissioner, appointed by the Governor for a four-year term, prescribes rules, regulations and conditions under which all pari-mutuel horse racing meets are conducted in the state.

The ORC allocates race dates and issues track, race meeting and occupational licenses. The office also collects license and track revenues, appoints stewards and veterinarians to represent the state, approves track-appointed officials, and monitors the daily conduct of horse racing. ORC also conducts equine and human drug testing programs, and investigates any irregularities in racing that may lead to formal hearings and sanctions. ORC functions primarily as a regulatory agency, but also focuses on improving and promoting horse racing in Michigan. During FY 2003, the ORC:

- Welcomed R. Robert Geake, who was appointed Racing Commissioner by the Governor on December 20, 2002.

- Won an important court decision when the Muskegon County Circuit Court denied a motion for a stay of the Horsemen's Simulcast Purse Pool Distribution Order for 2003 on April 17, 2003. The motion was sought by the Michigan Horsemen's Benevolent and Protective Association and the Great Lakes Downs track in Muskegon, to prevent the ORC from implementing the order for the distribution of 2003 purse pool funds among Michigan's seven tracks, as required by the Horse Racing Law of 1995, as amended.
- Promulgated a new rule regarding the process for determining the annual simulcast purse pool distribution order.

ORC evaluates winning race horses to assure performance enhancing drugs are not used.

- Increased the level of security at racetracks by implementing a video surveillance system in addition to mandatory sign-in procedures in the paddock and stable areas.
- Conducted investigations of an application to build a racetrack in the state filed by Triple Creek Associates on December 12, 2002.
- Continued the effort to eradicate West Nile virus from Michigan's equine population by encouraging vaccinations and surveillance of racing breeds.
- Assisted with the Criminal Justice Information Systems (CJIS) legislative committee for LIEN status upgrades.
- Strengthened enforcement of the law prohibiting telephone and Internet wagering in Michigan through collaboration with the Michigan Attorney General. As a result, XpressBet, Inc., of Pennsylvania notified all of its clients in Michigan that, under current state law, it cannot accept telephone or Internet wagers and will no longer do so.
- Implemented a simulcast tax deposit program for the seven pari-mutuel tracks in the state. This new program created substantial time savings for employees at the tracks, the ORC, the Michigan Department of Treasury, and MDA.
- Created preliminary guidelines to expand regulatory functions through the licensing of off-track training facilities in the state.
- Promoted public awareness of Michigan horse racing at the 2003 Michigan State Fair in Detroit as a featured exhibit in the Agriculture Building.

Pesticide and Plant Pest Management Division

Ken Rauscher, Director
(517) 373-1087

The Pesticide and Plant Pest Management (PPPM) Division is responsible for the enforcement of laws and regulations pertaining to the manufacture and distribution of agricultural products, the sale and use of pesticides, exotic pest interception and control, pest management, fruit and vegetable inspection and groundwater protection. In cooperation with multiple federal agencies, and under the authority of both state and federal laws, PPPM administers programs to protect human health and the environment from potential risks related to the improper use of pesticides. The division also oversees programs to control exotic pests, certify nursery stock and other plant material for interstate shipment, inspect and grade fruits and vegetables, and certify commodities for export. PPPM also ensures consumer protection through proper storage and labeling of agricultural products such as feed, seed, fertilizer and animal remedies. During fiscal year 2003, PPPM recorded many significant accomplishments. Of note are the many strides made in the attempt to control and eradicate the Emerald Ash Borer (EAB), a destructive insect of ash trees native to eastern Asia that was first discovered and identified in Michigan in the summer of 2002 in Southeast Michigan. During FY 03, PPPM:

- Extended the EAB quarantine in August 2003, to include an additional seven counties (Genesee, Ingham, Jackson, Lapeer, Lenawee, St. Clair, and Shiawassee). The quarantine prohibited the transport of ash trees and ash products from the quarantined counties unless chipped to one-inch in diameter or less.

Emerald Ash Borer quarantined area

- Identified and contacted firms and persons that may have artificially spread EAB, including nurseries, landscapers, firewood dealers, logging companies, utility companies, tree removal and trimming firms, municipalities and/or other government agencies involved with tree work, composting yards, and any ash material marshalling yards. In FY03, PPPM inspectors contacted approximately 7,300 of these firms/individuals.
- Investigated the movement of ash nursery stock, which is prohibited in Michigan's Lower Peninsula. Staff also monitored and surveyed the nurseries and surrounding areas for the presence of EAB. In 2003, 3,148 inspections were conducted.
- Conducted trace-back work for each EAB infestation found outside the generally infested area (outliers).
- Identified multiple outliers (infestations outside the core area). Outliers were prioritized for removal, based on their distance from the pest management zones and other criteria.

- Eradicated, in the spring of 2003, a population of EAB discovered in the Tipton area. Working with researchers at MSU and USDA to determine the extent of the infestation, PPPM hired contractors to remove and dispose of approximately 1,000 ash trees. PPPM monitored the site throughout the summer and found no return of EAB to the area.

EAB surveyors looking for signs of infestation

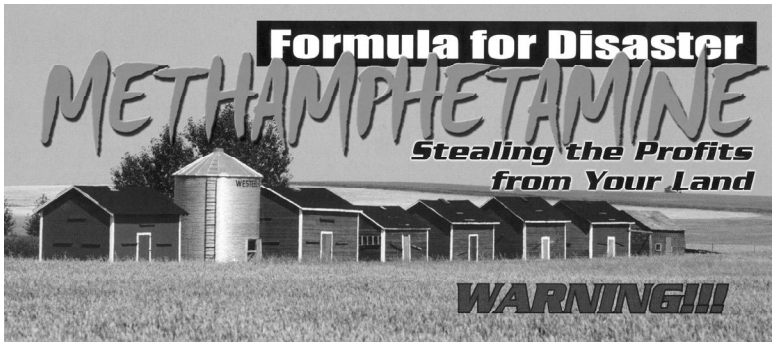
- Assisted researchers from MSU and USDA at outlier sites located around the state, by establishing "trap trees", removing and peeling bark from sections of trees, collecting larvae, and monitoring EAB at outlier sites in St. Clair and Ingham counties. Monitoring of these sites continues, with the possibility of eradication in 2004.
- Worked closely with the Southeast Michigan Council of Governments (SEMCOG) and other organizations to host EAB forums for legislators, elected officials, and other community leaders, as well as community information meetings.
- Developed, in cooperation with MSU Extension, an EAB outlier communication protocol and response format survey form for reporting new infestations outside the core area. The protocol/survey will ensure timely and uniform reporting of new infestations and information dissemination.
- Worked with PPPM regulatory staff and EAB partners to establish firewood alert checkpoints at key regional rest areas and welcome centers leaving the quarantined area on Labor Day weekend and prior to the beginning of firearm deer hunting season. Conducted radio, print and TV interviews to support the operation and to help further spread word of the quarantine.
- Developed a communications plan for the EAB outlier eradication program, including outreach to impacted residents, public officials and the media.
- Worked with the Governor's Office and EAB Task Force to present an EAB forum and tour for state legislators.
- Implemented the EAB Task Force recommendation for a no-cost disposal program to provide an incentive to bring ash material to specific government-sponsored locations thereby assuring containment and control over the movement of the EAB infested ash. The program included establishing four "marshalling yards" within the EAB infested core area, which received and disposed of ash materials from municipalities, contractors, and private citizens at no cost. This marshalling yard pilot project helped assure quarantine compliance by providing a disposal location for infested ash that was within the regulated area; and provided economic relief to all parties for the cost of disposal. In total, there were 38,563 tons of ash materials ground and incinerated in the period of March through September 2003.

- Initiated an EAB survey program aimed at defining the extent of the EAB infestation in Southeast Michigan and detecting outlying infestations beyond this generally infested area.
- Added nearly 60 new staff members during the summer of 2003, to perform and manage EAB survey activities. Surveyors follow survey protocol to inspect ash trees for symptoms at a density of one survey site per 10 acres while using GPS technology to navigate through survey plots and to record survey data. During the second half of 2003, surveyors logged 48,158 survey points, examined 300,000 ash trees, and covered over 600,000 acres (940 square miles).
- Examined ash trees at over 1,500 nurseries, campgrounds, sawmills, wood-burning power plants, and new construction sites throughout Michigan.
- Responded to approximately 2,000 calls received on the EAB toll-free hotline in 2003, resulting in the discovery of four outlier EAB infestations.
- Inspected and certified more than 12,000 acres of nursery stock and more than 19,000 acres (736 fields) of commercial Christmas tree production for compliance with interstate and international trade requirements.
- Issued 2,060 federal phytosanitary certificates for exports of agricultural commodities. Commodities certified for export included beans and grain, fruits and vegetables, logs and lumber and propagative plants and plant parts.
- Conducted 95 inspections at facilities producing or distributing animal feeds. PPPM inspectors have been inspecting feed manufacturing facilities throughout the state for compliance with FDA Bovine Spongiform Encephalopathy (BSE) regulations since 1998.
- Investigated four complaints alleging feed-related animal deaths or illnesses and submitted 789 samples to ensure feed safety and label guarantees.
- Collected leaf samples from 29,132 stone-fruit trees to test them for Plum Pox Virus (PPV), as part of a national survey. All samples tested negative, providing reassurance to Michigan's $1.7 million stone fruit nursery and orchard industry.
- Coordinated the gypsy moth cooperative suppression program, resulting in the treatment of 20,200 acres in five counties and providing relief to residents and communities in heavily infested areas.

MDA inspector gathers leaf samples from stone fruit trees for Plum Pox Virus surveillance testing.

- Conducted 3,211 shipping-point inspections and 932 market inspections to determine the grade of produce. Produce entering Michigan from other states and foreign countries, and destined for both the fresh market and processing, was also inspected as part of our Fruit and Vegetable Inspection Program.

- Submitted 17 requests to EPA for emergency exemptions to allow the use of an unregistered pesticide to control an emergency pest problem, in accordance with Section 18 of the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA).
- Conducted pesticide product and use-related inspections and investigations, including 132 pesticide use investigations, 42 of which occurred in agricultural situations; 75 planned use inspections, 32 of which occurred at commercial applicator facilities; 50 pesticide-producing establishment inspections; 21 federal marketplace inspections; 68 restricted use pesticide audits; and 1,261 compliance monitoring contacts/inspections.
- Cancelled the registration of three herbicides containing the active ingredient Dimethyl tetrachloroterephthalate (DCPA), also known as Dacthal, based on detection in groundwater at several Michigan locations. These were cancelled to protect the environment and human health.
- Participated, in conjunction with state partners, in the West Nile Virus (WNV) Core Work Group, coordinating state WNV surveillance and outreach and response activities.
- Administered 14,138 examinations to individuals seeking pesticide applicator certification or registration credentials and approved 702 seminars for recertification credits allowing 1,582 applicators to renew their credentials through continuing education programs.
- Conducted more than 529 sanitation inspections of Michigan's 364 grain elevators and feed manufacturing facilities to ensure the safety and integrity of raw grain commodities in storage.
- Continued a partnership with state agencies and stakeholders to advise agricultural dealers and farmers on how they can help deter illicit use of anhydrous ammonia while protecting its safe, intended use. Projects included presentations, press conferences, creating and updating Internet site information, and distributing bumper stickers, brochures, and tabletop displays to agricultural-related groups.



- Conducted annual inspections of commercial facilities storing bulk pesticides and fertilizers to ensure that all commercial facilities storing bulk agrichemcials in Michigan have containment.
- Conducted precision, safety and security inspections of aircraft and spray systems as part of the annual Operation SAFE Fly-In. Seven pilots (all from Michigan), making nine flights over the calibration card line, participated in this year's Operation SAFE, sponsored jointly with the Michigan Agricultural Aviation Association and Michigan State University Extension. The program facilitates partnerships key to ensuring that aerial application standards for safety and security are met and that training and equipment are up-to-date.

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Rank in U.S. agriculture by selected commodities, 2003

Rank	Item	Unit	Quantity	Percent of U.S.	Leading state
			Thousands	*Percent*	
1	Beans, dry, black	Cwt	680	53.8	Michigan
	Beans, dry, cranberry	Cwt	142	74.7	Michigan
	Beans, dry, small red	Cwt	280	48.2	Michigan
	Blueberries	Pounds	62,000	32.8	Michigan
	Cherries, tart	Pounds	154,000	68.0	Michigan
	Cucumbers (for pickles)	Tons	180.9	27.9	Michigan
	Flowering hanging baskets	Number	4,781	12.2	Michigan
	Geraniums (seed and cuttings)	Pots	18,423	19.1	Michigan
	Grapes, Niagara	Tons	27.0	37.7	Michigan
	Impatiens	Flats	2,383	17.3	Michigan
	Petunias	Flats	1,641	14.2	Michigan
2	Carrots (fresh market)	Cwt	1,575	4.8	California
	Celery	Cwt	1,166	6.2	California
	Hosta	Pots	1,912	14.5	South Carolina
	Marigolds	Flats	823	12.7	California
	Other potted perennials	Pots	20,949	11.5	South Carolina
3	Apples	Pounds	840,000	9.8	Washington
	Asparagus	Cwt	317	15.5	California
	Beans, dry, all	Cwt	2,475	11.0	North Dakota
	Beans, dry, dark red kidney	Cwt	120	14.2	Minnesota
	Beans, dry, light red kidney	Cwt	239	21.5	Nebraska
	Beans, dry, navy	Cwt	592	23.5	North Dakota
	Vegetable type bedding plants	Flats	505	6.5	California
4	Carrots (processing)	Tons	33.6	7.6	Washington
	Cherries, sweet	Tons	13.0	5.2	Washington
	Cucumbers (fresh market)	Cwt	1,024	10.1	Florida
	Grapes, all	Tons	94.5	1.4	California
	Grapes, Concord	Tons	51.0	11.9	Washington
	Plums	Tons	3.6	22.1	California
	Pumpkins	Cwt	770	10.4	Illinois
	Squash	Cwt	1,178	14.6	California
	Sugarbeets	Tons	3,400	11.1	Minnesota
	Tomatoes (processing)	Tons	117.8	1.2	California
5	Beans, snap (processing)	Tons	45.0	6.2	Wisconsin
	Maple syrup	Gallons	59	4.8	Vermont
8	Milk	Pounds	6,360,000	3.7	California
10	Potatoes	Cwt	15,015	3.3	Idaho
11	Corn, for grain	Bushels	263,340	2.6	Iowa
13	Hogs, as of Dec. 1	Head	950	1.5	Iowa
	Soybeans	Bushels	53,730	2.2	Iowa
14	Wheat, winter	Bushels	44,880	2.6	Kansas
22	Hay, all	Tons	3,120	2.0	Texas
	Cash receipts	Dollars	3,390,072	1.8	California
30	Cattle, as of Jan. 1	Head	1,030	1.1	Texas

Number of farms and land in farms by economic sales class, 1999-2003 [1]

Year	Economic sales class					Total	Average size of farm
	$1,000-$9,999	$10,000-$99,999	$100,000-$249,999	$250,000-$499,999	$500,000+		
	1,000 farms	*1,000 farms*	*1,000 farms*	*1,000 farms*	*1,000 farms*	*1,000 farms*	
1999	29.0	16.7	3.8	2.1	1.4	53.0	
2000	29.4	16.5	3.6	2.0	1.5	53.0	
2001	30.7	15.5	3.4	1.9	1.5	53.0	
2002	31.7	15.1	3.2	1.8	1.5	53.3	
2003	31.7	15.1	3.2	1.8	1.5	53.3	
	Million acres	*Million acres*	*Million acres*	*Million acres*	*Million acres*	*Million acres*	*Acres*
1999	1.96	2.75	1.84	1.56	2.08	10.19	192
2000	1.97	2.70	1.78	1.57	2.13	10.15	192
2001	1.98	2.68	1.70	1.58	2.18	10.12	191
2002	1.99	2.66	1.63	1.59	2.22	10.09	189
2003	2.00	2.60	1.65	1.59	2.25	10.09	189

[1] USDA estimates of farm number and land in farms are based on the definition "a farm is any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year."

Farm real estate: Values and cash rents, 2000-2004

Year	Farm real estate average value per acre	Cropland	
		Average value per acre	Average cash rent per acre
	Dollars	*Dollars*	*Dollars*
2000	2,090	1,820	60
2001	2,280	1,980	60
2002	2,470	2,150	60
2003	2,680	2,350	60
2004	2,920	2,550	62

Farm Income

Net farm income in 2003 rose 57 percent to $466 million. That includes $255 million of government payments. The total agriculture output was $4.43 billion dollars, up 7.9 percent from 2002. Production expenses were $4.21 billion in 2003, up 5.5 percent from the previous year.

Preliminary cash receipts from 2003 marketings of Michigan crops, livestock and livestock products totaled $3.82 billion, up 10.3 percent from 2002. Michigan ranked twenty-second nationally in total cash receipts.

Crop receipts, at $2.42 billion, were up 11.3 percent from 2002. Increases were noted in the market value of fruit crops, field crop and vegetable marketings. Livestock cash receipts were up 8.5 percent from a year earlier to $1.40 billion.

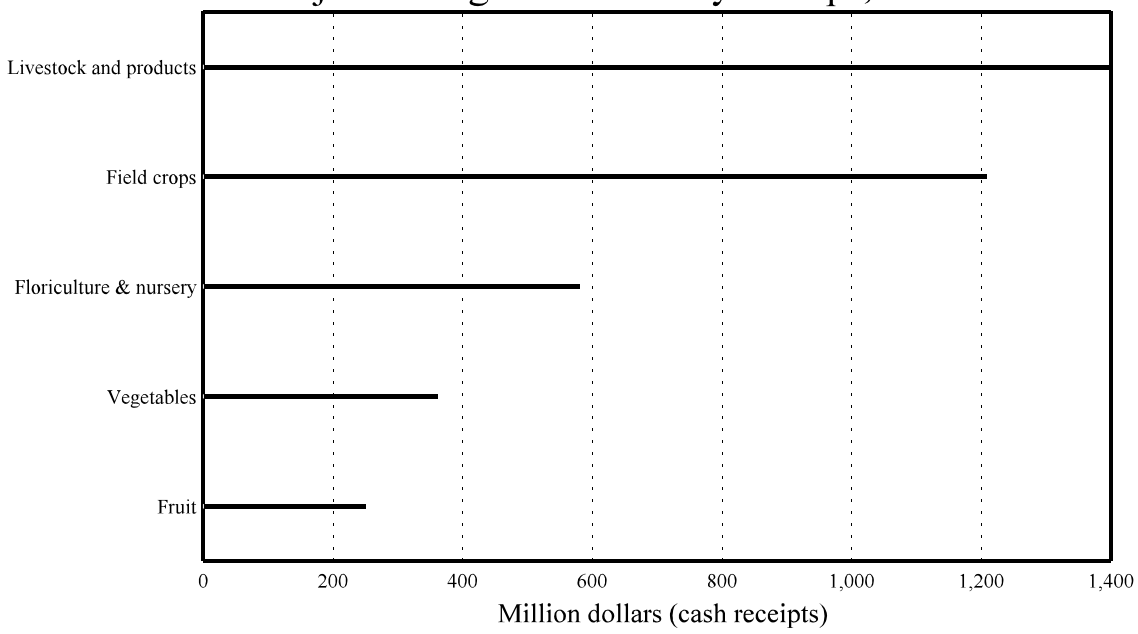
In 2003, the top ten Michigan commodities ranked by cash receipts were: milk, corn, soybeans, annual bedding plants, cattle and calves, hogs, woody ornamentals, wheat, sugarbeets, and eggs.

Government payments, 1999-2003 [1]

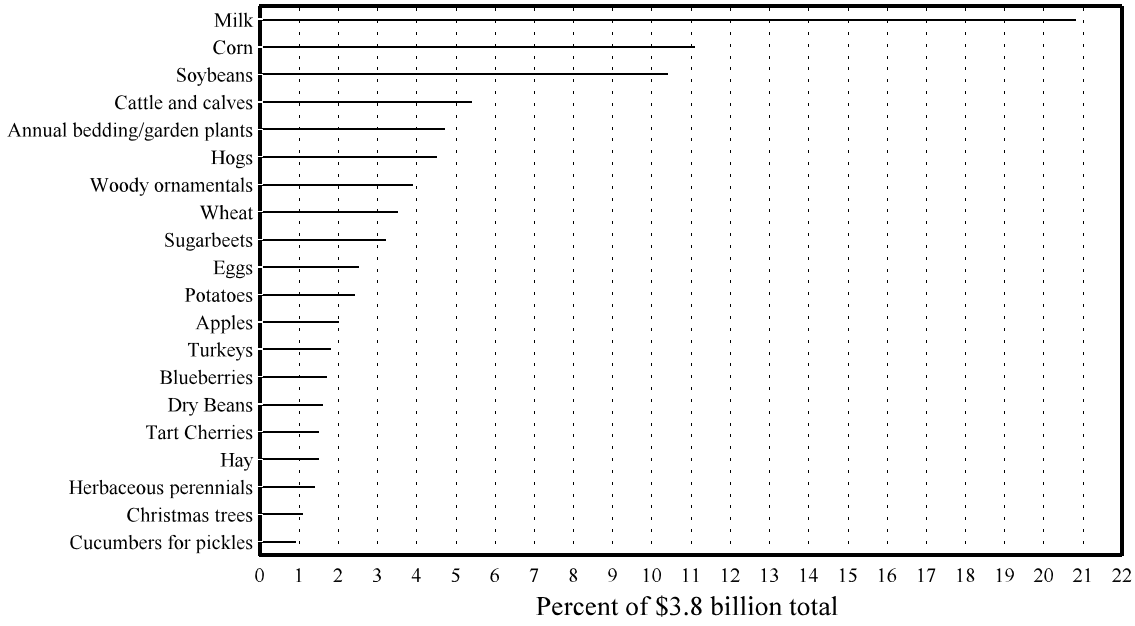
Program	1999	2000	2001	2002	2003
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Conservation programs	16,893	16,842	21,335	28,193	32,084
Production flexibility contract payments	87,116	87,564	68,405	59,438	-5,415
Direct payments	NA	NA	NA	1,684	122,138
Loan deficiency payments	131,482	112,565	101,666	24,332	897
Miscellaneous programs	10,569	17,713	17,962	[2] 37,651	[2] 67,998
Supplemental Funding	[3] 143,076	146,372	143,398	NA	NA
Milk income loss payments	NA	NA	NA	37,215	37,271
Total	389,099	381,056	352,766	188,513	254,973

[1] Source: U.S. Department of Agriculture, Economic Research Service.
[2] Programs included are marketing loan gains, ad hoc payments, and counter cyclical payments; CAT, NAP, and repayments are no longer included.
[3] Provided by the Omnibus Supplemental Appropriations Act of 1999 and the Emergency Assistance Provisions of Agriculture Appropriation 2000.

Major Michigan Commodity Groups, 2003



Top 20 Commodities in Cash Receipts, 2003



Value added to the economy by the Michigan agricultural sector 1999-2003 [1]

Item [2]	1999	2000	2001	2002	2003
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
Final crop output	2,272.3	2,000.8	1,888.1	2,264.5	2,401.2
Food grains	71.5	78.4	99.4	103.4	134.2
Feed crops	369.5	344.6	405.8	438.7	486.7
Oil crops	312.2	324.5	293.0	364.0	398.1
Fruits and tree nuts	246.4	238.5	214.7	155.1	250.5
Vegetables, potatoes, dry beans	452.0	402.6	349.6	400.7	421.4
All other crops	683.2	594.5	654.3	713.1	730.6
Home consumption	6.7	7.0	6.6	5.1	5.3
Value of inventory adjustment [3]	130.8	10.7	-135.3	84.4	-25.6
Final animal output	1,299.1	1,314.6	1,511.2	1,285.8	1,445.6
Meat animals	387.9	458.7	442.9	371.7	385.1
Dairy products	801.4	729.5	883.1	733.3	793.8
Poultry and eggs	97.2	104.2	124.8	133.3	169.7
Miscellaneous livestock	47.6	47.1	47.2	51.7	50.7
Home consumption	3.4	2.6	2.4	1.9	2.0
Value of inventory adjustment [3]	-38.5	-27.4	10.7	-6.1	44.4
Services and forestry	483.2	479.2	639.9	552.4	578.3
Machine hire and custom work	39.6	31.6	59.0	35.8	53.3
Forest products sold	10.0	10.0	10.0	11.9	11.9
Other farm income	95.6	92.6	125.0	95.6	97.7
Gross imputed rental value-farm dwellings	338.0	345.0	446.0	409.1	415.4
Final agricultural sector output	4,054.6	3,794.6	4,039.2	4,102.7	4,425.2
less: Purchased inputs	2,175.3	2,243.4	2,444.0	2,329.5	2,515.8
Farm origin	632.8	674.3	731.0	713.8	734.2
Feed purchased	329.7	345.0	372.0	347.8	375.0
Livestock and poultry purchased	45.3	54.9	61.1	44.1	42.3
Seed purchased	257.7	274.4	297.9	321.9	316.9
Manufactured inputs	643.3	689.1	706.4	674.8	784.4
Fertilizers and lime	238.3	241.2	265.3	232.4	286.5
Pesticides	224.1	233.2	221.1	225.3	242.9
Petroleum fuel and oils	124.7	159.8	160.7	153.9	175.0
Electricity	56.3	54.9	59.3	63.2	80.0
Other intermediate expenses	899.2	879.9	1,006.5	940.9	997.1
Repair and maintenance of capital items	298.8	276.1	379.4	359.5	334.4
Machine hire and custom work	68.5	72.2	116.6	47.2	27.5
Marketing, storage, and transp. Expenses	113.9	122.6	96.1	100.3	135.4
Contract labor	16.5	14.9	25.0	18.2	17.7
Miscellaneous expenses	401.5	394.1	389.4	415.7	482.2
plus: Net government transactions	167.6	132.5	99.8	-63.1	46.8
plus: Direct Government payments	401.4	381.1	352.8	188.5	255.0
less: Motor vehicle reg. And licensing fees	9.3	8.6	10.0	8.3	9.4
less: Property taxes	224.5	239.9	242.9	243.3	198.7
Gross value added	2,046.9	1,683.8	1,695.1	1,710.2	1,956.2
less: Capital consumption	562.5	581.0	594.8	603.3	602.2
Net value added	1,484.5	1,102.8	1,100.3	1,106.9	1,354.1
less: Payments to stakeholders	789.6	844.4	817.9	810.2	887.6
Employee compensation (total hired labor)	495.5	563.0	553.2	551.7	600.0
Net rent received by nonoperator landlords	37.6	9.8	18.1	24.5	50.6
Real estate and nonreal estate interest	256.5	271.6	246.6	234.0	237.0
Net farm income	694.9	258.4	282.3	296.7	466.5

[1] Source: U.S. Department of Agriculture, Economic Research Service.

[2] Final sector output is the gross value of the commodities and services produced within a year. Net value-added is the sector's contribution to the National economy and is the sum of the income from production earned by all factors-of-production. Net farm income is the farm operator's share of income from the sector's production activities. The concept presented is consistent with that employed by the Organization for Economic Cooperation and Development.

[3] A positive value of inventory change represents current-year production not sold by December 1. A negative value is an offset to production from prior years included in current-year sales.

Cash receipts by commodity groups and selected commodities 1999-2003 [1]

Item	1999	2000	2001	2002	2003
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Total cash receipts	3,468,953	3,322,484	3,514,867	3,464,912	3,820,824
Total livestock and products	1,334,222	1,339,468	1,498,038	1,289,953	1,399,301
Meat animals	387,946	458,683	442,850	371,705	385,053
Cattle and calves	235,830	255,892	227,930	204,587	207,722
Hogs	149,937	200,485	212,599	164,324	173,671
Sheep and lambs	2,179	2,306	2,321	2,794	3,660
Dairy (milk)	801,420	729,495	883,120	733,260	793,800
Poultry and eggs	97,214	104,230	124,843	133,282	169,734
Eggs	53,655	56,464	61,063	63,237	93,762
Turkeys	35,092	40,460	56,700	62,832	68,760
Other	8,467	7,306	7,080	7,213	7,212
Miscellaneous livestock	47,642	47,060	47,225	51,706	50,714
Honey	4,095	3,240	3,694	7,762	7,071
Mink pelts	1,339	1,719	1,445	1,809	1,744
Trout	1,113	1,037	823	663	346
Other	41,095	41,064	41,263	41,472	41,553
Total crops	2,134,731	1,983,016	2,016,829	2,174,959	2,421,523
Field crops	1,012,478	937,592	941,341	1,084,585	1,207,678
Corn	328,897	295,917	346,105	381,547	425,211
Dry beans	135,567	75,340	24,669	50,068	60,274
Hay	35,272	45,379	56,232	51,871	56,642
Soybeans	311,866	324,092	292,548	363,489	397,513
Sugarbeets	115,915	106,514	112,056	122,393	122,393
Wheat	70,789	77,613	98,841	102,938	133,686
Other	14,172	12,737	10,890	12,279	11,959
Vegetables	316,386	327,279	324,975	350,635	361,150
Asparagus	18,822	18,075	12,516	11,703	19,278
Beans, snap	19,493	16,778	15,614	16,321	11,208
Carrots	16,717	19,292	25,358	19,934	21,907
Celery	11,005	13,421	12,650	14,441	17,641
Corn, sweet	13,282	13,430	11,880	16,800	14,193
Cucumbers, fresh	22,506	25,192	24,200	20,520	20,890
Cucumbers, pickles	26,076	38,700	30,843	30,153	36,180
Onions	8,866	9,127	8,124	9,851	12,562
Peppers, green, fresh	9,600	10,395	8,008	9,600	9,900
Potatoes	82,258	87,362	91,478	93,143	90,145
Pumpkins	NA	8,448	6,336	13,056	14,308
Squash	NA	9,333	15,254	22,365	15,314
Tomatoes, fresh	16,549	18,115	13,230	12,810	16,456
Tomatoes, processing	7,308	6,804	8,432	10,458	10,408
Other	63,904	32,807	41,052	49,480	50,760
Fruit	246,377	238,523	214,682	155,110	250,457
Apples	98,551	91,304	78,217	67,091	74,927
Blueberries	54,660	55,140	49,840	52,240	63,120
Grapes	21,083	24,156	10,110	14,757	24,800
Peaches	5,440	11,340	12,503	4,452	7,790
Strawberries	6,412	6,145	4,682	5,228	6,320
Sweet cherries	14,149	10,290	11,092	2,222	11,662
Tart cherries	42,134	36,370	44,412	7,192	57,938
Other	3,948	3,778	3,826	1,928	3,900
Miscellaneous crops	16,551	17,670	20,086	21,851	22,274
Floriculture and nursery	542,939	461,952	515,745	562,778	579,964

[1] Source: U.S. Department of Agriculture, Economic Research Service.

Corn production costs and returns, excluding direct Government payments, 2001-2002

Item	United States		Northern Crescent [1]	
	2001	2002	2001	2002
	Dollars per planted acre	*Dollars per planted acre*	*Dollars per planted acre*	*Dollars per planted acre*
Gross value of production	266.92	312.82	220.85	299.37
Operating costs:				
Seed	32.34	31.84	31.72	33.17
Fertilizer	47.72	35.49	45.36	35.51
Soil conditioners	0.12	0.12	0.44	0.45
Manure	2.65	2.13	10.37	8.78
Chemicals	26.44	26.11	25.40	25.43
Custom operations	10.94	10.79	11.08	11.47
Fuel, lube, and electricity	20.88	18.93	17.94	17.60
Repairs	13.76	13.91	13.93	14.54
Other variable cash expenses	0.22	0.22	0.00	0.00
Interest on operating capital	2.60	1.17	2.61	1.24
Total, operating costs	157.67	140.71	158.85	148.19
Allocated overhead:				
Hired labor	2.92	3.06	3.48	3.63
Opportunity cost of unpaid labor	24.96	25.74	34.54	34.17
Capital recovery of machinery and equipment	54.69	55.26	57.01	59.43
Opportunity cost of land (rental rate)	86.50	87.44	67.56	67.44
Taxes and insurance	5.49	5.42	5.72	5.65
General farm overhead	11.67	11.91	15.34	15.85
Total, allocated overhead	186.23	188.83	183.65	186.17
Total, costs listed	343.90	329.54	342.50	334.36
Value of production less total costs listed	-76.98	-16.72	-121.65	-34.99
Value of production less operating costs	109.25	172.11	62.00	151.18
Supporting information:				
Yield (bushels per planted acre)	144	134	118	127
Price (dollars per bushel at harvest)	1.84	2.32	1.84	2.32
Enterprise size (planted acres) [2]	236	236	138	138
Production practices: [2]				
Irrigated (percent)	14	14	4	4
Dryland (percent)	86	86	96	96

[1] Includes NE Minnesota, Wisconsin, Michigan, NE Ohio, Pennsylvania, New York, and New England.
[2] Developed from survey base year, 2001.

Livestock and products: Marketing year average prices received by farmers, 1999-2003

Marketing year	All hogs per cwt	All beef per cwt [1]	Cows per cwt [2]	Steers and heifers per cwt	Milk cows per head [3]	Calves per cwt	Market eggs per dozen	All milk wholesale per cwt	Turkeys per pound [4]
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1999	29.80	50.50	35.30	58.70	1,310	68.90	0.420	14.80	0.41
2000	40.70	56.00	38.10	63.60	1,350	102.00	0.419	12.90	0.34
2001	41.70	58.80	41.70	66.10	1,460	109.00	0.437	15.20	0.35
2002	30.70	54.20	39.00	60.50	1,580	104.00	0.403	12.10	0.35
2003	35.00	63.00	41.60	72.00	1,370	92.50	0.595	12.60	0.36

[1] Combined price for "Cows" and "Steers and Heifers."
[2] Beef cows and cull dairy cows sold for slaughter.
[3] Sold for dairy herd replacement only. Prices published January, April, July, and October.
[4] Data not available prior to 1999.

Livestock and products: Monthly prices received by farmers, 2003-2004

2002-2003 Marketing years	All hogs per cwt	Beef cattle per cwt [1]	Cows per cwt [2]	Steers and heifers per cwt	Milk cows per head [3]	Calves per cwt	Market eggs per dozen	All milk wholesale per cwt
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
2002								
December	28.40						0.540	
2003								
January	29.20	54.90	36.00	63.00	1,400	92.00	0.530	11.80
February	32.00	57.50	37.50	66.00		90.00	0.450	11.60
March	32.20	58.60	39.00	67.00		88.00	0.540	11.00
April	32.70	59.60	40.00	68.00	1,350	88.00	0.540	11.10
May	37.40	61.80	42.50	70.00		91.00	0.390	11.30
June	41.10	63.00	42.00	72.00		95.00	0.500	11.10
July	40.40	62.20	44.00	70.00	1,350	93.00	0.540	12.00
August	39.40	63.20	45.00	71.00		94.00	0.710	13.00
September	37.40	66.20	45.50	75.00		95.00	0.680	14.60
October	36.50	67.70	46.00	77.00	1,400	95.00	0.720	15.20
November	33.70	70.40	48.00	80.00		95.00	0.990	14.70
December		70.40	48.00	80.00		94.00		14.00
2003								
December	33.60						0.770	
2004								
January	34.10	64.60	45.00	73.00	1,450	90.00	0.840	13.30
February	39.40	64.50	47.00	72.00		95.00	0.780	13.60
March	43.40	66.30	46.00	75.00		95.00	1.030	15.30
April	43.10	67.60	48.00	76.00	1,600	100.00	0.590	18.00
May	49.30	72.60	53.00	81.00		110.00	0.450	19.70
June	52.20	75.00	54.00	84.00		120.00	0.490	19.70
July								
August								
September								
October								
November								
December								

[1] Combined price for "Cows" and "Steers and Heifers."
[2] Beef cows and cull dairy cows sold for slaughter.
[3] Sold for dairy herd replacement only. Prices published January, April, July, and October.

Dry edible beans: Percent of sales by month, 1998-2003

Month	1998-99	1999-00	2000-01	2001-02	2002-03
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
September	30	49	10	5	12
October	12	17	23	13	27
November	6	3	14	23	16
December	10	3	28	18	4
January	20	3	10	11	4
February	5	1	4	9	2
March	3		5	7	8
April	4	3	1	4	2
May	7	2	2	2	
June	1	3	1	2	3
July	1	5	1	1	4
August	1	11	1	5	18

Corn: Percent of sales by month, 1998-2003

Month	1998-99	1999-00	2000-01	2001-02	2002-03
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
October	16	20	9	9	15
November	14	19	14	27	23
December	14	8	12	8	10
January	12	15	12	10	14
February	6	4	7	4	8
March	8	7	7	3	6
April	3	4	6	5	6
May	4	4	4	3	6
June	5	4	5	5	3
July	5	4	11	10	4
August	9	6	7	9	3
September	4	5	6	7	2

Hay: Percent of sales by month, 1998-2003

Month	1998-99	1999-00	2000-01	2001-02	2002-03
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
June	13	17	12	18	16
July	13	10	12	17	13
August	9	9	8	16	8
September	6	3	5	6	5
October	6	7	7	6	7
November	5	8	10	7	8
December	6	14	12	6	11
January	7	10	8	6	9
February	11	9	9	6	9
March	11	6	8	4	6
April	9	5	6	4	5
May	4	2	3	4	3

Oats: Percent of sales by month, 1998-2003

Month	1998-99	1999-00	2000-01	2001-02	2002-03
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
July	23	17	9	19	16
August	25	35	37	19	50
September	9	11	6	4	7
October	3	7	3	3	5
November	2	1	4	2	1
December	2	4	4	6	2
January	4	2	9	5	2
February	7	3	8	2	1
March	2	6	4	28	5
April	5	3	3	2	4
May	9	3	4	6	6
June	9	8	9	4	1

Soybeans: Percent of sales by month, 1998-2003

Month	1998-99	1999-00	2000-01	2001-02	2002-03
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
September	12	8	6	2	5
October	34	33	25	25	30
November	8	7	11	20	9
December	9	7	9	6	9
January	8	12	14	9	10
February	5	3	6	4	9
March	7	7	5	6	5
April	5	4	7	2	7
May	2	3	8	2	5
June	4	4	5	7	6
July	3	4	3	9	3
August	3	8	1	8	2

Wheat: Percent of sales by month, 1998-2003

Month	1998-99	1999-00	2000-01	2001-02	2002-03
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
July	30	42	32	50	49
August	12	18	15	18	19
September	21	2	12	7	8
October	4	2	6	4	6
November	3	1	1	2	1
December	6	1	3	4	1
January	5	12	11	4	4
February	3	2	6	3	2
March	6	12	5	1	1
April	3	3	5	4	2
May	3	2	2	1	2
June	4	3	2	2	5

Crops: Marketing year average prices received by farmers, 1999-2003 [1]

Year	Corn per bushel	Winter wheat per bushel	Oats per bushel	Soybeans per bushel	Dry beans per cwt	Navy beans per cwt	Fall potatoes per cwt	All hay per ton	Alfalfa hay per ton
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1999	1.78	2.12	1.35	4.61	16.80	NA	6.80	69.00	72.00
2000	1.90	2.11	1.30	4.54	13.70	NA	6.70	62.50	64.50
2001	1.97	2.43	1.80	4.47	24.60	NA	7.65	70.50	73.50
2002	2.34	3.28	1.80	5.62	15.30	NA	7.80	84.50	86.50
2003	2.40	3.30	1.60	7.20	18.60	NA	7.05	89.00	95.00

[1] Marketing year average prices received by farmers are based on monthly prices weighted by monthly marketings during specific periods. Prices do not include allowance for CCC loans outstanding, purchases by the government, or deficiency payments.

Crops: Monthly prices received by farmers, 2002-2003

Year	Corn per bushel	Winter wheat per bushel	Oats per bushel	Soybeans per bushel	Dry beans per cwt	Navy beans per cwt	Fall potatoes per cwt	All hay per ton	Alfalfa hay per ton
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
2002									
June								54.00	55.00
July		3.11	1.80				9.70	63.00	65.00
August		3.34	1.70				7.20	85.00	85.00
September		3.54	1.66	5.37	15.70	15.00	6.50	84.00	85.00
October	2.33	3.76	([2])	5.27	14.80	14.80	6.40	89.00	90.00
November	2.31	3.87	1.64	5.59	13.00	11.40	7.05	104.00	105.00
December	2.30	3.39	1.82	5.66	15.20	13.00	7.40	99.00	100.00
2003									
January	2.33	3.53	1.97	5.68	17.40	10.50	7.75	95.00	95.00
February	2.36	3.17	1.84	5.63	15.70	11.60	8.10	98.00	100.00
March	2.41	3.35	2.39	5.73	12.50	9.50	8.70	103.00	105.00
April	2.43	3.26	2.15	5.94	17.70	11.60	9.10	99.00	100.00
May	2.45	3.20	2.13	6.28	15.20	12.60	9.30	99.00	100.00
June	2.43	([2])	2.22	6.08	14.00	13.90	([1])		
July	2.26			6.04	18.50	15.10			
August	2.23			5.91	17.80	15.60			
September	2.28								
2003									
June								89.00	95.00
July		3.10	1.84				8.70	89.00	95.00
August		3.26	1.53				6.20	90.00	90.00
September		3.20	1.52	6.16	18.40	17.50	5.40	89.00	90.00
October	2.06	3.19	1.52	6.55	18.70	17.70	5.30	84.00	85.00
November	2.09	3.51	1.63	6.96	18.80	17.60	6.70	99.00	100.00
December	2.23	3.63	1.96	7.06	19.00	20.00	7.05	99.00	100.00
2004									
January	2.35	3.58	1.88	7.25	18.80	17.10	7.10	99.00	100.00
February	2.62	3.75	([2])	8.21	20.50	18.60	7.40	103.00	105.00
March	2.78	3.64	1.96	9.01	21.10	19.60	7.90	98.00	100.00
April	2.92	3.74	2.07	9.57	20.10	18.30	8.25	114.00	115.00
May	2.82	3.63	2.07	9.54	21.40	20.00	8.40	99.00	100.00
June	2.77	3.16	2.09	9.01	19.90	19.90	([1])	84.00	90.00
July									
August									
September									

[1] Insufficient sales to establish a price.
[2] Price not published to avoid disclosure of individual firms.

Prices paid by farmers, 2000-2004 [1]

Item	Unit	2000	2001	2002	2003	2004
		Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Dairy feed, 16% protein [2]	Ton	167	184	184	190	216
Hog concentrate, 38-42% protein [2]	Ton	288	290	298	313	393
Soybean meal, 44% protein [2]	Cwt	10.90	11.00	11.50	11.70	17.40
Gasoline, unleaded, bulk [2]	Gallon	1.48	1.48	1.40	1.64	1.76
Diesel fuel [2]	Gallon	1.12	1.15	1.00	1.28	1.32
Tractor, 110-129 hp [3]	Each	62,400	63,000	63,700	63,800	65,700
Tractor, 200-280 hp, 4-wd [3]	Each	120,000	127,000	132,000	133,000	141,000
Planter, row crop, 8-row [3]	Each	26,900	28,800	29,000	30,000	32,000
Grain drill, press, 23-25 openers [3]	Each	17,500	18,500	23,100	20,300	22,600
Combine, self-prop. W/ grain head, large cap. [3]	Each	146,000	152,000	156,000	159,000	180,000
Ammonium nitrate [4]	Ton	181	243	180	224	243
Muriate of potash 60-62% K_2O [4]	Ton	162	167	161	162	178
Superphosphate, 44-46% P_2O_5 [4]	Ton	227	229	215	238	261
Anhydrous ammonia [4]	Ton	231	408	254	368	387
Atrazine, 4#/gallon [3]	Gallon	13.60	12.50	12.20	12.30	12.20
Roundup, 4#/gallon EC [3]	Gallon	43.30	44.50	43.50	43.30	39.70
Harness, Surpass, 6.4-7#/gallon [3]	Gallon	68.40	68.90	68.10	68.20	71.40
Dual, 8#/gallon EC [3]	Gallon	82.60	94.50	99.00	104.00	106.00
Captan, 50% WP [3]	Pound	3.45	3.61	3.76	3.50	3.52
Ziram, 76% WP [3]	Pound	2.72	2.82	2.82	2.70	2.67
Guthion, 50% WP [3]	Pound	9.68	9.87	10.60	10.60	10.70
Imidan, Prolate, 50% WP [3]	Pound	6.59	6.98	7.30	7.40	7.45

EC=Emulsifiable concentrate. WP=Wettable powder.
[1] Regional and U.S. data only. Published in April.
[2] Lake States=MI, MN, WI.
[3] United States.
[4] North Central Region=IL,IN, IA, MI, MN, MO, OH, WI.

Farm production expenses, 1999-2003

Item	1999	2000	2001	2002	2003
	Million dollars	*Million dollars*	*Million dollars*	*Million dollars*	*Million dollars*
Feed purchased	329.7	345.0	372.0	347.8	375.0
Livestock and poultry purchased	45.3	54.9	61.1	44.1	42.3
Seed purchased	257.7	274.4	297.9	321.9	316.9
Fertilizers and lime	238.3	241.2	265.3	232.4	286.5
Pesticides	224.1	233.2	221.1	225.3	242.9
Petroleum fuel and oils	124.7	159.8	160.7	153.9	175.0
Electricity	56.3	54.9	59.3	63.2	80.0
Repair and maintenance of capital items	298.8	276.1	379.4	359.5	334.4
Machine hire and custom work	68.5	72.2	116.6	47.2	27.5
Contract and hired labor expenses	512.1	577.9	578.2	569.9	617.7
Marketing, storage, and transportation expenses	113.9	122.6	96.1	100.3	135.4
Capital consumption	562.5	581.0	594.8	603.3	602.2
Real estate and nonreal estate interest	256.5	271.6	246.6	234.0	237.0
Property taxes	224.5	239.9	242.9	243.3	198.7
Net rent received by nonoperator landlords	37.6	9.8	18.1	24.5	50.6
Miscellaneous expenses	401.5	394.1	389.4	415.7	482.2
Total production expenses	3,751.8	3,908.6	4,099.7	3,986.2	4,204.3

Farm Labor

Hired farm workers: Annual average wage rates, 1999-2003

Year	All hired workers	Field workers	Field and livestock workers
	Dollars per hour	*Dollars per hour*	*Dollars per hour*
1999	8.21	7.44	7.37
2000	8.77	7.87	7.93
2001	8.96	8.15	8.18
2002	9.62	8.62	8.66
2003	9.74	8.42	8.86

Agricultural Exports

Michigan ranked twenty-third in agricultural exports for fiscal year 2002. The table below shows the value of agricultural exports by commodity group. The data are calculated annually by commodity based on each States' share of the U.S. agricultural production. The top seven commodities accounted for 81.5 percent of the State's agricultural exports. The total value of agricultural exports from Michigan in 2002 was estimated at $735 million.

Michigan agricultural exports: Fiscal year 2003

Commodity	Value	Percent of total	Rank in U.S.
	Million dollars	*Percent*	*Number*
Soybeans and products	236.2	28.0	11
Feed grains and products	158.7	18.8	12
Vegetables and preparations	121.7	14.4	8
Other [1]	68.3	8.1	16
Live animals and meat, excluding poultry	61.7	7.3	21
Wheat and products	54.2	6.4	27
Fruits and preparations	48.2	5.7	6
Hides and skins	26.8	3.2	15
Seeds	18.0	2.1	13
Feeds and fodders	17.3	2.1	26
Dairy products	12.4	1.5	17
Poultry and products	11.7	1.4	25
Fats, oils, and greases	7.1	0.8	15
Total	842.4		23

[1] Sugar and tropical products, minor oilseeds, essential oils, beverages other than juice, nursery and greenhouse, wine, and miscellaneous vegetable products.

Source: U.S. Department of Agriculture, Economic Research Service, www.ers.usda.gov/data/fatus.

Agricultural exports from Michigan: Top 10 destinations, 2002-2003

Country	2002	2003
	Thousand dollars	*Thousand dollars*
Canada	198,723	228,543
Mexico	11,383	19,889
France	1,893	13,438
Japan	4,540	9,031
Italy	5,340	4,469
Austria	27	2,457
South Africa	582	1,121
United Kingdom	1,661	998
South Korea	417	880
Portugal	492	795

Source: U.S. Department of Commerce, International Trade Administration, www.ita.doc.gov.

Agricultural Chemical Usage

The 2003 Chemical Use Summaries for Fruit and Field Crops provide pesticide use data on 6 Michigan fruit crops, corn, and potatoes. Michigan State University's Project Generating Research and Extension to meet Environmental and Economic Needs (GREEEN) funded the data collection for grapes to maintain the published data series for that crop. Fruit chemical use statistics are published every other year alternating with vegetable chemical use statistics. The entire series of chemical usage statistics since 1990 for Michigan and the United States can be found at http:/www.usda.gov/nass. A list of associated trade names is provided following the chemical application tables as an aid in reviewing the data. The list does not mean to imply use of any specific tradename.

Apples: Agricultural chemical applications, 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Herbicides					
2,4-D	6	1.2	0.86	1.08	2.9
2,4-D, Dimeth, salt	10	1.0	0.76	0.76	3.0
Diuron	8	1.2	0.98	1.20	4.1
Glyphosate	32	1.2	0.81	1.02	13.6
Paraquat	8	1.3	0.54	0.71	2.5
Simazine	10	1.1	1.65	1.84	7.5
Terbacil	5	1.0	0.52	0.53	1.1
Insecticides					
Abamectin	9	1.1	0.01	0.01	0.1
Acetamiprid	9	1.0	0.07	0.08	0.3
Azinphos-methyl	86	4.3	0.68	2.91	105.3
Benzoic acid	34	1.6	0.17	0.29	4.1
Bifenazate	11	1.3	0.43	0.57	2.6
Bt (Bacillus thur.) [2]	14	2.5			
Carbaryl	39	1.5	1.07	1.70	27.7
Chlorpyrifos	57	1.1	0.96	1.14	27.2
Clofentezine	14	1.1	0.12	0.14	0.8
Dimethoate	4	2.0	0.85	1.72	2.9
Endosulfan	7	1.2	1.11	1.38	4.2
Esfenvalerate	41	1.5	0.04	0.06	1.0
Fenbutatin-oxide	1	1.0	0.96	0.98	0.4
Fenpropathrin	17	1.5	0.27	0.41	2.9
Hexythiazox	3	1.1	0.12	0.14	0.2
Imidacloprid	38	1.5	0.05	0.07	1.2
Indoxacarb	3	1.0	0.06	0.06	0.1
Methomyl	19	1.3	0.81	1.12	8.9
Permethrin	9	1.1	0.15	0.16	0.6
Petroleum distillate	20	1.0	18.62	19.97	169.5
Phosmet	69	2.5	1.49	3.75	109.5
Pyridaben	26	1.1	0.14	0.17	1.9
Spinosad	15	1.5	0.10	0.16	1.0
Thiamethoxam	10	1.3	0.05	0.07	0.3

See footnote(s) at end of table.

--continued

Apples: Agricultural chemical applications, 2003 [1] (continued)

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Fungicides					
Basic copper sulfate	21	1.2	0.92	1.15	10.0
Calcium polysulfide	1	1.5	8.21	12.71	6.6
Captan	82	5.2	1.80	9.51	325.7
Copper hydroxide	8	1.2	1.41	1.78	6.2
Copper oxychlo. Sul.	3	1.3	0.47	0.61	0.7
Copper oxychloride	18	1.1	2.26	2.62	19.8
Copper sulfate	6	1.6	0.73	1.17	2.7
Cyprodinil	12	1.5	0.12	0.19	1.0
Dodine	3	1.3	0.97	1.28	1.7
Fenarimol	13	3.0	0.05	0.16	0.8
Kresoxim-methyl	31	1.8	0.11	0.21	2.7
Mancozeb	67	4.0	2.54	10.32	292.1
Maneb	3	3.9	3.24	12.83	17.4
Metiram	19	3.0	2.72	8.41	67.1
Myclobutanil	43	2.8	0.11	0.30	5.5
Oxytetracycline	2	1.0	0.23	0.23	0.2
Streptomycin	32	1.8	0.13	0.23	3.1
Streptomycin sulfate	([3])	2.4	0.18	0.46	0.1
Sulfur	29	4.1	4.17	17.24	211.2
Thiophanate-methyl	8	2.3	0.45	1.09	3.5
Thiram	7	2.8	2.36	6.70	19.4
Triadimefon	18	2.7	0.06	0.16	1.2
Trifloxystrobin	26	1.7	0.06	0.10	1.1
Ziram	31	2.8	2.98	8.60	112.5
Other chemicals					
Benzyladenine	7	1.0	0.03	0.04	0.1
Butenic acid hydro.	2	1.0	0.08	0.08	0.1
Gibberellic acid	3	1.0	0.01	0.01	([4])
Gibberellins A4A7	7	1.0	0.007	0.007	([4])
NAA	25	1.2	0.02	0.02	0.2
NAD	2	1.0	0.08	0.08	0.1
Prohexadione calcium	12	1.6	0.15	0.24	1.3

[1] Preliminary bearing acres in 2003 for Michigan were 42,000 acres.
[2] Rates and total applied are not available because amounts of active ingredient are not comparable between products.
[3] Area applied is less than 0.5 percent.
[4] Total applied is less than 50 lbs.

Blueberries: Agricultural chemical applications, 2003 [1]

Agricultural Chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Herbicides					
Diuron	32	1.0	1.39	1.42	6.9
Glyphosate	15	1.2	0.66	0.85	1.9
Norflurazon	7	1.0	1.17	1.23	1.3
Paraquat	9	1.0	0.25	0.25	0.3
Simazine	21	1.0	1.65	1.76	5.7
Terbacil	24	1.0	0.61	0.62	2.3
Insecticides					
Azinphos-methyl	78	1.6	0.51	0.82	9.8
Carbaryl	28	2.0	1.49	3.10	13.2
Esfenvalerate	9	1.1	0.05	0.05	0.1
Imidacloprid	4	1.2	0.09	0.11	0.1
Malathion	37	1.9	2.17	4.14	23.5
Methomyl	30	1.3	0.59	0.80	3.7
Phosmet	75	2.3	0.86	2.05	23.6
Fungicides					
Azoxystrobin	6	1.4	0.19	0.28	0.2
Benomyl	8	1.6	0.50	0.82	1.0
Captan	48	2.3	2.04	4.88	36.4
Chlorothalonil	33	1.5	2.55	3.85	19.6
Fenbuconazole	51	1.7	0.09	0.16	1.3
Fosetyl-al	9	1.5	3.86	5.99	8.0
Pyraclostrobin	16	1.5	0.17	0.27	0.6
Thiophanate-methyl	42	1.7	0.69	1.23	7.9
Ziram	38	2.5	2.76	6.95	40.5

[1] Preliminary bearing acres in 2003 for Michigan were 15,400 acres.

Cherries, sweet: Agricultural chemical applications, 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Herbicides					
2,4-D	2	1.1	0.71	0.85	0.1
2,4-D, Dimeth. Salt	8	1.3	0.34	0.47	0.3
Glyphosate	27	1.1	0.59	0.66	1.4
Paraquat	7	1.0	0.40	0.43	0.3
Simazine	9	1.0	0.93	0.98	0.7
Insecticides					
Azinphos-methyl	68	2.9	0.44	1.30	7.2
Carbaryl	35	1.2	2.16	2.67	7.5
Chlorpyrifos	3	1.0	1.27	1.30	0.3
Permethrin	25	1.8	0.11	0.20	0.4
Fungicides					
Captan	17	1.6	1.59	2.62	3.7
Chlorothalonil	68	2.1	1.80	3.88	21.3
Copper hydroxide	13	1.0	2.45	2.47	2.5
Fenbuconazole	51	2.1	0.08	0.18	0.7
Ferbam	29	2.6	1.84	4.91	11.5
Iprodione	3	1.2	0.82	1.05	0.3
Myclobutanil	6	1.2	0.11	0.14	0.1
Propiconazole	15	1.5	0.11	0.17	0.2
Sulfur	72	4.2	5.28	22.52	131.5
Tebuconazole	55	2.6	0.14	0.38	1.7
Thiophanate-methyl	5	1.8	0.56	1.02	0.4
Ziram	30	1.7	2.38	4.11	9.9
Other chemicals					
Ethephon	59	1.0	0.50	0.52	2.5

[1] Bearing acres in 2003 for Michigan were 8,100 acres.

Cherries, tart: Agricultural chemical applications, 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Herbicides					
2,4-D	3	1.1	0.70	0.83	0.6
2,4-D, Dimeth. Salt	7	1.0	0.59	0.60	1.1
Diuron	3	1.1	0.92	1.08	0.8
Glyphosate	30	1.1	0.73	0.81	6.6
Paraquat	13	1.0	0.46	0.49	1.7
Simazine	17	1.0	1.46	1.52	6.9
Terbacil	([2])	1.0	0.25	0.25	0.1
Insecticides					
Azinphos-methyl	70	2.7	0.45	1.23	23.4
Carbaryl	5	1.5	1.99	3.02	3.7
Chlorpyrifos	12	1.1	0.64	0.74	2.4
Esfenvalerate	28	1.9	0.03	0.05	0.4
Lambda-cyhalothrin	10	1.3	0.03	0.04	0.1
Permethrin	9	1.6	0.10	0.17	0.4
Phosmet	67	1.9	0.90	1.79	32.3
Fungicides					
Basic copper sulfate	3	2.5	0.80	2.01	1.6
Captan	30	2.4	1.22	3.04	24.8
Chlorothalonil	83	3.0	1.86	5.58	125.0
Copper hydroxide	5	1.7	1.50	2.63	3.4
Copper oxychloride	2	2.7	1.71	4.68	2.6
Copper sulfate	1	1.7	0.63	1.13	0.5
Dodine	10	1.6	0.66	1.07	2.7
Fenbuconazole	37	1.8	0.08	0.15	1.5
Myclobutanil	21	1.7	0.08	0.14	0.8
Propiconazole	4	1.1	0.10	0.11	0.1
Sulfur	73	4.9	5.56	27.31	538.2
Tebuconazole	70	3.3	0.11	0.36	6.8
Ziram	5	1.9	2.15	4.16	5.8
Other chemicals					
Ethephon	80	1.1	0.20	0.23	5.1
Gibberellic acid	33	1.3	0.01	0.02	0.2

[1] Bearing acres in 2003 for Michigan were 27,000 acres.
[2] Area applied is less than 0.5 percent.

Grapes, all: Agricultural chemical applications, 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Herbicides					
Glyphosate	35	1.1	0.54	0.61	2.7
Oryzalin	1	1.4	2.35	3.47	0.5
Paraquat	29	1.6	0.42	0.67	2.5
Simazine	6	1.0	1.08	1.14	0.9
Insecticides					
Azinphos-methyl	63	1.9	0.63	1.21	9.6
Carbaryl	38	1.5	1.41	2.22	10.7
Fenpropathrin	43	1.8	0.16	0.29	1.6
Phosmet	26	2.4	1.07	2.58	8.3
Fungicides					
Azoxystrobin	15	1.3	0.19	0.27	0.5
Kresoxim-methyl	1	1.6	0.10	0.16	([2])
Mancozeb	81	3.2	2.06	6.63	67.8
Metalaxyl	3	1.1	0.06	0.07	([2])
Myclobutanil	32	1.8	0.08	0.15	0.6
Sulfur	6	2.3	3.76	8.79	6.5
Tebuconazole	63	2.3	0.11	0.24	1.9
Triadimefon	4	2.2	0.06	0.14	0.1
Ziram	76	2.8	2.42	6.83	65.8

[1] Bearing acres in 2003 for Michigan were 12,600 acres.
[2] Total applied is less than 50 lbs.

Peaches: Agricultural chemical applications, 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 lbs*
Herbicides					
2,4-D	3	1.0	0.48	0.48	0.1
Diuron	18	1.0	1.26	1.37	1.2
Glyphosate	20	1.0	0.78	0.84	0.9
Paraquat	26	1.1	0.54	0.64	0.8
Simazine	5	1.2	1.01	1.25	0.3
Terbacil	17	1.0	1.12	1.13	0.9
Insecticides					
Azinphos-methyl	39	2.6	0.66	1.75	3.4
Carbaryl	26	1.5	1.88	2.93	3.8
Chlorpyrifos	12	1.0	1.56	1.65	1.0
Endosulfan	19	1.9	1.28	2.47	2.4
Esfenvalerate	55	2.6	0.04	0.10	0.3
Imidacloprid	3	1.0	0.09	0.09	([2])
Lambda-cyhalothrin	15	1.9	0.03	0.07	([2])
Methomyl	15	1.1	0.50	0.56	0.4
Permethrin	31	2.5	0.13	0.34	0.5
Petroleum distillate	2	1.0	7.77	7.77	0.8
Phosmet	30	2.3	1.44	3.44	5.2
Fungicides					
Basic copper sulfate	6	1.0	1.43	1.53	0.5
Captan	39	2.7	1.96	5.42	10.6
Copper hydroxide	11	1.1	1.79	2.05	1.1
Copper oxychloride	5	1.0	2.78	2.78	0.6
Copper sulfate	5	1.3	1.19	1.62	0.4
Dodine	22	3.1	0.33	1.02	1.1
Fenbuconazole	72	3.0	0.09	0.28	1.0
Ferbam	3	1.0	1.92	1.92	0.2
Iprodione	4	1.2	0.64	0.79	0.2
Myclobutanil	20	1.5	0.09	0.14	0.1
Oxytetracycline	21	1.9	0.14	0.27	0.3
Propiconazole	28	1.9	0.10	0.20	0.3
Sulfur	69	4.7	4.91	23.15	79.9
Tebuconazole	28	2.4	0.16	0.39	0.5
Thiophanate-methyl	4	1.6	0.70	1.18	0.2
Ziram	5	1.0	3.67	3.67	0.9
Other chemicals					
E-8 Dodecenyl acetate	13	1.2	0.04	0.05	([2])
Z-8 Dodecanol	13	1.2	0.006	0.007	([2])
Z-8 Dodecen acetate	13	1.2	0.70	0.85	0.5

[1] Bearing acres in 2003 for Michigan were 5,000 acres.
[2] Total applied is less than 50 lbs.

Fertilizer applications: Corn, 2003 [1]

Fertilizer	Symbol	Area applied	Applications	Rate per application	Rate per crop year	Total applied
		Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*Million pounds*
Nitrogen	N	99	2.0	61	123	281.8
Phosphate	P_2O_5	86	1.0	46	48	95.3
Potash	K_2O	88	1.2	79	100	201.6

[1] Planted acres in 2003 were 2.30 million acres.

Fertilizer applications: Fall potatoes, 2003 [1]

Fertilizer	Symbol	Area applied	Applications	Rate per application	Rate per crop year	Total applied
		Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*Million pounds*
Nitrogen	N	100	3.4	54	184	8.5
Phosphate	P_2O_5	98	1.5	59	89	4.0
Potash	K_2O	98	1.5	135	203	9.1

[1] Planted acres in 2003 were 46,000 acres.

Agricultural chemical applications: Corn, 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 pounds*
Herbicides:					
2,4-D	8	1.0	0.46	0.51	94
Acetochlor	19	1.0	1.98	1.98	876
Altrazine	68	1.0	1.14	1.16	1,814
Clopyralid	10	1.0	0.12	0.12	27
Dicamba	6	1.0	0.26	0.26	36
Dicamba, Dimet. Salt	7	1.0	0.13	0.13	22
Diflufenzopyr-sodium	8	1.0	0.05	0.05	10
Dimethenamid	([2])	1.0	0.96	0.96	21
Flumetsulam	14	1.0	0.04	0.04	13
Glyphosate	22	1.2	0.73	0.89	443
Mesotrione	7	1.0	0.15	0.15	23
Metolachlor	6	1.0	1.34	1.34	181
Nicosulfuron	10	1.0	0.02	0.02	5
Pendimethalin	12	1.0	1.11	1.11	317
Rimsulfuron	11	1.0	0.01	0.01	3
S-Metolachlor	23	1.0	1.39	1.39	735
Thifensulfuron	4	1.0	0.006	0.006	1
Insecticides					
Bifenthrin	4	1.0	0.05	0.05	4
Chlorpyrifos	5	1.0	1.28	1.28	146

[1] Planted acres in 2003 were 2.3 million acres.
[2] Area applied is less than 0.5 percent.

Agricultural chemical applications: Fall potatoes 2003 [1]

Agricultural chemical	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 pounds*
Herbicides					
Glufosinate-ammonium	6	1.2	0.24	0.30	1
Glyphosate	2	1.0	1.29	1.29	1
Linuron	35	1.0	0.64	0.64	10
Metolachlor	22	1.0	1.19	1.19	12
Metribuzin	54	1.1	0.32	0.36	9
Pendimethalin	27	1.8	0.48	0.89	11
Rimsulfuron	5	1.2	0.02	0.02	([2])
S-Metolachlor	45	1.0	1.14	1.14	24
Insecticides					
Cyfluthrin	43	1.3	0.02	0.03	1
Dimethoate	5	1.1	0.45	0.50	1
Endosulfan	2	1.0	0.68	0.71	1
Esfenvalerate	23	1.6	0.03	0.05	1
Imidacloprid	45	1.1	0.17	0.19	4
Methamidophos	5	1.1	0.71	0.80	2
Oxamyl	7	1.1	1.02	1.13	4
Permethrin	1	2.8	0.10	0.28	([2])
Thiamethoxam	27	1.0	0.17	0.17	2
Fungicides					
Azoxystrobin	43	1.7	0.10	0.18	4
Chlorothalonil	83	8.9	0.69	6.14	236
Copper hydroxide	4	4.3	0.70	3.00	5
Cymoxanil	4	2.3	0.11	0.27	1
Manocozeb	71	2.9	1.30	3.87	126
Mefenoxam	36	1.9	0.13	0.26	4
Pyraclostrobin	6	1.2	0.10	0.12	([2])
Triphenyltin hydrox.	32	1.1	0.13	0.15	2
Other chemicals					
Diquat	68	1.2	0.36	0.45	14
Maleic hydrazide	35	1.0	2.15	2.15	35
Paraquat	6	1.0	0.32	0.32	1

[1] Planted acres in 2003 were 46,000 acres.
[2] Total applied is less than 500 lbs.

Agricultural chemicals: Common and trade names by class

Herbicides

Common name	Trade name	Common name	Trade name
2, 4-D	several names	Mesotrione	Callisto, Camix, Lumax
2, 4-D, Dimeth. salt	Saber, Weedar, Weedaxe	Metolachlor	Bicep, Dual, Turbo
Acetochlor	several names	Metribuzin	Axiom, Lexone, Sencor, Turbo
Atrazine	several names	Nicosulfuron	Accent, Basis, Celebrity, DPX-79406, Steadfast
Clopyralid	Accent, Curtail, Hornet, Stinger	Norflurazon	Solicam
Dicamba	several names	Oryzalin	Surflan
Dicamba, Dimet.salt	Distinct, Sterling	Paraquat	Cyclone, Gramoxone, Starfire, Surefire
Diflufenzopyr-sodium	Celebrity Plus, Distinct	Pendimethalin	Pendimax, Prowl
Dimethenamid	Frontier, Guardsman, LeadOff	Rimsulfuron	Accent, Basis, DPX-79406, Matrix, Steadfast
Diuron	Direx, Karmex, Krovar	S-Metolachlor	Bicep, Camix, Cinch, Dual, Expert, Lumax
Flumetsulam	Accent Gold, Bicep, Hornet, Python	Simazine	Caliber, Princep, Sim-Trol, Simazine
Glufosinate-ammonium	Liberty, Rely	Terbacil	Sinbar
Glyphosate	several names	Thifensulfuron	Ally, Basis, Harmony, Pinnacle, X-TRA Cheyenne
Linuron	Linex, Lorox		

Insecticides

Abamectin	Agri-Mek, Clinch Ant Bait	Fenpropathrin	Danitol
Acetamiprid	Assial 70 WP	Hexythiazox	Savey
Azinphos-methyl	Azinphos-M, Guthion, Sniper	Imidacloprid	Admire, Leverage, Provado, Trimax
Bacillus thuringiensis	several names	Indoxacarb	Avaunt
Benzoic acid	Intrepid	Lambda-cyhalothrin	Olive, Warrior
Bifenazate	Acramite	Malathion	Agway Fruit Tree Spray, Cythion, Fyfanon, Malathion
Bifenthrin	Capture, Double Threat	Methamidophos	Monitor
Carbaryl	Agway Fruit Tree Spray, Carbaryl, Sevin	Methomyl	Lannate
Chlorpyrifos	Chlorpyriphos, Dursban, Lorsban, Nufos	Oxamyl	Vydate
Clofentezine	Apollo	Permethrin	several names
Cyfluthrin	Aztec, Baythroid, Leverage	Petroleum distillate	several names
Dimethoate	Cygon, Digon, Dimate, Dimethoate	Phosmet	Imidan
Endosulfan	Endosulfan, Phaser, Thiodan, Thionex, Endocide	Pyridaben	Nexter, Pyramite, Sanmite
Esfenvalerate	Asana	Spinosad	NAF-550 Fruit Fly Bait, SpinTor, Success
Fenbutatin-oxide	Vendex	Thiamethoxam	Actara

--continued

Agricultural chemicals: Common and trade names by class (continued)

Fungicides

Common name	Trade name	Common name	Trade name
Azoxystrobin	Abound, Amistar, ICIA5504, Quadris	Mancozeb	several names
Basic copper sulfate	several names	Maneb	Agsco MN, Amazin, Dithane, Manex
Benomyl	Benlate	Mefanoxam	Flourish, Flouronil, Ridomil
Calcium polysulfide	Lime Sulfur Solution, Orthorix, Polysul, Sulforix	Metalaxyl	Ridomil
Captan	Agway Fruit Tree Spray, Captan, Captec, Ortho Home Orchard Spray	Metiram	Polyram
Chlorothalonil	several names	Myclobutanil	Laredo, Nova, RH-144228, Rally
Copper hydroxide	several names	Oxytetracycline	Mycoshield
Copper oxychloride	C-O-C-S, Microsperse	Propiconazole	Orbit
Copper oxychloride sulfate	C-O-C-S, Copodust, Oxycop	Pyraclostrobin	Headline
Copper sulfate	Basicop, Bluestone	Streptomycin	Agri-Mycin, Streptomycin
Cymoxanil	Curzate, Manex	Streptomycin sulfate	Streptomycin sulfate
Cyprodinil	Switch, Vangard	Sulfur	several names
Dodine	Cyprex, Dodine, Syllit	Tebuconazole	Elite
Fenarimol	Rubigan	Thiophanate-methyl	Topsin
Fenbuconazole	Enable, Indar	Thiram	Thiram
Ferbam	Carbamate, Ferbam	Triadimefon	Bayleton
Fosetyl-al	Aliette	Trifloxystrobin	Flint
Iprodione	Rovra	Triphenyltin hydrox	April Tin, Super Tin
Kresoxim-methyl	Sovran	Ziram	Ziram

Other

Benzyladenine	Accel, Perlan, Promalin, Typy	Maleic hydrazide	Maleic hydrazide, Royal, Sprout Stop, Super Sprout Stop
Butenoic acid hydrochloride	Retain	NAA	Alphaspra, Fruit-Fix, Fruitone, Kling Tite, Stop Drop
Diquat	Diquat, Reglone	NAD	Amid-Thin
E-8-Dodecenyl acetate	Checkmate, Consep, Isomate	Prohexadione calcium	Apogee
Ethephon	Ethephon, Ethrel	Z-8-Dodecanol	Checkmate, Consep, Isomate
Gibberellic acid	several names	Z-8-Dodecenyl acetate	Checkmate, Consep, Isomate
Gibberellins A4A7	Accel, Perlan, Promalin, TypRus, Typy		

Commercial fertilizer consumption: 1999-2003 [1]

Item	Year ending June 30				
	1999	2000	2001	2002	2003
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Primary plant nutrients					
Total N	263,948	249,543	238,810	240,680	238,296
N in multi-nutrients	62,713	57,104	55,076	55,048	60,449
Total P_2O_5	94,890	87,001	85,873	84,734	85,485
P_2O_5 in multi-nutrients	92,063	84,539	83,794	82,377	83,193
Total K_2O	211,739	202,481	184,568	189,200	189,463
K_2O in multi-nurtrients	60,635	47,828	47,563	41,924	45,298
Total plant nutrients	570,576	539,024	509,251	514,615	513,243
Average analysis	43.1	42.9	42.6	43.1	40.1
Total nutrients in multi-nutrients	215,411	189,471	186,433	179,349	188,940
Selected single-nutrient materials					
Ammonium nitrate	9,533	5,622	6,287	5,405	7,856
Anhydrous ammonia	68,349	56,757	50,984	52,766	39,235
Nitrogen solutions	300,761	265,544	288,641	284,355	285,787
Urea	98,820	126,452	110,001	107,305	107,854
Ammonium sulfate	20,468	22,477	22,164	23,569	25,294
Concentrated superphosphate	4,880	4,966	3,945	4,984	4,515
Potassium chloride	244,519	250,410	221,427	236,720	231,668
Multiple-nutrient fertilizers					
N-P-K	388,303	361,992	366,861	334,670	265,924
N-P	124,833	115,616	122,840	129,900	133,062
N-K	27,386	22,281	24,353	27,096	34,853
P-K	5,526	4,561	4,771	3,831	2,828
Leading multiple-nutrient grades					
10-34-0	42,668	37,385	40,775	44,303	46,717
18-46-0	37,709	34,569	33,232	36,672	37,149
11-52-0	20,069	24,987	26,571	24,636	25,865
19-19-19	21,201	11,564	13,035	13,989	12,709
8-18-5			5,675	5,614	8,703
28-3-3	5,265	5,595	4,517	7,761	7,654
Fertilizer consumption by classes					
Dry bulk single-nutrient	430,931	452,227	382,845	392,966	443,887
Dry bagged single-nutrient	7,581	7,453	14,862	23,385	40,127
Fluid single-nutrient	371,425	324,357	343,883	339,295	343,115
Dry bulk multiple-nutrient	283,761	259,482	243,576	223,668	231,005
Dry bagged multiple-nutrient	187,767	165,491	188,375	187,396	132,037
Fluid multiple-nutrient	76,463	79,476	86,874	84,433	73,625
Organics, secondary and micronutrients	37,943	39,220	24,729	31,883	84,679
Total	1,395,870	1,327,707	1,285,144	1,283,026	1,348,475

[1] Source: The Association of American Plant Food Control Officials

Field Crops

Growing Season Weather Summary

Dr. Jeff Andresen, Michigan State University

The 2003 growing season will be remembered meteorologically for persistently cool temperatures, delayed crop growth and development, and abnormal dryness during the latter half of the season. The late winter and early spring of 2003 was cooler than normal across most sections of the State and was accompanied by extreme low temperatures in late March which damaged some overwintering crops just coming out of dormancy. Soil moisture at the beginning of the season was at below normal levels in most areas of the State due to drier than normal conditions during the preceding winter, but still sufficient for planting and early crop establishment. Relatively dry, warm conditions allowed fieldwork to commence by mid-April and continue into early May, with significant progress in summer crop planting in many areas. In early May, however, a persistent wet and cool weather pattern began which led to major fieldwork and planting delays that continued for much of May into early June.

The month of June averaged out among the coolest observed in Michigan since the infamous 1992 "year without a summer." As a result, summer crop growth and development lagged well behind normal, with nitrogen deficiencies and weed problems also common due to the abnormally cool and wet soils. By mid July, the jet stream pattern across North America shifted temporarily to a more southwesterly orientation, allowing a return of warmer than normal temperatures that continued into late August. Precipitation totals, which had been much above normal during May into early June, dropped off to below normal levels by late June and over most of the State continued into September. During this prolonged period, some sections of central Lower Michigan received less than half the normal totals. The dryness led to moisture stress problems and yield declines in some areas, especially for later-planted crops and on lighter soils. In stark contrast, rainfall was much heavier across the southern 2 to 3 tiers of counties in the Lower Peninsula, leading to major differences in crop condition across the State. By mid-August, NOAA's Palmer Drought Index, an indicator of long term hydrological deficits and surpluses, categorized some central and northern sections of the State under "severe" drought conditions, while extreme southern sections of the State were considered "abnormally moist."

Temperatures during September averaged out at above normal levels over almost all of the State. Given the delayed nature of many crops, this was fortunate timing, as the first killing freeze of the season (along with snow in some areas) ended the growing season for the majority of the State during the first few days of October, which was near to or earlier than normal in most spots. The freezing temperatures did result in the failure of some crops to reach maturity (and subsequent grain quality problems), mainly in central sections of Lower Michigan where growing degree day deficits were greatest. Overall, for the 5-month May to September period, mean temperatures and growing degree day accumulations were generally well below normal statewide. In some central sections of the State, growing degree day totals were more than 15 percent below normal. The seasonal precipitation totals were highly variable, ranging from much above normal in some southern sections to much below normal in central and northern sections of the State.

Field crops: Acres harvested and value of production, 1999-2003

Item	Unit	1999	2000	2001	2002	2003
Acres harvested	1,000 acres	6,730	6,586	6,378	6,386	6,483
Value of production	1,000 dollars	1,569,098	1,428,981	1,297,764	1,739,957	1,770,443

Grain storage capacity, December 1, 1999-2003

Year	Off farm		On farm capacity
	Facilities	Rated capacity	
	Number	*Million bushels*	*Million bushels*
1999	270	141	240
2000	250	141	240
2001	245	146	240
2002	235	148	240
2003	220	145	240

Field crops: Record highs and lows

Crop	Unit	Record high		Record low		Year estimates started
		Quantity	Year	Quantity	Year	
Barley						
Harvested acres	1,000 acres	303	1932	12	2000,2001	1866
Yield per acre	Bushels	68.0	1985	13.5	1933	
Production	1,000 bu	8,400	1918	546	1866	
Dry Edible beans						
Harvested acres	1,000 acres	690	1930	130	2001	1909
Yield per acre	Pounds	2,100	1999	320	1917	
Production	1,000 cwt	8,585	1963	780	2001	
Corn for grain						
Harvested acres	1,000 acres	2,800	1981	480	1866	1866
Yield per acre	Bushels	130.0	1999	21.5	1917	
Production	1,000 bu	293,180	1982	15,120	1869	
Corn for silage						
Harvested acres	1,000 acres	498	1971	200	2003	1924
Yield per acre	Tons	17.5	1999	4.7	1930	
Production	1,000 tons	5,565	1977	1,542	1930	
Hay, alfalfa						
Harvested acres	1,000 acres	1,444	1950	74	1919	1919
Yield per acre	Tons	4.2	1993	1.1	1934	
Production	1,000 tons	5,040	1985,1986	118	1919	
Hay, all						
Harvested acres	1,000 acres	2,947	1924	780	1866	1866
Yield per acre	Tons	3.8	1993	0.6	1895	
Production	1,000 tons	5,743	1986	1,014	1866	
Oats						
Harvested acres	1,000 acres	1,658	1918	55	2001	1866
Yield per acre	Bushels	70.0	2003	18.5	1921	
Production	1,000 bu	69,388	1946	3,520	2001	
Potatoes						
Harvested acres	1,000 acres	374.0	1895	36.4	1975	1866
Yield per acre	Cwt	330.0	2003	26.0	1887,1916	
Production	1,000 cwt	23,256	1904	3,557	1876	
Soybeans						
Harvested acres	1,000 acres	2,130	2001	1	1930	1924
Yield per acre	Bushels	40.0	1995,1999	8.0	1927	
Production	1,000 bu	78,540	2002	10	1930	
Spearmint						
Harvested acres	1,000 acres	8.7	1954	0.7	1935	1935
Yield per acre	Pounds	50.0	2001,2002	20.0	1965	
Production	1,000 lbs	280	1948	27	1996	
Sugarbeets						
Harvested acres	1,000 acres	190	1999	48	1943,1953	1909
Yield per acre	Tons	21.3	1970	5.5	1916	
Production	1,000 tons	3,534	1999	298	1943	
Wheat, winter						
Harvested acres	1,000 acres	1,515	1953	400	1987	1909
Yield per acre	Bushels	72.0	2000	10.5	1912	
Production	1,000 bu	45,600	1984	7,350	1912	

Barley

Michigan barley growers planted 15,000 acres and harvested 14,000 acres in 2003. Total production was 784,000 bushels, up 18 percent from 2002. The average yield increased 5 bushels to 56 bushels per acre. Barley planting in Michigan lagged the five-year average due to cool weather in late April and early May. Wet weather during the early growing season helped advance the crop. Harvest began later than normal, but hot, dry weather late in August allowed growers to catch up. Combining wrapped up by the end of August. Growers reported good yields and quality.

Barley: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*Dollars*	*1,000 dollars*
1999	17	15	66	990	1.70	1,683
2000	13	12	60	720	1.10	792
2001	15	12	56	672	1.50	1,008
2002	14	13	51	663	1.60	1,061
2003	15	14	56	784	1.70	1,333

[1] Marketing year average.

Corn

Michigan had 2.3 million acres planted to corn in 2003, up 2 percent from 2002. Grain corn production was 263.3 million bushels, up 13 percent from 2002; 2.09 million acres were harvested for grain. The yield of 126 bushels per acre was up 9 bushels from the 2002 crop. Farmers harvested 200,000 acres of corn for silage with an average yield of 16.0 tons per acre.

Planting of corn in Michigan began in the last week of April. Normal temperatures and plenty of rain caused good growing conditions but poor planting conditions in May. Planting was completed by early June, and warmer temperatures in mid-June helped the crop to progress. By mid July the crop showed signs of tasseling. The corn crop was about one to two weeks behind the average stage of development by September 1.

Harvest was prolonged due to high soil moisture content and wet weather. The crop was slow to dry, and harvest continued into late November. Fields remained moist, but cold weather and heavy winds increased drying. Yields varied widely across the State

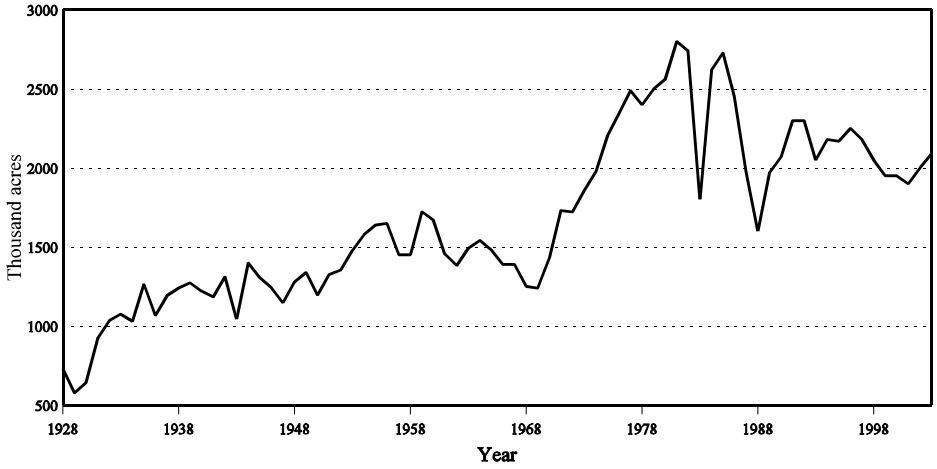
The 2003 corn crop was valued at $632 million, up 16 percent from 2002. Corn continued to be Michigan's number one crop in value of production. The top three counties in corn production in 2002 were Huron, Sanilac, and Gratiot.

Corn: Acres, yield, production, and value, 1999-2003

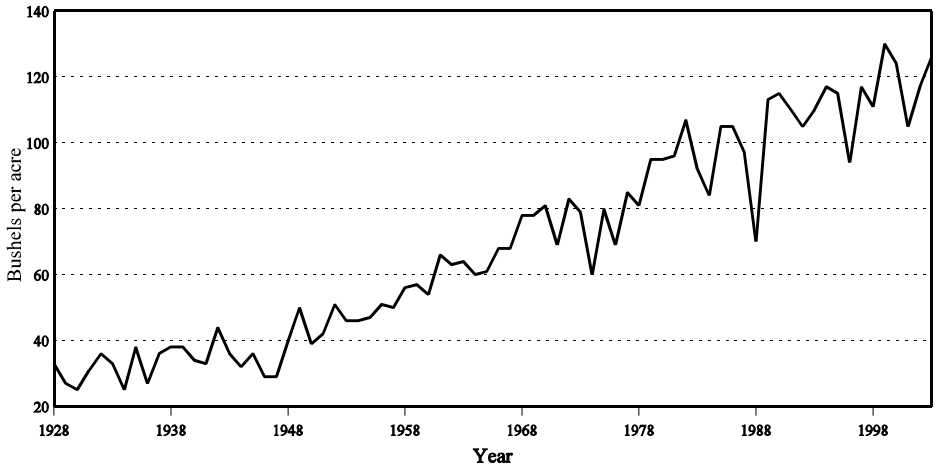
Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*Dollars*	*1,000 dollars*
All						
1999	2,200					
2000	2,200					
2001	2,200					
2002	2,250					
2003	2,300					
Grain						
1999		1,950	130	253,500	1.78	451,230
2000		1,950	124	241,800	1.90	459,420
2001		1,900	105	199,500	1.97	393,015
2002		2,000	117	234,000	2.34	547,560
2003		2,090	126	263,340	2.40	632,016
	1,000 acres	*1,000 acres*	*Tons*	*1,000 tons*		
Silage						
1999		235	17.5	4,113		
2000		230	14.0	3,220		
2001		280	13.0	3,640		
2002		240	15.0	3,600		
2003		200	16.0	3,200		

[1] Marketing year average.

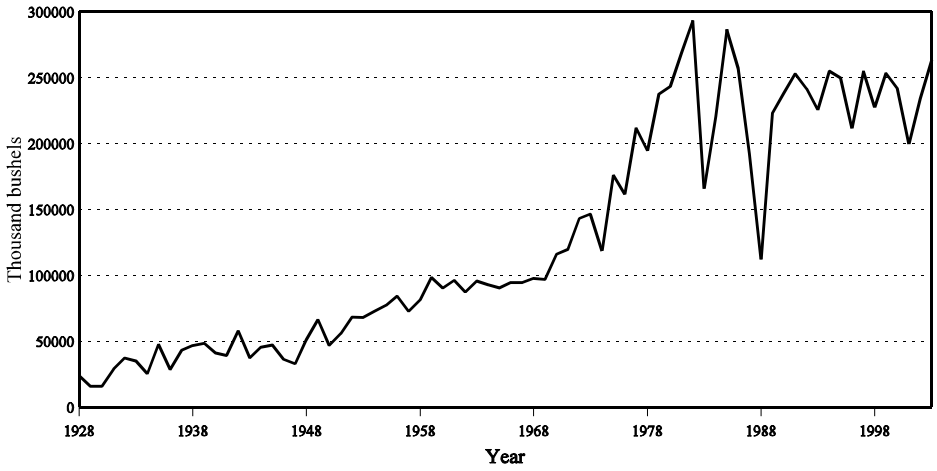
Corn for grain acres, 1928-2003



Corn yield, 1928-2003



Corn production, 1928-2003



Corn for grain: Stocks by quarter, 1999-2003

Crop year	December 1		March 1		June 1		September 1	
	On farm	Off farm	On farm	Off farm	On farm	Off farm	On farm	Off farm
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1999	135,000	68,300	95,000	49,700	53,000	30,500	26,000	15,000
2000	145,000	58,200	90,000	46,800	55,000	24,800	21,000	12,500
2001	120,000	55,700	80,000	46,700	54,000	29,050	16,000	13,600
2002	130,000	59,800	88,000	46,700	40,000	27,600	13,000	9,750
2003	140,000	56,500	77,000	51,300	43,000	34,500		

Corn: Percentage of acreage planted, 1999-2003

Year	Month and day					
	April		May			June
	20	30	10	20	30	10
1999	0	5	46	80	94	98
2000	0	5	46	73	85	94
2001	0	14	62	81	93	100
2002	0	9	34	54	81	96
2003	0	11	33	48	83	98
5-year-average	0.0	8.8	44.2	67.2	87.2	97.2

Corn: Percentage of acreage silked, 1999-2003

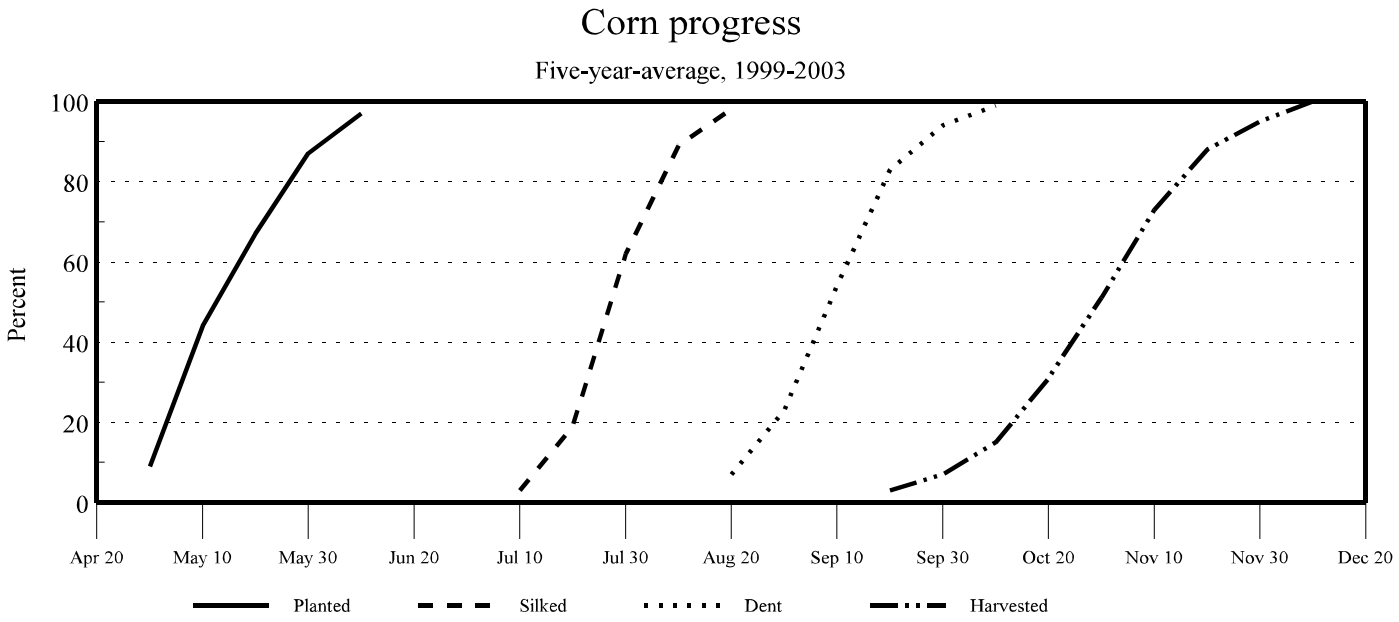
Year	Month and day					
	July				August	
	1	10	20	30	10	20
1999	0	10	46	88	100	100
2000	0	1	15	53	81	94
2001	0	2	22	66	91	100
2002	0	0	8	63	88	98
2003	0	0	3	40	86	98
5-year-average	0.0	2.6	18.8	62.0	89.2	98.0

Corn: Percentage of acreage dent stage, 1999-2003

Year	Month and day						
	August			September			October
	10	20	30	10	20	30	10
1999	0	17	50	85	97	100	100
2000	0	3	10	33	73	86	98
2001	0	10	25	52	76	93	98
2002	0	2	16	62	96	98	100
2003	0	1	16	40	73	91	99
5-year-average	0.0	6.6	23.4	54.4	83.0	93.6	99.0

Corn: Percentage of acreage harvested for grain, 1999-2003

Year	Month and day									
	September			October			November			December
	10	20	30	10	20	30	10	20	30	10
1999	2	7	13	28	50	76	89	98	99	100
2000	0	0	3	8	24	40	70	81	94	100
2001	0	3	7	14	27	41	62	87	94	100
2002	0	3	8	20	34	63	89	94	97	100
2003	0	0	3	7	19	37	54	78	91	100
5-year-average	0.4	2.6	6.8	15.4	30.8	51.4	72.8	87.6	95.0	100.0



Dry Edible Beans

Michigan dry beans were planted ahead of normal, with adequate moisture. Dry bean planting started with cool temperatures and wet conditions. As the weather warmed up in mid June, dry beans started progressing in mostly good growing conditions. In early July, some dry beans were being sprayed for leafhoppers. In mid July, Michigan received a significant amount of rainfall and signs of root rot started to appear. In late August, dry bean fields were showing maturity with some color change. Mold problems were reported. Harvest started in late September through mid October. Harvest was ahead of the normal pace with some rain delays.

Michigan's 2003 total dry bean production was 2.5 million hundredweight (cwt) which represented 11 percent of U.S. production. Michigan ranked third in dry bean production for 2003, compared to second last year. The number one dry bean producer in the nation was North Dakota with 7.8 million cwt. Michigan continued to lead the country in cranberry and black bean production.

Dry edible beans: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Cwt*	*1,000 cwt*	*Dol/cwt*	*1,000 dollars*
1999	350	350	2,100	7,350	16.80	123,480
2000	285	275	1,500	4,125	13.70	56,513
2001	215	130	600	780	24.60	19,188
2002	270	265	1,850	4,903	15.30	75,016
2003	170	165	1,500	2,475	18.60	46,035

[1] Marketing year average.

Dry edible beans: Acres, yield, and production, by class, 1999-2003

Class and Year	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*1,000 cwt*
Black				
1999	108,000	108,000	2,090	2,260
2000	55,000	53,000	1,580	840
2001	63,000	52,000	640	335
2002	110,000	108,000	1,880	2,030
2003	45,000	43,000	1,580	680
Cranberry				
1999	31,000	31,000	1,600	496
2000	26,000	25,000	1,520	380
2001	26,000	12,000	580	70
2002	20,000	19,000	1,530	290
2003	12,000	12,000	1,180	142
Great Northern				
2001	8,000	3,500	570	20
2002	3,000	3,000	2,000	60
2003	8,000	8,000	1,680	134
Navy				
1999	150,000	150,000	2,300	3,450
2000	125,000	120,000	1,500	1,800
2001	65,000	30,000	570	170
2002	85,000	84,000	1,930	1,620
2003	40,000	38,000	1,560	592
Pinto				
1999	9,000	9,000	1,890	170
2000	21,000	20,000	1,450	290
2001	7,000	4,500	510	23
2002	9,500	9,500	1,930	183
2003	11,000	10,500	1,430	150
Red kidney, dark				
1999	9,000	9,000	1,700	153
2000	12,000	12,000	1,520	182
2001	9,000	7,000	430	30
2002	8,500	8,000	1,630	130
2003	9,000	9,000	1,330	120
Red kidney, light				
1999	17,000	17,000	1,800	306
2000	19,000	19,000	1,500	285
2001	18,000	11,000	770	85
2002	15,000	14,500	1,790	260
2003	16,000	15,500	1,540	239
Small, red				
1999	15,000	15,000	2,070	310
2000	8,000	8,000	1,410	113
2001	12,000	6,500	420	27
2002	11,000	11,000	1,890	208
2003	19,000	19,000	1,470	280
Other				
1999	11,000	11,000	1,860	205
2000	19,000	18,000	1,310	235
2001	7,000	3,500	570	20
2002	8,000	8,000	1,530	122
2003	10,000	10,000	1,380	138

Hay and Haylage

Michigan hay production was estimated at 3.12 million tons, down 16 percent from 2002. Alfalfa and alfalfa mixtures accounted for 87 percent of all dry hay produced. All hay harvested acres were estimated at 1.05 million, down from 1.15 million in 2002. The average all hay yield was 2.97 tons per acre, down 0.25 tons from 2002. The first cutting of alfalfa was moved along by good weather conditions in late May. Alfalfa weevils and potato leafhoppers were a concern in the southeast part of the State. Harvest was delayed due to wet weather in some parts of the State around the first week in June. The second cutting had started in late June with hot and dry weather. By the middle of July, yields and quality had were very good. The third cutting was very short compared to the second cutting. Alfalfa accounted for 850,000 acres of the total harvested with a yield of 3.2 tons per acre. Other hay accounted for 200,000 acres with a yield of 2.0 tons per acre. Value of the hay crop was $288 million, down 7 percent from 2002.

Hay, haylage, and greenchop: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Tons*	*1,000 tons*	*Dollars*	*1,000 dollars*
All dry hay						
1999		1,300	3.40	4,415	69.00	305,805
2000		1,300	3.33	4,330	62.50	272,040
2001		1,150	3.14	3,610	70.50	253,510
2002		1,100	3.23	3,551	84.50	297,800
2003		1,050	2.97	3,120	89.00	288,400
Alfalfa hay						
1999		950	3.80	3,610	72.00	259,920
2000		1,000	3.70	3,700	64.50	238,650
2001		900	3.40	3,060	73.50	224,910
2002		870	3.50	3,045	86.50	263,392
2003		850	3.20	2,720	95.00	258,400
Alfalfa seedings						
1999	100					
2000	140					
2001	100					
2002	125					
2003	130					
Other hay						
1999		350	2.30	805	57.00	45,885
2000		300	2.10	630	53.00	33,390
2001		250	2.20	550	52.00	28,600
2002		230	2.20	506	68.00	34,408
2003		200	2.00	400	75.00	30,000
All haylage and greenchop						
2000		310	5.76	1,785		
2001		340	5.82	1,980		
2002		280	6.05	1,694		
2003		270	5.50	1,486		
Alfalfa haylage and greenchop						
2000		280	6.00	1,680		
2001		320	6.00	1,920		
2002		260	6.20	1,612		
2003		250	5.60	1,400		

[1] Marketing year average.

Hay: Stocks on farms, 2000-2004

Year	May 1	December 1
	1,000 tons	*1,000 tons*
2000	1,170	3,460
2001	1,000	3,450
2002	773	2,024
2003	462	1,872
2004	250	

Maple Syrup

Michigan maple syrup production was estimated at 80,000 gallons for the 2004 season, 21,000 gallons above the 2003 output. This was a very good season for maple syrup producers. Sugar content of the sap was higher, and the syrup was lighter in color.

Michigan ranked fifth in maple syrup production in 2003, up from seventh and produced about 5 percent of the total U.S. production. The tapping season started March 5 and ended March 31 for most producers. Total taps were 370,000 and the syrup yield was 0.216 gallons per tap. In 2004, Michigan producers sold 44 percent of their syrup retail, 44 percent wholesale, and 12 percent bulk. The average price per gallon for 2003 was $31.20 compared with $32.50 in 2002. The value of production for 2003 was $1.8 million down 16 percent from 2002.

Maple syrup: Taps, yield, production, price, and value, 2000-2004

Year	Taps	Yield per tap	Production	Price per gallon	Value of production
	1,000	*Gallons*	*1,000 gallons*	*Dollars*	*1,000 dollars*
2000			44	35.10	1,544
2001	332	0.181	60	29.70	1,782
2002	320	0.206	75	32.50	2,145
2003	360	0.164	59	31.20	1,800
2004	370	0.216	80	([1])	([1])

[1] Published in June 2005.

Mint

Mint: Acres, yield, production, and value, 1999-2003

Year	Harvested	Yield	Production	Price per pound [1]	Value of production
	1,000 acres	*Pounds*	*1,000 Pounds*	*Dollars*	*1,000 dollars*
Peppermint					
2000	1.0	50	50	9.20	450
2001	1.0	50	50	9.90	495
2002	1.0	50	50	10.00	500
2003	1.1	40	44	11.00	484
Spearmint					
1999	1.7	40	68	10.00	680
2000	1.7	45	77	9.20	708
2001	1.7	50	85	9.80	833
2002	1.7	50	85	9.00	765
2003	1.6	40	64	9.50	608

[1] Marketing year average.

Oats

Oat acreage increased in Michigan during 2003. Growers planted 90,000 acres of oats in 2003 compared with 80,000 the year before. Harvested acres, at 75,000, were up 10,000 from last year. The 2003 oat production was 5.25 million bushels, up 26 percent from the previous year. Yields jumped to 70 bushels per acre, a new record high. Farmers dodged rain showers in early May to get the oat crop planted on par with the five-year average. The crop emerged on schedule but progress was delayed by cool, wet weather. By the end of July, almost 70 percent of the crop was rated good to excellent. Harvest began later than normal and early on was delayed by rain. Hot, dry weather during the second half of August allowed farmers to finish up in a timely manner. Sanilac county ranked first in oat production for 2003, while Isabella, Montcalm, Huron, and Shiawassee rounded out the top five counties.

Oats: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*Dollars*	*1,000 dollars*
1999	100	75	65	4,875	1.35	6,581
2000	95	75	64	4,800	1.30	6,240
2001	70	55	64	3,520	1.80	6,336
2002	80	65	64	4,160	1.80	7,488
2003	90	75	70	5,250	1.60	8,400

[1] Marketing year average.

Potatoes

Michigan's 2003 potato production was 15.02 million hundredweight (cwt) up from 13.88 million in 2002. Planted acres were 46,000 and harvested acres were 45,500. The State's average yield was 330 cwt per acre, up from 305 cwt per acre in 2002 and a new record high. Potato planting began in the middle of April and was completed by the end of May. Early cool and wet conditions hampered early development; however, favorable weather during the growing season led to excellent yields and quality. A few areas were adversely affected by leafhoppers. Potato harvest began in late July and continued into October.

Michigan ranked ninth among states in potato production in 2003. Most Michigan potatoes are whites, which comprised approximately 83 percent of planted acreage, followed by russets and reds at 13 and 4 percent of planted acreage, respectively. Whites are processed for potato ships or sold for table use while russets are used for french fries and other frozen products.

Fall potatoes: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Cwt*	*1,000 cwt*	*Dollars*	*1,000 dollars*
1999	48.0	47.5	315	14,963	6.80	101,748
2000	49.0	47.5	315	14,963	6.70	100,252
2001	46.0	45.0	310	13,950	7.65	106,718
2002	46.5	45.5	305	13,878	7.80	108,248
2003	46.0	45.5	330	15,015	7.05	105,856

[1] Marketing year average.

Fall potatoes: Stocks by type as percent of total stocks, December 1, 1999-2003

Type	1999	2000	2001	2002	2003
	Percent	*Percent*	*Percent*	*Percent*	*Percent*
White	87	86	90	88	86
Russet	11	12	9	11	13
Red	2	2	1	1	1

Fall potatoes: Production and disposition, 1999-2003

Crop year	Production	Total used for seed	Farm Disposition		Sold
			Seed, feed, and home use	Shrinkage and loss	
	1,000 cwt	*1,000 cwt*	*1,000 cwt*	*1,000 cwt*	*1,000 cwt*
1999	14,963	1,005	213	1,300	13,450
2000	14,963	1,099	250	1,700	13,013
2001	13,950	1,181	245	945	12,760
2002	13,878	1,099	205	1,400	12,273
2003	15,015	([1])	([1])	([1])	([1])

[1] Published in September 2004

Fall potatoes: Stocks, 1999-2003

Crop year	December 1	January 1	February 1	March 1	April 1	May 1
	1,000 cwt	*1,000 cwt*	*1,000 cwt*	*1,000 cwt*	*1,000 cwt*	*1,000 cwt*
1999	8,800	7,100	5,800	4,200	2,700	1,300
2000	8,700	6,900	5,200	3,400	1,500	700
2001	8,200	6,200	4,800	3,200	1,500	400
2002	7,900	6,500	5,600	4,500	2,900	1,000
2003	8,400	6,500	5,600	4,700	3,100	1,600

Soybeans

Michigan soybean production totaled 53.7 million bushels, down 32 percent from 2002. The yield was 27 bushels per acre in 2003. Planted and harvested acres were down from the 2002 total to 2.00 million and 1.99 million, respectively. Soybean planting began at a slow pace, but by June 27 earlier planted fields had started to emerge and planting was 34 percent complete. Soybean fields were being sprayed for weeds, but had a nice color and were growing very well in late July. Problems with aphids occurred in early August due to warm temperatures and a significant amount of rainfall. In late August, aphids, white mold, and cyst nematodes were problems in some fields. Spraying to correct these problems was ongoing. Soybean harvest began in late September. Harvest was nearly complete by the beginning of November. Lenawee, Sanilac, Monroe, Saginaw, and Hillsdale were the top five counties in soybean production.

Soybeans: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*Dollars*	*1,000 dollars*
1999	1,950	1,940	40.0	77,600	4.61	357,736
2000	2,050	2,030	36.0	73,080	4.54	331,783
2001	2,150	2,130	30.0	63,900	4.47	285,633
2002	2,050	2,040	38.5	78,540	5.62	441,395
2003	2,000	1,990	27.0	53,730	7.20	386,856

[1] Marketing year average.

Soybeans: Stocks by quarter, 1999-2003

Crop year	December 1		March 1		June 1		September 1	
	On farm	Off farm	On farm	Off farm	On farm	Off farm	On farm	Off farm
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1999	33,000	20,200	17,000	12,750	6,000	6,250	4,100	1,500
2000	30,000	19,800	18,000	9,600	8,500	3,225	2,400	1,220
2001	30,000	20,800	18,000	11,750	7,700	5,450	1,200	1,700
2002	26,000	21,000	16,000	13,450	9,100	5,680	2,800	1,300
2003	18,000	16,900	7,300	8,200	3,200	2,150		

Soybeans: Percentage of acreage planted, 1999-2003

Year	Month and day						
	May			June			July
	10	20	30	10	20	30	10
1999	12	49	81	93	99	100	100
2000	12	29	42	63	82	94	100
2001	31	58	75	80	91	96	100
2002	16	26	59	88	98	100	100
2003	7	18	55	83	97	100	100
5-year-average	15.6	36.0	62.4	81.4	93.4	98.0	100.0

Soybeans: Percentage of acreage setting pods, 1999-2003

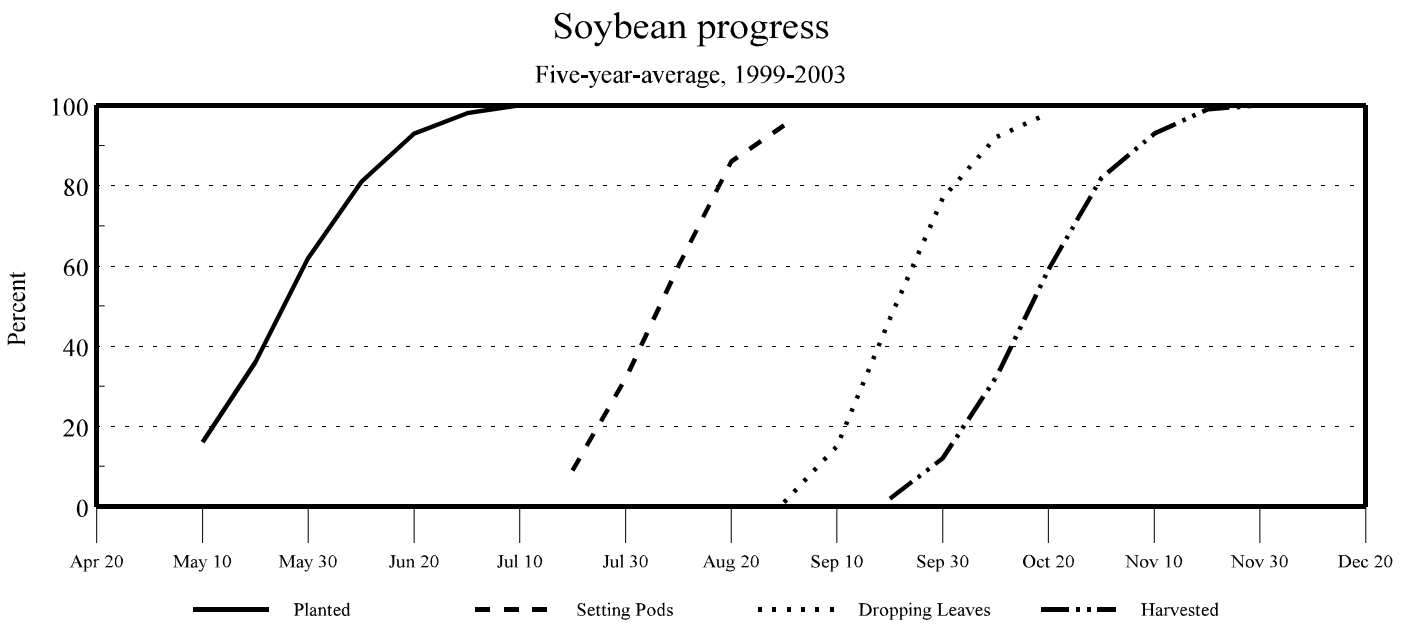
Year	Month and day					
	July			August		
	10	20	30	10	20	30
1999	0	20	48	77	93	100
2000	0	4	20	42	74	86
2001	0	15	46	70	84	94
2002	0	4	29	62	95	100
2003	0	2	16	50	82	97
5-year-average	0.0	9.0	31.8	60.2	85.6	95.4

Soybeans: Percentage of acreage shedding leaves, 1999-2003

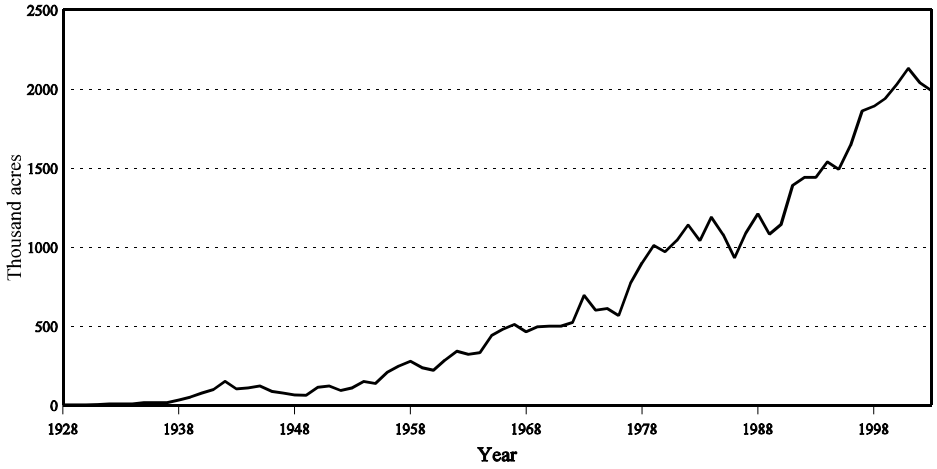
Year	Month and day						
	August		September			October	
	20	30	10	20	30	10	20
1999	0	2	31	66	98	100	100
2000	0	0	3	26	54	78	93
2001	0	4	18	47	64	87	99
2002	0	0	17	52	89	99	100
2003	0	0	5	44	80	97	100
5-year-average	0.0	1.2	14.8	47.0	77.0	92.2	98.4

Soybeans: Percentage of acreage harvested, 1999-2003

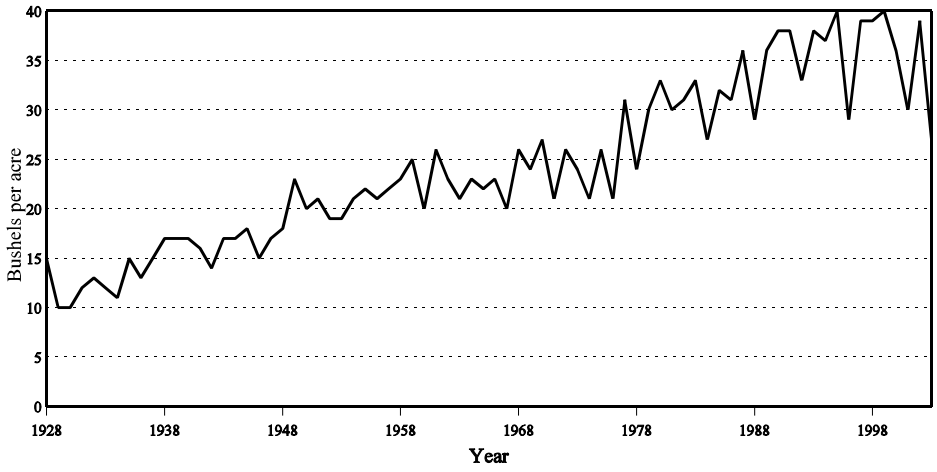
Year	Month and day								
	September			October			November		
	10	20	30	10	20	30	10	20	30
1999	0	5	22	46	66	92	98	100	100
2000	0	0	3	15	48	76	92	100	100
2001	0	1	6	18	36	57	79	96	100
2002	0	4	20	45	73	93	100	100	100
2003	0	0	7	35	72	91	98	100	100
5-year-average	0.0	2.0	11.6	31.8	59.0	81.8	93.4	99.2	100.0



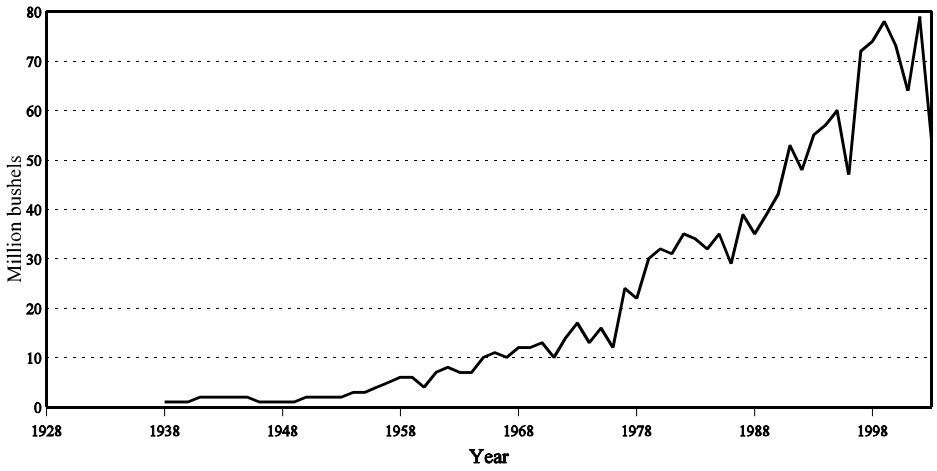
Soybean harvested acres, 1928-2003



Soybean yield, 1928-2003



Soybean production, 1928-2003



Sugarbeets

Acres planted to sugarbeets were estimated at 179,000, unchanged from the previous year. Harvested acreage was estimated at 178,000, up from 177,000 in 2002. All of the crop was planted by the middle of May. Planting conditions for sugarbeets were good. Sugarbeet harvest began slowly due to a lack of soil moisture. Rain in early October softened up the soil and made harvest easier. Sugarbeet harvest was completed by the middle of November. Yields averaged 19.1 tons per acres compared with 18.1 tons per acre in 2002. Huron and Tuscola were the top sugarbeet producing counties for 2003.

Sugarbeets: Acres, yield, production, and value, 1999-2003

Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Tons*	*1,000 tons*	*Dollars*	*1,000 dollars*
1999	194	190	18.6	3,534	32.80	115,915
2000	189	166	20.5	3,403	31.30	106,514
2001	180	166	19.4	3,220	34.80	112,056
2002	179	177	18.1	3,204	38.20	122,393
2003	179	178	19.1	3,400	([2])	([2])

[1] Marketing year average.
[2] Published in February 2005.

Wheat

Michigan's 2003 winter wheat crop totaled 44.9 million bushels, up 15.4 million bushels from 2002. Planted acres were up from 450,000 acres the previous year to 680,000. Harvested acreage was at 660,000 acres. The average yield was 68 bushels per acre. The value of the crop rose 53 percent to $148 million. Huron, Sanilac, Lenawee, Saginaw and Tuscola were the top five counties in wheat production.

Planting began on schedule in early September and moved along slightly ahead of normal. Emergence was right on track with the five-year average. The crop over-wintered fairly well and by the second week of May, 67 percent of the crop was rated good to excellent. However, cool, wet weather late in the spring hampered development. By June 1, only 14 percent of the crop was headed, compared to the five-year average of 58 percent.

Warm weather late in June pushed the crop toward maturity but still later than normal. Harvest began about two weeks later than average. A stretch of good weather during combining allowed the crop to be harvested in a timely manner. By the first part of August, most combining was completed.

Wheat: Acres, yield, production, and value, 1999-2003

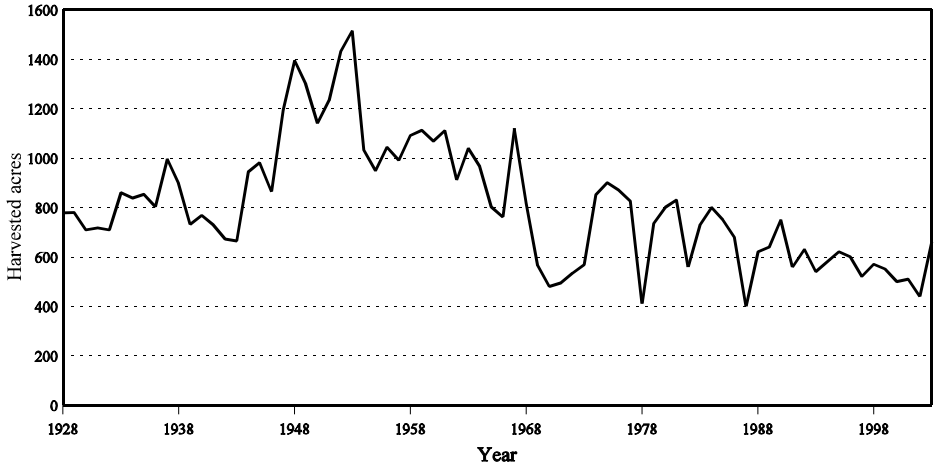
Year	Planted	Harvested	Yield	Production	Price [1]	Value of production
	1,000 acres	*1,000 acres*	*Bushels*	*1,000 bushels*	*Dollars*	*1,000 dollars*
1999	560	550	69	37,950	2.12	80,454
2000	530	500	72	36,000	2.11	75,960
2001	520	510	64	32,640	2.43	79,315
2002	450	440	67	29,480	3.28	96,694
2003	680	660	68	44,880	3.30	148,104

[1] Marketing year average.

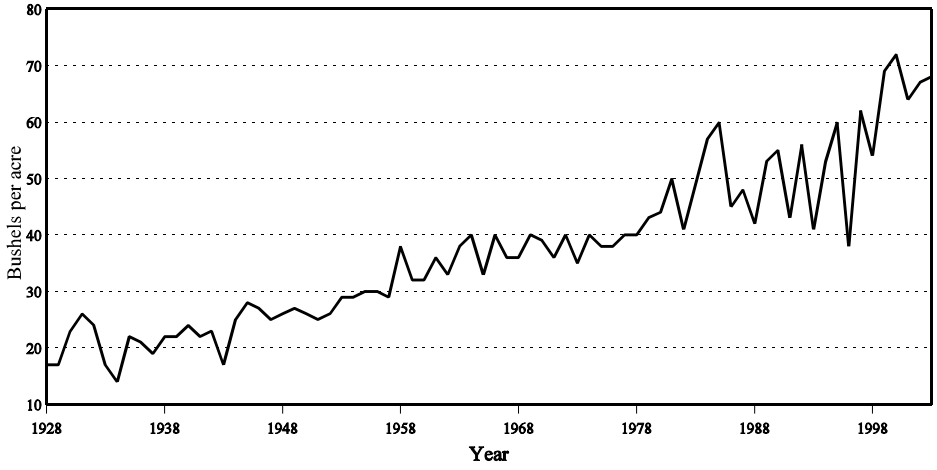
Wheat: Stocks by quarter, 1999-2003

Crop year	September 1		December 1		March 1		June 1	
	On farm	Off farm	On farm	Off farm	On farm	Off farm	On farm	Off farm
	1,000 bushels	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
1999	5,000	31,050	3,000	25,050	2,800	19,450	1,900	12,900
2000	7,000	28,950	4,100	22,400	3,000	17,150	800	12,380
2001	4,500	25,900	3,300	19,700	1,200	16,050	600	11,330
2002	2,800	23,700	1,200	15,700	400	12,450	300	6,275
2003	5,000	28,430	2,800	23,050	600	15,190	300	7,400

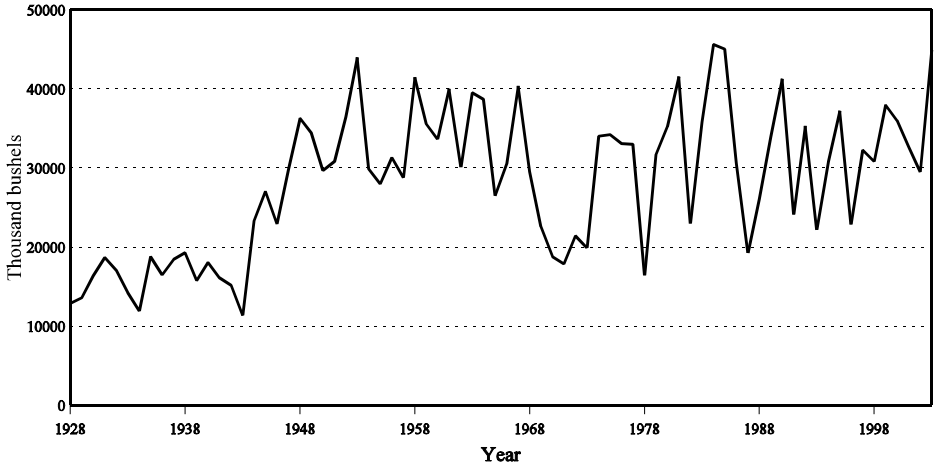
Wheat harvested acres, 1928-2003



Wheat yield, 1928-2003



Wheat production, 1928-2003



Fruit

The 2003 growing season was marked by persistently cool temperatures. March brought extremely cold weather to parts of Michigan, which negatively affected potential fruit production in some areas. June was an exceptionally cool month as well, and the lower temperatures inhibited pollination on many fruit crops. As fruit crops approached harvest, insect and disease pressure had been light, thanks to cool dry weather. Overall, the 2003 fruit crop showed significant improvement from 2002's weather devastated production, despite below average temperatures.

Apple growers experienced very good yields in 2003. There was a heavy king bloom set, and timely rains during the late growing season sizing. Coloring was enhanced on mid and late season varieties by light October frosts and sunny, cool days. The quality and finish of the harvested fruit were excellent.

Tart cherry yields in the northwest varied widely. There was significant frost damage from sub-zero temperatures at the beginning of March. It was, however, generally confined to the lower elevations of orchards. Some fruit was marked in the southwest, but yields were good. The crop in the west central was larger than anticipated. There was a long cool period after bloom, causing problems with pollination.

The sweet cherry crop was adversely affected by frost events in April and May and by sub-zero temperatures in mid-March. Buds were damaged or killed by the mid-March sub-zero temperatures. Almost all growers saw a reduction in crop size due to frost. Some growers had no production for the second straight year. In addition to lower yields, fruit cracking due to rain was prevalent on some varieties. Powdery mildew pressure was high during the season. Cherry fruit fly and plum curculio, major pests in Michigan cherries, were not problematic.

Peaches rebounded after a poor year in 2002. The trees overwintered fairly well, and a nice crop of peaches had set in the spring. A wet spring got peaches off to a good start. Many large growers thinned extensively to help promote fruit sizing. The weather turned dry in late June. The dry weather persisted through harvest and caused sizing problems and some fruit drop. Growers were unable to sell undersized fruit.

In blueberries, yield potential was reduced by freezing temperatures in late spring. Compounding the problem were dry conditions that persisted during July and August. Jersesys, the most common variety, were affected the most. Late season berries fared very well though. Overall, there was significant abandonment of bluberry acres.

Grape production varied based on variety and location throughout the State. Wine grapes in the northwest were affected by a cold snap in early March. This cold snap killed vines to the snow level. Most growers in northwest Michigan harvested little or no grapes in 2003. Grapes in the southwest were poised to have some of the highest yields on record when a hard frost affected the crop on October 1. Niagaras were not affected, as harvest was already complete when the frost hit. Wine grapes were harvested regardlessly, because of their high value. Harvest of Concords had just started when the frost hit. Harvesters worked around the clock in an attempt to salvage the crop. Fourteen thousand tons were left in the field.

Michigan strawberry growers reported fair yields that were hindered by a cool wet spring. Harvest of berries began in late May on covered rows and began in open patches in early June. Berry quality was excellent. July and August were dry, and some fields saw drought damage, especially after renovation. In September seasonal rains returned and helped to prepare strawberries for winter.

Fruit: Record highs and lows

Crop	Unit	Record high		Record low		Year estimates started
		Quantity	Year	Quantity	Year	
Apples	Million pounds	1,200	1999	53	1945	1889
Blueberries	Million pounds	87	1993	34	1992	1992
Cherries, sweet	Tons	37,500	1978	500	1945	1925
Cherries, tart	Million pounds	380	1964	15	2002	1925
Grapes	Tons	94,500	2003	4,200	1889	1889
Peaches	Million pounds	255	1945,1946	7.4	1918	1889
Pears	Tons	48,600	1964	1,400	2002	1889
Plums	Tons	25,000	1971	250	2002	1919
Strawberries	1,000 cwt	451	1940	50	2001	1928

Fruit: Acres harvested and value of production, 1999-2003

Item	Unit	1999	2000	2001	2002	2003
Acres harvested	1,000 acres	125	122	119	116	111
Value of production	1,000 dollars	249,763	218,999	219,418	150,732	268,807

Fruit: Acres, production, and value, 1999-2003

Fruit and Year	Bearing acres	Yield	Production		Price	Value of production
			Total	Utilized		
	Acres	*Pounds*	*Million pounds*	*Million pounds*	*Dollars per pound*	*1,000 dollars*
Apples						
1999	52,000	23,100	1,200	1,180	0.088	103,465
2000	48,500	16,500	800	795	0.093	74,065
2001	46,000	20,200	930	900	0.094	84,330
2002	43,500	12,000	520	515	0.124	64,110
2003	40,000	21,000	840	840	0.119	99,670
Blueberries [1]						
1999	16,600	4,220	70	70	0.781	54,660
2000	16,700	3,710	62	62	0.889	55,140
2001	16,800	4,170	70	70	0.712	49,840
2002	16,900	3,790	64	64	0.816	52,240
2003	15,900	3,900	62	62	1.020	63,120
Cherries, tart						
1999	28,100	6,580	185	185	0.228	42,134
2000	28,500	7,020	200	200	0.182	36,370
2001	28,000	10,600	297	242	0.184	44,412
2002	27,500	545	15	15	0.479	7,192
2003	27,000	5,700	154	154	0.376	57,938
Peaches						
1999	4,600	5,000	23.0	23.0	0.237	5,440
2000	4,800	9,900	47.5	45.5	0.249	11,340
2001	4,900	8,570	42.0	42.0	0.298	12,503
2002	5,000	2,800	14.0	14.0	0.318	4,452
2003	5,000	9,400	47.0	43.0	0.181	7,790
	Acres	*Tons*	*Tons*	*Tons*	*Dollars per ton*	*1,000 dollars*
Cherries, sweet						
1999	7,900	3.42	27,000	26,500	534	14,149
2000	8,000	2.63	21,000	21,000	490	10,290
2001	8,100	2.84	23,000	23,000	482	11,092
2002	8,100	0.33	2,700	2,600	855	2,222
2003	8,100	1.60	13,000	13,000	897	11,662
Grapes						
1999	12,200	6.14	74,900	74,900	281	21,083
2000	12,500	6.98	87,200	87,200	277	24,156
2001	12,300	2.35	28,900	28,500	355	10,110
2002	12,300	3.47	42,700	42,500	347	14,757
2003	12,600	7.50	94,500	80,500	308	24,800
Pears						
1999	850	5.88	5,000	4,900	265	1,300
2000	850	6.12	5,200	5,200	270	1,402
2001	850	5.41	4,600	3,900	297	1,160
2002	850	1.65	1,400	1,400	318	445
2003	800	6.00	4,800	4,300	259	1,112
Plums						
1999	900	4.44	4,000	3,750	299	1,120
2000	800	4.50	3,600	3,300	261	861
2001	800	4.50	3,600	3,600	358	1,289
2002	800	0.31	250	240	358	86
2003	800	4.50	3,600	3,600	355	1,278

[1] Harvested acres.

Apples: Stocks in cold and controlled atmosphere storage [1]

Month	Crop year				
	1999	2000	2001	2002	2003
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
October	525,756	416,923	484,244	237,062	438,345
November	534,061	343,731	392,432	216,805	389,636
December	382,346	294,088	343,380	173,503	316,003
January	357,336	238,013	261,696	110,495	279,373
February	264,771	215,482	199,318	99,044	222,665
March	193,012	160,481	178,996	83,016	169,470
April	127,684	104,512	78,303	22,467	87,284

[1] End-of-month stocks.

Apples: Utilization and price, 1999-2003

Year	Fresh market		Processing		Total	
	Quantity	Price per lb	Quantity	Price per lb	Quantity	Price per lb
	Million pounds	*Dollars*	*Million pounds*	*Dollars*	*Million pounds*	*Dollars*
1999	370	0.145	810	0.062	1,180	0.088
2000	260	0.147	535	0.067	795	0.093
2001	270	0.170	630	0.061	900	0.094
2002	150	0.223	365	0.084	515	0.124
2003	310	0.195	530	0.074	840	0.119

Apples, processing: Utilization and price, 1999-2003

Year	Canned		Frozen [1]		Juice and cider		Other	
	Quantity	Price per lb	Quantity	Price per lb	Quantity	Price per lb	Quantity	Price per lb
	Million pounds	*Dollars*	*Million pounds*	*Dollars*	*Million pounds*	*Dollars*	*Million pounds*	*Dollars*
1999	255	0.072	160	0.082	380	0.045	15	0.060
2000	190	0.078	120	0.085	215	0.048	10	0.083
2001	220	0.072	115	0.082	280	0.042	15	0.065
2002	135	0.100	90	0.105	135	0.052	5	0.122
2003	175	0.082	135	0.100	210	0.050	10	0.070

[1] Includes fresh slices.

Blueberries: Utilization and price, 1999-2003

Year	Production		Fresh market		Processed	
	Total	Utilized	Quantity	Price per pound	Quantity	Price per pound
	Million lbs	*Million lbs*	*Million lbs*	*Dollars*	*Million lbs*	*Dollars*
1999	70	70	18	1.130	52	0.660
2000	62	62	19	1.250	43	0.730
2001	70	70	21	1.090	49	0.550
2002	64	64	22	1.210	42	0.610
2003	62	62	24	1.300	38	0.840

Cherries, sweet: Production and utilization, 1999-2003

Year	Total production	Utilized production							
		Fresh		Canned		Brined		Other [1]	
		Quantity	Price per ton	Quantity	Price per ton	Quantity	Price per ton	Quantity	Price per ton
	Tons	*Tons*	*Dollars*	*Tons*	*Dollars*	*Tons*	*Dollars*	*Tons*	*Dollars*
1999	27,000	950	1,500	3,900	540	19,300	470	2,350	650
2000	21,000	600	1,680	900	500	15,000	430	4,500	528
2001	23,000	1,000	1,280	700	450	15,500	440	5,800	460
2002	2,700	200	2,540	280	1,000	1,700	630	420	864
2003	13,000	1,000	2,230	1,500	920	8,000	675	2,500	1,060

[1] Frozen, juice, etc.

Cherries, tart: Utilization, 1999-2003

Year	Production		Fresh market	Processed					
	Total	Utilized		Canned		Frozen		Other [1]	
				Quantity	Price per pound	Quantity	Price per pound	Quantity	Price per pound
	Million lbs	*Million lbs*	*Million lbs*	*Million lbs*	*Dollars*	*Million lbs*	*Dollars*	*Million lbs*	*Dollars*
1999	185	185	1.0	69.0	0.239	100	0.230	15.0	0.144
2000	200	200	1.0	80.0	0.187	110	0.181	9.0	0.106
2001	297	242	1.0	80.0	0.179	151	0.189	10.0	0.098
2002	15	15	0.1	6.5	0.460	8	0.500	0.4	0.340
2003	154	154	0.5	53.0	0.390	95	0.370	5.5	0.328

[1] Juice, wine, and dried.

Cherries, tart: Production by region, 1999-2003

Region	1999	2000	2001	2002	2003
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Northwest	108	109	183	3	98
West Central	48	71	84	4	37
Southwest and other	29	20	30	8	19
Michigan	185	200	297	15	154

Cherries, tart, frozen: Stocks in cold storage, 2000-2003, crop years

Month	East North Central region [1]				48 States total [2]			
	2000	2001	2002	2003	2000	2001	2002	2003
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
July	135,748	135,786	65,585	45,965	166,000	158,160	81,794	69,005
August	133,294	151,858	58,797	90,774	160,497	174,165	78,729	112,485
September	115,570	137,019	52,852	75,421	141,514	155,033	74,498	96,049
October	110,116	124,835	45,814	65,551	133,210	144,013	66,942	83,314
November	101,551	111,568	39,524	59,728	122,339	129,620	59,721	76,485
December	95,628	109,652	36,543	53,734	115,042	127,215	54,724	68,945
January	90,638	101,979	32,558	47,307	107,783	117,143	47,995	60,825
February	83,994	101,970	26,030	39,005	98,810	115,834	38,699	50,575
March	75,583	94,168	23,580	32,487	88,595	106,151	34,968	41,893
April	68,465	85,579	19,425	25,202	78,721	96,170	27,782	32,281
May	58,553	78,357	12,440	19,015	66,095	86,138	18,375	23,971
June	50,822	69,098	7,051	13,717	56,927	75,917	11,002	17,273

[1] Illinois, Indiana, Michigan, Ohio, and Wisconsin.
[2] Excluding Alaska and Hawaii.

Grapes: Processed utilization and value, 1999-2003

Year	Concord	Niagara	Other	Total		
				Utilized production	Price per ton	Value
	1,000 Tons	*1,000 Tons*	*1,000 Tons*	*1,000 Tons*	*Dollars*	*1,000 dollars*
1999	57.3	14.4	2.7	74.4	278	20,683
2000	64.5	19.1	3.1	86.7	274	23,756
2001	19.0	7.0	2.2	28.2	350	9,870
2002	25.3	13.9	3.0	42.2	344	14,517
2003	51.0	27.0	2.0	80.0	305	24,400

Grapes: Processed for wine by category, 1999-2003 [1]

Year	Hybrids		Vinifera		Other		Total		
	Quantity	Price per ton	Quantity	Price per ton	Quantity	Price per ton	Quantity	Price per ton	Value of production
	Tons	*Dollars*	*Tons*	*Dollars*	*Tons*	*Dollars*	*Tons*	*Dollars*	*1,000 dollars*
1999							2,900	700	2,030
2000							3,100	825	2,558
2001							2,200	940	2,068
2002	1,300	425	1,650	1,330	50	250	3,000	920	2,760
2003	900	600	1,050	1,200	50	200	2,000	905	1,810

[1] Quantity and price per ton by category first published in 2002.

Peaches: Utilization and value, 2000-2003

Year	Fresh Market			Processing		
	Production	Price per pound	Value of production	Production	Price per ton	Value of production
	Million lbs	*Dollars*	*1,000 dollars*	*Million lbs*	*Dollars*	*1,000 dollars*
1999	11.0	0.320	3,520	12.0	320	1,920
2000	29.5	0.280	8,260	16.0	385	3,080
2001	27.0	0.375	10,125	15.0	317	2,378
2002	10.6	0.370	3,922	3.4	312	530
2003	25.0	0.200	5,000	18.0	310	2,790

Plums: Utilization and value, 1999-2003

Year	Fresh Market			Processing		
	Production	Price per Ton	Value of production	Production	Price per ton	Value of production
	Tons	*Dollars*	*1,000 dollars*	*Tons*	*Dollars*	*1,000 dollars*
1999	1,100	440	484	2,650	240	636
2000	1,250	270	338	2,050	255	523
2001	1,800	442	796	1,800	274	493
2002	60	600	36	180	278	50
2003	1,100	480	528	2,500	300	750

Strawberries: Acres, production and value, 1999-2003

Year	Total	Harvested	Yield	Production	Price per cwt	Value of production
	Acres	*Acres*	*Cwt*	*1,000 cwt*	*Dollars*	*1,000 dollars*
1999	1,400	1,400	64	90	71.20	6,412
2000	1,200	1,200	69	83	74.00	6,145
2001	1,000	900	56	50	93.60	4,682
2002	1,300	1,200	47	56	93.40	5,228
2003	1,300	1,200	53	63	100.00	6,320

Strawberries: Utilization and value, 1999-2003

Year	Fresh Market			Processing		
	Production	Price per cwt	Value of production	Production	Price per cwt	Value of production
	1,000 cwt	*Dollars*	*1,000 dollars*	*1,000 cwt*	*Dollars*	*1,000 dollars*
1999	71	78.00	5,538	19	46.00	874
2000	66	81.00	5,346	17	47.00	799
2001	44	100.00	4,400	6	47.00	282
2002	51	98.00	4,998	5	46.00	230
2003	58	105.00	6,090	5	46.00	230

Refrigerated warehouses: Number and capacity, October 1, 2002 [1]

Type	Number	Usable freezer space	Usable cooler space	Controlled atmosphere
		1,000 cu ft	*1,000 cu ft*	*1,000 bushels*
Apple	179		30,806	7,795
General-public	25	45,740	5,745	
General-private and semi-private	20	12,127	5,720	

[1] Conducted biennially.

Vegetables

Michigan vegetable growers produced 882,410 tons of fresh and processed vegetables in 2003. Harvested acreage was 116,900, a 3 percent decrease from 2002. Value of production totaled $227 million, up $13 million from last year. Nationally, Michigan ranked seventh in both fresh market and processing vegetable sales.

Michigan farmers produced 9.85 million hundredweight of fresh market vegetables, an increase of 6 percent from 2002. Processing vegetable production totaled 389,710 tons, up slightly from last year. Vegetable planting and progress were slowed by cool weather from mid May and into June. Soil moisture was generally adequate in most areas. Vegetables responded well to warmer weather in July, and harvest of most crops progressed smoothly across the State.

Nationally, Michigan ranked third for dual purpose asparagus production with 317,000 hundredweight produced, a significant increase from the 2002 production of 219,000 hundredweight. Harvest progress in the State was hindered cold weather. Several districts experienced frost damage. Harvest continued until late June with long picking intervals due to the cooler temperatures.

Vegetables: Record highs and lows

Crop	Unit	Record high		Record low		Year estimates started
		Quantity	Year	Quantity	Year	
Asparagus						
Harvested	1,000 acres	23.0	1989	1.0	1928	1928
Yield	Cwt	31	1947	9	1981	
Production	1,000 cwt	317	2003	17	1928	
Beans, snap (processing)						
Harvested	1,000 acres	27.0	1999	0.8	1921	1918
Yield	Tons	3.89	1998	0.60	1947	
Production	Tons	100,970	1999	600	1921	
Carrots (fresh market)						
Harvested	1,000 acres	7.7	1994	0.5	1929	1929
Yield	Cwt	398	1995	155	1957	
Production	1,000 cwt	2,610	1995	132	1936	
Celery						
Harvested	1,000 acres	7.2	1941	1.8	1966,1968	1928
Yield	Cwt	530	2003	174	1935	
Production	1,000 cwt	1,915	1941	576	1966	
Corn, sweet (fresh market)						
Harvested	1,000 acres	15.2	1961	9.0	1988,2001	1949
Yield	Cwt	90	2003	42	1949	
Production	1,000 cwt	1,020	1994	525	1949	
Cucumbers (processing)						
Harvested	1,000 acres	46.3	1949	9.3	1932	1918
Yield	Tons	6.7	1987	0.6	1924	
Production	Tons	180,900	2003	8,900	1932	
Onions						
Harvested	1,000 acres	12.7	1935	3.5	2000	1928
Yield	Cwt	350	1960	120	1935	
Production	1,000 cwt	2,833	1948	852	1928	
Tomatoes (fresh market)						
Harvested	1,000 acres	9.4	1943	1.8	2001	1928
Yield	Cwt	220	2003	60	1959	
Production	1,000 cwt	797	1943	204	1988	
Tomatoes (processing)						
Harvested	1,000 acres	9.7	1982	1.0	1921	1918
Yield	Tons	38.0	2003	2.7	1943	
Production	Tons	205,000	1982	5,000	1921	

Vegetables: Acres harvested and value of production, 1999-2003

Item	Unit	1999	2000	2001	2002 [1]	2003 [1]
Acres harvested	1,000 acres	114	123	112	120	117
Value of production	1,000 dollars	177,903	219,240	208,121	213,604	226,812

[1] Includes crops for which no data were available before 2000.

Principal vegetables, fresh market: Acres, production, and value, 1999-2003

Year	Planted	Harvested	Production	Value
	Acres	*Acres*	*1,000 cwt*	*1,000 dollars*
1999	56,500	54,000	7,378	124,282
2000	69,700	64,850	8,493	156,650
2001	70,100	62,300	9,154	157,708
2002 [1]	69,300	63,900	9,279	160,586
2003 [1]	71,100	64,200	9,854	170,366

[1] Includes crops for which no data were available before 2000.

Principal vegetables, processing: Acres, production, and value, 1999-2003

Year	Planted	Harvested	Production	Value
	Acres	*Acres*	*Tons*	*1,000 dollars*
1999	61,500	59,900	390,370	53,621
2000	60,760	58,450	390,580	62,590
2001	52,350	50,100	318,280	50,413
2002	57,700	55,900	386,130	53,018
2003	53,900	52,700	389,710	56,446

Vegetables, processing: Acres, production, and value, 1999-2003 [1]

Item and Year	Planted	Harvested	Yield	Production	Price per ton	Value
	Acres	*Acres*	*Tons*	*Tons*	*Dollars*	*1,000 dollars*
Carrots						
1999	1,600	1,500	26.00	39,000	67.60	2,636
2000	1,260	1,250	28.00	35,000	68.80	2,408
2001	1,550	1,500	21.00	31,500	69.00	2,174
2002	1,800	1,800	23.00	41,400	67.00	2,774
2003	1,700	1,600	24.00	38,400	69.00	2,650
Cucumbers						
1999	27,000	26,500	6.00	159,000	164.00	26,076
2000	31,000	30,000	6.00	180,000	215.00	38,700
2001	31,000	29,500	4.25	125,380	246.00	30,843
2002	35,500	34,500	4.60	158,700	190.00	30,153
2003	34,000	33,500	5.40	180,900	200.00	36,180
Snap beans						
1999	28,000	27,000	3.74	100,970	166.00	16,765
2000	25,500	24,400	3.75	91,580	160.00	14,678
2001	16,500	16,000	3.50	56,000	160.00	8,964
2002	16,700	16,000	3.75	60,030	160.00	9,633
2003	14,800	14,300	3.15	45,010	160.00	7,208
Tomatoes						
1999	2,900	2,900	30.00	87,000	84.00	7,308
2000	3,000	2,800	30.00	84,000	81.00	6,804
2001	3,300	3,100	34.00	105,400	80.00	8,432
2002	3,700	3,600	35.00	126,000	83.00	10,458
2003	3,400	3,300	38.00	125,400	83.00	10,408

[1] Cabbage for sauerkraut and green peas are not published to avoid disclosure of individual operations.

Vegetables, fresh market: Acres, production, and value, 1999-2003

Item and year	Planted	Harvested	Yield	Production	Price per cwt	Value [1]
	Acres	*Acres*	*Cwt*	*1,000 cwt*	*Dollars*	*1,000 dollars*
Beans, snap						
1999	2,200	2,200	40	88	31.00	2,728
2000	2,300	2,000	42	84	25.00	2,100
2001	4,200	3,800	50	190	35.00	6,650
2002	4,000	3,900	45	176	38.00	6,688
2003	4,300	4,000	40	160	25.00	4,000
Cabbage						
1999	1,900	1,800	280	504	8.60	4,334
2000	1,800	1,700	250	425	12.80	5,440
2001	2,000	1,800	320	576	14.00	8,064
2002	1,900	1,800	300	540	12.00	6,480
2003	2,000	1,800	320	576	10.00	5,760
Cantaloups						
1999	800	700	140	98	17.30	1,695
2000	800	750	140	105	15.30	1,607
2001	600	500	105	53	21.00	1,113
Carrots						
1999	4,700	4,700	280	1,316	10.70	14,081
2000	4,700	4,500	280	1,260	13.40	16,884
2001	5,000	4,800	350	1,680	13.80	23,184
2002	4,300	4,000	330	1,320	13.00	17,160
2003	4,400	4,200	350	1,470	13.10	19,257
Corn, sweet						
1999	11,500	10,600	70	742	17.90	13,282
2000	11,500	10,600	70	742	18.10	13,430
2001	10,500	9,000	60	540	22.00	11,880
2002	11,000	10,000	80	800	21.00	16,800
2003	11,000	9,500	90	855	16.60	14,193
Cucumbers						
1999	7,000	6,600	220	1,452	15.50	22,506
2000	7,000	6,700	200	1,340	18.80	25,192
2001	6,500	5,500	220	1,210	20.00	24,200
2002	6,800	6,000	190	1,140	18.00	20,520
2003	7,300	6,400	160	1,024	20.40	20,890
Onions						
1999	4,100	4,000	270	1,080	10.00	8,640
2000	4,100	3,500	270	945	12.50	9,450
2001	4,100	3,700	270	999	12.20	9,748
2002	4,000	3,900	230	897	12.50	8,963
2003	3,700	3,600	320	1,152	14.50	13,369
Radishes						
2000	2,700	2,500	70	175	27.20	4,760
2001	2,700	3,000	70	195	27.20	4,760
Tomatoes						
1999	2,800	2,600	190	494	33.50	16,549
2000	2,500	2,400	170	408	44.40	18,115
2001	1,900	1,800	210	378	35.00	13,230
2002	2,100	2,000	210	420	30.50	12,810
2003	2,300	2,200	220	484	34.00	16,456

[1] Onions = Value of sales.

Vegetables, dual purpose: Acres, production, and value, 1999-2003

Item and year	Planted	Harvested	Yield	Production	Price per cwt	Value
	Acres	*Acres*	*Cwt*	*1,000 cwt*	*Dollars*	*1,000 dollars*
Asparagus						
1999	17,000	16,500	18	297	63.40	18,822
2000	17,000	16,500	17	283	63.90	18,075
2001	15,500	14,300	20	290	43.20	12,516
2002	16,000	15,000	15	219	53.40	11,703
2003	16,000	15,000	21	317	60.80	19,278
Celery						
1999	2,000	1,900	450	855	12.90	11,005
2000	2,000	1,900	500	950	14.10	13,421
2001	2,000	1,900	460	873	14.50	12,650
2002	2,200	2,100	470	987	14.60	14,441
2003	2,300	2,200	530	1,166	15.10	17,641
Peppers, bell						
1999	2,100	2,000	200	400	24.00	9,600
2000	2,200	2,100	220	462	22.50	10,395
2001	1,900	1,400	260	364	22.00	8,008
2002	1,800	1,600	250	400	24.00	9,600
2003	1,800	1,800	250	450	22.00	9,900
Pumpkins						
2000	5,500	4,400	160	704	12.00	8,448
2001	5,500	4,400	120	528	12.00	6,336
2002	8,000	6,800	120	816	16.00	13,056
2003	8,500	7,300	140	1,022	14.00	14,308
Squash						
2000	5,600	5,300	115	610	15.30	9,333
2001	6,900	6,400	200	1,278	11.90	15,254
2002	7,200	6,800	230	1,564	14.30	22,365
2003	7,500	6,200	190	1,178	13.00	15,314

Asparagus: Utilization and value, 1999-2003

Year	Fresh market			Processing		
	Production	Price per cwt	Value of production	Production	Price per ton	Value of production
	1,000 cwt	*Dollars*	*1,000 dollars*	*Tons*	*Dollars*	*1,000 dollars*
1999	34	74.00	2,516	13,150	1,240	16,306
2000	41	69.00	2,829	12,100	1,260	15,246
2001	48	49.00	2,352	12,100	840	10,164
2002	21	67.00	1,407	9,900	1,040	10,296
2003	43	66.00	2,838	13,700	1,200	16,440

U.S. Pickle stocks in tanks, barrels, and fresh pack, December 1, 1999-2003

Year	From current year crop			From previous year crop		Total stocks
	Salt stock including dill	Fresh pack	Refrigerated	Salt stock including dill	Fresh pack	
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
1999	310,422	109,171	6,295	26,557		452,445
2000	192,647	42,642	1,449	141,556	9,250	387,544
2001	285,902	129,986	12,426	123,989		552,303
2002	225,243	54,329	1,236	19,772		300,580
2003	306,538	129,660	49,285	12,990	27,700	526,173

Horticulture

Michigan placed third nationally in value of wholesale sales of floriculture products in 2003. Only California and Florida reported larger sales than Michigan. Reports from Michigan's 742 commercial growers ($10,000 or more in gross sales) showed an estimated wholesale value of $342 million for all surveyed floriculture crops, up 5 percent from last year's revised figure. This estimate includes summarized sales data as reported by growers with $100,000 or more in sales plus a calculated wholesale value of sales for operations with sales from $10,000 to $99,999. The leading crop category breakdowns for Michigan operations with more than $100,000 in sales were:

First, annual bedding/garden plants with $178 million in sales.
Second, herbaceous perennial plants with $52 million in sales.
Third, propagative materials with $48 million in sales.
Fourth, potted flowering plants with $33 million in sales.

Michigan led the nation in sales of 6 floriculture crops:

- Potted Geraniums (seed) with 13.5 million pots sold, valued at $11.4 million.
- Potted New Guinea Impatiens with 4.2 million pots sold, valued at $6.3 million.
- Geranium Hanging Baskets (cuttings) with 826,000 baskets sold, valued at $5.4 million.
- New Guinea Impatiens Hanging Baskets with 768,000 baskets sold, valued at $5.2 million.
- Potted Easter Lilies, 1.3 million pots sold, at $4.6 million.
- Impatiens Hanging Baskets with 494,000 sold, valued at $2.6 million.

Other crops that ranked second in sales nationally were:

- Impatiens (flats) with 2.4 million flats sold, valued at $16.3 million.
- Petunias (flats) with 1.6 million flats sold, valued at $11.2 million.
- Potted Geraniums (cuttings) with 4.9 million pots sold, valued at $10.6 million.
- Begonias (flats) with 1.0 million flats sold, valued at $6.8 million.
- Potted Hosta with 1.9 million pots sold, valued at $6.2 million.
- Marigolds (flats) with 823,000 flats sold, valued at $5.6 million.
- Petunia Hanging Baskets with 469,000 baskets sold, valued at $2.7 million.
- Potted Petunias with 1.4 million pots sold, valued at $2.5 million.
- Begonia Hanging Baskets with 348,000 baskets sold, valued at $2 million.
- Other Flowering Hanging Baskets with 1.8 million baskets sold, valued at $ 1.1 million.
- New Guinea Impatiens (flats) with 137,000 flats sold, valued at $1.1 million.
- Geraniums from Seed (flats) with 89,000 flats sold, valued at $875,000.

Floriculture crops: Number of growers by gross value of sales, 1999-2003

Year	$10,000-$19,999	$20,000-$39,000	$40,000-$49,000	$50,000-$99,999	$100,000-$499,999	$500,000 or more	Total growers
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
1999	78	82	49	190	222	117	738
2000	74	89	44	170	239	131	747
2001	57	83	47	161	239	121	708
2002	60	121	65	187	234	124	791
2003	58	96	47	188	219	134	742

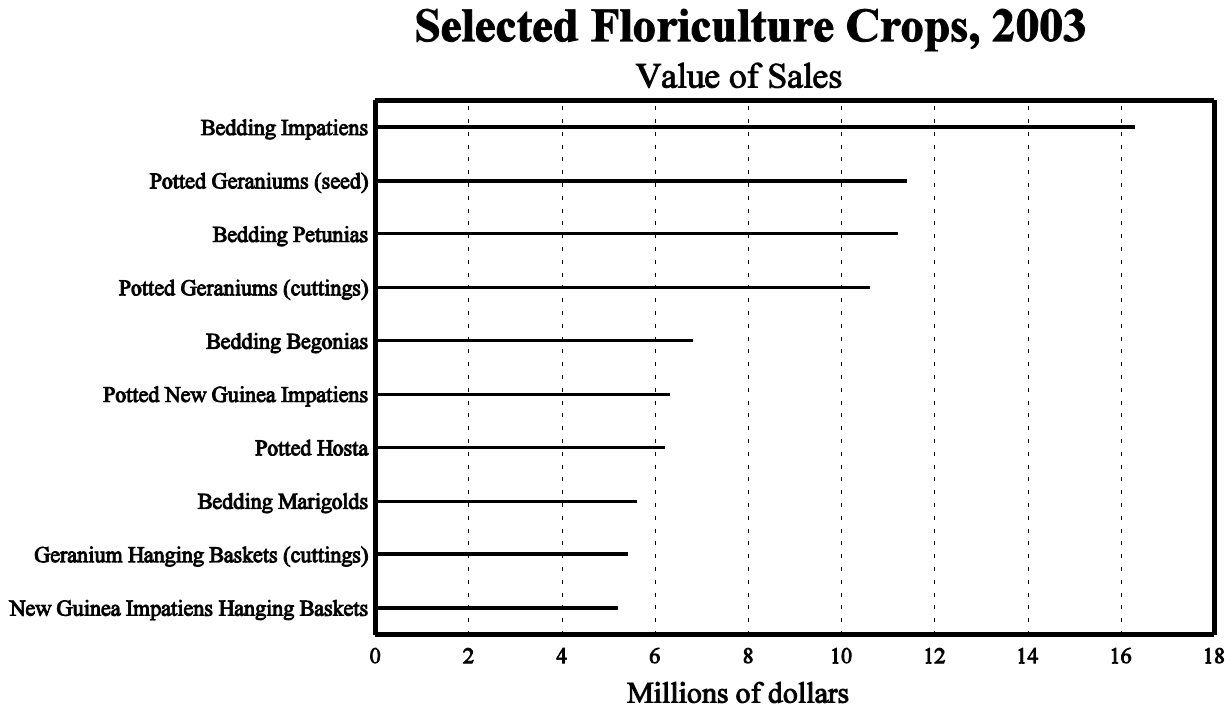
Floriculture crops: Growing area by type of cover, 1999-2003

Year	Glass greenhouses	Fiberglass and other rigid greenhouses	Plastic film greenhouses	Total greenhouse cover	Shade and temporary cover	Total covered area	Open ground
	1,000 square feet	*1,000 square feet*	*1,000 square feet*	*1,000 square feet*	*1,000 square feet*	*1,000 square feet*	*Acres*
1999	4,487	3,736	31,585	39,808	949	40,757	2,205
2000	4,441	4,096	32,665	41,202	1,106	42,308	3,299
2001	4,706	3,876	31,902	40,484	1,141	41,625	3,235
2002	4,653	3,884	36,501	45,038	1,370	46,408	3,831
2003	4,532	4,188	37,084	45,804	1,569	47,373	3,237

Floriculture crops: Wholesale value of sales by category, 1999-2003

Year	Total cut flowers	Total potted flowering plants	Total foliage for indoor or patio use	Total bedding/ garden plants	Total wholesale value of reported crops [1]	Expanded wholesale value of reported crops [2]
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1999	4,995	27,828	2,996	175,988	211,807	231,939
2000	7,624	32,363	3,601	188,648	254,953	273,517
2001	8,119	29,447	3,531	188,216	263,158	280,745
2002	8,299	30,736	3,699	217,773	159,174	306,271
2003	8,797	32,567	3,370	229,934	177,724	322,754

[1] Total data for 1999 and 2000 are not comparable; total sales of propagative material were added in 2000.
[2] Wholesale value of sales as reported by growers with $100,000 or more in sales of floriculture crops plus a calculated wholesale value of sales for growers with sales below $100,000. The value of sales for growers below the $100,000 level was estimated by multiplying the number of growers in each size group by the midpoint of each dollar range.



Bedding plants: Producers, quantity sold, price, and value, 1999-2003

Item	Producers	Quantity sold	Percent of sales at wholesale	Wholesale price	Value of sales at wholesale
	Number	*1,000 flats*	*Percent*	*Dollars*	*1,000 dollars*
Begonias					
2000	199	847	83	7.15	6,056
2001	209	1,025	86	7.06	7,237
2002	217	1,008	81	7.13	7,187
2003	227	1,026	82	6.66	6,833
Geraniums					
1999	99	757	88	8.28	6,268
Geraniums from cuttings					
2000	43	292	78	6.21	1,813
2001	27	85	39	12.25	1,041
2002	21	76	33	12.55	954
2003	18	57	20	11.37	648
Geraniums from seed					
2000	50	219	93	8.11	1,776
2001	52	113	87	11.53	1,303
2002	47	105	89	10.56	1,109
2003	40	89	79	9.83	875
Impatiens					
1999	249	2,912	82	6.47	18,841
2000	251	2,403	83	6.81	16,364
2001	242	2,344	83	7.05	16,525
2002	224	2,372	88	7.40	17,553
2003	238	2,383	86	6.85	16,324
Marigolds					
2000	205	789	89	6.87	5,420
2001	214	794	86	7.35	5,836
2002	219	731	90	7.39	5,402
2003	231	823	87	6.77	5,572
New Guinea Impatiens					
1999	58	151	84	9.21	1,391
2000	46	125	91	8.21	1,026
2001	40	99	83	11.17	1,106
2002	41	103	73	9.89	1,019
2003	28	137	80	7.86	1,077
Pansies/Violas					
2000	195	679	90	6.67	4,529
2001	200	637	89	6.94	4,421
2002	208	821	91	7.34	6,026
2003	216	920	91	6.57	6,044
Petunias					
1999	250	1,651	85	6.35	10,484
2000	268	1,502	85	6.76	10,154
2001	259	1,484	86	7.03	10,433
2002	252	1,430	87	7.42	10,611
2003	252	1,641	85	6.85	11,241
Other flowering and foliar					
1999	259	7,683	88	6.36	48,864
2000	258	4,506	86	6.89	31,046
2001	243	3,985	86	6.91	27,536
2002	241	3,768	86	7.45	28,072
2003	244	4,418	85	6.82	30,131
Vegetables [1]					
1999	210	827	85	6.69	5,533
2000	218	720	83	6.99	5,033
2001	187	567	82	6.97	3,952
2002	186	585	83	7.12	4,165
2003	180	505	78	6.93	3,500

[1] Does not include vegetable transplants grown for commercial use.

Hanging baskets: Producers, quantity sold, price, and value, 1999-2003

Item	Producers	Quantity sold	Percent of sales at wholesale	Wholesale price	Value of sales at wholesale
	Number	*1,000 baskets*	*Percent*	*Dollars*	*1,000 dollars*
Begonias					
2000	148	261	83	5.61	1,464
2001	145	276	82	5.94	1,639
2002	148	350	83	5.84	2,044
2003	165	348	87	5.94	2,067
Geraniums					
1999	240	685	67	6.41	4,391
Geraniums from cuttings					
2000	211	485	73	6.39	3,099
2001	199	399	75	6.76	2,697
2002	211	546	82	6.79	3,707
2003	222	826	84	6.53	5,394
Geraniums from seed					
2000	23	58	70	5.85	339
2001	30	101	76	5.82	588
2002	28	53	91	6.54	347
2003	27	47	91	6.30	296
Impatiens					
1999	218	438	79	4.94	2,164
2000	195	411	85	4.95	2,034
2001	186	376	86	5.49	2,064
2002	180	453	88	5.43	2,460
2003	199	494	85	5.28	2,608
Marigolds					
2000	5	2	94	5.89	12
2001	3	4	100	5.61	22
New Guinea Impatiens					
1999	229	727	73	6.41	4,660
2000	226	607	82	6.45	3,915
2001	219	586	83	6.50	3,809
2002	224	766	89	6.83	5,232
2003	223	768	87	6.75	5,184
Pansies/Violas					
2000	30	36	96	5.65	203
2001	27	33	87	5.57	184
2002	33	51	93	5.54	283
2003	36	49	89	5.52	270
Petunias					
1999	210	252	80	5.27	1,328
2000	178	251	85	4.96	1,245
2001	168	236	79	5.66	1,336
2002	170	346	87	5.66	1,958
2003	196	469	85	5.80	2,720
Other flowering					
1999	262	1,935	85	5.92	11,455
2000	189	1,346	82	5.95	8,009
2001	177	1,164	82	6.21	7,228
2002	191	1,595	88	6.22	9,921
2003	197	1,780	86	5.91	10,520
Foliage					
1999	55	315	93	5.06	1,594
2000	64	299	93	5.54	1,656
2001	52	306	95	4.95	1,515
2002	58	323	95	5.02	1,621
2003	60	212	93	4.81	1,020

Potted flowering and annual bedding plants: Producers, quantity sold, price, and value, 1999-2003

Item	Producers	Quantity sold			Percent of sales at wholesale	Wholesale price		Value of sales at wholesale
		Less than 5 inch pots	5 inch pots or larger	Total		Less than 5 inch pots	5 inch pots or larger	
	Number	*1,000 pots*	*1,000 pots*	*1,000 pots*	*Percent*	*Dollars*	*Dollars*	*1,000 dollars*
Azaleas								
1999	34	16	149	165	84	3.27	7.12	1,113
2000	36	31	116	147	83	3.16	7.20	933
2001	34	14	110	124	69	3.47	6.64	779
2002	28		94	94	87		7.29	685
2003	22		87	87	84		7.43	646
Begonias								
2000	65	397	31	428	63	1.05	1.92	476
2001	69	577	38	615	61	1.26	3.01	841
2002	72	459	54	513	80	1.08	3.60	690
2003	87	563	145	708	90	1.51	2.55	1,220
Chrysanthemums, florist								
1999	41	153	434	587	93	1.42	3.88	1,901
2000	38	127	320	447	87	1.69	3.87	1,453
2001	46	162	647	809	64	1.48	3.78	2,685
2002	37	104	511	615	97	1.69	3.00	1,709
2003	32	63	645	708	98	1.43	2.18	1,496
Chrysanthemums, hardy garden								
1999	131	828	2,692	3,520	93	0.99	2.18	6,688
2000	131	631	2,487	3,118	90	1.11	1.79	5,152
2001	119	255	2,670	2,925	90	1.21	1.76	5,008
2002	127	227	3,611	3,838	94	1.29	1.69	6,395
2003	123	356	4,281	4,637	94	1.73	1.73	8,022
Easter Lilies								
2000	51		1,510	1,510	97		3.47	5,240
2001	55		1,438	1,438	97		3.50	5,036
2002	48	146	1,282	1,428	97	2.75	3.52	4,914
2003	43		1,296	1,296	97		3.58	4,633
Geraniums from cuttings								
1999	203	5,709	1,434	7,143	81	1.32	2.41	10,992
2000	222	3,298	1,369	4,667	67	1.54	2.43	8,406
2001	217	3,101	1,422	4,523	70	1.71	2.52	8,886
2002	215	4,152	1,211	5,363	77	1.40	2.47	8,804
2003	222	3,562	1,333	4,895	69	1.73	3.30	10,561
Geraniums from seed								
1999	104	14,469	108	14,577	97	0.72	2.99	10,741
2000	112	17,662	54	17,716	95	0.76	3.88	13,633
2001	100	15,391	39	15,430	95	0.77	5.45	12,064
2002	98	16,156	10	16,166	98	0.81	3.46	13,121
2003	111	12,756	772	13,528	97	0.82	1.24	11,417
Marigolds								
2000	14		198	198	62		1.22	242
2001	12		212	212	65		1.45	307
2002	14	71	22	93	98	0.84	1.93	102
2003	19	59	60	119	97	0.77	1.63	143
New Guinea Impatiens								
1999	174	1,832	270	2,102	86	1.12	2.92	2,840
2000	190	2,848	287	3,135	89	1.10	3.93	4,261
2001	178	2,753	307	3,060	90	1.23	3.12	4,344
2002	174	3,535	230	3,765	95	1.23	3.27	5,100
2003	179	3,845	357	4,202	92	1.28	3.90	6,314
Pansies/Violas								
2000	34	329	58	387	80	0.67	4.83	501
2001	25	280	64	344	80	0.66	1.93	308
2002	31	576	141	717	98	0.68	2.59	757
2003	45	220	417	637	97	0.82	1.97	1,002

See footnote(s) at end of table.

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Potted flowering and annual bedding plants: Producers, quantity sold, price, and value, 1999-2003 (continued)

Item	Producers	Quantity sold			Percent of sales at wholesale	Wholesale price		Value of sales at wholesale
		Less than 5 inch pots	5 inch pots or larger	Total		Less than 5 inch pots	5 inch pots or larger	
	Number	*1,000 pots*	*1,000 pots*	*1,000 pots*	*Percent*	*Dollars*	*Dollars*	*1,000 dollars*
Petunias								
1999	61	179	190	369	92	0.97	2.10	573
2000	64	390	336	726	63	1.15	1.92	1,094
2001	49	360	243	603	56	1.12	2.16	928
2002	62	461	312	773	94	0.85	2.44	1,153
2003	76	619	803	1,422	92	1.49	1.99	2,520
Poinsettias								
1999	94	1,029	2,894	3,923	90	1.70	3.98	13,267
2000	97	1,375	3,138	4,513	87	1.23	3.88	13,867
2001	100	992	3,057	4,049	85	1.45	3.98	13,605
2002	93	915	2,847	3,762	90	1.60	4.12	13,194
2003	83	958	2,767	3,725	90	1.65	4.21	13,230
Roses, florist								
2000	14	67	37	104	90	2.25	4.24	308
2001	17	52	55	107	95	2.69	4.23	373
2002	10	87		87	95	3.59		312
2003	9		64	64	94		3.61	231
Flowering bulbs								
2000	43	735	999	1,734	97	1.59	3.31	4,475
2001	47	821	665	1,486	96	1.48	3.40	3,476
2002	49	666	1,467	2,133	99	1.52	3.29	5,839
2003	39	901	1,397	2,298	99	2.07	3.32	6,503
Other flowering plants								
1999	61	1,023	1,377	2,400	92	1.51	2.89	5,524
2000	66	982	722	1,704	88	1.64	4.43	4,809
2001	55	805	485	1,290	84	1.61	3.54	3,013
2002	60	977	455	1,432	87	1.58	4.31	3,505
2003	54	1,554	801	2,355	89	1.18	3.87	4,934
Other flowering and foliar type bedding plants								
1999	198	10,519	5,595	16,114	82	1.08	2.95	27,866
2000	131	9,571	1,848	11,419	80	1.01	2.87	14,970
2001	120	9,026	1,372	10,398	82	1.16	3.49	15,258
2002	125	10,294	2,805	13,099	95	1.07	3.12	19,766
2003	137	12,733	4,296	17,029	92	1.38	3.10	30,889
Vegetable type [1]								
1999	77	651	230	881	81	0.61	1.43	726
2000	73	871	135	1,006	88	0.65	1.79	808
2001	65	594	169	763	90	0.86	1.54	771
2002	73	1,066	164	1,230	93	0.69	2.16	1,090
2003	91	1,241	206	1,447	85	0.79	2.10	1,413

[1] Does not include vegetable transplants grown for commercial use.

Herbaceous perennials: Producers, quantity sold, price, and value, 2001-2003

Item	Producers	Quantity sold				Percent of sales at wholesale	Wholesale price			Value of All sales at wholesale
		Less than 1 gallon	1 to 2 gallon	2 gallon and larger	Total		Less than 1 gallon	1 to 2 gallon	2 gallon and larger	
	Number	*1,000 pots*	*1,000 pots*	*1,000 pots*	*1,000 pots*	*percent*	*Dollars*	*Dollars*	*Dollars*	*1,000 dollars*
Hosta										
2000	106	996	1,040	40	2,076	93	2.75	3.76	7.21	6,938
2001	111	584	1,073	46	1,703	94	2.76	2.89	6.43	5,009
2002	115	936	907	47	1,890	92	2.50	3.68	6.22	5,970
2003	125	825	1,020	67	1,912	90	2.49	3.64	5.85	6,159
Other										
2000	131	13,634	3,613	162	17,409	94	1.03	3.61	6.05	28,066
2001	136	13,890	5,110	317	19,317	94	1.25	3.06	5.90	34,869
2002	142	22,281	6,382	302	28,965	95	1.00	3.43	6.83	46,234
2003	152	15,220	5,377	352	20,949	92	1.11	3.53	6.12	38,029

Nursery crops: Producers, plants sold, sales and percent wholesale
Michigan and 17 states [1], for operations with $100,000+ sales, 2003

Commodity	Number of producers		Number of trees & plants		Gross sales		Percent of sales that were wholesale	
	MI	17 States	MI	17 States	MI	17 States	MI	17 States
	Number	*Number*	*Thousands*	*Thousands*	*1,000 dollars*	*1,000 dollars*	*Percent*	*Percent*
Broadleaf evergreens	42	1,490	666	123,552	7,118	820,937	83	93
Coniferous evergreens	79	1,448	2,309	37,712	31,175	443,300	91	93
Deciduous shade trees	63	1,546	153	17,146	11,213	511,271	70	91
Deciduous flowering trees	65	1,416	109	13,408	6,082	275,636	60	92
Deciduous shrubs	56	1,428	3,481	98,122	25,999	582,615	83	91
Fruit and nut plants	17	424	2,496	49,962	4,952	216,215	97	87
Christmas trees, cut and to be cut	58	456	1,852	10,315	22,636	183,274	88	91
Transplants for commercial truck crop production	5	91	NA	NA	5,176	173,074	96	99
Propagation material	43	603	NA	NA	33,528	298,299	98	95
Total	154	3,149	NA	NA	150,451	3,970,781	NA	NA

[1] AL, CA, CT, FL, GA, IL, MI, NJ, NY, NC, OH, OR, PA, TN, TX, VA, WA.

Turfgrass

Turfgrass survey summary

Sector	Area	Costs		
		Variable inputs	Equipment purchases	Labor and contracted services
	1,000 acres	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Private residences	1,575.0	560,000	405,000	226,000
Parks	69.0	6,700	4,400	33,300
Cemeteries	22.2	2,550	1,630	21,645
Apartments	--	15,000	--	30,000
Golf courses	95.8	62,100	20,900	126,200
Sod farms	6.9	4,150	1,370	5,690
Highways [1]	60.7	300	0	555
Schools	59.5	7,500	4,800	60,600
Lawn service companies	640.0	88,800	31,700	140,000
Total [2]	1,889.1	747,100	469,800	643,990

[1] Includes only areas maintained by Michigan Department of Transportation.
[2] Total acres does not include lawn service companies to avoid duplication.

Input costs for lawns by sector

Sector	Fertilizer	Pesticides [1]	Sod	Seed	Others	Total
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Private residences	115,900	44,300	18,000	37,000	344,800	560,000
Parks	1,130	440	140	460	4,530	6,700
Cemeteries	245	188	34	235	1,848	2,550
Apartments	2,050	1,430	180	250	11,090	15,000
Golf courses	13,500	18,300	1,000	1,400	27,900	62,100
Sod farms	940	325	0	790	2,095	4,150
Highways [2]	10	255	0	5	30	300
Schools	1,870	680	250	560	4,140	7,500
Lawn service companies	22,100	11,300	4,500	4,200	46,700	88,800
Total	157,745	77,218	24,104	44,900	443,133	747,100

[1] Herbicides, insecticides, and fungicides.
[2] Includes only areas maintained by Michigan Department of Transportation.

Acreage of principal varieties of grass for golf courses, parks, schools, and cemeteries

Variety	Area	
	Acres	*Percent*
Bluegrass/Fescue	57,150	23.2
Kentucky Bluegrass	34,050	13.8
Bentgrass	16,630	6.7
Poa-Annua	12,910	5.2
Poa/Bentgrass	7,580	3.1
Ryegrass	17,030	6.9
Fine Fescue	6,110	2.5
Improved Turf Type Tall Fescue	3,740	1.5
Natural	14,260	5.8
Kentucky 31 Tall Fescue	2,020	0.8
Other	12,670	5.1
Unknown	62,350	25.3
Total	246,500	100

Turf maintenance employees by sector

Sector	Year-round employees	Seasonal employees
	Number	*Number*
Parks	900	2,130
Cemeteries	700	1,400
Golf courses	1,700	8,150
Sod farms	70	265
Schools	1,700	1,650
Lawn service companies	4,100	7,500
Total	9,170	21,095

Livestock, Dairy, and Poultry

Livestock: Record highs and lows

Livestock	Unit	Record high		Record low		Year estimates started
		Quantity	Year	Quantity	Year	
Cattle and calves	1,000 head	2,036	1944	538	1867	1867
Cattle on feed	1,000 head	210	2004	57	1931	1930
Chickens, all [1]	1,000 birds	15,512	1944	6,190	1997	1924
Cows, beef	1,000 head	239	1977	24	1925,1933	1920
Cows, milk	1,000 head	1,080	1945	225	1867	1867
Eggs [2]	Million eggs	1,891	2003	1,104	1929	1924
Hogs and pigs [1]	1,000 head	1,397	1943	512	1934	1867
Honey	1,000 pounds	11,780	1939	4,386	1980	1921
Milk	Million pounds	6,360	2003	3,941	1927	1924
Sheep	1,000 head	3,100	1867	62	1999	1867
Wool	1,000 pounds	8,424	1934	430	1998	1934

[1] December 1.
[2] December 1 previous year to November 30.

Cattle and Calves

The January 1, 2004, Michigan cattle herd totaled 1,030,000 head, up 40,000 head from a year ago. The milk cow inventory, at 300,000 head, was down 1,000 from the previous year. Milk cow replacement heifers were down 5,000 at 130,000. Beef cows, at 85,000 head, were down 4 percent from last year. Calves on hand were at 200,000, up 25,000 from last year. Beef cow replacement heifers, at 30,000 head, were down 5,000 head. The 2003 calf crop was 350,000 head, up 10,000 from last year. Steer numbers were up 20,000 at 215,000 head Other heifers increased to 51,000 from 42,000, while bulls at 19,000 head were up by 1,000. Cattle on full feed for slaughter totaled 210,000 head, up 30,000 from last year. Michigan has 14,500 operations with cattle, down 500 from a year ago.

The January 1 Michigan cattle and calf inventory was valued at $937.3 million, up 12.7 percent from January 1, 2003. Cash receipts from cattle and calf marketings totaled $207.7 million, while total liveweight marketed was 324.9 million pounds.

Cattle and calves: Number of operations by size group, 1999-2003 [1]

Size group by head	Year				
	1999	2000	2001	2002	2003
1-49 head	11,200	11,200	10,800	10,400	10,000
50-99 head	2,170	2,200	2,100	2,040	2,050
100-499 head	2,400	2,350	2,350	2,300	2,200
500-999 head	170	190	180	180	170
1000 + head	60	60	70	80	80
Total	16,000	16,000	15,500	15,000	14,500

[1] An operation is any place having one or more head of cattle on hand at any time during the year.

Cattle and calves: Number on farms by class, January 1, 2000-2004

Class	2000	2001	2002	2003	2004
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
All cows that have calved	395	385	370	390	385
Beef cows	95	85	71	89	85
Milk cows	300	300	299	301	300
Heifers, 500 pounds and over	205	210	210	212	211
Beef cow replacement	30	35	30	35	30
Milk cow replacement	125	130	135	135	130
Other	50	45	45	42	51
Steers, 500 pounds and over	200	190	195	195	215
Bulls, 500 pounds and over	18	17	17	18	19
Calves, under 500 pounds	192	178	198	175	200
All cattle and calves	1,010	980	990	990	1,030

Cattle and calves: Production and income, 1999-2003

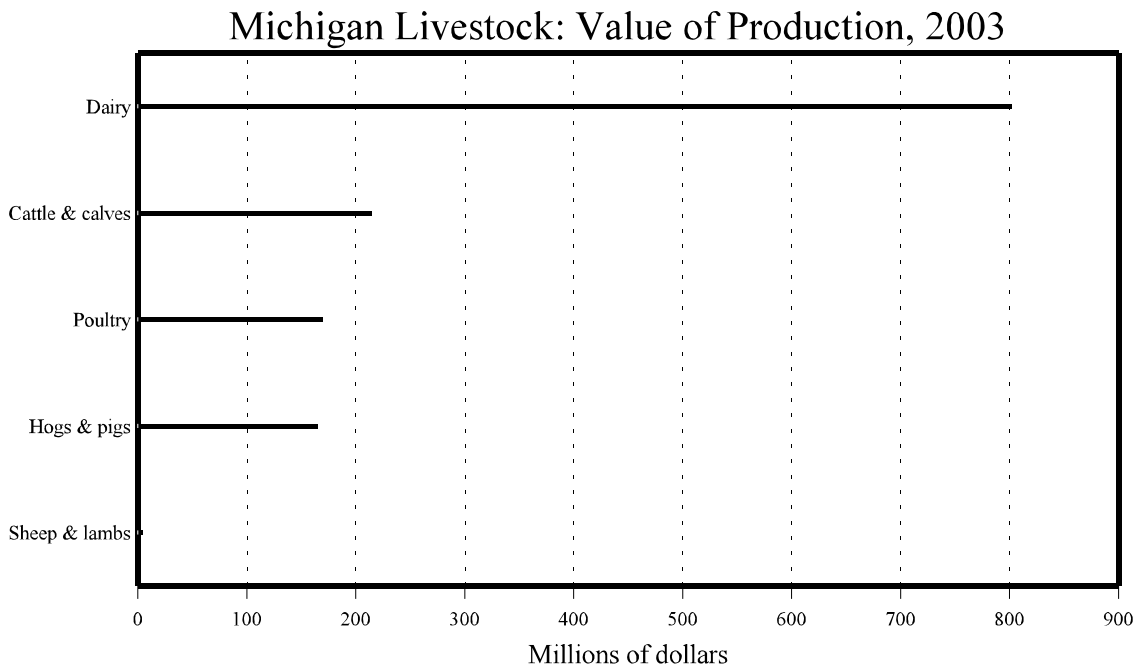
Year	Production [1]	Marketings [2]	Average price per cwt		Value of production	Cash receipts [4]	Value of home consumption	Gross income
			All beef [3]	Calves				
	1,000 pounds	*1,000 pounds*	*Dollars*	*Dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1999	405,770	461,250	50.50	68.90	200,427	235,829	8,067	243,896
2000	407,661	446,600	56.00	102.00	220,474	255,892	9,183	265,075
2001	353,634	376,750	58.80	109.00	204,736	227,930	7,467	235,397
2002	363,562	363,540	54.20	104.00	191,624	204,628	6,894	211,522
2003	333,635	324,896	63.00	92.50	213,932	207,722	7,795	215,517

[1] Adjustments made for changes in inventory and for inshipments.
[2] Excludes custom slaughter for use on farms where produced and inter-farm sales within the State.
[3] Combined price for "Cows" and "Steers and Heifers".
[4] Receipts from marketings and sale of farm slaughter.

Cattle and calves: Balance sheet, 1999-2003

Year	All cattle and calves on hand January 1	Calf crop	Inshipments	Marketings [1]		Farm slaughter cattle and calves [2]	Deaths		All cattle and calves on hand following January 1
				Cattle	Calves		Cattle	Calves	
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
1999	1,050	355	70	338	47	5	25	50	1,010
2000	1,010	345	55	318	38	5	22	47	980
2001	980	335	50	266	36	4	24	45	990
2002	990	340	41	264	40	4	25	48	990
2003	990	350	39	248	25	4	24	48	1,030

[1] Includes custom slaughter and state outshipments, but excludes inter-farm sales within the State.
[2] Excludes custom slaughter for farmers at commercial establishments.



Poultry

The total value of poultry production in Michigan from eggs, turkeys, and other chickens (primarily culled layers) during 2003 was $163 million, 29 percent more than a year earlier. The value of egg production totaled $93.8 million, up 48 percent from 2002. Egg production totaled 1.89 billion eggs, up 1 percent from last year. The market egg price averaged 60 cents per dozen, up 48 percent from 2002. The value of turkey production during 2003 was $68.8 million, up 9 percent from 2002. The total pounds of turkey produced was 191 million, up 6 percent. The average price per pound was 36 cents, up 1 cent from a year ago. Other chicken production, at 3.46 million birds, was down 10 percent from last year. Other chicken production was valued at $12,000, down 8 percent from 2002.

Chickens: Layers on hand, December 1, 1999-2003

Class	1999	2000	2001	2002	2003
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
Layers, 1 year old and older	2,284	3,480	4,491	5,149	5,272
Layers, 20 weeks old but less than 1 year	4,013	2,935	2,363	1,802	1,795
Pullets, 13-20 weeks old	537	569	385	606	1,278
Pullets, less than 13 weeks	1,260	921	985	764	1,386
Other chickens	3	1	1		
All chickens (excluding broilers)	8,097	7,906	8,225	8,321	9,731

Turkeys: Production and value, 2001-2003 [1]

Year	Number raised [2]	Pounds produced	Price per pound [3]	Value of production
	Thousands	*1,000 pounds*	*Cents*	*1,000 dollars*
1999	2,700	85,590	41.1	35,092
2000	3,500	119,000	34.0	40,460
2001	4,500	162,000	35.0	56,700
2002	4,800	179,520	35.0	62,832
2003	5,000	191,000	36.0	68,760

[1] December 1 previous year through November 30.
[2] Based on turkeys placed Sep 1 through Aug 31. Excludes young turkeys lost.
[3] Equivalent live weight returns to producers.

All eggs: Production and value, 1999-2003

Year	Eggs produced	Price per dozen	Value of production
	Million	*Dollars*	*1,000 dollars*
1999	1,562	0.420	53,655
2000	1,646	0.419	56,464
2001	1,706	0.437	61,063
2002	1,880	0.403	63,237
2003	1,891	0.595	93,762

All egg production, by month, 1999-2003

Month	1999	2000	2001	2002	2003
	Million eggs	*Million eggs*	*Million eggs*	*Million eggs*	*Million eggs*
December	134	142	145	153	162
January	132	136	142	148	160
February	117	129	129	130	147
March	132	145	152	149	161
April	124	137	146	148	152
May	124	132	144	162	160
June	119	133	142	157	156
July	132	144	143	166	158
August	140	140	136	167	159
September	132	133	131	156	155
October	137	138	145	160	162
November	139	137	151	156	159
Total [1]	1,562	1,646	1,706	1,880	1,891

[1] Sum of months may not add to total due to rounding.

All layers: Average number on hand during the month, 1999-2003

Month	1999	2000	2001	2002	2003
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
December	5,873	6,316	6,270	6,926	7,243
January	5,880	6,288	6,234	6,933	7,198
February	6,008	6,381	6,435	6,888	7,220
March	6,033	6,594	6,820	6,938	7,074
April	5,766	6,431	6,922	7,296	6,934
May	5,769	6,246	6,763	7,452	7,121
June	5,909	6,435	6,657	7,236	7,128
July	5,973	6,489	6,490	7,265	7,079
August	5,937	6,278	6,489	7,243	7,088
September	5,957	6,183	6,593	7,106	6,942
October	6,199	6,220	6,687	7,039	6,869
November	6,299	6,319	6,779	6,983	6,959
Annual [1]	5,967	6,348	6,595	7,109	7,071

[1] December 1 previous year through November 30.

Hogs and Pigs

Michigan hog production totaled 479.0 million pounds in 2003, down 4.1 percent from 2002. Based on the December 1, 2003 inventory of 950,000 hogs and pigs, Michigan ranked thirteenth in the nation in terms of inventory.

Breeding inventory accounted for 11.6 percent of the total inventory, while market hogs made up the remaining 88.4 percent. Historically, Cass, Allegan, Ottawa, Branch and Huron have been the top five hog producing counties.

The annual average price for all hogs was $35.00 per cwt for 2003, compared with the 2002 average price of $30.70 per cwt.

Marketings of all hogs and pigs totaled 484.2 million pounds in 2003, down 6.5 percent from 2002. Cash receipts increased 5.7 percent from the previous year to $173.7 million.

Hogs and pigs: Number of operations, by size group, 1999-2003 [1]

Year	Operations						
	1-99	100-499	500-999	1,000-1,999	2,000-4,999	5,000+	Total
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
1999	1,400	500	100	130	130	40	2,300
2000	1,700	390	110	140	120	40	2,500
2001	1,700	430	90	110	130	40	2,500
2002	1,500	450	90	100	120	40	2,300
2003	1,420	360	80	100	100	40	2,100

[1] An operation is any place having one or more head on hand at any time during the year.

Hogs and pigs: Sows farrowing and pig crop, 1999-2004

Year	December-February [1]			March-May		
	Sows farrowing	Pigs per litter	Pig crop	Sows farrowing	Pigs per litter	Pig crop
	1,000 head	*head*	*1,000 head*	*1,000 head*	*head*	*1,000 head*
2000	44	8.80	387	50	9.00	450
2001	46	8.75	403	50	8.90	445
2002	50	9.00	450	49	8.85	434
2003	43	8.80	378	46	9.00	414
2004	45	8.90	401	44	9.10	400
	June-August			September-November		
1999	51	9.00	459	49	9.00	441
2000	50	8.90	445	48	9.05	434
2001	52	9.10	473	46	9.15	421
2002	54	9.05	489	42	9.10	382
2003	47	9.00	423	51	8.80	449

[1] December of previous year.

Hogs and pigs: Inventory, 2000-2004

Month and year	Market hogs and pigs					Breeding stock	Total hogs and pigs
	Under 60 pounds	60-119 pounds	120-179 pounds	180 lbs and over	Total market		
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
March 1							
2000	295	215	170	160	840	120	960
2001	310	185	160	125	780	120	900
2002	310	215	165	150	840	120	960
2003	270	190	165	145	770	100	870
2004	300	205	175	150	830	100	930
June 1							
2000	390	200	160	130	880	110	990
2001	315	215	155	125	810	110	920
2002	310	205	155	140	810	110	920
2003	310	210	165	145	830	100	930
2004	310	190	170	145	815	95	910
September 1							
2000	360	230	180	140	910	110	1,020
2001	330	225	175	130	860	110	970
2002	315	210	160	135	820	120	940
2003	290	205	160	145	800	100	900
December 1							
2000	320	200	170	150	840	110	950
2001	315	205	170	160	850	110	960
2002	285	180	155	150	770	100	870
2003	300	205	175	160	840	110	950

Hogs and pigs: Production and income, 1999-2003

Year	Production [1]	Marketings [2]	Average price per cwt	Value of production	Cash receipts [3]	Value of home consumption	Gross income
	1,000 pounds	*1,000 pounds*	*Dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1999	466,637	494,787	29.80	136,678	149,937	1,229	151,166
2000	464,577	483,775	40.70	184,575	200,485	1,662	202,147
2001	491,070	499,800	41.70	200,748	212,599	1,695	214,294
2002	499,504	517,700	30.70	153,600	164,324	1,171	165,495
2003	478,977	484,225	35.00	165,113	173,671	443	174,114

[1] Adjustments made for changes in inventory and for inshipments.
[2] Excludes custom slaughter for use on farms where produced and inter-farm sales within the state.
[3] Receipts from marketing and sales of farm slaughter. Includes allowance for higher average price of outshipments of feeder pigs.

Hogs and pigs: Balance sheet, 1999-2003

Year	Beginning inventory	Dec-Nov pig crop	Inshipments	Marketings [1]	Farm slaughter [2]	Deaths	Number on hand December 1
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
1999	1,120	1,723	225	1,999	4	85	980
2000	980	1,716	275	1,937	4	80	950
2001	950	1,742	280	1,930	4	78	960
2002	960	1,755	240	2,011	4	70	870
2003	870	1,664	355	1,874	5	60	950

[1] Includes custom slaughter and state outshipments, but excludes sales within Michigan.
[2] Excludes custom slaughter for farmers at commercial establishments.

December 1 Hog Inventory, 1928-2003

Honey

Michigan honey production for 2003 totaled 4.8 million pounds, down 13 percent from 2002. This estimate included honey from producers with 5 or more colonies. Michigan ranked ninth in honey production in 2003, up from tenth in 2002. There were 65,000 colonies producing honey, down 7,000 colonies from 2002. Yield per colony averaged 74 pounds, down 3 pounds from 2002.

Michigan honey prices averaged $1.47 per pound, up 7 cents from last year. Value of production totaled $7.07 million, down 9 percent from 2002. Honey stocks on hand for sale, as of December 15, were 1.73 million pounds, down 8 percent from 2002.

Honey: Production and value, 1999-2003 [1]

Year	Honey producing colonies	Yield per colony	Production	Price per pound	Value of production	Stocks Dec 15 [2]
	Thousands	*Pounds*	*1,000 pounds*	*Cents*	*1,000 dollars*	*1,000 pounds*
1999	73	85	6,205	66	4,095	3,475
2000	72	75	5,400	60	3,240	2,970
2001	76	60	4,560	81	3,694	2,827
2002	72	77	5,544	140	7,762	1,885
2003	65	74	4,810	147	7,071	1,732

[1] Includes only producers with 5 or more colonies.
[2] Stocks held by producers.

Dairy

Milk production in Michigan during 2003 was 6,360 million pounds, up 3.8 percent from 2002. Michigan ranked eighth nationally in milk production in 2002, accounting for 3.5 percent of U.S. production.

The annual average number of milk cows on Michigan farms during 2003 was 301,000 head, down 1,000 from the previous year. The number of operations with milk cows fell to 3,000 from 3,200 in 2002. Milk production per cow was 21,060 pounds in 2003, compared with 20,332 pounds during 2002. The average butterfat content was 3.62 percent, unchanged from 2002.

Milk prices during the year averaged $12.60 per cwt., up $0.50 from the previous year. Cash receipts from milk sales totaled $794 million, up 8 percent from 2002. Milk continued as the top ranked Michigan commodity in cash receipts.

Milk: Production, utilization, marketings, and value, 1999-2003

Item	Unit	1999	2000	2001	2002	2003
		Production				
Production						
Total milk produced on farms	Million pounds	5,455	5,705	5,870	6,120	6,360
Milkfat produced	Million pounds	201.3	208.8	213.1	221.5	230.2
Milkfat	Percent	3.69	3.66	3.63	3.62	3.62
Utilization						
Milk used where produced						
Fed to calves	Million pounds	37	45	55	55	55
Used for milk, cream, and butter	Million pounds	3	5	5	5	5
Milk marketed by producers	Million pounds	5,415	5,655	5,810	6,060	6,300
Average return per 100 pounds of milk	Dollars	14.80	12.90	15.20	12.10	12.60
Average return per pound milkfat	Dollars	4.01	3.52	4.19	3.34	3.48
Fluid grade	Percent	99	99	99	99	99
Total cash receipts	1,000 dollars	801,420	729,495	883,120	733,260	793,800
Value						
Value of milk used where produced [1]	1,000 dollars	5,920	6,450	9,120	7,260	7,560
Total value of milk produced	1,000 dollars	807,340	735,945	892,240	740,520	801,360

[1] Includes value of milk fed to calves and milk used by farm households.

Milk cows: Number of operations, by size group, 1999-2003 [1]

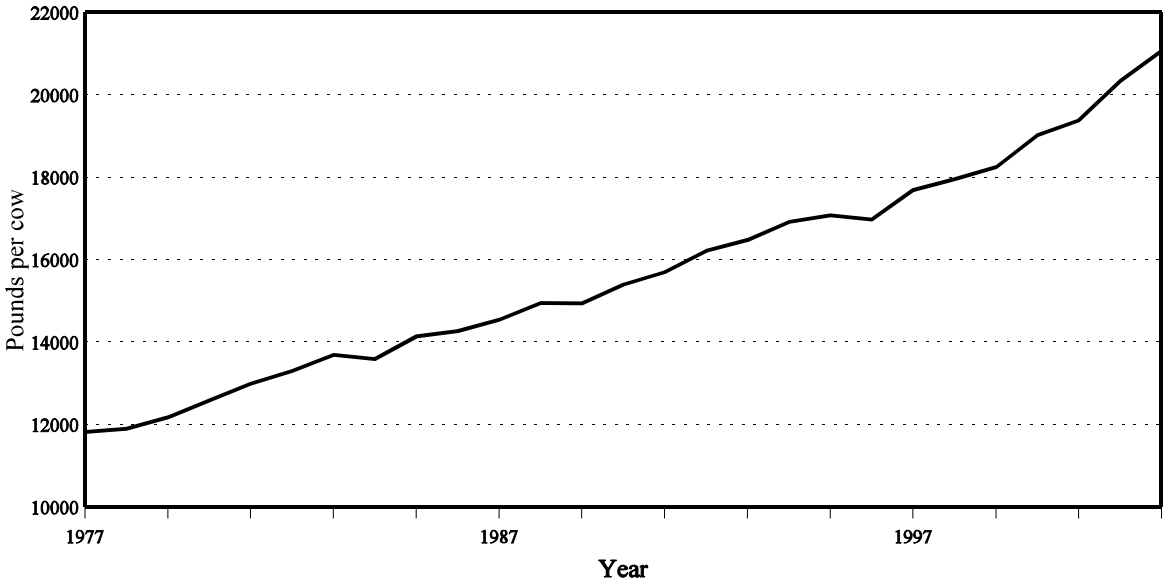
Size group by head	1999	2000	2001	2002	2003
	Number of operations	*Number of operations*	*Number of operations*	*Number of operations*	*Number of operations*
1-29	1,000	1,000	1,050	1,050	1,000
30-49	700	630	550	500	450
50-99	1,000	900	800	750	700
100-199	750	700	620	590	550
200-499	200	215	215	240	220
500+	50	55	65	70	80
Total	3,700	3,500	3,300	3,200	3,000

[1] An operation is any place having one or more milk cows on hand at any time during the year.

Milk cows: Number by month, 1999-2003

Month	1999	2000	2001	2002	2003
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
January	291	298	303	300	302
February	292	296	303	301	302
March	296	296	304	301	302
April	298	299	304	301	301
May	303	301	304	301	301
June	304	304	305	300	302
July	306	302	303	301	304
August	302	302	303	302	304
September	299	300	303	302	304
October	299	302	302	302	303
November	298	299	301	302	300
December	297	300	299	301	300
Annual	299	300	303	301	302

Annual Milk per Cow, 1977-2003



Milk production: Total by month, 1999-2003

Month	1999	2000	2001	2002	2003
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
January	442	474	482	504	533
February	410	447	447	474	480
March	463	485	505	533	544
April	454	481	492	518	521
May	486	494	518	537	539
June	465	485	505	503	529
July	474	489	498	519	556
August	462	485	489	515	549
September	444	455	476	488	534
October	454	477	483	507	542
November	441	457	474	498	503
December	460	476	501	524	530
Annual	5,455	5,705	5,870	6,120	6,360

Milk: Production per cow, by month, 1999-2003

Month	1999	2000	2001	2002	2003
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*
January	1,520	1,590	1,590	1,680	1,765
February	1,405	1,510	1,475	1,575	1,590
March	1,565	1,640	1,660	1,770	1,800
April	1,525	1,610	1,620	1,720	1,730
May	1,605	1,640	1,705	1,785	1,790
June	1,530	1,595	1,655	1,675	1,750
July	1,550	1,620	1,645	1,725	1,830
August	1,530	1,605	1,615	1,705	1,805
September	1,485	1,515	1,570	1,615	1,755
October	1,520	1,580	1,600	1,680	1,790
November	1,480	1,530	1,575	1,650	1,675
December	1,550	1,585	1,675	1,740	1,765
Annual	18,244	19,017	19,373	20,332	21,060

Dairy products: Annual production totals, 1999-2003

Product	1999	2000	2001	2002	2003
	1,000 gallons	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*
Michigan					
Ice cream, fullfat, total	19,572	21,607	22,494	27,218	17,412
Ice cream, lowfat, total	17,812	16,079	([1])	7,639	([1])
Sherbet, total	1,369	1,696	([1])	1,140	([1])
Ice cream mix, fullfat	10,317	11,678	11,599	15,555	9,312
Ice cream mix, lowfat	8,117	8,220	8,263	5,728	([1])
Sherbet mix	722	1,010	([1])	727	([1])
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
East North Central Region [2]					
Cheese, total	2,538.5	2,606.4	2,545.3	2,657.7	2,697.2
Cheese, American type [3]	989.0	952.2	876.3	907.7	875.0
Cheese, Italian	1,031.9	1,101.1	1,123.7	1,149.2	1,205.4
Cottage cheese, curd	110,954	112,892	111,863	103,660	107,430
Cottage cheese, creamed	96,311	102,329	102,140	95,174	101,228
Cottage cheese, low fat	74,009	77,612	81,190	81,735	81,818
Condensed skim milk, unsweetened, bulk	146,594.0	161,134.0	122,605.0	169,462.0	144,242.0
Dried milk, nonfat for human food	58.4	57.2	48.5	52.9	48.3
Butter	349.8	327.2	368.2	388.2	345.7
Water & juice ices	7,521	8,098	8,769	8,612	6,189
Yogurt, plain and flavored	624.3	720.7	818.9	816.8	759.8

[1] Not published separately because of insufficient data or to avoid disclosure of individual operations.
[2] Illinois, Indiana, Michigan, Ohio, and Wisconsin.
[3] Cheddar, Colby, washed curd, stirred curd, Monterey, and Jack.

Dairy products: Ice cream, fullfat, total, by month, 1999-2003

Month	1999	2000	2001	2002	2003
	1,000 gallons	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*	*1,000 gallons*
January	1,010	1,744	1,472	2,018	1,662
February	1,317	1,724	1,543	2,083	1,676
March	1,652	1,967	1,752	2,109	1,381
April	1,933	1,907	2,352	2,294	1,424
May	1,791	1,771	2,072	2,336	1,538
June	2,283	1,945	2,071	2,436	1,561
July	2,194	1,999	2,397	2,509	1,496
August	2,164	2,083	2,270	2,340	1,713
September	1,626	1,793	1,977	2,208	1,685
October	1,314	1,791	1,840	2,006	546
November	990	1,637	1,318	1,477	1,370
December	1,298	1,246	1,430	3,402	1,360
Total	19,572	21,607	[1] 22,494	[1] 27,218	17,412

[1] Revised; monthly data are not revised and do not add to the total.

Mink

Mink: Farms, pelts produced and females bred to produce kits, 2000-2004

Year	2000	2001	2002	2003	2004
	Number	*Number*	*Number*	*Number*	*Number*
Farms	12	11	9	8	([1])
Pelts produced	42,500	54,000	57,000	51,000	([1])
Females bred to produce kits	11,000	11,800	12,700	11,600	11,700

[1] Published in July 2005.

Sheep and Lambs

Michigan sheep operations in 2003 numbered 2,100, up 100 operations from 2002. All sheep and lamb inventory in Michigan on January 1, 2004 was estimated at 83,000 head, down 2,000 head from a year ago. The breeding sheep inventory was 59,000 head. Market sheep and lambs totaled 24,000 head, up 3,000 from a year earlier. The 2003 Michigan lamb crop (lambs born October 1, 2002 through September 30, 2003) was 60,000 head, unchanged from the previous year.

Sheep and lamb value of production was $3.84 million for 2003. Cash receipts totaled $3.66 million. All sheep and lambs were valued at $131 per head, up $11 from the previous year.

Sheep shorn in 2003 totaled 77,000 head. The weight per fleece was 6.2 pounds, compared with 6.5 pounds in 2002. Total wool production in Michigan was 475,000 pounds. Wool production was valued at $143,000. The average price per pound was $0.30, up $0.16 from 2002.

Sheep and lambs: Number on farms by class, January 1, 2000-2004

Class	2000	2001	2002	2003	2004
	1,000 Head	*1,000 Head*	*1,000 Head*	*1,000 Head*	*1,000 Head*
Breeding sheep 1 year and older					
Ewes	38	40	40	47	43
Rams	3	2	3	3	3
Replacement lambs	10	9	12	14	13
Total market sheep and lambs	17	20	20	21	24
All sheep and lambs	68	71	75	85	83

Sheep and lambs: Number of operations, 1999-2003 [1]

Year	Number
1999	1,700
2000	1,800
2001	1,800
2002	2,000
2003	2,100

[1] An operation is any place having one or more head on hand at any one time during the year.

Sheep and lambs: Lamb crop, 1999-2003

Year	Breeding ewes [1]	Lambs per 100 ewes [1]	Lamb crop
	1,000 Head	*Number*	*1,000 Head*
1999	34	132	45
2000	38	121	46
2001	40	125	50
2002	40	150	60
2003	48	125	60

[1] Ewes 1 year and older January 1.

Sheep and lambs: Balance sheet, 1999-2003

Year	All sheep and lambs on hand January 1	Lamb crop	Inshipments	Marketings [1]		Farm slaughter [2]	Deaths		All sheep and lambs on hand following January 1
				Sheep	Lambs		Sheep	Lambs	
	1,000 Head	*1,000 Head*	*1,000 Head*	*1,000 Head*	*1,000 Head*	*1,000 Head*	*1,000 Head*	*1,000 Head*	*1,000 Head*
1999	62	45	5.0	4.0	28.5	2.0	2.5	7.0	68
2000	68	46	2.0	7.5	26.5	2.0	3.0	6.0	71
2001	71	50	1.5	5.5	29.5	2.0	3.5	7.0	75
2002	75	60	3.0	3.0	37.0	2.0	4.0	7.0	85
2003	85	60	4.0	15.5	36.0	2.0	4.5	8.0	83

[1] Includes custom slaughter and state outshipments, but excludes sales within Michigan.
[2] Excludes custom slaughter for farmers at commercial establishments.

Sheep and lambs: Production and income, 1999-2003

Year	Production [1]	Marketings [2]	Average price per cwt		Value of production	Cash receipts [3]	Value of home consumption	Gross income
			Sheep	Lambs				
	1,000 pounds	*1,000 pounds*	*Dollars*	*Dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
1999	4,210	3,453	30.00	69.00	2,648	2,179	397	2,576
2000	4,200	3,603	31.00	75.00	2,789	2,306	431	2,737
2001	4,515	3,653	31.00	70.00	2,901	2,321	403	2,724
2002	5,604	4,129	26.00	70.00	3,501	2,794	403	3,197
2003	4,662	4,927	35.00	86.00	3,840	3,660	495	4,155

[1] Adjustments made for changes in inventory and for inshipments.
[2] Excludes custom slaughter for use on farms where produced and inter-farm sales within the state.
[3] Receipts from marketings and sale of farm slaughter.

Sheep and lambs: Wool production and value, 1999-2003

Year	Sheep shorn	Weight per fleece	Production	Price per pound	Value of production [1]
	1,000 Head	*Pounds*	*1,000 Pounds*	*Cents*	*1,000 Dollars*
1999	66	7.0	465	14	65
2000	72	6.4	460	14	64
2001	77	6.2	480	12	58
2002	81	6.5	525	14	74
2003	77	6.2	475	30	143

[1] Production multiplied by marketing year average price.

Trout

Michigan's 18 commercial trout operations sold $346,000 of trout in 2003. This was a decrease of 48 percent from last season. Sales of food-size trout (12 inches or longer) were valued at $297,000. Sales of stockers (6 to 12 inches), fingerlings (1 to 6 inches) and eggs were included with other States to avoid disclosure of individual operations.

Food-size trout had sales of 145,000 pounds with an average liveweight of 1.1 pounds per fish. Food-size sales averaged $2.05 per pound. The major sales outlets were fee fishing operations at 27 percent of total and 11 percent direct to consumers.

Losses of trout in Michigan amounted to 63,000 fish, weighing 59,000 pounds.

Trout: Sales by size category, 1999-2003

Size category	Number of fish sold	Live weight	Sales	
			Total	Average per pound [1]
	1,000	*1,000*	*1,000 dollars*	*Dollars*
Foodsize (12 inches long or more):				
1999	320	352	859	2.44
2000	330	388	776	2.00
2001	275	330	660	2.00
2002	180	215	553	2.57
2003	135	145	297	2.05
Stockers (6-12 inches long):				
1999	200	65	174	2.67
2000	210	78	207	2.65
2001	110	42	116	2.75
2002	90	30	83	2.77
2003	([2])	([2])	([2])	([2])
Fingerlings (1-6 inches long):				
1999	310	10	80	259.00
2000	250	8	54	215.00
2001	170	4	47	275.00
2002	100	3	27	266.00
2003	([2])	([2])	([2])	([2])

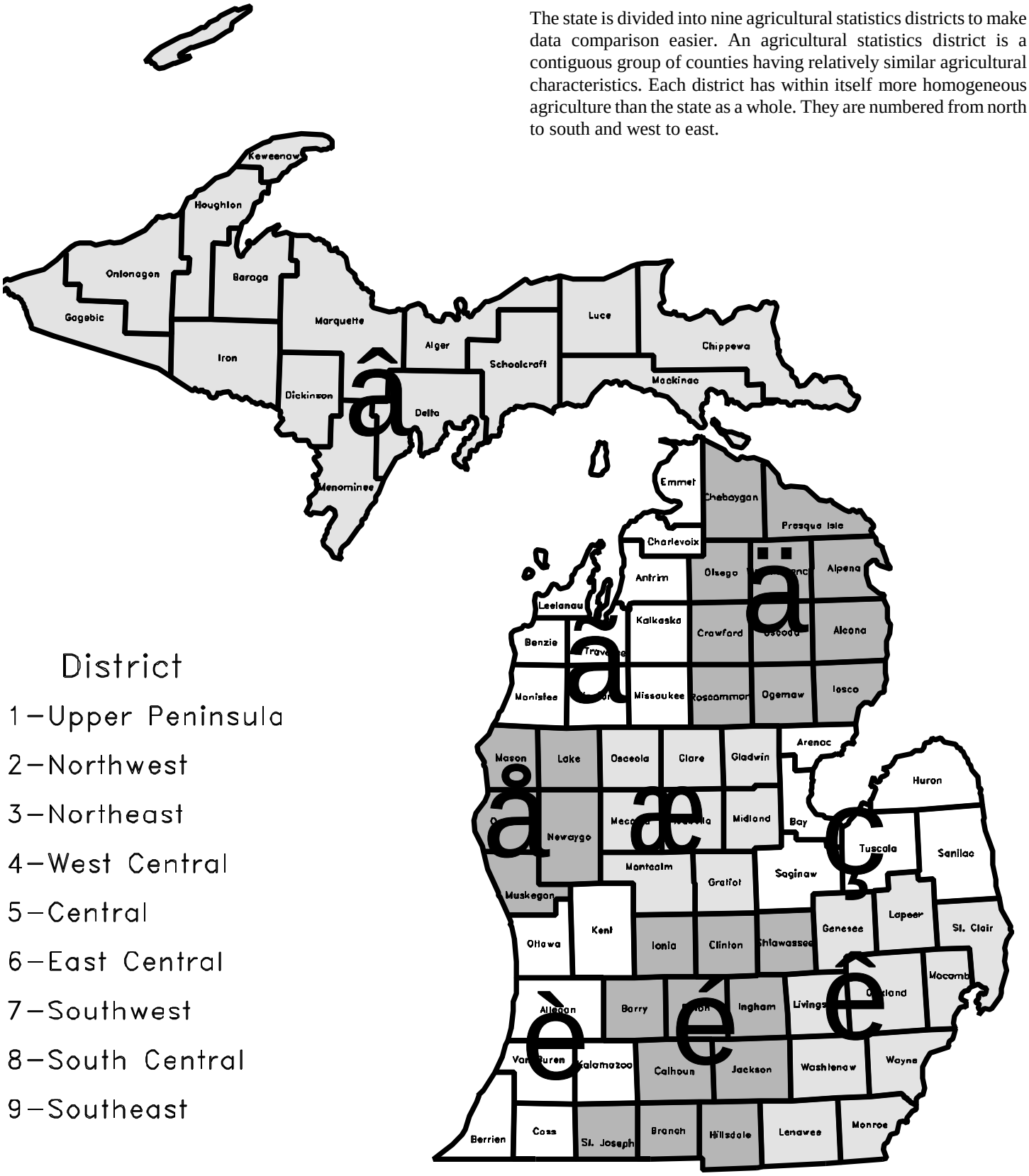
[1] Average per thousand fish for fingerlings after 1997.
[2] Not published separately to avoid disclosure of individual operation.

Trout: Number of operations, 2000-2004

Year	Operations
	Number
2000	30
2001	33
2002	33
2003	22
2004	18

Agricultural Statistics Districts

The state is divided into nine agricultural statistics districts to make data comparison easier. An agricultural statistics district is a contiguous group of counties having relatively similar agricultural characteristics. Each district has within itself more homogeneous agriculture than the state as a whole. They are numbered from north to south and west to east.



District

1—Upper Peninsula

2—Northwest

3—Northeast

4—West Central

5—Central

6—East Central

7—Southwest

8—South Central

9—Southeast

Principal counties for field crops, 2003 [1]

Rank	Corn for grain	Dry beans	Hay	Oats	Soybeans	Sugarbeets	Wheat
1	Lenawee	Huron	Sanilac	Sanilac	Lenawee	Huron	Huron
2	Huron	Tuscola	Huron	Isabella	Sanilac	Tuscola	Sanilac
3	Saginaw	Bay	Isabella	Montcalm	Monroe	Sanilac	Lenawee
4	Branch	Sanilac	Osceola	Huron	Branch	Saginaw	Saginaw
5	Tuscola	Gratiot	Barry	Shiawassee	Saginaw	Gratiot	Tuscola

[1] Based on total production.

Principal counties for livestock [1]

Rank	January 1, 2004 Cattle and calves	December 1, 2003 Hogs and pigs	January 1, 2004 Milk cows
1	Huron	Allegan	Sanilac
2	Sanilac	Cass	Clinton
3	Clinton	Ottawa	Huron
4	Allegan	Branch	Allegan
5	Ionia	Calhoun, Huron	Ottawa

[1] Based on number of head.

Principal counties for fruit and vegetables, 2003 [1]

Rank	Apples	Blueberries	Grapes	Tart cherries	Asparagus	Cucumbers, processing	Snap beans, processing
1	Kent	Van Buren	Berrien	Leelanau	Oceana	Van Buren	St Joseph
2	Berrien	Ottawa	Van Buren	Oceana	Mason	Gratiot	Kalamazoo
3	Van Buren	Allegan	Cass	Grand Traverse	Van Buren	St Joseph	Montcalm
4	Ottawa	Berrien	Kalamazoo	Antrim	Manistee	Allegan	Branch
5	Oceana	Muskegon	Grand Traverse	Mason	Berrien	Arenac	Mason

[1] Based on acres from rotational surveys.

Historic County Estimate Revisions

After the 2002 Census of Agriculture, all crop and livestock county estimates were evaluated to determine the need for revisions based on the census results. Historic county estimate final revisions for the years 1998 through 2002 were underway as this publication was being produced. The revised numbers for 2002 appear in the following tables. The revised numbers for 1998 through 2001 will not appear in any printed document produced by Michigan Agricultural Statistics. However, they can be found at the National Agricultural Statistics Service (NASS) website, http:/www.nass.usda.gov by choosing "Quick Stats, the Agricultural Statistics Data Base." Quick Stats offers the ability to query by commodity, state and year. The result of the query can be seen online or downloaded as a dataset for use in a database or spreadsheet.

Barley: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Delta	1,600	1,600	52	83	1,350	1,300	45	59
Menominee	1,200	1,200	46	55	1,650	1,600	58	92
Other counties [2]	1,700	1,500	48	72	2,000	2,000	49	97
Upper Peninsula	4,500	4,300	49	210	5,000	4,900	51	248
Northwest	750	700	44	31				
Alpena					750	700	64	45
Ogemaw	800	800	63	50				
Other counties [2]	1,800	1,600	46	74	1,950	1,800	49	88
Northeast	2,600	2,400	52	124	2,700	2,500	53	133
Central	1,050	1,000	54	54	1,200	1,000	72	72
Huron	850	800	63	50	550	500	80	40
Other counties [2]	950	900	63	57	1,050	900	69	62
East Central	1,800	1,700	63	107	1,600	1,400	73	102
Southwest					800	800	43	34
South Central	1,050	1,000	52	52	1,500	1,500	59	88
Lapeer	700	700	41	29	500	300	53	16
Other counties [2]	500	400	50	20	900	900	58	52
Southeast	1,200	1,100	45	49	1,400	1,200	57	68
Other districts [2]	1,050	800	45	36	800	700	56	39
Michigan	14,000	13,000	51	663	15,000	14,000	56	784

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Corn: Acreage, yield, and production, by county, 2002 [1]

County and district	Planted for all purposes	Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Tons*	*Tons*
Delta	3,000	2,100	100	210	900	11.1	10,000
Dickinson	1,300				1,000	12.0	12,000
Marquette	500						
Menominee	11,500	4,400	113	495	7,000	13.9	97,000
Other counties [2]	1,700	1,300	112	145	1,200	13.3	16,000
Upper Peninsula	18,000	7,800	109	850	10,100	13.4	135,000
Antrim	3,700	2,700	115	310	1,000	13.0	13,000
Benzie	1,300	800	88	70			
Charlevoix	2,300	1,600	106	170	700	17.1	12,000
Emmet	2,200	1,200	100	120	1,000	13.0	13,000
Grand Traverse	6,500	5,100	98	500	1,400	13.6	19,000
Kalkaska	800	600	108	65			
Leelanau	3,400	2,900	76	220	500	12.0	6,000
Manistee	1,700	1,500	90	135			
Missaukee	14,000	6,100	125	760	7,800	14.7	115,000
Wexford	2,100	1,400	107	150	700	12.9	9,000
Other counties [2]					900	8.9	8,000
Northwest	38,000	23,900	105	2,500	14,000	13.9	195,000
Alcona	1,200				800	12.5	10,000
Alpena	5,100	4,300	109	470	800	15.0	12,000
Cheboygan					500	8.0	4,000
Iosco	5,600	4,000	120	480	1,600	14.4	23,000
Montmorency	1,800	1,500	113	170			
Ogemaw	10,500	7,800	124	965	2,600	14.2	37,000
Otsego	1,400	900	101	91	500	12.0	6,000
Presque Isle	4,800	3,900	108	420	900	16.7	15,000
Other counties [2]	1,600	1,100	95	104	700	11.4	8,000
Northeast	32,000	23,500	115	2,700	8,400	13.7	115,000
Muskegon	15,700	10,900	106	1,150	4,700	15.3	72,000
Newaygo	28,000	18,900	108	2,050	9,000	14.4	130,000
Oceana	14,000	10,200	104	1,060	3,800	10.5	40,000
Other counties [2]	11,300	8,800	101	890	2,500	15.2	38,000
West Central	69,000	48,800	106	5,150	20,000	14.0	280,000
Clare	4,100	2,200	105	230	1,900	13.2	25,000
Gladwin	6,200	5,700	118	670	500	12.0	6,000
Gratiot	80,000	73,100	129	9,400	6,500	18.5	120,000
Isabella	35,000	29,900	119	3,550	5,000	14.0	70,000
Mecosta	17,100	13,700	104	1,430	3,400	12.1	41,000
Midland	19,500	18,400	128	2,350	1,000	18.0	18,000
Montcalm	58,500	51,200	115	5,900	7,000	16.4	115,000
Osceola	7,600	3,800	124	470	3,700	13.5	50,000
Central	228,000	198,000	121	24,000	29,000	15.3	445,000
Arenac	12,100	11,000	127	1,400	1,000	15.0	15,000
Bay	47,400	46,200	132	6,100	1,100	12.7	14,000
Huron	118,500	99,000	144	14,250	19,000	17.9	340,000
Saginaw	90,500	88,000	131	11,500	2,200	17.7	39,000
Sanilac	93,500	77,900	131	10,200	15,400	16.2	250,000
Tuscola	83,000	78,900	130	10,250	3,800	15.0	57,000
Other counties [2]					12,000	16.7	200,000
East Central	445,000	401,000	134	53,700	42,500	16.8	715,000

See footnote(s) at end of table.

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Corn: Acreage, yield, and production, by county, 2002 [1] (continued)

County and district	Planted for all purposes	Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Tons*	*Tons*
Allegan	76,500	63,000	127	8,000	13,000	16.2	210,000
Berrien	43,500	41,700	115	4,800	1,500	16.0	24,000
Cass	60,000	58,700	118	6,900	900	13.3	12,000
Kalamazoo	50,500	46,700	111	5,200	3,600	16.7	60,000
Kent	44,000	36,100	122	4,400	7,700	15.6	120,000
Ottawa	51,500	41,700	122	5,100	9,600	15.6	150,000
Van Buren	34,000	32,100	103	3,300	1,700	14.1	24,000
Southwest	360,000	320,000	118	37,700	38,000	15.8	600,000
Barry	40,500	33,400	114	3,800	7,000	16.4	115,000
Branch	79,500	77,300	114	8,800	2,000	15.0	30,000
Calhoun	69,500	65,700	107	7,000	3,600	13.9	50,000
Clinton	70,000	56,900	114	6,500	12,900	17.1	220,000
Eaton	67,000	64,800	122	7,900	2,000	12.0	24,000
Hillsdale	71,500	64,700	99	6,400	6,600	12.3	81,000
Ingham	53,500	49,000	106	5,200	4,400	13.2	58,000
Ionia	72,500	64,900	131	8,500	7,400	16.2	120,000
Jackson	51,000	47,000	96	4,500	3,800	14.5	55,000
St Joseph	91,000	90,300	122	11,000	500	14.0	7,000
Shiawassee	54,000	50,000	98	4,900	3,800	11.8	45,000
South Central	720,000	664,000	112	74,500	54,000	14.9	805,000
Genesee	30,000	28,200	89	2,500	1,500	11.3	17,000
Lapeer	35,000	31,700	112	3,550	3,000	16.0	48,000
Lenawee	103,000	91,700	104	9,500	10,500	11.9	125,000
Livingston	21,000	19,600	102	2,000	1,200	12.5	15,000
Macomb	12,000	9,700	119	1,150	2,100	15.2	32,000
Monroe	61,200	60,000	112	6,700			
Oakland	3,400	3,300	88	290			
St Clair	29,500	27,800	108	3,000	1,500	11.3	17,000
Washtenaw	42,500	38,700	103	4,000	3,400	13.2	45,000
Wayne	2,400	2,300	91	210			
Other counties [2]					800	13.8	11,000
Southeast	340,000	313,000	105	32,900	24,000	12.9	310,000
Michigan	2,250,000	2,000,000	117	234,000	240,000	15.0	3,600,000

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Corn: Acreage, yield, and production, by county, 2003 [1]

County and district	Planted for all purposes	Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Tons*	*Tons*
Delta	3,500	2,300	60	137	1,100	9.1	10,000
Dickinson	1,200				700	7.1	5,000
Menominee	13,600	5,600	77	430	7,900	12.7	100,000
Other counties [2]	1,700	900	70	63	1,300	11.5	15,000
Upper Peninsula	20,000	8,800	72	630	11,000	11.8	130,000
Antrim	4,000	3,300	103	340	700	12.9	9,000
Benzie	2,000	1,600	106	170			
Charlevoix	2,700	2,100	107	225	500	17.0	8,500
Emmet	1,900	1,400	93	130			
Grand Traverse	6,800	5,800	108	625	900	15.6	14,000
Leelanau	3,600	3,000	93	280			
Missaukee	16,000	10,800	133	1,440	5,100	18.2	93,000
Wexford	4,000	3,300	121	400	700	15.7	11,000
Other counties [2]	2,000	1,300	85	110	2,100	11.7	24,500
Northwest	43,000	32,600	114	3,720	10,000	16.0	160,000
Alcona	2,700	2,400	79	190			
Alpena	6,100	5,300	108	570	800	15.0	12,000
Cheboygan					500	18.0	9,000
Iosco	7,300	5,100	116	590	2,100	12.4	26,000
Ogemaw	9,800	7,600	117	890	2,100	15.7	33,000
Otsego	1,300	1,000	85	85			
Presque Isle	6,100	5,600	113	630			
Other counties [2]	3,700	2,700	113	305	1,500	13.3	20,000
Northeast	37,000	29,700	110	3,260	7,000	14.3	100,000
Mason					2,200	18.2	40,000
Muskegon	21,000	15,100	88	1,330	5,700	12.5	71,000
Newaygo	30,000	22,800	94	2,150	7,000	13.6	95,000
Oceana	11,500	10,500	98	1,030			
Other counties [2]	12,500	10,000	127	1,270	1,100	12.7	14,000
West Central	75,000	58,400	99	5,780	16,000	13.8	220,000
Clare	4,800	3,300	91	300	1,500	14.0	21,000
Gladwin	7,300	6,600	112	740			
Gratiot	84,000	76,100	122	9,270	7,500	17.7	133,000
Isabella	38,000	33,700	117	3,940	4,100	14.1	58,000
Mecosta	19,500	17,300	101	1,750	2,100	12.4	26,000
Midland	22,500	21,700	138	3,000			
Montcalm	56,000	51,200	104	5,330	4,400	14.3	63,000
Osceola	7,900	4,600	113	520	3,200	13.8	44,000
Other counties [2]					1,200	12.5	15,000
Central	240,000	214,500	116	24,850	24,000	15.0	360,000
Arenac	18,000	16,300	127	2,070			
Bay	46,000	44,000	129	5,680			
Huron	128,000	106,500	122	13,000	21,000	16.7	350,000
Saginaw	91,000	87,300	129	11,300	3,300	14.8	49,000
Sanilac	91,000	75,100	119	8,950	15,500	16.1	250,000
Tuscola	86,000	82,800	127	10,500			
Other counties [2]					6,200	14.7	91,000
East Central	460,000	412,000	125	51,500	46,000	16.1	740,000

See footnote(s) at end of table.

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Corn: Acreage, yield, and production, by county, 2003 [1] (continued)

County and district	Planted for all purposes	Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Tons*	*Tons*
Allegan	83,000	76,100	120	9,150	6,700	18.2	122,000
Berrien	45,000	43,800	120	5,250	1,100	15.5	17,000
Cass	70,000	69,200	125	8,650			
Kalamazoo	51,000	47,900	129	6,170			
Kent	45,000	39,800	123	4,900	5,000	19.4	97,000
Ottawa	48,000	39,800	126	5,000	8,000	16.9	135,000
Van Buren	33,000	31,400	111	3,480			
Other counties [2]					5,200	17.1	89,000
Southwest	375,000	348,000	122	42,600	26,000	17.7	460,000
Barry	41,000	34,500	125	4,310	6,400	15.6	100,000
Branch	82,000	79,900	135	10,820			
Calhoun	74,000	71,000	125	8,910			
Clinton	72,000	62,700	122	7,650	8,900	17.4	155,000
Eaton	61,000	59,700	148	8,820			
Hillsdale	69,000	65,000	133	8,620	3,700	17.8	66,000
Ingham	51,000	48,100	139	6,690	2,700	18.1	49,000
Ionia	75,000	69,200	136	9,430	5,500	10.4	57,000
Jackson	53,000	50,300	114	5,720			
St Joseph	83,000	82,000	127	10,420			
Shiawassee	54,000	49,600	115	5,710	4,100	16.3	67,000
Other counties [2]					8,700	16.8	146,000
South Central	715,000	672,000	130	87,100	40,000	16.0	640,000
Genesee	29,000	27,800	112	3,105			
Lapeer	38,000	35,800	120	4,290	2,100	20.0	42,000
Lenawee	101,000	89,800	156	13,990	11,000	20.9	230,000
Livingston	23,000	22,100	120	2,660			
Macomb	7,900	7,200	115	825			
Monroe	63,000	62,200	168	10,470			
Oakland	2,700	2,500	94	235			
St Clair	25,000	24,100	123	2,970			
Washtenaw	43,000	40,300	125	5,030	2,600	20.8	54,000
Wayne	2,400	2,200	148	325			
Other counties [2]					4,300	14.9	64,000
Southeast	335,000	314,000	140	43,900	20,000	19.5	390,000
Michigan	2,300,000	2,090,000	126	263,340	200,000	16.0	3,200,000

[1] Estimates are not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Dry edible beans, all: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*1,000 cwt*	*Acres*	*Acres*	*Pounds*	*1,000 cwt*
Upper Peninsula	1,500	1,400	1,360	19				
Alcona	800	800	1,750	14				
Alpena	1,600	1,500	1,870	28	1,600	1,500	1,530	23
Presque Isle	1,100	1,000	1,600	16	1,000	900	1,560	14
Other counties [2]	500	500	1,200	6	1,400	1,100	1,270	14
Northeast	4,000	3,800	1,680	64	4,000	3,500	1,460	51
Gladwin	1,000	1,000	1,500	15				
Gratiot	24,500	23,500	1,660	390	11,500	11,000	1,530	168
Isabella	6,300	6,200	1,690	105	4,000	4,000	1,400	56
Mecosta	2,000	1,800	1,610	29				
Midland	4,200	4,000	1,730	69	3,200	3,200	1,880	60
Montcalm	16,000	15,500	1,630	252	11,500	11,000	1,280	141
Other counties [2]					1,800	1,800	1,670	30
Central	54,000	52,000	1,650	860	32,000	31,000	1,470	455
Arenac	8,100	8,000	1,880	150	4,500	4,500	1,310	59
Bay	27,500	27,000	1,850	500	19,000	18,700	1,470	275
Huron	90,500	90,000	2,030	1,830	58,500	56,500	1,520	860
Saginaw	16,200	16,000	1,810	290	9,000	9,000	1,460	131
Sanilac	18,200	18,000	1,670	300	12,000	11,800	1,860	220
Tuscola	41,500	41,000	1,830	750	24,000	23,500	1,380	325
East Central	202,000	200,000	1,910	3,820	127,000	124,000	1,510	1,870
Kent	2,600	2,400	1,830	44				
Other counties [2]	500	400	2,000	8				
Southwest	3,100	2,800	1,860	52	2,700	2,700	1,780	48
South Central	3,300	3,100	1,810	56	1,600	1,400	1,500	21
Southeast	1,300	1,200	1,920	23	800	700	1,860	13
Other districts [2]	800	700	1,290	9	1,900	1,700	1,000	17
Michigan	270,000	265,000	1,850	4,903	170,000	165,000	1,500	2,475

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Dry edible beans, navy: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003 [2]			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*1,000 cwt*	*Acres*	*Acres*	*Pounds*	*1,000 cwt*
Gratiot	5,600	5,400	1,390	75				
Midland	1,000	1,000	1,300	13				
Other counties [3]	1,100	1,100	1,550	17				
Central	7,700	7,500	1,400	105				
Arenac	1,600	1,600	1,880	30				
Bay	8,500	8,400	1,960	165				
Huron	40,000	39,700	2,040	810				
Saginaw	4,600	4,600	1,850	85				
Sanilac	5,300	5,300	1,890	100				
Tuscola	16,000	15,900	1,950	310				
East Central	76,000	75,500	1,990	1,500				
Other districts [3]	1,300	1,000	1,500	15				
Michigan	85,000	84,000	1,930	1,620	40,000	38,000	1,560	592

[1] Estimates not published for counties with less than 500 acres.
[2] County estimates discontinued due to State budget reductions.
[3] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Dry edible beans, other: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003 [2]			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*1,000 cwt*	*Acres*	*Acres*	*Pounds*	*1,000 cwt*
Upper Peninsula	1,500	1,400	1,360	19				
Gratiot	18,900	18,100	1,740	315				
Midland	3,200	3,000	1,870	56				
Other counties [3]	24,200	23,400	1,640	384				
Central	46,300	44,500	1,700	755				
Arenac	6,500	6,400	1,880	120				
Bay	19,000	18,600	1,800	335				
Huron	50,500	50,300	2,030	1,020				
Saginaw	11,600	11,400	1,800	205				
Sanilac	12,900	12,700	1,570	200				
Tuscola	25,500	25,100	1,750	440				
East Central	126,000	124,500	1,860	2,320				
Other districts [3]	11,200	10,600	1,780	189				
Michigan	185,000	181,000	1,810	3,283	130,000	127,000	1,480	1,883

[1] Estimates not published for counties with less than 500 acres.
[2] County estimates discontinued due to State budget reductions.
[3] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Hay: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002			2003		
	Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Tons*	*1,000 Tons*	*Acres*	*Tons*	*1,000 Tons*
Alger	3,900	2.6	10	4,000	1.8	7
Baraga	5,000	1.8	9	4,000	1.8	7
Chippewa	32,500	2.2	71	34,500	1.8	62
Delta	17,800	2.8	50	17,300	1.8	31
Dickinson	5,800	2.9	17	5,400	1.7	9
Gogebic				1,300	1.5	2
Houghton	6,900	2.5	17	6,500	2.0	13
Iron	5,900	2.2	13	5,500	1.6	9
Luce	3,400	2.4	8			
Mackinac	6,000	2.5	15	7,100	1.8	13
Marquette	6,000	2.3	14	4,200	1.9	8
Menominee	22,000	3.4	75	25,000	2.5	62
Ontonagon	9,500	2.4	23	8,900	1.8	16
Schoolcraft	4,000	2.5	10	3,200	1.6	5
Other counties [2]	1,300	2.3	3	3,100	1.9	6
Upper Peninsula	130,000	2.6	335	130,000	1.9	250
Antrim	9,000	2.8	25	9,600	2.5	24
Benzie	2,700	2.2	6	2,000	2.0	4
Charlevoix	10,500	2.7	28	7,800	2.2	17
Emmet	14,000	2.5	35	11,800	2.3	27
Grand Traverse	11,500	2.9	33	9,000	2.6	23
Kalkaska	3,900	2.1	8	3,000	1.7	5
Leelanau	5,500	2.9	16	5,500	2.7	15
Manistee	10,200	2.1	21	6,300	1.7	11
Missaukee	23,500	3.2	75	21,000	3.5	74
Wexford	9,200	2.5	23	9,000	2.2	20
Northwest	100,000	2.7	270	85,000	2.6	220
Alcona	14,000	2.9	40	14,500	2.6	38
Alpena	21,000	3.1	65	19,500	2.3	44
Cheboygan	14,500	2.4	35	12,500	2.2	28
Iosco	11,500	3.4	39	10,500	2.5	26
Montmorency	5,000	2.2	11	5,400	2.6	14
Ogemaw	17,000	3.5	60	17,000	2.8	48
Oscoda	5,000	3.2	16	3,100	2.3	7
Otsego	10,000	2.6	26	7,500	2.1	16
Presque Isle	15,000	2.5	38	13,200	2.7	35
Other counties [2]	2,000	2.5	5	1,800	2.2	4
Northeast	115,000	2.9	335	105,000	2.5	260
Lake	5,700	2.8	16	6,100	1.8	11
Mason	14,000	3.3	46	15,000	3.2	48
Muskegon	9,000	3.2	29	9,500	3.4	32
Newaygo	22,500	3.1	69	25,500	3.4	87
Oceana	13,800	2.9	40	13,900	3.0	42
West Central	65,000	3.1	200	70,000	3.1	220
Clare	18,000	2.7	49	18,500	2.8	52
Gladwin	17,000	2.7	46	15,000	2.5	37
Gratiot	9,800	4.2	41	11,600	3.8	44
Isabella	32,500	3.8	125	31,500	3.5	109
Mecosta	31,500	2.9	90	27,000	2.7	74
Midland	7,200	3.2	23	5,400	3.0	16
Montcalm	25,000	3.4	86	18,500	3.4	62
Osceola	39,000	3.1	120	37,500	3.1	116
Central	180,000	3.2	580	165,000	3.1	510

See footnote(s) at end of table.

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Hay: Acreage, yield, and production, by county, 2002-2003 [1] (continued)

County and district	2002			2003		
	Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Tons*	*1,000 Tons*	*Acres*	*Tons*	*1,000 Tons*
Arenac	5,600	3.6	20	7,800	2.7	21
Bay	5,900	3.9	23	7,400	3.4	25
Huron	19,500	4.7	92	38,000	3.4	129
Saginaw	7,200	4.2	30	8,900	3.5	31
Sanilac	40,500	4.2	170	49,500	3.5	173
Tuscola	16,300	4.0	65	18,400	3.3	61
East Central	95,000	4.2	400	130,000	3.4	440
Allegan	23,000	3.7	85	19,000	4.2	80
Berrien	6,200	4.0	25	5,900	3.9	23
Cass	12,500	3.3	41	12,100	2.7	33
Kalamazoo	9,400	3.2	30	7,000	3.6	25
Kent	23,000	3.5	81	24,000	3.1	75
Ottawa	19,000	3.6	69	17,000	3.1	52
Van Buren	11,900	3.3	39	15,000	2.8	42
Southwest	105,000	3.5	370	100,000	3.3	330
Barry	22,500	3.1	70	26,000	3.6	94
Branch	10,500	3.2	34	10,000	3.4	34
Calhoun	16,500	3.5	57	13,200	3.2	42
Clinton	15,000	3.9	58	19,000	3.7	70
Eaton	16,500	3.6	60	14,000	3.0	42
Hillsdale	18,000	3.6	65	15,800	3.8	60
Ingham	15,000	3.9	58	16,500	3.6	59
Ionia	21,000	4.0	83	18,000	3.9	70
Jackson	24,000	3.3	78	19,000	3.5	67
St Joseph	12,000	3.8	45	10,500	3.1	33
Shiawassee	14,000	3.7	52	13,000	3.8	49
South Central	185,000	3.6	660	175,000	3.5	620
Genesee	14,500	3.2	46	8,100	2.7	22
Lapeer	30,000	3.2	95	23,500	2.6	62
Lenawee	12,000	4.2	50	8,000	3.9	31
Livingston	12,000	3.2	38	7,800	3.2	25
Macomb	5,300	3.0	16	2,700	2.6	7
Monroe	5,700	3.3	19	4,700	4.0	19
Oakland	6,700	2.4	16	5,500	2.2	12
St Clair	19,000	2.7	52	13,000	2.8	37
Washtenaw	18,500	3.5	65	15,500	3.3	51
Wayne	1,300	3.1	4	1,200	3.3	4
Southeast	125,000	3.2	401	90,000	3.0	270
Michigan	1,100,000	3.23	3,551	1,050,000	2.97	3,120

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Oats: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Chippewa	950	900	36	32	1,700	1,650	50	83
Delta	1,150	1,100	54	59	1,600	1,400	60	84
Dickinson	500	400	53	21	650	500	70	35
Iron	500	500	50	25				
Menominee	1,300	900	51	46	1,350	900	50	45
Schoolcraft	500	500	62	31				
Other counties [2]	1,900	1,600	48	76	3,200	2,550	48	123
Upper Peninsula	6,800	5,900	49	290	8,500	7,000	53	370
Antrim	600	550	69	38	500	400	58	23
Emmet	550	500	44	22				
Grand Traverse	1,600	1,400	51	72	1,550	1,300	56	73
Leelanau	600	450	51	23				
Missaukee	950	850	58	49	1,250	1,100	55	61
Wexford	900	800	55	44	700	600	53	32
Other counties [2]	1,000	950	44	42	1,500	1,300	55	71
Northwest	6,200	5,500	53	290	5,500	4,700	55	260
Alcona	1,150	600	67	40	800	700	84	59
Alpena	2,200	1,800	61	110	2,100	1,900	69	131
Iosco	1,000	900	61	55	1,500	1,300	68	88
Ogemaw	1,900	1,200	65	78	1,900	1,750	78	137
Otsego	700	450	53	24	500	450	47	21
Presque Isle	3,200	2,900	59	170	2,900	2,700	60	161
Other counties [2]	850	450	51	23	800	600	55	33
Northeast	11,000	8,300	60	500	10,500	9,400	67	630
Mason	1,000	700	60	42	850	700	63	44
Muskegon					800	700	60	42
Newaygo	700	700	63	44	1,100	1,000	68	68
Oceana	1,100	500	62	31				
Other counties [2]	700	700	61	43	750	700	66	46
West Central	3,500	2,600	62	160	3,500	3,100	65	200
Clare	1,100	450	53	24	1,400	1,100	78	86
Gladwin	1,000	850	67	57	1,300	1,150	78	90
Gratiot	950	800	68	54				
Isabella	2,100	1,800	64	115	2,400	2,100	105	220
Mecosta	1,900	1,400	55	77	1,450	1,250	58	72
Montcalm	2,600	1,800	56	100	3,750	3,300	62	206
Osceola					1,050	900	59	53
Other counties [2]	1,350	1,100	57	63	2,150	1,700	90	153
Central	11,000	8,200	60	490	13,500	11,500	77	880
Arenac	850	800	65	52	1,350	1,100	76	84
Bay	500	450	89	40	650	500	104	52
Huron	3,100	2,600	90	235	2,300	1,900	93	176
Saginaw	650	500	76	38	1,000	850	84	71
Sanilac	7,100	5,700	80	455	3,800	2,750	91	250
Tuscola	2,300	1,950	72	140	1,400	1,200	81	97
East Central	14,500	12,000	80	960	10,500	8,300	88	730

See footnote(s) at end of table.

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Oats: Acreage, yield, and production, by county, 2002-2003 [1] (continued)

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Allegan	1,100	1,000	61	61	2,000	1,600	61	97
Kalamazoo	600	600	63	38	1,200	1,000	65	65
Kent	1,700	1,700	59	100	2,050	1,800	59	106
Ottawa	800	700	53	37	2,100	1,700	48	82
Van Buren	650	300	40	12				
Other counties [2]	650	400	55	22	3,150	2,700	59	160
Southwest	5,500	4,700	57	270	10,500	8,800	58	510
Barry	700	700	63	44				
Calhoun	900	800	60	48	1,700	1,500	67	101
Clinton	1,400	1,100	76	84	2,000	1,800	90	162
Eaton	1,100	900	73	66	1,550	1,400	105	147
Hillsdale	1,400	1,100	57	63	2,000	1,300	72	94
Ionia	1,400	1,200	80	96	2,000	1,700	79	134
Jackson	1,300	900	50	45	1,800	1,500	47	70
St Joseph	850	450	53	24	950	450	62	28
Shiawassee	2,500	2,100	74	155	3,000	2,000	83	165
Other counties [2]	950	750	60	45	2,500	1,850	54	99
South Central	12,500	10,000	67	670	17,500	13,500	74	1,000
Genesee	600	550	51	28	1,000	900	81	73
Lapeer	2,400	2,000	65	130	2,300	1,800	63	113
Lenawee	900	700	83	58	1,400	1,300	92	120
Macomb	700	650	71	46	700	600	75	45
Monroe	1,300	1,200	83	100	1,450	1,300	102	133
St Clair	1,350	1,200	71	85	1,100	1,000	68	68
Washtenaw	1,000	800	60	48	1,300	1,200	63	76
Other counties [2]	750	700	50	35	750	600	70	42
Southeast	9,000	7,800	68	530	10,000	8,700	77	670
Michigan	80,000	65,000	64	4,160	90,000	75,000	70	5,250

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Potatoes: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003 [2]			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Cwt*	*1,000 cwt*	*Acres*	*Acres*	*Cwt*	*1,000 cwt*
Delta	800	700	200	140				
Dickinson	500	500	190	95				
Iron	750	750	285	215				
Marquette	500	500	310	155				
Other counties [3]	550	550	300	165				
Upper Peninsula	3,100	3,000	255	770				
Northeast	2,800	2,700	260	700				
Montcalm	16,200	16,100	310	5,020				
Other counties [3]	3,100	3,000	335	1,000				
Central	19,300	19,100	315	6,020				
Bay	2,300	2,200	250	545				
Saginaw	1,500	1,500	310	465				
Tuscola	700	700	295	205				
Other counties [3]	1,000	1,000	235	235				
East Central	5,500	5,400	270	1,450				
Southwest	2,100	2,000	290	580				
St Joseph	7,000	6,800	340	2,300				
Other counties [3]	900	900	355	320				
South Central	7,900	7,700	340	2,620				
Monroe	1,950	1,850	245	450				
Other counties [3]	650	650	285	185				
Southeast	2,600	2,500	255	635				
Other districts [3]	3,200	3,100	355	1,103				
Michigan	46,500	45,500	305	13,878	46,000	45,500	330	15,015

[1] Estimates not published for counties with less than 500 acres.
[2] County estimates discontinued due to State budget reductions.
[3] Not published separately because of insufficient data or to avoid disclosure of individual operations.

Soybeans: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Alpena	1,000	1,000	37	37	1,700	1,700	26	44
Iosco	1,300	1,300	39	51	1,800	1,800	28	50
Montmorency	1,100	1,100	41	45	1,200	1,200	36	43
Presque Isle	1,300	1,300	38	50	3,100	3,000	28	84
Other counties [2]	900	900	44	40	1,200	1,100	26	29
Northeast	5,600	5,600	40	223	9,000	8,800	28	250
Mason	2,600	2,600	39	102	2,700	2,700	31	84
Muskegon	4,600	4,600	39	181	6,700	6,700	24	158
Newaygo	5,700	5,700	35	201	5,000	4,900	25	124
Oceana	2,300	2,300	35	81	3,600	3,600	18	64
Other counties [2]	5,000	5,000	39	193				
West Central	15,200	15,200	37	565	18,000	17,900	24	430
Gladwin	3,400	3,400	42	142	4,200	4,200	22	91
Gratiot	81,000	81,000	44	3,600	86,000	85,700	23	1,980
Isabella	42,000	42,000	40	1,690	47,500	47,500	32	1,520
Mecosta	900	900	36	32				
Midland	19,000	19,000	42	805	21,700	21,600	26	555
Montcalm	16,000	16,000	38	615	18,700	18,600	21	383
Other counties [2]	700	700	37	26	1,900	1,900	22	41
Central	163,000	163,000	42	6,910	180,000	179,500	25	4,570
Arenac	12,500	12,500	42	530	15,200	15,100	23	345
Bay	43,000	42,500	42	1,770	41,300	41,000	24	965
Huron	45,000	45,000	48	2,150	56,500	56,000	27	1,520
Saginaw	105,000	105,000	40	4,160	99,000	99,000	23	2,250
Sanilac	125,000	124,000	41	5,040	122,000	121,200	28	3,340
Tuscola	76,500	76,000	43	3,250	86,000	85,700	22	1,880
East Central	407,000	405,000	42	16,900	420,000	418,000	25	10,300
Allegan	42,000	42,000	43	1,800	48,000	47,700	25	1,210
Berrien	51,000	51,000	39	2,000	45,000	44,700	23	1,050
Cass	48,000	48,000	39	1,850	50,000	49,700	27	1,350
Kalamazoo	38,000	38,000	41	1,550	36,000	35,800	31	1,100
Kent	18,500	18,500	43	800	21,000	20,800	32	675
Ottawa	23,500	23,500	45	1,050	24,000	23,500	33	770
Van Buren	29,000	29,000	40	1,150	26,000	25,800	25	645
Southwest	250,000	250,000	41	10,200	250,000	248,000	27	6,800
Barry	30,500	30,500	41	1,250	30,000	29,800	29	860
Branch	77,000	76,500	37	2,800	72,000	72,000	32	2,300
Calhoun	69,500	69,000	39	2,700	72,000	72,000	29	2,090
Clinton	83,000	82,500	39	3,250	80,000	80,000	22	1,790
Eaton	71,500	70,500	40	2,850	66,000	66,000	32	2,090
Hillsdale	72,000	71,000	34	2,400	68,000	68,000	32	2,170
Ingham	58,000	58,000	36	2,100	56,000	55,800	27	1,520
Ionia	59,500	59,000	45	2,650	60,000	59,600	31	1,850
Jackson	38,000	38,000	36	1,350	42,000	41,800	27	1,110
St Joseph	60,500	60,000	43	2,550	52,000	52,000	35	1,820
Shiawassee	90,500	90,000	32	2,900	82,000	82,000	21	1,700
South Central	710,000	705,000	38	26,800	680,000	679,000	28	19,300

See footnote(s) at end of table.

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Soybeans: Acreage, yield, and production, by county, 2002-2003 [1] (continued)

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Genesee	45,000	45,000	33	1,500	42,000	41,600	21	865
Lapeer	52,000	52,000	39	2,050	46,000	45,600	23	1,060
Lenawee	129,000	128,000	32	4,050	115,000	114,000	33	3,760
Livingston	18,500	18,000	38	680	21,000	20,800	28	580
Macomb	25,000	25,000	38	940	24,000	23,800	17	415
Monroe	95,000	95,000	33	3,150	78,000	77,400	35	2,740
Oakland	4,000	4,000	25	100	3,200	3,200	23	75
St Clair	75,500	75,000	35	2,650	62,000	61,100	19	1,140
Washtenaw	46,500	46,000	35	1,600	44,000	43,700	28	1,240
Wayne	7,500	7,000	26	180	4,800	4,800	26	125
Other counties [2]	9,000	8,700	28	240				
Southeast	498,000	495,000	34	16,900	440,000	436,000	28	12,000
Other districts [2]	1,200	1,200	35	42	3,000	2,800	29	80
Michigan	2,050,000	2,040,000	38.5	78,540	2,000,000	1,990,000	27.0	53,730

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Sugarbeets: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Tons*	*1,000 Tons*	*Acres*	*Acres*	*Tons*	*1,000 Tons*
Gladwin					1,400	1,400	15.7	22
Gratiot	18,700	18,700	17.1	320	16,500	16,500	17.2	284
Isabella	1,200	1,200	15.0	18	1,400	1,400	16.4	23
Midland	3,800	3,800	15.5	59	3,900	3,900	22.1	86
Montcalm	1,700	1,700	18.2	31				
Other counties [2]	1,600	1,600	15.0	24	1,300	1,300	6.9	9
Central	27,000	27,000	16.7	452	24,500	24,500	17.3	424
Arenac	5,000	5,000	18.0	90	4,800	4,800	15.4	74
Bay	21,000	21,000	16.4	345	20,000	19,900	17.6	350
Huron	57,000	57,000	19.8	1,130	57,500	57,300	19.7	1,130
Saginaw	20,000	19,000	17.4	330	19,000	18,600	20.1	373
Sanilac	20,000	20,000	17.5	350	23,700	23,600	20.0	473
Tuscola	24,000	23,000	18.3	420	25,000	24,800	19.8	490
East Central	147,000	145,000	18.4	2,665	150,000	149,000	19.4	2,890
South Central					1,700	1,700	17.6	30
Genesee	800	800	20.0	16	850	850	18.8	16
Lapeer	700	700	21.4	15	500	500	24.0	12
Lenawee					500	500	18.0	9
St Clair	800	800	18.8	15				
Other counties [2]	1,200	1,200	15.0	18	650	650	24.6	16
Southeast	3,500	3,500	18.3	64	2,500	2,500	21.2	53
Other districts [2]	1,500	1,500	15.3	23	300	300	10.0	3
Michigan	179,000	177,000	18.1	3,204	179,000	178,000	19.1	3,400

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Wheat: Acreage, yield, and production, by county, 2002-2003 [1]

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Delta	700	600	52	31				
Other counties [2]	1,000	900	43	39				
Upper Peninsula	1,700	1,500	47	70	1,000	900	33	30
Grand Traverse	1,150	1,000	45	45	1,300	1,200	47	56
Missaukee	550	500	48	24	800	700	41	29
Other counties [2]	1,400	1,400	51	71	1,900	1,500	43	65
Northwest	3,100	2,900	48	140	4,000	3,400	44	150
Alcona	850	800	63	50	1,500	1,400	57	80
Alpena	2,600	2,600	62	160	4,100	3,500	43	150
Iosco	1,200	950	60	57	1,800	1,700	53	90
Montmorency	800	650	54	35	1,300	1,200	54	65
Ogemaw	1,200	1,200	72	86	1,600	1,500	57	85
Presque Isle	2,350	2,300	54	125	2,700	2,400	47	112
Other counties [2]	500	500	54	27	1,000	1,000	48	48
Northeast	9,500	9,000	60	540	14,000	12,700	50	630
Mason	4,000	3,800	55	210	4,400	4,300	60	260
Muskegon	1,400	1,300	56	73	2,600	2,500	66	165
Newaygo	1,600	1,400	51	72				
Oceana	1,700	1,600	59	95	2,700	2,600	63	165
Other counties [2]					2,300	2,200	55	120
West Central	8,700	8,100	56	450	12,000	11,600	61	710
Gladwin	1,000	1,000	65	65	2,200	2,100	48	100
Gratiot	13,900	13,500	74	1,000	20,800	20,200	72	1,460
Isabella	13,800	13,500	66	890	20,100	19,800	72	1,420
Mecosta	1,200	1,200	49	59	2,200	2,200	48	105
Midland	4,000	4,000	70	280	5,700	5,700	69	395
Montcalm	16,700	16,500	62	1,030	17,400	16,900	49	830
Other counties [2]	1,400	1,300	58	76	1,600	1,600	56	90
Central	52,000	51,000	67	3,400	70,000	68,500	64	4,400
Arenac	5,500	5,500	73	400	7,800	7,600	73	555
Bay	8,000	8,000	76	610	12,800	12,700	77	975
Huron	33,500	33,000	81	2,670	53,400	52,300	80	4,170
Saginaw	25,000	24,500	74	1,810	33,600	32,200	73	2,340
Sanilac	35,000	34,500	72	2,480	57,100	56,400	69	3,900
Tuscola	20,000	19,500	76	1,480	31,300	30,800	70	2,160
East Central	127,000	125,000	76	9,450	196,000	192,000	73	14,100
Allegan	6,700	6,400	61	390	11,500	8,000	61	485
Berrien	2,700	2,700	56	150	5,100	4,700	65	305
Cass	3,800	3,800	50	190	5,500	2,700	61	165
Kalamazoo	4,200	4,100	54	220	6,600	6,100	70	425
Kent	5,000	4,900	61	300	6,800	6,300	60	375
Ottawa	3,700	3,700	55	205	6,400	5,200	58	300
Van Buren	900	900	50	45	2,100	1,900	55	105
Southwest	27,000	26,500	57	1,500	44,000	34,900	62	2,160

See footnote(s) at end of table.

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Wheat: Acreage, yield, and production, by county, 2002-2003 [1] (continued)

County and district	2002				2003			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*1,000 Bu*	*Acres*	*Acres*	*Bushels*	*1,000 Bu*
Barry	6,100	6,100	61	370	12,000	11,900	66	785
Branch	4,800	4,700	52	245	8,500	8,400	57	475
Calhoun	13,000	12,800	57	735	14,600	14,500	60	870
Clinton	19,000	18,500	71	1,310	26,100	25,600	70	1,790
Eaton	13,500	13,300	65	860	22,800	22,600	72	1,620
Hillsdale	11,400	11,200	58	655	16,600	16,500	61	1,000
Ingham	14,700	14,600	68	990	20,700	20,600	74	1,520
Ionia	12,400	12,300	66	810	17,300	17,100	64	1,095
Jackson	8,300	8,200	54	445	12,600	12,500	55	690
St Joseph	2,300	2,300	50	115	4,000	4,000	63	250
Shiawassee	23,500	23,000	64	1,465	32,800	32,300	65	2,105
South Central	129,000	127,000	63	8,000	188,000	186,000	66	12,200
Genesee	8,900	8,600	62	530	13,500	13,400	66	880
Lapeer	6,700	6,600	67	440	16,800	16,600	65	1,075
Lenawee	29,500	28,500	71	2,020	41,400	41,300	78	3,205
Livingston	5,000	5,000	60	300	10,000	10,000	72	715
Macomb	2,700	2,600	69	180	5,500	5,500	55	305
Monroe	20,000	19,000	71	1,345	27,700	27,500	77	2,130
Oakland					1,500	1,500	53	80
St Clair	6,200	6,100	58	355	16,300	16,100	67	1,075
Washtenaw	11,400	11,100	60	670	17,600	17,400	57	1,000
Wayne					700	700	50	35
Other counties [2]	1,600	1,500	60	90				
Southeast	92,000	89,000	67	5,930	151,000	150,000	70	10,500
Michigan	450,000	440,000	67	29,480	680,000	660,000	68	44,880

[1] Estimates not published for counties with less than 500 acres.
[2] Estimates not published separately because of insufficient data or to avoid disclosure of individual operations.

Cattle: January 1, by county, 2003-2004 [1]

County and district	All cattle and calves		All cows that have calved		Milk cows		Beef cows	
	2003	2004	2003	2004 [2]	2003	2004	2003	2004 [2]
	Head	*Head*	*Head*	*Head*	*Head*	*Head*	*Head*	*Head*
Alger	1,600	1,700	650					
Baraga	1,400	900	600					
Chippewa	7,400	8,000	2,900		700	1,000	2,200	
Delta	7,300	8,400	3,200		1,700	1,600	1,500	
Dickinson	2,900	2,500	1,400		800	700	600	
Houghton	1,800	1,900	800					
Iron	1,600	1,600	750					
Luce	1,000							
Mackinac	3,000	2,300	1,150			800		
Marquette	2,700	1,900	1,100					
Menominee	18,500	16,500	8,600		7,100	6,800	1,500	
Ontonagon	3,100	2,900	1,200		600	600		
Schoolcraft	1,400	1,100						
Other counties [3]	300	1,300	650		2,600	1,700	3,700	
Upper Peninsula	54,000	51,000	23,000		13,500	13,200	9,500	
Antrim	4,200	4,600	1,250		750	700	500	
Benzie	1,400	1,500						
Charlevoix	3,400	3,400	1,250			600		
Emmet	5,300	4,800	1,750		750	700	1,000	
Grand Traverse	5,000	4,500	1,350				900	
Kalkaska	1,000	1,100						
Leelanau	3,500	3,200	800					
Manistee	2,500	2,900	850				700	
Missaukee	24,000	22,000	10,700		9,700	9,300	1,000	
Wexford	3,700	4,000	1,150			700		
Other counties [3]			900		2,800	1,300	1,900	
Northwest	54,000	52,000	20,000		14,000	13,300	6,000	
Alcona	5,300	5,700	2,200		700	750	1,500	
Alpena	10,000	10,500	4,400		2,900	2,900	1,500	
Cheboygan	5,000	4,700	2,400		1,100	1,200	1,300	
Iosco	9,500	10,500	3,100		1,800	1,800	1,300	
Montmorency	2,700	2,900	1,200			700		
Ogemaw	14,600	13,000	6,350		5,000	5,300	1,350	
Oscoda	3,600	2,600	1,600					
Otsego	2,300	2,100						
Presque Isle	6,600	7,500	2,750		1,500	1,600	1,250	
Other counties [3]	400	500	1,000		2,000	750	1,800	
Northeast	60,000	60,000	25,000		15,000	15,000	10,000	
Lake		2,500	850					
Mason	8,000	8,800	3,100			2,400	800	
Muskegon		12,500	8,950		8,400			
Newaygo	26,500	24,000	10,600		9,100	10,500	1,500	
Oceana	9,500	9,200	3,500		2,800	2,400	700	
Other counties [3]	14,000				2,700	7,200	1,000	
West Central	58,000	57,000	27,000		23,000	22,500	4,000	
Clare	11,500	11,500	4,200		2,700	2,600	1,500	
Gladwin	6,800	8,000	2,950		1,300	1,300	1,650	
Gratiot	27,000	24,000	9,400		8,500	8,200		
Isabella	25,500	29,500	9,100		7,000	7,300	2,100	
Mecosta	15,500	15,000	6,500		4,400	4,200	2,100	
Midland	5,700	5,000	2,650		1,700	1,900		
Montcalm	25,000	25,000	12,000		10,100	9,800	1,900	
Osceola	18,000	21,000	8,700		5,300	5,200	3,400	
Other counties [3]							1,850	
Central	135,000	139,000	55,500		41,000	40,500	14,500	

See footnote(s) at end of table.

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Cattle: January 1, by county, 2003-2004 [1] (continued)

County and district	All cattle and calves		All cows that have calved		Milk cows		Beef cows	
	2003	2004	2003	2004 [2]	2003	2004	2003	2004 [2]
	Head	*Head*	*Head*	*Head*	*Head*	*Head*	*Head*	*Head*
Arenac	5,700	8,800	2,650			2,600		
Bay	4,600	4,500	2,000			1,300		
Huron	83,000	75,500	18,750		17,900	18,500		
Saginaw	9,200	8,200	3,100			2,500		
Sanilac	55,000	59,000	22,400		20,000	19,200	2,400	
Tuscola	17,500	20,000	6,600		4,500	4,400	2,100	
Other counties [3]					6,600		2,000	
East Central	175,000	176,000	55,500		49,000	48,500	6,500	
Allegan	39,000	43,000	18,300		16,700	17,300	1,600	
Berrien		5,300	2,300		1,500	1,600	800	
Cass	6,400	7,400	2,300		900	700	1,400	
Kalamazoo		15,000	5,200		4,400	5,200	800	
Kent	26,500	28,000	13,100		11,000	10,300	2,100	
Ottawa	39,000	37,000	14,600		13,000	13,100	1,600	
Van Buren	7,500	9,300	3,200		2,000	1,800	1,200	
Other counties [3]	16,600							
Southwest	135,000	145,000	59,000		49,500	50,000	9,500	
Barry	21,000	22,000	9,300		7,000	7,300	2,300	
Branch	13,000	14,500	4,200		2,600	2,500	1,600	
Calhoun	16,500	19,500	6,100		4,000	4,200	2,100	
Clinton	44,000	44,500	19,800		18,900	19,100	900	
Eaton	13,000	15,000	4,300		2,000	1,800	2,300	
Hillsdale	26,500	24,000	13,300		11,500	11,200	1,800	
Ingham	16,000	16,000	6,400		4,800	5,200	1,600	
Ionia	34,500	39,000	13,700		11,500	11,100	2,200	
Jackson	23,000	23,500	6,200		3,700	3,700	2,500	
St Joseph	7,500	10,000	2,200		1,100	1,500	1,100	
Shiawassee	12,000	16,000	5,000		3,900	3,900	1,100	
South Central	227,000	244,000	90,500		71,000	71,500	19,500	
Genesee	7,500	7,500	2,500		1,600	1,700	900	
Lapeer	18,500	21,000	6,500		4,400	4,300	2,100	
Lenawee	23,000	26,000	11,400		10,200	10,100	1,200	
Livingston	8,200	9,000	3,450		2,600	2,900	800	
Macomb	4,000	4,400	950		650	650		
Monroe	4,800	6,300	1,100					
Oakland		1,800						
St Clair	10,200	12,500	3,650		1,650	1,800	2,000	
Washtenaw	14,300	17,000	4,400		3,200	3,300	1,200	
Wayne		500						
Other counties [3]	1,500		550		700	750	1,300	
Southeast	92,000	106,000	34,500		25,000	25,500	9,500	
Michigan	990,000	1,030,000	390,000	385,000	301,000	300,000	89,000	85,000

[1] Estimates are not published for counties with less than 500 head.
[2] County estimates discontinued due to State budget reductions.
[3] Not published separately because of insufficient data or to avoid disclosure of individual operations.

Hogs and pigs: December 1, by county, 2002-2003 [1]

County and district	All hogs and pigs	
	2002	2003
	Head	*Head*
Chippewa	1,000	1,000
Menominee		600
Other counties [2]	1,000	800
Upper Peninsula	2,000	2,400
Antrim	500	
Benzie	950	
Grand Traverse	2,600	4,000
Kalkaska	1,100	800
Missaukee	1,600	1,000
Other counties [2]	750	5,800
Northwest	7,500	7,600
Northeast	1,500	2,000
Mason	1,200	1,100
Newaygo		6,800
Oceana	12,000	16,900
Other counties [2]	12,800	6,200
West Central	26,000	31,000
Clare	3,000	2,000
Gladwin	1,900	4,300
Gratiot	37,000	29,000
Mecosta	13,000	8,000
Midland	2,700	1,400
Osceola	700	1,000
Other counties [2]	17,700	24,300
Central	76,000	70,000
Bay		1,500
Huron	71,000	55,000
Saginaw	3,500	5,300
Tuscola	12,500	11,500
Other counties [2]	5,000	6,700
East Central	92,000	80,000
Allegan	144,500	195,000
Berrien		14,000
Cass	144,500	165,000
Kalamazoo	14,000	25,000
Ottawa	77,000	64,000
Van Buren	23,500	
Other counties [2]	21,500	42,000
Southwest	425,000	505,000
Barry	9,000	7,000
Clinton	10,000	12,000
Eaton	8,500	9,000
Hillsdale	27,000	31,000
Ingham	7,500	4,000
St Joseph	19,500	12,000
Other counties [2]	128,500	150,000
South Central	210,000	225,000
Genesee	3,000	2,000
Lapeer	2,300	2,500
Livingston		900
Macomb		1,700
Monroe	7,500	6,500
St Clair	2,500	1,000
Washtenaw	4,100	4,900
Other counties [2]	10,600	7,500
Southeast	30,000	27,000
Michigan	870,000	950,000

[1] Estimates are not published for counties with less than 500 hogs.
[2] Not published separately because of insufficient data or to avoid disclosure of individual operations.

Hens and pullets of laying age: December 1, by county, 2002-2003 [1]

County and district	Hens and pullets of laying age		County and district	Hens and pullets of laying age	
	2002	2003 [2]		2002	2003 [2]
	Head	*Head*		*Head*	*Head*
Upper Peninsula	5,000		Allegan	2,040,000	
			Kalamazoo	319,000	
Antrim	1,000		Kent	2,300	
Manistee	1,500		Van Buren	1,500	
Other counties [3]	4,500		Other counties [3]	1,857,200	
Northwest	7,000		**Southwest**	4,220,000	
Alpena	1,000		Calhoun	1,500	
Oscoda	1,000		Clinton	2,000	
Other counties [3]	4,000		Eaton	4,000	
Northeast	6,000		Ingham	9,500	
			Ionia	1,784,000	
Newaygo	1,800		Jackson	3,500	
Oceana	1,300		St Joseph	34,800	
Other counties [3]	1,900		Shiawassee	3,200	
West Central	5,000		Other counties [3]	62,500	
			South Central	1,905,000	
Clare	1,200				
Gladwin	2,000		Genesee	3,400	
Gratiot	1,100		Lapeer	2,700	
Mecosta	3,000		Lenawee	9,900	
Montcalm	1,100		Livingston	2,700	
Osceola	1,100		Monroe	2,400	
Other counties [3]	1,500		St Clair	3,000	
Central	11,000		Washtenaw	4,200	
			Other counties [3]	3,700	
Bay	1,000		**Southeast**	32,000	
Saginaw	1,500				
Sanilac	3,000		**Michgan**	6,951,000	7,067,000
Other counties [3]	754,500				
East Central	760,000				

[1] Estimates are not published for counties with less than 1,000 hens and pullets of laying age.
[2] County estimates discontinued due to State budget reductions.
[3] Not published separately because of insufficient data or to avoid disclosure of individual operations.

Dairy: Number of operations and total milk produced, by county, 2002-2003 [1]

County and district	2002		2003	
	Operations	Total milk produced	Operations	Total milk produced
	Number	*1,000 pounds*	*Number*	*1,000 pounds*
Alger	9	5,900	9	
Baraga	4		3	
Chippewa	20	15,700	18	15,800
Delta	27	29,000	24	26,700
Dickinson	11	13,300	11	12,900
Houghton	8		7	
Iron	3		2	
Mackinac	9	16,200	8	16,000
Marquette	4		4	
Menominee	77	125,000	74	125,000
Ontonagon	12	9,000	9	8,300
Schoolcraft	1		1	
Other counties [2]		10,900		15,300
Upper Peninsula	185	225,000	170	220,000
Antrim	12	12,100	11	12,600
Charlevoix	9	11,600	8	11,400
Emmet	11	15,700	10	13,400
Grand Traverse	9	7,200	8	
Kalkaska	3		3	
Leelanau	9		9	
Manistee	8		7	
Missaukee	75	166,000	72	194,000
Wexford	19	11,300	17	13,300
Other counties [2]		6,100		15,300
Northwest	155	230,000	145	260,000
Alcona	10	13,200	9	11,700
Alpena	46	56,500	45	58,100
Cheboygan	10	20,000	9	21,100
Iosco	21	37,500	20	39,200
Montmorency	13	14,600	12	14,400
Ogemaw	44	107,000	43	111,000
Oscoda	20		19	
Otsego	3		2	
Presque Isle	23	27,000	21	26,400
Other counties [2]		14,200		13,100
Northeast	190	290,000	180	295,000
Lake	5		5	
Mason	35	45,200	32	45,400
Muskegon	29		27	
Newaygo	101	177,000	93	186,000
Oceana	35	30,700	33	31,200
Other counties [2]		162,100		162,400
West Central	205	415,000	190	425,000
Clare	51	59,300	48	59,000
Gladwin	67	18,200	63	19,900
Gratiot	51	221,000	44	235,000
Isabella	95	152,000	88	157,000
Mecosta	116	72,200	113	72,600
Midland	6	17,300	6	18,500
Montcalm	106	216,000	102	221,000
Osceola	68	124,000	66	127,000
Central	560	880,000	530	910,000
Arenac	23	56,900	23	63,000
Bay	16	19,700	16	22,000
Huron	167	403,000	155	435,000
Saginaw	36	48,600	33	55,600
Sanilac	248	344,000	235	341,000
Tuscola	60	87,800	58	83,400
East Central	550	960,000	520	1,000,000
Allegan	114	303,000	105	334,000
Berrien	13	49,700	13	48,100
Cass	18	11,200	16	9,100
Kalamazoo	14	109,000	14	117,000
Kent	70	174,000	64	182,000
Ottawa	95	288,000	89	315,000
Van Buren	21	35,100	19	34,800
Southwest	345	970,000	320	1,040,000
Barry	43	232,000	43	258,000
Branch	85	53,000	72	52,900
Calhoun	54	123,000	48	124,000
Clinton	92	434,000	90	473,000
Eaton	45	35,400	39	34,400
Hillsdale	175	141,000	165	142,000
Ingham	53	110,000	51	111,000
Ionia	83	231,000	77	233,000
Jackson	40	126,000	37	129,000
St Joseph	42	29,100	40	20,200
Shiawassee	48	75,500	43	72,500
South Central	760	1,590,000	705	1,650,000
Genesee	14	28,800	15	30,600
Lapeer	73	77,500	71	71,400
Lenawee	44	274,000	41	280,000
Livingston	21	63,000	20	66,500
Macomb	13	8,300	12	8,400
Monroe	8		8	
Oakland	2		2	
St Clair	33	32,300	32	31,200
Washtenaw	42	69,000	39	63,400
Other counties		7,100		8,500
Southeast	250	560,000	240	560,000
Michigan	3,200	6,120,000	3,000	6,360,000

[1] Production estimates are not published for counties with 5 or fewer farms or with less than 5 million pounds of annual production. An operation is any place having one or more head on hand at any time during the year.
[2] Not published separately because of insufficient data or to avoid disclosure of individual operations.

Sheep: January 1, by county, 2003-2004 [1]

County and district	All sheep and lambs	
	2003	2004 [2]
	Head	*Head*
Chippewa	1,800	
Other counties [3]	1,500	
Upper Peninsula	3,300	
Antrim	650	
Charlevoix	900	
Manistee	500	
Other counties [3]	950	
Northwest	3,000	
Iosco	1,150	
Ogemaw	600	
Other counties [3]	1,850	
Northeast	3,600	
Lake	1,000	
Mason	1,000	
Newaygo	1,200	
Other counties [3]	600	
West Central	3,800	
Gladwin	650	
Gratiot	1,000	
Isabella	1,100	
Mecosta	1,900	
Osceola	1,600	
Other counties [3]	750	
Central	7,000	
Huron	500	
Sanilac	900	
Tuscola	500	
Other counties [3]	900	
East Central	2,800	

County and district	All sheep and lambs	
	2003	2004 [2]
	Head	*Head*
Allegan	1,400	
Cass	1,100	
Kalamazoo	5,600	
Ottawa	900	
Van Buren	1,800	
Other counties [3]	1,200	
Southwest	12,000	
Barry	1,300	
Branch	1,700	
Calhoun	2,100	
Clinton	2,100	
Eaton	2,300	
Hillsdale	1,400	
Ingham	2,400	
Ionia	1,100	
Jackson	7,200	
St Joseph	3,400	
Shiawassee	2,000	
South Central	27,000	
Genesee	1,600	
Lapeer	2,300	
Lenawee	1,200	
Livingston	1,850	
Monroe	1,150	
Oakland	900	
Washtenaw	12,500	
Other counties [3]	1,000	
Southeast	22,500	
Michigan	85,000	83,000

[1] Estimates are not published for counties with less than 500 sheep.
[2] County estimates discontinued due to State budget reductions.
[3] Not published separately because of insufficient data or to avoid disclosure of individual operations.

Useful Agriculture Internet Sites

State and Federal Agencies

MDA-Michigan Department of Agriculture	www.michigan.gov/mda
MASS-Michigan Agricultural Statistics Service	www.nass.usda.gov/mi
USDA-United States Department of Agriculture	www.usda.gov
NASS-National Agricultural Statistics Service	www.usda.gov/nass
AMS-Agricultural Marketing Service, Market News	www.ams.usda.gov/marketnews.htm
APHIS-Animal and Plant Health Inspection Service	www.aphis.usda.gov
ERS-Economic Research Service	www.ers.usda.gov
FSA-Farm Service Agency	www.fsa.usda.gov
NRCS-Natural Resources Conservation Service	www.nrcs.usda.gov
RD-Rural Development	www.rurdev.usda.gov
MSU Extension	www.msue.msu.edu

Commodity Groups

Apples-Michigan Apple Committee	www.michiganapples.com
Asparagus-Michigan Asparagus Advisory Board	www.asparagus.com
Bison-Michigan Bison Association	www.michiganbison.com
Blueberries-Michigan Blueberry Growers Association	www.blueberries.com
Cattle-Michigan Beef Industry Commission	www.mibeef.org
Celery-Michigan Celery Promotion Cooperative	www.michigancelery.com
Cherries-Cherry Industry Administrative Board (CIAB)	www.cherryboard.org
Cherries-Cherry Marketing Institute	www.cherrymkt.org
Christmas Trees-Michigan Christmas Tree Association	www.mcta.org
Corn-Michigan Corn Growers Association	www.micorn.org
Dairy-Michigan Milk Producers Association	www.mimilk.com
Dairy-United Dairy Industry of MI	www.udim.org
Dry Beans-Michigan Bean Commission	www.michiganbean.org
Dry Beans-Michigan Bean Shippers / Agri-Business Association	www.miagbiz.org
Deer and Elk-Michigan Deer and Elk Farmers Association	www.mdefa.org
Deer and Elk-West Michigan Deer and Elk Farmers Association	www.w-mdefa.com/
Floriculture-Michigan Floral Association	www.michiganfloral.org
Floriculture-Allied Florist Association of Metro Detroit	www.alliedflorist.com
Grapes-Michigan Grape and Wine Industry Council	www.michiganwines.com
Horses-Michigan Horse Council	www.michiganhorsecouncil.com
Nursery-Michigan Nursery & Landscape Association	www.mnla.org
Peaches-Michigan Peach Sponsors	www.michiganpeach.org
Pork-National Pork Board and Pork Producers Council	www.nppc.org
Potatoes-Michigan Potato Industry Commission	www.mipotato.com
Soybeans-Michigan Soybean Promotion Committee	www.michigansoybean.org
Turfgrass-Michigan Turfgrass Association	www.michiganturfgrass.org
Turkeys-Michigan Turkey Producers	www.miturkey.com

Other Related Sites

Implementation Working Group-IWG	www.fqpa-iwg.org
American Farm Bureau Federation	www.fb.org
Michigan Farm Bureau	www.michiganfarmbureau.com
Michigan Integrated Food and Farming Systems on-line directory	www.miffsmarketline.org
Michigan Bovine TB Eradication Project	www.bovinetb.com
MSU Agriculture Weather Office	www.agweather.geo.msu.edu

INTERNET ACCESS

Reports, data products, and services published by Michigan Agricultural Statistics, Michigan Department of Agriculture, and National Agricultural Statistics Service of the United States Department of Agriculture are available on the Worldwide Web. There is no charge for connecting to these Internet addresses:

- **Michigan Department of Agriculture (MDA)**

  MDA home page at: **http://www.michigan.gov/mda**

- **Michigan Agricultural Statistics (MAS)**

  MAS home page at: **http://www.nass.usda.gov/mi**

  Under the **MAS** home page you will find up-to-date data such as Crop-Weather releases, press releases, *Agriculture Across Michigan*, and county estimates.

- **National Agricultural Statistics Service (NASS)**

  NASS home page at: **http://www.usda.gov/nass**

You can access national releases, 1997 Census of Agriculture data, and home pages of **NASS** state offices including Michigan from this web site. ***Michigan Crop Weather*** and national releases by free e-mail subscription are available from this site.

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