Michigan Agricultural Statistics 1999-2000

NASS
FACT FINDERS FOR AGRICULTURE
UNITED STATES DEPARTMENT OF AGRICULTURE

Michigan
Agricultural
Statistics
Service

Michigan
Department of
Agriculture

Michigan Department Of Agriculture 1999 Annual Report

This bulletin is provided free to Michigan farmers and reporting agribusiness firms. Others may obtain copies at $5.00 each. Please make checks payable to USDA-NASS and send with your request to P.O. Box 26248, Lansing, MI 48909-6248.

PRINTED BY AUTHORITY OF PUBLIC ACT 380 OF 1965, AS AMENDED
TOTAL NUMBER OF COPIES PRINTED: 10,000 TOTAL COST: $20,009.16 COST PER COPY: $2.00

Michigan Agricultural Statistics 1999-2000

Michigan Agricultural Statistics Service

David D. Kleweno - State Statistician
Vince Matthews - Deputy State Statistician

Issued cooperatively by:

Michigan Department of Agriculture
Executive Office
Dan Wyant, Director

United States Department of Agriculture
National Agricultural Statistics Service
Ron Bosecker, Administrator

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF AGRICULTURE

P.O. BOX 30017 • LANSING, MICHIGAN 48909
611 W. OTTAWA • LANSING, MICHIGAN 48933
DAN WYANT, Director

August 2000

The Michigan Department of Agriculture (MDA), created in 1921, has now moved into the 21st Century. Along with the rest of the world, we've weathered many changes, and witnessed a great many technological advances. However, MDA remains focused on the same issues and concerns that have always been important to consumers, farmers, and those who care about the land. The top priorities of this department remain:

- Food safety
- Economic development of agriculture
- Environmental stewardship and protection
- Consumer protection

Increasingly, we face problems our ancestors didn't have. How can we maintain the livelihood of thousands of agricultural workers and keep our economic profitability? What measures should we take to keep our surface and groundwater pure? How can we ensure an abundant and wholesome food supply for Michigan's citizens, and guarantee economic fairness in the marketplace?

MDA handles these complex challenges, and others, on a daily basis. The diversity and range of the departments responsibilities demands a high degree of care and dedication from each employee. I'm pleased to say that MDA staff consistently meet this standard.

The Michigan Department of Agriculture is deeply committed to helping Michigan's agricultural community thrive, ensuring a fair and honest marketplace for Michigan citizens, protecting Michigan's people, animals, farmland and water, and as always safeguarding the quality of our food.

The 1999 Michigan Department of Agriculture Annual Report is a record of the year's accomplishments, and an indication of issues that will be important in the future. This annual report, combined with Michigan Agricultural Statistics 1999-2000, details the exciting story of Michigan agriculture, our state's second-largest industry. It is our hope that everyone who reads this report will find it informative and valuable.

Sincerely,

Dan Wyant

Dan Wyant
Director

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

Michigan Agricultural Statistics Service
P.O. Box 26248
Lansing, Michigan 48909-6248
Phone: (517) 324-5300
Fax: (517) 324-5299
E-mail: nass-mi@nass.usda.gov
Web: www.usda.gov/nass

August 2000

I am pleased to present the 1999-2000 edition of Michigan *Agricultural Statistics*. This publication is the direct result of a cooperative effort between the Michigan Agricultural Statistics Service (MASS) and the Michigan Department of Agriculture. The information presented is possible because producers and agribusinesses voluntarily complete a multitude of surveys each year. The true story of agriculture could not be reflected without their support and cooperation. Many thanks!

As we enter the new millennium, agriculture faces an increasing number of complex challenges. Major structural changes will occur. Policies on land use, environmental protection, food safety, biotechnology, trade, farm programs, etc. will be examined and formed. Decisions will be influenced by the best information available, often from facts that were compiled by MASS directly from grower reports. A few recent examples where these data were used to help improve Michigan agriculture include the Michigan Animal Industry Initiative, Project GREEEN, support for agricultural tax reductions, and establishment of Agriculture Renaissance Zones. Having timely, reliable information will become even more critical as we move toward the next century.

The Michigan office and field staff are dedicated to meeting your agricultural information needs as "The Fact Finders of Agriculture." We strongly believe "Agriculture Counts." Please contact us anytime with your questions, comments, and requests at I-800-453-7501.

Sincerely,

David D. Kleweno
State Statistician

Contents

Part I
MDA Annual Report 1999

Part II
Michigan Agricultural Statistics 1999-2000

All tables contain Michigan data unless otherwise noted. In some tables, details may not add to the total shown due to rounding.

Part I:

Michigan Department of Agriculture Annual Report 1999

Executive Summary

Commission Summary 1999

The Michigan Commission of Agriculture is appointed by the Governor to establish policies and provide administrative direction for the Michigan Department of Agriculture. The five commission members are appointed for a four-year term, with the confirmation of the Michigan Senate.

Board members are:

Douglas E. Darling
James E. Maitland
Shirley A. Skogman
Deanna Stamp
Jordan B. Tatter

The Michigan Commission of Agriculture met 10 times in 1999. The July 1999 meeting was held in conjunction with the Midwest Association of State Departments of Agriculture (MASDA) and the North American Agriculture Marketing Officials (NAAMO) conferences held in Traverse City.

Bovine TB was the largest agenda item for commission consideration this year, followed closely by Right-to-Farm/Generally Accepted Agricultural and Management Practices (GAAMPs). Other major issues of continuing concern included:

- Project GREEEN
- Confined Animal Feeding Operations (CAFOs)
- Purchase of development rights in relation to farmland preservation
- Pesticide issues
- Food safety
- Food Quality Protection Act (FQPA)
- Senator McManus' Agriculture Preservation Task Force
- World trade and export of Michigan commodities
- Fairs and exhibitions

Commissioner Deanna Stamp served as Chair of the Commission in 1999. Commissioner James Maitland served as vice-chair, and Commissioner Jordan Tatter served as secretary. Commissioners Darling and Tatter, whose terms expired on December 31, 1998, were reappointed to four-year terms by Governor Engler in 1999. Commissioner Shirley Skogman concluded her second full term on the commission at the end of 1999.

Executive Office Summary

The Executive Office provides administrative and policy direction for the Michigan Department of Agriculture (MDA), and is comprised of the director, deputy director, director of agriculture policy, legislative liaison, and support staff.

The director, appointed by the Agriculture Commission, is the chief executive officer of the agency. Working in tandem with the commission on policy issues, the director also serves as the department's spokesperson with the governor's office and legislature. The deputy director is responsible for day-to-day operations and program functions of the department, working closely with division directors and key program staff.

The director of agriculture policy works closely with MDA's director and others to formulate new department policies, and review or revise existing ones. In addition, he serves as the key contact for federal issues, legislation, and congressional contacts. The legislative liaison is MDA's link to the Michigan Legislature and the Governor's Office of Regulatory Reform.

Legislative Activity

It was also an important and productive year for MDA in the Michigan Legislature, as evidenced by the passage of several key pieces of legislation.

Legislative activities supported by the department resulted in the following bills being passed into law by the 90th Legislature in 1999.

- Capital Outlay for UP State Fairgrounds - This law allocated funds for the purchase of property adjoining the fairgrounds; funds will also be used for long-term planning.

- Safety Chains on Farm Equipment - Michigan law was updated to accommodate new, improved safety chains being built into new farm equipment. The chains will provide safer towing.

- Movement of Agriculture Equipment Without Permit - Clarifies the fact that it is unnecessary to have a permit to move oversized agricultural equipment.

- Prohibits Deer and Elk Feeding - This law empowers the Natural Resources Commission (with input from the Commission of Agriculture) to regulate the feeding of wild elk and deer.

- Supplemental Bovine TB Budget – The law provides $9.6 million for bovine TB testing, and indemnification of the bovine TB program.

- Right-to-Farm Changes – This alteration of the Right-to-Farm Act clarifies that a local unit of government cannot adopt a local ordinance that goes beyond the standards for agriculture set by Generally Accepted Agricultural Management Practices (GAAMPs). It also required the Michigan Department of Agriculture to create a new GAAMP on site selection and odor control.

- Budget Fiscal Year 2000 – Increased funding for the 4-H Foundation, agriculture exports, migrant labor housing, the FFA programs and the food bank. The budget also includes funding for US anti apple dumping efforts.

- Sale of State Fair Property – Allowed for the sale of surplus state fair property, allowing the state to sell land adjoining the state fairgrounds in Detroit.

Division Accomplishments

As detailed in the sections to follow, 1999 was an important year for Michigan agriculture and for MDA. Some key accomplishments follow:

- The Unified Food Code was developed and introduced in 1999 to provide uniform standards, and eliminate redundancy between state and local food safety regulation programs. This will provide stronger food safety standards to protect Michigan residents, and reduce incidents of foodborne illness. The law also provides for a risk-based food inspection system that allows inspectors to concentrate on high-risk areas, and improves information sharing between agencies.

- Comprehensive planning for Y2K resulted in uninterrupted service to MDA's internal and external customers.

- MDA received an appropriation of nearly $11 million to fight bovine tuberculosis in Michigan. Partnerships have been established with MSU, US Department of Agriculture (USDA), state agencies, and industry. Additionally, an office in Atlanta, Michigan was established to coordinate activities associated with bovine tuberculosis in northeast Michigan. MDA also completed the testing of all livestock herds in northeast Michigan.

- A Racing Commissioner was hired to oversee the regulation of all pari-mutuel horse racing in Michigan, and to develop ways to improve and promote horse racing in the state.

- The Geagley Laboratory initiated a $12 million renovation. The structural changes will result in a safer, more productive laboratory.

- The Cooperative Resource Management Initiative (CRMI) was established as a partnership between MDA and the Michigan Department of Natural Resources (MDNR), to work with other agencies in managing land across Michigan. Grants of $1.5 million were provided to local conservation districts for the hiring of resource professionals, to assist landowners in the effective management of the state's natural resources. The program is also geared toward protecting Michigan's wildlife, fish and plant species.

- The *Select Michigan* program was initiated to boost sales of Michigan grown and processed products. The program provides industry with easily identifiable logos/stickers to be placed on Michigan-made goods so that consumers can identify Michigan products.

- The Michigan Junior Fair Board was created to develop leadership qualities and opportunities for Michigan youth. Board members educate fair-goers about Michigan agriculture in order to increase agricultural awareness in the community.

- Michigan attained Stage IV pseudorabies status in 1999, signifying that Michigan is effectively free of pseudorabies. This allows Michigan to ship swine to Canada. Michigan is the first state in the US to export swine to Canada.

- MDA assisted in coordinating several food processing ventures in 1999, including Michigan Turkey Growers Co-op, Murco Foods (Packerland), Thumb Oilseed Co-op, and others. Value-added ventures are important in preserving and expanding key markets in Michigan.

- The Organic Advisory Committee developed a strategic plan, which was accepted by the Commission of Agriculture. The plan will establish program parameters, and offer recommendations for the organic industry. The committee is now developing a program to certify the authenticity of organic food and fiber grown and/or processed in Michigan.

- Attendance at the Michigan State Fair and the UP State Fair increased from the previous year, resulting in a first-time profit for both.

- MDA coordinated and hosted the Midwest Association of State Departments of Agriculture (MASDA) and North American Agriculture Marketing Officials (NAAMO) meetings in Traverse City.

Animal Industry Division

MDA's Animal Industry Division (AID) protects the health of domestic animals in Michigan, and in this manner protects human health as well. AID is headed by the state veterinarian, who supervises animal disease surveillance and eradication programs at the state and industry levels, to ensure healthy livestock and pets in the state. AID monitors animal diseases to protect Michigan residents from animal-transmitted diseases and food safety hazards. 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, dog pounds, pet shops, riding stables and research facilities.

Bovine Tuberculosis

MDA issued a quarantine order under the authority outlined in the Animal Industry Act for the northeast area of Michigan's Lower Peninsula, bounded by highways I-75 and M-55, on January 1, 1999. The quarantine allows the free movement of cattle and goats into the quarantine area, but restricts movement of cattle and goats out of the area. The order also restricts the movement of captive cervidae into and out of the quarantine area.

In January 1999, bovine tuberculosis (TB) was diagnosed in two beef cattle herds in Alcona County. Both herds were depopulated. In November 1999, a third beef herd was diagnosed with bovine tuberculosis in Presque Isle County and ordered depopulated. In late December a fourth herd, the first dairy herd, was diagnosed with bovine TB in Presque Isle County. The herd owner exercised a new expanded option to test and remove infected animals, rather than total depopulation.

The US Department of Agriculture (USDA) notified MDA in January 1999 that Michigan would maintain its bovine TB accredited-free "suspended" status until state zoning standards were established. AID worked with USDA to develop criteria for maintaining split-status zones for bovine tuberculosis in Michigan. The interim rule for split-status was published in the Federal Register on November 1, 1999. The Animal Industry Division conducted six meetings in the fall and early winter of 1999, informing livestock producers of Michigan's request for split-status zones.

During 1999, MDA, USDA, and contracted veterinarians tested over 32,000 cattle and goats for TB. Nearly all herds in the quarantined area have completed the first phase of testing.

The increasing scope of the bovine tuberculosis issue required that MDA's Atlanta, Michigan office, in the heart of the quarantine area, be expanded. In March 1999 the facility was enlarged to provide greater office and warehouse space. Cleaning and disinfecting facilities for the animal handling equipment used on farms was also added.

Domestic Carnivore TB Surveillance

AID developed a project to test domestic carnivores (dogs and cats) in the northeast Lower Peninsula following a report by the Michigan Department of Natural Resources (MDNR) that several wild carnivores in that area had tested positive for bovine tuberculosis. Testing was done on animals which had been euthanized by animal control agencies. Eighty animals were tested in 1999; all were negative for bovine TB.

Captive Cervidae

The Animal Industry Division implemented a statewide tuberculosis surveillance plan for more than 20,000 animals in 700 captive white-tailed deer and elk herds. Through this program, AID monitored the testing of almost 5,000 captive cervids, and initiated follow-up procedures on 144 tuberculosis suspect animals. Additionally, AID began a tuberculosis sampling and analysis program for large-scale operations where a statistical sample of a herd is harvested and tested for bovine tuberculosis. More than 35 private veterinarians were trained to conduct this on-farm surveillance-based testing program for white-tailed deer and elk ranches. Total herd depopulation was completed on approximately 400 head of tuberculosis infected white-tailed deer in Presque Isle County. In conjunction with USDA, AID inspected and established herd management plans for more than 200 captive-cervid herds that achieved official tuberculosis qualified or accredited status (TB-free) through the cooperative bovine tuberculosis eradication program.

Aquaculture

AID registered and supervised 72 commercial Michigan aquaculture facilities in 1999. These facilities represent over one million commercially produced fresh-water fish. MDA, MDNR, and the Michigan Aquaculture Industry initiated a cooperative surveillance program in December 1999 to determine the disease status of wild and commercial salmonids in Michigan. AID initiated disease control programs in six private aquaculture facilities that

were found to be positive for *Myxobolus cerebralis*, a parasite of trout and salmon species.

Equine Infectious Anemia (EIA)

Twenty-two Michigan horses tested positive for Equine Infectious Anemia (EIA) in 1999. The infected horses were from eight counties throughout the Lower Peninsula, with one cluster of 14 horses from several different farms in Tuscola and Sanilac counties. One horse (Mason County) was discovered as a trace-back from an investigation in Texas which involved a horse that had moved there from Michigan. All epidemiological investigations were completed, and the cases were closed by the end of 1999. MDA tested, or arranged private testing, for more than 700 horses during these investigations. Requirements for intrastate testing of equine have been drafted and included as proposed amendments to the Animal Industry Act (PA 466 of 1988, as amended).

Eastern Equine Encephalitis (EEE)

Eastern Equine Encephalitis (EEE) surveillance in 1999 included mosquito, wild bird and domestic fowl blood testing, as well as veterinary equine case monitoring and testing. Through these efforts, six horses were confirmed, and one additional horse was suspected to have died from EEE infection. Nine wild birds were identified with antibodies to EEE virus, and two mosquito-sample pools were found to contain EEE virus. No human cases were reported for 1999. (*For more information, see Pesticide and Plant Pest Management Insect and Rodent Control section.)*

Rabies

Rabies testing was conducted on more than 2,700 animals in 1999, 92 were found to be positive with the disease. The animals were tested after exposure to potentially rabid wild animals, or because they may have exposed humans to the ailment. The animals that tested positive for rabies included 67 bats, 21 skunks, three horses and one domestic elk. Eighty-one people were treated to prevent rabies after they had contact with these animals and were exposed to the disease. One hundred thirty-six animals were vaccinated or given booster shots based on the risk of exposure; 29 animals were euthanized, and nine animals were placed under six-month quarantine for observation to be sure they did not develop rabies.

An additional 88 raccoons from southeast Michigan were tested for the disease as part of a special surveillance project. The raccoon strain of rabies has moved from the East Coast into eastern Ohio. The Michigan Rabies Working Group, which includes AID staff, initiated this surveillance project to detect any raccoon movement from Ohio into Michigan.

Brucellosis Program

Michigan achieved Brucellosis Certified-Free State status in 1982. Status is maintained through continual surveillance which includes Brucellosis Ring Test Surveillance (BRT) on all dairy farms, and Market Cattle Identification Surveillance (MCI) on all cattle capable of reproduction that are processed at federally inspected abattoirs. These surveillance activities identified 16 BRT and 17 MCI suspect cases in 1999. Epidemiological investigations and herd testing successfully resolved all 33 cases. No cases of field-strain brucellosis were found.

Brucellosis vaccination of beef and dairy calves continues, although no longer required by state law. In 1999, more than 52,500 beef and dairy calves were vaccinated for brucellosis. This represents a decrease in the vaccination rate of approximately 54 percent of what it was prior to the state law change in 1994. The calves vaccinated in 1999 represent roughly five percent of the total number of beef and dairy cattle in Michigan.

An amendment to the Animal Industry Act (1988 P.A. 466, as amended) has been proposed which would discontinue the official brucellosis calfhood vaccination requirement for female cattle over four months of age imported into Michigan, provided they originate from a state that has been classified as brucellosis certified-free for the last six (or more) consecutive years.

Livestock Marketing Program

In 1999, the Michigan Department of Agriculture licensed 328 livestock dealers and truckers, and 32 livestock auction markets. The licensed auction markets consist of 21 general livestock saleyards, eight swine collection points, and four horse auctions located throughout the state. Gross annual sales of livestock sold through the auction markets amounted to approximately $171,646,568.00 for 1999.

The Livestock Dealer Act (1937 P.A. 284, as amended) is in the process of being rewritten. Work on amending the act began in 1999, with the goal for completion being January 2001. The act, last amended in 1957, will update livestock marketing regulations, bringing them in line with modern marketing practices.

Michigan Animal Health Emergency Management Program

Michigan participated in the "Self-Assessment of Local Emergency Management Systems" program conducted by the USDA. This self-assessment effort identified strengths and vulnerabilities related to animal-health emergency management and preparedness. USDA has developed state animal-health emergency management systems based on the program's results. Michigan has adopted these standards as minimum criteria for developing a Michigan Animal Health Emergency Management plan, and standard operating procedures.

Avian Program

In 1999, MDA used vaccination clean-up protocol for six commercial egg-laying operations that have Infectious Laryngotracheitis (ILT). All of these farms remain under quarantine.

In the summer/fall of 1999, the Michigan Department of Community Health (MDCH) traced-back 19 cases of Salmonella infantis in humans to a Michigan hatchery. These consumers had purchased baby poultry in the spring of 1999.

MDA, MDCH and the hatchery made efforts to prevent people from contracting salmonella after handling baby poultry. The hatchery instituted management practices and equipment upgrades to prevent further disease transmission. MDA and MDCH issued press releases and created informational materials about handling baby poultry safely. Between April 1 and July 31, 1999, 21 cases of Salmonella infantis were reported. Eighty-two percent of those who contracted the disease became ill after handling baby poultry. Eighty-eight percent of the poultry were traced to a single hatchery. The farm has been depopulated and disinfected under MDA supervision.

Swine Program

AID, in conjunction with USDA's Animal Plant Health Inspection Service, Veterinary Services (APHIS, VS), collected nearly 9,000 first-point (market) pseudorabies surveillance samples in 1999.

Michigan reached Stage IV of the national Pseudorabies Eradication Program on November 1, 1999. This stage signifies that Michigan is effectively free of pseudorabies. The new status designation allowed Michigan to ship swine to Canada. Michigan is the first state in the US to export swine to Canada in recent recorded history. Michigan will reach the final phase of the Pseudorabies Eradication Program (Stage V) when the monitoring program reveals no new pseudorabies cases for 12 months. *(For more information see Office of Agriculture Development New Markets section.)*

Fair Animal Inspections

AID registered all animals at the 1999 Michigan State Fair, and ensured that interstate/intrastate health requirements were met before the animals were exhibited. Fair barns were inspected daily for sick animals, which were removed or isolated if necessary.

Drug Residue Program

AID maintained the current MDA contract with the Food and Drug Administration (FDA), completing 13 drug residue trace-backs in 1999. The contract stipulates that specific inspection levels and regulations be kept in place as part of a total monitoring and surveillance program. FDA sets the standards, and MDA upholds its responsibility to the program by enforcing those standards.

Environmental Stewardship Division

The Environmental Stewardship Division (ESD) consists of program areas focused on enhancing Michigan farming operations, and commercial land usage, with practices that protect the environment and public health.

Intercounty Drains

ESD oversees projects to restore or improve historical drainage systems. When the cost or scope of the work exceeds what is allowed under statute, a petition is created which, if approved, allows the project to continue. The number of petitioned intercounty drain projects fluctuates between 25 and 55 ongoing projects at any given time. This includes all active projects; from the beginning when MDA first receives a petition, through the administrative process, to the completion of construction and the one-year maintenance bond following the project's completion.

Drainage systems under petition range from 100 miles to more than 300 miles. The cost of projects under construction has ranged from $3 million to $40 million. The watershed acreage served by drains under petition, and in construction phase, ranges from 150,000 to 1,000,000 acres.

The Intercounty Drain Maintenance Program oversees existing, modern intercounty drains, managing more than 1,560 projects per year. Approximately 600 miles of

intercounty drains are serviced, involving 1.5 million acres of watershed land. Maintenance typically involves restoring a drain to its designed specifications by removing accumulated sediment, debris, and brush. Maintenance practices also entail erosion and sedimentation control measures when appropriate.

Irrigation District Program

Public Act 205 of 1967 states that producers of food and fiber commodities can petition to form irrigation districts using water from the Great Lakes. ESD staff oversee and coordinate agricultural interests, and an MDA representative serves as a member of the three-person irrigation board.

Migrant Labor Housing

During 1999, 865 migrant labor-housing sites were licensed, including 4,428 individual living units with a capacity to house over 25,000 people. ESD staff conducted over 1,800 site inspections, and provided technical assistance and consultative services to housing operators endeavoring to improve and maintain migrant housing.

The licensing program ensures the safety of food produced in Michigan. A great deal of Michigan's food is initially handled by migrants. Safe water supplies, proper toilet facilities, adequate housing facilities and proper waste disposal systems help ensure that the workers who handle the food are healthy and disease free. Migrants work in the production of almost every crop that involves hand labor. Michigan produces 38 such crops, and ranks among the top 10 states in the US which use migrant labor. The production value of these crops is estimated to exceed $2.1 billion.

In 1999, MDA received a federal appropriation of $550,000 to assist in funding Michigan's Migrant Housing Construction Grant Programs. Migrant housing operators can apply for grants to assist them in upgrading, maintaining or building new migrant housing. In 1999, the construction grant programs provided financial assistance to 78 farmers for migrant housing projects totaling $2.8 million.

Soil Conservation

ESD seeks to identify local resource needs through Michigan's 82 conservation districts, then develops and implements programs to address those needs. For example, the Energy Conservation Program reached more than 500,000 people statewide, helped farmers implement energy conservation practices on 24,000 acres, and resulted in energy-use savings of $2 million, (an 8-to-1 return on investment.) The Groundwater Stewardship Program and Forest and Wildlife Management Assistance Program have also been successful. MDA administers over $3.5 million in state and federal grants to conservation districts.

MDA is also a partner in the National Cooperative Soil Survey Program (NCSS). The soil survey will provide current technical soil data in the form of soil maps and interpretations. These will be used in planning land-management strategies for forest resource managers, farmers, land-use planners, managers of state and federal lands, engineers, sanitarians, realtors, government officials at all levels, and others who use, or plan for the use, of soil and water in Michigan.

Forest and Wildlife Programs

The Forest and Wildlife Management Assistance Program (FWMAP) is the MDA title for the Cooperative Resource Management Initiative (CRMI), established in October, 1999 as a partnership between MDA and the Michigan Department of Natural Resources (MDNR). FWMAP is a coordinated team effort where federal, state, and local government agencies, and private sector conservation groups, work together to manage land across Michigan. Administered by MDA, FWMAP provides 31 grants totaling $1.5 million to conservation districts so they can hire resource professionals who will assist landowners and managers in effective management of the state's natural resources. FWMAP efforts will increase protection of Michigan's wildlife, fish and plant species, and protect or restore various animal habitats.

The Forest Stewardship Program (FSP) is a national program designed to encourage active management of all resources on non-industrial private forestland. In Michigan, FSP is a cooperative venture involving MDA, the USDA Forest Service, MDNR Forest Management Division, and soil conservation districts. FSP plans provide information and direction on all aspects of natural resource management for forests and other lands.

Once FSP plans are complete, landowners become eligible to receive additional federal cost-share dollars to implement a variety of resource management practices, such as the Stewardship Incentive Program (SIP), the Forestry Incentive Program (FIP) and Cropland Reserve Program (CRP). In 1999, 117 plans were written, affecting nearly 12,000 acres.

In 1999, plans were set in motion for the federally sponsored Conservation Reserve Enhancement Program (CREP) to be brought to Michigan. MDA will work in partnership with USDA, Michigan Department of

Environmental Quality (MDEQ) and MDNR to enlist 80,000 acres of land for the program, which will improve conservation practices in the Saginaw Bay, River Raisin, and Lake Macatawa Watersheds. The program's goal is to improve water quality and wildlife habitat in those areas.

Pesticide Management Plans

The US Environmental Protection Agency (EPA), is taking steps to require each state to develop a plan outlining the way it will reduce risks to groundwater associated with the use of Atrazine, Alachlor (Lasso), Metolachlor (Dual), Simazine, and Cyanazine (Bladex). The first step in this process was the creation of a generic pesticide-management plan describing the general way in which the state intends to reduce pesticide risks.

Michigan was the sixth state in the US to have its generic pesticide-management plan approved by the EPA. ESD staff are working with the EPA on details which will allow the continued use of products covered under the pesticide management plan.

Groundwater Programs

The Michigan Groundwater Stewardship Program (MGSP), in coordination with soil conservation districts, Michigan State University Extension (MSUE), USDA Natural Resources Conservation Service (USDA-NRCS), and AmeriCorps, provides direct service to almost every Michigan county. Although the program was originally projected to operate in only 10-14 counties, judicious use of program resources has allowed for more than 8,600 Farm*A*Syst assessments, (the Farm*A*Syst Program identifies potential farm operation risks) making MGSP a national model for voluntary environmental programs.

The Groundwater Monitoring Program checks private wells across the state for general chemistry, pesticide, and volatile compounds. ESD staff test wells to establish a meaningful statewide baseline of private well-water quality.

The program supports the state's pesticide-management plan by furnishing data on the quality of private drinking-water wells. Evidence that proves a product has no negative impact on groundwater quality may allow retention of the product registration. The program also provides data on nitrate and pesticide concentrations to well users, coordinates information on potential health risks from using contaminated water supplies, and provides alternate water supplies (including well replacement) when pesticide levels in private wells do not meet public drinking-water standards.

MGSP also supports many other programs within ESD, including: Michigan Emergency Tube, Spill Response, Clean Sweep, Container Recycling and the Turfgrass Environmental Stewardship Program.

Michigan Emergency Tube

Michigan Emergency Tube, a voluntary program promoted throughout the state, stresses the benefits of emergency preparedness. Tubes are free to farms that participate with the MGSP. Farmers develop emergency response plans identifying the location, type and quantity of pesticide and fertilizers stored or used on the farm. The plans are then place in the tube, which is mounted in a highly visible location on the farmstead. In an emergency, valuable information is available to responders, protecting the farmer's home and community, and the environment.

Spill Response

Since its beginning in July 1995, the Spill Response Program has responded to more than 100 agrichemical spills annually. These spills represent tens of millions of pounds of material, valued at millions of dollars.

ESD responds rapidly to these emergencies, saving farmers millions of dollars in clean up and disposal costs. The program is focused on providing realistic technical assistance, cleaning up spills quickly and completely, using all available resources, and providing financial assistance when necessary.

In 1999, ESD staff responded to 105 agrichemical spills and manure releases involving approximately 4,171,324 gallons of spilled material.

Agrichemical users have renewed confidence in MDA's ability to assist them with any pesticide, fertilizer, or manure release.

Clean Sweep

In 1999, Michigan's 12 permanent pesticide disposal sites disposed of nearly 106,000 pounds of pesticides. Since its inception in 1998, the Clean Sweep Program has provided proper disposal for nearly 200 tons of unusable and unwanted pesticides.

Container Recycling

Container recycling efforts have resulted in the environmentally safe recycling of over 400,000 triple-rinsed containers. These efforts were coordinated with the assistance of the Michigan Agri-Business Association. Plans are pending to expand the program.

Turfgrass Environmental Stewardship Program

The Turfgrass Environmental Stewardship Program is a certification program that encourages Michigan's public and private golf courses to adopt practices which reduce the potential for pollution, and increase wildlife habitat. The program is a partnership between MDA, Michigan State University (MSU) and the Michigan Department of Environmental Quality (MDEQ).

Right-to-Farm

The Michigan Right-to-Farm Act (RTF) affords Michigan farmers protection from nuisance litigation if their farming practices conform to Generally Accepted Agricultural and Management Practices (GAAMPs) developed in accordance with the act. The Michigan Commission of Agriculture reviews all GAAMPs annually and revises them as necessary. The commission gives final approval for the adoption of any GAAMPs.

The Michigan legislature amended the Right-to-Farm Act in 1999. The amendment allows local ordinances to be preempted by RTF GAAMPs for the environmental regulation of farms. GAAMPs are currently the standard for production agriculture throughout the state.

The MDA Right-to-Farm Program provides an effective mechanism to investigate and resolve environmental and/or nuisance complaints involving farms and farm operations. Investigations are conducted according to the conditions of the Memorandum of Understanding (MOU) between MDA and MDEQ.

Right-to-Farm GAAMPs cover five specific areas of agriculture production:

- Manure management and usage
- Pesticide use/pest control
- Nutrient utilization
- Farm animal care
- Site selection for new and expanding livestock production facilities

MDA's RTF Program works with producers to address environmental complaints involving farming practices and farm operations. RTF staff meet with farmers to conduct on-site inspections, investigate complaints, and explain farmers' rights and responsibilities under the act. The majority of complaints involve practices that may affect the quality of surface water and groundwater. Other concerns include air quality issues such as odors, flies, dust, etc. Incentives and disincentives are presented to producers to encourage voluntary compliance with RTF GAAMPs.

Each year, the RTF Program addresses approximately 130 new complaints. The program has successfully resolved over 99 percent of the complaints by encouraging Michigan farmers to adopt appropriate management practices.

During 1999, MDA and MDEQ staff conducted a thorough review of the environmental complaint referral and response process. Review and modification of the process resulted in improved communications, timely referrals, enhanced environmental response activities, comprehensive inspections and better coordination between the agencies.

Michigan Biosolids Land Application Program

MDA has a mandate to provide citizens affected by, or involved in, the land application of biosolids (sewage sludge) with education, technical assistance, and program advocacy related to biosolids and the Michigan Biosolids Land Application Program.

Fairs, Exhibitions & Racing Division

The Fairs, Exhibitions & Racing Division (FER) oversees Michigan's state and county fairs and the associated horse racing programs. The division manages the Michigan State Fair in Detroit, and the Upper Peninsula State Fair in Escanaba. FER also administers grant programs for Michigan's 88 county and local fairs, and the horseracing industry. FER's role includes:

- Working with the fair industry to promote Michigan agriculture.
- Providing a safe, educational, and fun experience at Michigan fairs.
- Preserving and promoting Michigan's agricultural heritage.
- Cooperating with partners to stabilize the funding base for the fair and horse racing industries.
- Joining with partners to develop and implement resource programs to support fairs and racing.

Lease Agreement

A long-term lease agreement has been established that will transform the Michigan State Fairgrounds into a unique world-class entertainment destination. The agreement includes a private $200 million investment project. The funds will provide for capital improvements, and large-scale building renovations.

Michigan Junior Fair Board

The Michigan Junior Fair Board, created in 1999, was formed to develop leadership opportunities for Michigan youth, and to support and encourage Michigan 4-H and FFA programs. Board members will strive to educate the fair-going public about Michigan agriculture, and work toward stimulating increased interest and understanding of Michigan's agriculture industry.

Profit Margin--A First

The Michigan State Fair and the UP State Fair both showed increased attendance from the previous year. During the 1999 fair season, almost 382,000 people attended the Michigan State Fair, and 94,000 people attended the UP State Fair. The increase in attendance figures resulted in the fairs' demonstrating a profit for the first time.

Revised Rules and Regulations

The rules and regulations for the Michigan State Fair and the UP State Fair are being extensively rewritten. The process began in 1999 and will be completed in 2001. Revising regulations that had not been updated for more than 20 years, the rules will focus on updating regulations regarding animal care, health standards, grooming practices, and drug testing, making them more applicable to current day operations.

Livestock Exhibition Competitive Grant

Designed in 1999 to promote adult and youth involvement in the animal agriculture industry, the Livestock Exhibition Competitive Grant Program increases exhibitor and/or patron knowledge of the livestock industry. In 1999, 34 grant programs received a total of $120,000.

Livestock Drug Testing Program

Michigan's Program for Quality Animal Shows and Food Safety, now in its sixth year, encourages fairs to develop effective rules and enforce them fairly. During 1999, there was a 266 percent increase in fairs participating in the livestock drug-testing program, a part of the enforcement effort. Ninety-two samples were analyzed in 1999, with only one sample testing positive for drugs. The fair was able to effectively address the violation because they had appropriate rules in place.

Public Act 232

Public Act 232, begun in 1999, will attempt to acquire funding for the horse industry in Michigan by establishing the equine industry as a recognized commodity group. This will benefit the horse industry, as well as the State of Michigan by raising the status of Michigan horse sales and auctions, industry research opportunities, and education.

Youth Horse-Racing Program

A work group was established in 1999 to develop a youth horse-racing program in Michigan. The committee plans to establish state and county fair flat-track races that are open only to youth. The goal is to increase young people's enthusiasm for the sport of horse racing by providing premiums (purses) to county and state fairs holding such races. There will be several pilot sites, which may be rolled over into other fairs in the future.

Finance and Technology Division

The Finance and Technology (FT) Division administers business processes for the Michigan Department of Agriculture, including budget, accounting, auditing, procurement, facility management, travel arrangements and mail operations. In addition, the division also develops and deploys new technology throughout the department, allowing program areas to focus time and attention on their primary responsibilities.

During 1999, FT implemented several technology-related initiatives to enable MDA staff to work more effectively. While successfully managing the year 2000 conversion, FT simultaneously implemented the Management Inquiry Reporting System (MIRS) and restructured the travel reimbursement system. The new system (implemented in July 2000), will make MDA the first state department to have a web-based system which provides traveling employees with speedier reimbursement for travel expenditures.

The Management Inquiry Reporting System (MIRS) was developed and implemented to establish a comprehensive, cohesive department spending plan, and a unified expenditure format for the divisions. MIRS is a web-based financial reporting and budget-planning tool for revenues and expenditures. Serving as more than a spending-plan tool; it also provides flexibility for extracting information based on multiple criteria, i.e., budgeted spending compared to actual spending, current year versus prior year, graphical depiction of revenues/expenditures, and so on.

Food and Dairy Division

The Food and Dairy Division (FDD) protects public health by ensuring a safe and wholesome food supply through regulatory enforcement, problem solving,

leadership and food-safety expertise. The division also strives to assist and support food producers in maintaining a viable food and dairy industry. FDD also functions as an information resource for consumers and stakeholders. Food safety is the division's top priority.

Regulation of Food Establishments

The Food and Dairy Division inspects more than 20,000 licensed food establishments annually. These establishments range from supermarkets and convenience stores to major food-processing operations. Inspections address sanitary conditions, infrastructure safety, cleanliness, freshness and wholesomeness of food, and truth in labeling.

Dairy Product Assurance

Dairy staff inspect 3,500 Michigan dairy farms biannually to ensure the safety and quality of milk. The division also examines and regulates dairy-processing plants and bulk-milk haulers. The Dairy Section conducts the National Conference on Interstate Milk Shipments (NCIMS) rating program, US Department of Agriculture (USDA) surveys and grading, and monitors product shelf life. Michigan ranks ninth in the US in milk production, with more than 299,000 cows producing 5,455 billion pounds of milk annually.

Food Service Monitoring

The division administers the food service sanitation program for 47,000 establishments throughout the state, including restaurants, cafeterias, commissaries and temporary food vendors. In partnership with 45 local health departments, MDA provides training, coordination, direction and inspection guidelines, while local sanitarians conduct the actual inspections.

Michigan Food Law

A working group of 93 representatives from MDA, state and local public health agencies, the US Food and Drug Administration (FDA), university researchers and industry spent two years overhauling food-safety laws for Michigan's retail food establishments. In the first year (1998), the workgroup recommended that Michigan adopt the FDA Model Food Code as the pattern for Michigan's future food law. In the second year, with input from consumers, the workgroup addressed recommendations for the law that were specific to Michigan, and broader food regulatory programs. The Michigan Food Law of 2000 is scheduled to be signed in the Spring of 2000.

Highlights of Michigan's Unified Food Law:

- Uniform standards that eliminate redundancybetween state and local food- safety regulation programs.
- Stronger food-safety standards to protect Michigan residents and reduce incidents of foodborne illness.
- Broader range of penalty options to enhance state enforcement programs, including new administrative penalties.
- Rigorous standards for manager education, manual food contact, and holding temperatures for food.
- Risk based food-inspection systems that allow inspectors to concentrate on high-risk areas, and improves information sharing between agencies.
- Innovative Consumer Food Safety Education Fund that instructs consumers on how to reduce foodborne contamination.

Hazard Awareness Critical Control Points (HACCP)

A voluntary hazard analysis critical control point (HAACP) pilot program for dairy processing plants was accepted by the NCIMS as an alternative to the current inspection process defined in the Pasteurized Milk Ordinance. Michigan is one of six states selected to take part in this nationally recognized program.

MDA, participating with the Michigan Milk Producers Association (MMPA) and the FDA, is taking part in the HACCP pilot program. The NCIMS HACCP pilot program will be implemented and evaluated at the MMPA processing facility in Ovid, MI during 2000-2001.

January 1999 was the deadline for small-volume meat processors to begin utilizing HACCP systems. MDA, Michigan State University and the Michigan Meat Association conducted a survey of Michigan's USDA licensed facilities to identify training needs and producer concerns. The survey found that small-volume processors preferred learning methods that were self-paced, interactive and problem focused.

Local Health Department Accreditation Program

The local health department evaluation and accreditation process began in 1999. This statewide standard addresses all relevant components of public health, and assures an effective government public-health presence at the local level. Eleven local health departments were evaluated, and action plans were developed to assist them in bolstering food service program areas when necessary.

Follow-up evaluations will insure that the action plans are effective. The accreditation program is a system for assessing accountability, and also effectively reinforces the local health department's role as a public-health leader in its local jurisdiction.

Foodborne Illness

Michigan participates in the PULSENET surveillance system. This state-of-the- art genetic fingerprinting technology, and electronic-data sharing system, allows public health employees to quickly assess and investigate clusters of *E. coli* 0157:H7, *Listeria monocytogenes*, and *Salmonella muenchen* that would previously have gone undetected.

The Food and Dairy Division supports foodborne-illness surveillance carried out by the environmental-health divisions of local health departments. Food and Dairy's science and technology section maintains a foodborne illness surveillance database. The electronic database provides information generated by foodborne-illness events, complaints and investigations, and helps to determine if trends are occurring. The information entered into the database is taken directly from complaints and reports filed by local health departments and MDA food inspectors. The department, in turn, ascertains if there are time, place or person associations noted beyond local jurisdictions, and coordinates outbreak and trace-back activities related to food and food service agencies and organizations.

National Food Safety System

MDA's Food and Dairy Division participates as a member of the National Food Safety System Committee (NFSS) which is developing a laboratory data pilot project. The project goal is to develop, test and evaluate a national food-safety database where information can be shared by US health and food-safety organizations.

Great Lakes Conference on Food Protection

The first "Great Lakes Conference on Food Protection" was held in March 1999 in Frankenmuth, MI. The conference provided a state-level forum for regulators, industry, and others to address food safety concerns. Some of the major issues discussed were:

- Integration of the food-safety system.
- Preemption of state standards by the federal government.
- Elimination of bare-hand contact with food.
- *Listeria monocytogenes* controls in HACCP plans.
- *Hepatitis A* management in food handlers.
- Temperature regulations for holding hot foods.
- Time usage as a public health control.
- Refrigeration temperatures for smoked-fish products.

Mercury Manometer Program

On July 1, 1999, MDA and MDEQ announced the expansion of the 1998 mercury manometer pilot program to include eight additional counties: Allegan, Barry, Eaton, Ingham, Ionia, Kent, Montcalm and Ottawa. The original program, concentrated in Clinton and Gratiot Counties, sought to reduce the use of mercury manometers (vacuum gauges) on Michigan dairy farms by encouraging producers to replace them with mercury-free gauges. MDA and MDEQ pay up to $250 dollars per mercury manometer when dairy farms replace them with non-mercury gauges. Sixteen pounds of potentially hazardous mercury was collected from dairy operations in Michigan in 1999.

Human Resources Division

The Human Resources Division (HR) supports MDA staff by administering compensation and benefits, labor and employee relations, employee recruitment and hiring, and training and development. MDA maintained an average of 630 employees throughout 1999, with 130 total hires and 132 separations.

Student Intern Program

The Human Resources Division, in cooperation with Michigan colleges and universities, coordinated an aggressive student-intern program in 1999. The program provided a meaningful learning experience for 48 students, giving them an opportunity to learn about diverse agricultural careers within the department. In return, MDA gained the opportunity to develop new talent.

MDA Training Council

HR chairs the MDA Training Council, which offers employees guidance about training opportunities that can help improve workplace skills. HR developed a database to inventory training information on each employee. These records can then be used for career planning purposes. MDA employees took advantage of approximately 600 training opportunities in 1999.

Labor Relations

Contracts with all unions representing MDA employees were renegotiated in 1999. Approximately 440 employees were members of unions in 1999.

Human Resources Management Network (HRMN)

The Human Resources Management Network (HRMN) is a statewide project that will provide an integrated system to deliver payroll, personnel and employee benefits, and data exchange among state agencies and third parties in order to streamline business processes. This will result in reduced costs, improved service and more flexibility in managing the state workforce. In 1999, HR staff began evaluating internal business processes to identify the need for changes and improvements, in preparation for HRMN implementation. The new system will debut in 2000.

Laboratory Division

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

The Laboratory Division is housed in two sites: the William C. Geagley Laboratory in East Lansing, and the E.C. Heffron Metrology Laboratory in Williamston.

Analysts at the Geagley Laboratory perform 300 types of biological, chemical, and physical tests on food samples, beverages, pesticides, plants, seeds, fertilizers, animal feeds, and gasoline; and also test animal tissue, blood and urine. In 1999 more than 341,000 tests were performed on 225,238 samples.

Heffron Laboratory staff execute ultra-precise calibration and certification of mass, volume, and length for weights and measures devices belonging to Michigan businesses. The National Institute of Standards and Technology (NIST) certifies the facility, and its two full-time metrologists.

W.C. Geagley Laboratory Programs

Food Supply Protection

In 1999, the laboratory's Food, Dairy and Beverage Section tested more than 6,000 samples of food, beverage, and dairy products to keep Michigan's food supply free from such pathogens as *E.coli*, *Listeria*, *Salmonella*, and *Staphylococci*. The section is accredited by the American Association for Laboratory Accreditation, as meeting high international quality standards.

In partnership with the US Department of Agriculture (USDA) and the Environmental Protection Agency (EPA), the laboratory's Pesticide and Environmental Section monitors pesticide residue levels on produce, and analyzes dairy samples for chlorinated pesticide residue.

The Laboratory Division also provides rapid, reliable analyses that can prevent or remedy crisis situations. Recent screenings have discovered dioxin in milk cartons, aflatoxin in milk, pesticide residues in produce, *Salmonella* in cheese, *Listeria* in food products, methyl parathion in homes, and chlordane in dairy feed.

Fraud Prevention in Horse Racing

The Laboratory's Equine Drug Testing Section accepted more than 10,000 blood and urine samples from Michigan race horses in 1999, analyzing these samples for performance enhancing drugs.

Plant Pathology

The lab's Plant Pathology Section staff work to promote and protect the agriculture industry. To protect Michigan's important dry bean industry, the staff tests thousands of bean samples for seed-borne disease, and inspects growing fields for disease and insect infestation.

To promote agriculture, section staff issue permits (in cooperation with USDA-APHIS) to conduct biotech research on agricultural commodities. A key issue in 1999 was plum-pox disease, a disease first detected in Pennsylvania, which poses a serious threat to stone fruit trees. To protect Michigan growers from this threat, Plant Pathology Section staff tested more than 10,000 trees and more than 2,000 fruit samples.

Laboratory Renovation

The William C. Geagley Laboratory began a $12 million renovation in 1999. Work will continue over the next two years to modernize the 43-year-old structure. The extensive changes will result in a safer, more productive laboratory.

E.C. Heffron Metrology Laboratory Programs

Motor Fuel Quality (MFQ)

The Motor Fuel Quality Program (MFQ) ensures that Michigan fuel retailers sell high-quality fuel in accurate quantities, by inspecting Michigan's 5,400 motor-fuel establishments. MFQ maintains a consumer telephone hotline 1-800-MDA-FUEL. This telephone number is posted on every fuel pump in the state. More than 1,000 consumer complaints were received and investigated in 1999.

Undercover Purchases

MDA agents carried out more than 700 undercover gasoline purchases in 1999 to monitor the quality of motor fuels. Agents also ascertained whether fuel pumps dispensed correct fuel quantities. Through undercover buying, agents discovered that 10 percent of the 1998 purchases were short measure. When undercover buys were made in 1999, agents discovered 6.6 percent of the purchases were short measure, and required further investigation. This represented a 3.4 percent drop on violations in one year.

Weights and Measures

The Weights and Measures Program protects Michigan consumers from fraud and deception. Weights and Measures staff are authorized to test every commercial measuring device in the state to ensure that Michigan consumers and businesses get what they pay for, and receive accurate amounts of purchased goods.

The Weights and Measures Section tested the accuracy of more than 14,000 commercial weighing and measuring devices in 1999, and tested more than 8,000 packages of pre-packaged consumer goods to verify the package's posted net weight.

Environmental Protection

MFQ's Vapor Recovery and Reduction Program for the 1999 ozone season (June 1st to September 15th) included field audits on gasoline dispensed in the seven-county ozone-depletion risk area of southeast Michigan, which includes Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties. The program's goal is to limit the release of gasoline vapors at dispensing facilities and retail outlets in the area. Citizens in these areas are required to use a less volatile gasoline formula during summer months to reduce emissions. These measures decrease emissions by an estimated 25 tons per day.

Marketing and Communications Division

The Marketing and Communications (MAC) Division creates a public identity for MDA. The division handles communications, public and media relations, marketing and promotional activities, publications, special-event planning and agricultural emergencies and disasters.

MDA Web Site

MDA's Internet Website is one of the most popular government sites in the State of Michigan, proven by the number of users who access the site, and the multiple awards it has won. The site, designed for the agriculture industry and the general public, contains abundant information for those who wish to know more about Michigan agriculture and related topics. During 1999, MDA's website more than doubled in size and in popularity. In 1998, the file structure contained over 3,000 files. In 1999, the site grew to comprise 8,893 files. Analysis software was used to gauge the effectiveness of the site, and in late 1999, the software reported 39,276 visitors or sessions served, and over 574,733 hits on the page.

In order to keep pace with the fast-growing Internet industry, a website workgroup, composed of representatives from each MDA division, was organized in July 1999. The group began the process of developing a plan to maximize the effectiveness of MDA's Internet Website.

The Kidz Korner section of the site, an interactive, educational program aimed at teaching children about Michigan agriculture, is another reason for the site's popularity. In 1999 the award-winning section, rich in graphics and diversity, further improved with the addition of audio, video, and interactive databases.

New Sections Added in 1999:

- Training seminars and educational sessions searchable by title, date and location.
- Consumer protection information and food safety tips.
- Report on new state food law, as tracked through the legislative process.
- *Select Michigan* program promoting Michigan grown, processed and manufactured goods.
- Video entitled, "This is MDA '99".
- Cattle and bison import regulations.
- Food recall information.
- Link to MDA international trade leads page, offering Michigan agricultural products to international and domestic buyers.

Michigan Grape and Wine Industry Council

The Council provides promotional, research and support assistance to the grape and wine industry to increase the economic viability of the state's wine industry. The Council is composed of winery representatives, grape growers, distributors, retailers, and the research community. In 1999, the council:

- Provided $130,000 to conduct horticultural research on wine-grape growing.
- Participated in more than 40 promotional wine-tasting events.
- Published ***Michigan Wine Country*** (circulation 200,000).
- Coordinated the Michigan State Fair Wine Competition.
- Updated **www.michiganwines.com**, the council's web site.
- Continued the 1998 promotional campaign "Fall is a Cool Time for Michigan Wine" at restaurants and retailers throughout the state.

The Michigan wine industry continues to expand. Sales of Michigan wine increased 27 percent from 1995 to 1999. Michigan wines continue to gain national and international recognition, amassing numerous awards in competitions, and favorable reviews by celebrated wine writers.

Select Michigan

The *Select Michigan* program was instituted in late 1999 when an MDA survey discovered that 75 percent of Michigan consumers would be more likely to purchase Michigan grown and processed products, if they were easily identifiable. The program currently supplies industry with the *Select Michigan* logo and point-of-sale materials for use on Michigan made goods to build recognition of Michigan products among consumers.

Publications

MAC develops a variety of publications, providing consumers and industry with important information related to the agriculture industry. The four most popular publications are:

- **U-Pick Directory**-published biannually, the directory lists 255 sites where consumers may go to pick their own produce.
- **Food and Fiber Facts**-used extensively in schools to teach children about foods grown and processed in Michigan.
- **MDA Pocketguide**-provides a brief overview of MDA divisions, programs and leaders.
- **Michigan Department of Agriculture Annual Report.**

Freedom of Information Act (FOIA) Requests

MAC processed 398 Freedom of Information Act (FOIA) requests for MDA in 1999, a reduction from 683 requests in 1998. The Food and Dairy Division (FDD) recorded 263 fewer requests; other divisions experienced a smaller decrease in numbers of requests.

Marketing Programs

The Marketing Section promotes Michigan food and agriculture products domestically. The section oversees the activities of Michigan's 14 legislatively-authorized commodity marketing organization, and conducts referenda on their continuance. The section also assists commodity organizations that wish to organize under Public Act 232. In 1999, three marketing programs were required to re-submit their programs to members for a continuation vote: Michigan Special Fed Veal Industry Development Program, Michigan Bean Commission and the Michigan Red Tart Cherry Information and Development Program. The veal and bean programs were continued, however, the Michigan Red Tart Cherry Information and Development Program was dissolved by member vote.

In addition, the Michigan Carrot Industry Development Program was created to replace the Michigan Fresh Market Carrot Industry Development Program that was dissolved by member vote.

The Marketing Section also administers "Grown in Michigan" grants to help nonprofit agricultural organizations promote Michigan commodities. In 1999, 12 projects were funded with a total of $100,000, including an organic food and farm festival, introduction of new value-added beef and veal products, continuation of the 5-A-Day Campaign to increase consumption of fruits and vegetables, and booths at in-state trade shows and the Michigan State Fair.

Emergency Management

The State Emergency Response and Community Right to Know Commission (SERC) creates Local Emergency Planning Committees (LEPC) for each county, and oversees their planning efforts for sites which store, manufacture, or use extremely hazardous substances. These sites must have emergency-response plans, and notify the appropriate state agency of hazardous spills. Since many pesticides and some fertilizers are listed as hazardous substances, farms and agribusinesses must comply with this act by cooperating with LEPCs. With the help of other divisions within MDA, the Emergency Management Office implemented farm participation in local planning in 1999. Emergency Management staff represent MDA's Director on the commission.

Four disasters were declared in Michigan in 1999 affecting 31counties:

- A snow emergency was declared by Governor John Engler on January 19,1999. Later, the Federal Emergency Management Agency (FEMA) also declared the situation a disaster.
- A January freeze in southwest Michigan damaged peach trees and grapevines. The US Department of Agriculture (USDA) designated Berrien, Cass, Kalamazoo and Van Buren counties as contiguous disaster areas. The designation made growers eligible for low-interest loans.
- A forest fire occurred near Champion in Marquette County. The fire, which started on May 4, 1999, brought FEMA assistance when the agency activated its fire-fighting agreement with Michigan, and assumed the cost of the fire fighting effort.
- A severe lack of rainfall resulted in drought conditions for Cass and Berrien Counties. The USDA declared an agricultural disaster in those counties, along with the contiguous counties of Kalamazoo, St. Joseph and Van Buren. The designation made growers eligible for low-interest loans.

Five additional USDA agricultural disasters affected Michigan through their contiguous relationship to other states:

- Flooding in Ohio affected Lenawee and Monroe counties.
- Heavy snow in Indiana affected Berrien, Branch, Cass, Hillsdale and St. Joseph counties.
- Drought in Indiana affected Berrien, Branch, Cass, and St. Joseph Counties.
- Drought in Ohio affected Hillsdale, Lenawee and Monroe counties.
- Flooding in Wisconsin affected Dickinson, Gogebic and Iron counties in Michigan's Upper Peninsula.

Emergency Management staff were trained in food-safety emergencies at Spartan Stores in February, and in severe weather warning distribution systems at the National Weather Service in October.

Emergency Management staff successfully handled the Y2K conversion. To ensure that Michigan's food and agriculture industry would be unaffected by Y2K, contingency plans were developed, technological equipment and software were tested, and staff were on-call for the Y2K weekend.

Geographic Information System (GIS)

The Emergency Services Section, in cooperation with the Michigan State Police, prepared a GIS project for use during drills and exercises with the D.C. Cook Nuclear Facility. For this project, geographic locations of dairy farms and food establishments in that area were plotted by determining the latitude and longitude of the facilities. In the event of an actual emergency, this system will give personnel the location of these establishments so they can more readily protect the food supply. The project will be expanded annually.

Another project involves locating TB positive deer and cattle herds. The Emergency Services Section is cooperating with the Animal Industry Division in preparing maps to be distributed to the media and the public. The maps show the extent of the infection, and MDA's statewide TB testing activities, which are part of the eradication effort.

Agricultural Marketing and Bargaining Board (AMBB)

The AMBB held two meetings during 1999. AMBB, which is administered by Emergency Management Section staff, coordinated one asparagus arbitration, and one apple arbitration. The asparagus arbitration went to hearing and received one complaint of unfair practices. After discussions between the parties, the complaint was withdrawn.

In an ongoing court case (Cherry Growers, Inc. versus AMBB), AMBB appealed the case. At the end of 1999, litigation was still unresolved. At issue is whether grower cooperatives must pay negotiated prices for their raw product. The case will continue in 2000.

Hearings Summary

Two formal (contested) hearings were held in 1999. The first formal hearing was held in November. It involved eight growers who filed claim against a wholesale dealer under the Michigan Wholesale Potato Dealers Act (MWPDA), because they had not received payment for their produce. MDA seized the bond the farm held as required under the MWPDA, and the valid claimants were paid. The case has been appealed.

A second formal hearing was scheduled for December of 1999. A gasoline station appealed fines assessed by the Motor Fuel Quality Program. The case was carried over into the year 2000, at which time the fines were upheld.

Michigan Agricultural Statistics Service

Michigan's Agricultural Statistics Service (MASS), under a formal agreement between the USDA's National Agricultural Statistics Service (NASS) and MDA, is responsible for the official Michigan agricultural database.

MASS conducts surveys, and prepares forecasts and estimates, on acreage, yield, and production of Michigan field crops, fruits and vegetables. Crop-weather information is provided during the growing season. Production, value and growing areas of Michigan's floriculture industry are published annually. MASS is responsible for conducting the Census of Agriculture every five years. MASS also conducts and publishes periodic supplemental census surveys on aquaculture, irrigation, horticulture, and land ownership.

MASS staff estimate Michigan's livestock population, and track commodity prices and chemical use data. The chemical use data is used to help Michigan meet federal Food Quality Protection Act (FQPA) standards. The estimating program also provides information on agricultural land values, farm numbers, land in farms, expenditures and labor.

County Crop and Livestock Estimates

MASS statisticians prepared county estimates for 15 major crop and livestock commodities in 1999.

Michigan Rotational Surveys

In 1999, MASS completed the Michigan Rotational Nursery and Christmas Tree Survey, a complete enumeration of all Michigan nursery and Christmas tree farms. The bulletin included the number of farms, size of operation, acreage, field or container grown acreage, and number and acreage (by county) for nurseries and Christmas trees. Numbers reflected all species and all sales for Christmas trees. The bulletin is available in hard copy or on the Internet. MASS will begin collecting data on the acreage, varieties, and root stocks of Michigan fruit crops in the fall of 2000. The results of the fruit tree inventory will be published in the summer of 2001.

Tart Cherry Surveys

MASS completed the annual mid-June Tart Cherry Objective Measurement Survey in which fruit counts were made on a sample of about 540 tart cherry trees across the state. The data provided current crop-production statistics for the Michigan tart cherry industry. The 1999 crop registered 185 million pounds, a difference of just 4 percent from the original forecast. The 2000 crop was forecast at 165 million pounds.

MASS cooperated with the Cherry Industry Administrative Board (CIAB) to administer its tart cherry diversion program, which limits the amount of fruit going to market in years when supply exceeds demand. National Association of State Departments of Agriculture (NASDA) enumerators, working through MASS, assisted CIAB in verifying tart cherry diversions.

Michigan Fruit Chemical-Use Survey

Target pest and post-harvest interval data were collected for the first time from Michigan fruit growers as part of the 1999 Fruit Chemical Use Survey. This information will be used to evaluate chemical use levels as needed by the Environmental Protection Agency to administer the FQPA.

Census of Agriculture

MASS conducted three census follow-up surveys covering Michigan aquaculture, horticultural specialties, and irrigation. Survey results were published during 1999 via the Internet on the NASS website.

Historical Publication Preservation

Annual bulletins dating back to 1886 have been protected and preserved by copying them to CD-ROM. Rotational survey publications have been safeguarded as well. Portable Document Format (PDF) files will be uploaded to the Internet to make it convenient for users to access this information.

Michigan Agricultural Statistics Bulletin

A 124-page bulletin was released with details on production, stock, inventory, disposition, utilization, and prices of Michigan agricultural commodities.

National Association of State Departments of Agriculture

Telephone and field enumerator staff, located throughout Michigan and employed by the NASDA, assist in collecting data from farmers and agribusinesses. NASDA enumerators supported MDA's bovine tuberculosis testing program in the quarantine zone.

Office of Agriculture Development

The Office of Agriculture Development (OAD) gives focus and connection to assorted agricultural development and assistance programs. The office also strives to strengthen the family farm, and enhance business

opportunities for the food and agriculture industry, especially in rural Michigan.

Throughout 1999, OAD emphasized activities that would maximize the economic position of Michigan agriculture. Adding value to commodities grown in Michigan increases farmers' profitability, and improves market opportunities. OAD has worked to find buyers for closed businesses, formed new grower cooperatives, opened and maintained export markets, coordinated and assisted commodity boards, and packaged incentive programs to make Michigan more attractive to food and agriculture businesses.

Value-Added Processing Plant Openings

Several food processing ventures opened in 1999: the Packerland Packing meat processing facility in Plainwell, Boar's Head Provisions in Holland and Thumb Oilseed Producers Cooperative in Ubly. The Packerland meat plant was particularly important for preserving and expanding a key market for Michigan beef, as well as adding several hundred jobs.

Seed-Corn Processing Plant Expansion

OAD was instrumental in facilitating the $19 million expansion of Monsanto's DeKalb Seed Corn Plant in Constantine, Michigan. This facility is the largest seed-corn processing plant in Michigan, and expands DeKalb and Asgrow brand seed-corn to 19,000 acres, all grown by Michigan farmers.

Results of the Michigan Food and Agriculture Industry Studies

Results of the 1998 Michigan Food Processors Survey provided background information for three comprehensive studies that were completed during 1999. These studies were:

1. The Michigan State University Food Processing Industry Retention and Expansion Survey Program, which included interviews with companies in four segments of Michigan's food industry: meats, grains and beans, fruits and vegetables, and dairy.

2. Trends in Michigan Agriculture, a study performed by Sparks Company for the Michigan Economic Development Corporation (MEDC), examined global and national food industry trends and compared them to trends in Michigan.

3. The Michigan Senate Agriculture Preservation Task Force Report, published in September 1999.

Each of the aforementioned studies responded to the declining profitability of production agriculture and agribusiness in Michigan.

International Marketing and Export Sales

Nine Michigan food and agricultural firms reported a combined increase in export sales of $19 million in 1999. These export sales represented a 125 percent increase over results reported in 1998. The firms participated in the US Department of Agriculture's (USDA) branded Market Access Program (MAP) and reported their increased sales to the Mid-America International Agri-Trade Council (MIATCO). Branded products are those known by a recognizable brand name. The branded MAP program is promoted to Michigan firms by International Marketing Program (IMP) staff who assist candidates with the application process. The branded MAP program is made available to Michigan firms by IMP's membership in MIATCO. MIATCO dues are $12,000 per year, representing a return on public investment of 1,890-to-1.

The International Marketing Program received an award in June 1999 from MIATCO for having "the most success stories" in the branded MAP program

As a result of OAD's participation in the 1999 US Food Export Showcase (USFES), a Michigan producer of dried fruits and food ingredients, and a fresh-apple shipper reported export transactions valued at $300,000. Given the $45,000 total cost of the USFES, export outcome for just these two firms produced a 6.7-to-1 return on public investment.

IMP also cooperated with Michigan State University (MSU) and Michigan Farm Bureau to stage seven seminars to educate farmers about current trade issues and concerns. More than 150 producers attended the meetings held in Grand Rapids, Ann Arbor, Marlette, Ithaca, Escanaba, Gaylord, and Kalamazoo.

New Markets

Michigan's upgrade by USDA to Stage IV status of pseudorabies eradication opened the market for hog shipments. The Canadian market officially opened for US swine imports in November, 1999, and Canadian processors have indicated that in 2000 they would like to buy at least 4,000 hogs per week from Michigan. This accomplishment occurs a year ahead of schedule, made

possible by the cooperation of swine producers, veterinarians, and state and federal animal health experts. *(For more information see Animal Industry Swine Program section.)*

Northern Pride Cooperative

MDA worked with the Michigan Blueberry Industry and MSU in early 1999 to create a processing cooperative in Hartford, Michigan. The new cooperative processes blueberries and cranberries at a food-processing facility that was formerly idle. MDA assisted the cooperative in obtaining the necessary environmental permits from the Michigan Department of Environmental Quality (MDEQ).

1999 Ultimate Farmland Preservation Bus Tours

The Ultimate Farmland Preservation Tour, co-sponsored by the Rural Development Council of Michigan (RDCM) and Michigan Farm Bureau, took place in March 1999. The five-day bus tour gave nearly 100 participants the opportunity to get a first-hand look at some of the best farmland protection tools, and sustainable development strategies in the country. Attendees toured seven counties throughout Maryland, New Jersey and Pennsylvania. The success of this tour, the second of its kind, led to a third tour in September 1999.

Clare County

Clare County is one of the most economically depressed areas in the state, with one of the highest poverty rates. However, the citizens have vision, and have completed a strategic plan which will lead to community growth.

As a result of team building, and the development of strong local partnerships, Clare County was designated as an Enterprise Community (one of 20 areas in the US to receive this designation). As one of four new rural tax-free renaissance zones, it received RDCM's 1999 Outstanding Rural Partnership Award.

Organic Advisory Committee

In 1998, MDA's Director appointed a Michigan Organic Advisory Committee (OAC) to work under OAD's guidance to prepare a strategic plan. The plan, entitled "Advancing Organic Agriculture in Michigan" was released by OAC to the Michigan Commission of Agriculture in June of 1999. The commission accepted the plan, and OAC is now working with industry and OAD staff to implement the recommendations.

Governor John Engler issued a press release in November 1999, calling for the department, and the committee to develop a program to certify the authenticity of organic food and fiber grown and/or processed in Michigan. MDA is committed to the rapid adoption of a Michigan organic program to fill the void left by incomplete federal standards. OAD is currently working to implement the program.

Office of Racing Commissioner

The Office of Racing Commissioner (ORC) is an independent agency within MDA that regulates pari-mutuel horse racing in Michigan in accordance with the Horse Racing Law of 1995, as amended, 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 race meets are conducted within the state. Annette M. Bacola was appointed Michigan's Racing Commissioner in 1999 to serve out the current term which expires in December 2000.

The ORC allocates race dates and issues track, race meeting and occupational licenses. In addition, the office 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's mission is to develop ways to improve and promote horse racing in Michigan.

Economic Impact of Michigan Horse Racing

Michigan horse racing is a $1.2 billion industry responsible for the creation of 42,300 jobs. Michigan has seven licensed pari-mutuel racetracks, including five harness race tracks, one thoroughbred track and one mixed-breed track. In 1999, the tracks presented a combined 2,218 days of live and simulcast pari-mutuel racing. These events attracted over 1.7 million fans, who wagered over $416.6 million, generating more than $12.6 million in state wagering tax revenue. Pari-mutuel racing produced $13.2 million in total horse racing revenue for Michigan in 1999, to support racing and other programs.

Pesticide & Plant Pest Management Division

The Pesticide and Plant Pest Management Division (PPPM) is the state's leading agency for pesticide enforcement activities. In cooperation with the US Environmental Protection Agency (EPA), PPPM enforces laws and oversees programs concerning pesticide sale and use, and administers programs to protect human health, and the environment, from potential risks related to improper pesticide use. The division also administers programs to control exotic pests, certify nursery stock and other plant material for interstate shipment, conducts inspection and grading of fruits and vegetables, and certifies export commodities.

Nursery/Plant Certification Program

PPPM inspects and certifies ornamental plants and plant products produced by Michigan growers, as well as plant products imported for retail sale. PPPM ensures that plant materials entering the marketplace are free of insects, weeds and diseases, and meet accepted standards for viability, quality, and varietal integrity.

Nursery and dealer inspections conducted by PPPM staff support the Michigan nursery stock industry, which has estimated annual sales in excess of $710 million, and inventory valued at over $4 billion. These inspections aid sales of hardy perennials, trees, shrubs, herbaceous perennials, small fruit plants, and hardy bulbs. Michigan nursery growers produce stock that is sold domestically and internationally.

Export Certification

PPPM certifies the health of Michigan-produced agricultural commodities including seeds, lumber, hay, grain, and plant material for export to 80 different countries.

Michigan ranks second in the nation for Christmas tree production with approximately $100 million in annual sales. Approximately 600 million Christmas trees are harvested each year in Michigan for intrastate use and shipment throughout the US and Canada. In 1999, PPPM inspected over 22,000 acres of Christmas trees as required for interstate shipment. These requirements include certification to ascertain that trees are free from gypsy moth and pine shoot beetle, as well as non-quarantine pests.

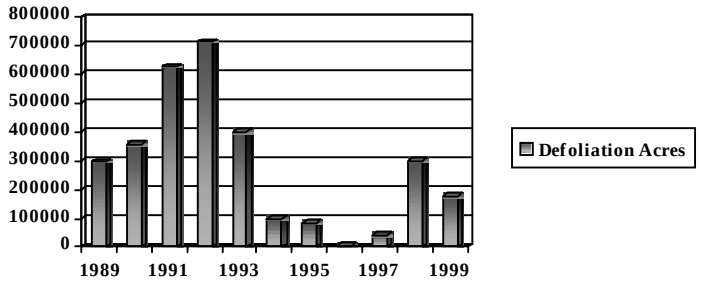
Exotic Pests

PPPM plays a significant role in safeguarding Michigan agriculture from exotic pests. The pests enter Michigan through imports from other states and countries. Through an agreement with the US Department of Agriculture (USDA), PPPM staff inspect imported plant material from over 30 countries to exclude exotic pests. Staff survey high-risk businesses and locations for early detection of the Asian-longhorned beetle and related wood-boring insects. PPPM staff also examine nursery stock, and other commodities, for other exotic pests including chrysanthemum white rust, Karnal bunt, nematodes, cherry bark tortrix, and noxious weeds.

Gypsy Moth Management

PPPM operates the Michigan Cooperative Gypsy Moth Suppression Program that routes federal funds to cooperating local programs. MDA's 1999 gypsy moth program cooperated with 24 counties to protect roughly 113,000 homeowners and residents, and more than one million park visitors, by treating approximately 102,200 acres of heavily infested residential areas and recreational forest.

Michigan Gypsy Moth Defoliation (Acres) Over Time



Fruit & Vegetable Inspection

PPPM provides third-party inspection services to verify fruit and vegetable grading in accordance with government standards and processor specifications. Fruit and vegetable inspectors perform over 41,000 inspections annually, checking produce at the shipping point, during processing, and at the market. Additionally, staff inspects and licenses Michigan's 225 controlled atmosphere storage rooms and assists in the inspection of 2,500 acres of seed potatoes annually.

Insect & Rodent Control Program

PPPM monitors and supports local government agencies that conduct programs dealing with eastern equine encephalitis (EEE), lyme disease, rodent control, swimmers' itch, and mosquito control. In 1999, the EEE

program included collection and analysis of 489 mosquito samples from 26 counties and four mosquito-control districts. PPPM also tested 1,068 bird-sera for the presence of EEE. Two of the mosquito samples, and nine of the bird samples, were found to be positive for the virus. These samples provided an early warning for horse owners, and the general public, more than one month prior to the first EEE horse fatality. *(For more information on EEE, see the Animal Industry Division EEE section.)*

Technology

PPPM installed an electronic weekly activity reporting (WAR) system, which allows staff productivity and program results to be monitored more efficiently.

The Pesticide Registration Database was retooled to streamline enforcement activities, expedite registration, and calculate groundwater fees more efficiently.

In 1999, PPPM developed and implemented an electronic inspection system that permits staff to move and store inspection data electronically, access licensing information and utilize electronic forms.

Biocontrol Partnership with Michigan State University, US Department of Agriculture, Farm Bureau, and Commodity Groups

This partnership utilizes resources at the USDA Laboratory in Niles, Michigan, to develop biological controls that could replace pesticide materials that may be banned under the Food Quality Protection Act (FQPA). During 1999 this partnership funneled approximately $80,000 into the laboratory to leverage $350,000 in USDA resources, and used the funds to work on controls for purple loosestrife, Japanese beetle, gypsy moth, and obliquebanded leafroller.

Community Programs

PPPM is involved in several community programs aimed at educating the general public on the safe use and disposal of pesticides. In Detroit, PPPM has developed a student-organized Integrated Pest Management Project (IPM) at Cass Technical High School, where students check for pest presence, implement sanitation and biological pest controls, and monitor for successful pest reduction. In Saginaw, another school program educates high-school students on pests, pesticide use, and IPM principles. In Lansing, a community group has been developed to provide general public education on pest control in and around the home, focusing on inner-city pest problems.

The Wayne County/City of Detroit rat control project is another educational pest control initiative designed for community residents. The project provides resources aimed at pest control and pesticide-use education (in this case focusing on rats), and training for local residents and businesses. Approximately 100 community workers were trained in basic rat biology, and taught to conduct rat surveys; three such surveys were completed. This effort decreased the existing rat population in specifically targeted areas. Residents and facility managers made major strides in eliminating rat-food sources and harborages in the targeted areas. PPPM staff also conducted a recertification class for Detroit's Department of Public Works Rodent Control Unit.

Food Quality Protection Act (FQPA)

PPPM has a leading role in MDA's association with the FQPA. State and federal resources support an ongoing public/private partnership designed to collect pesticide use and residue data, and explore alternative pest management and pesticide residue reduction practices.

In 1999, the program monitored pesticide residue on raw and processed foods to ensure a safe food supply. Information was collected which identified significant crop pests in order to review available pesticide alternatives, and study the impact of losing the use of certain pesticides in the overall pest management system.

Sample results provided information that often showed no detectable pesticide residues. This type of data is critical in assessing tolerable pesticide risk under FQPA. Information on pesticides, along with information on children's dietary consumption, was used to target crops for study during the 1999 growing season. During 1999, tart cherries, peaches, apples and carrots were included in the residue-monitoring program. More than 400 samples were analyzed; no residues above EPA tolerances were detected.

Conclusion

Many people are surprised to learn how big a role the Michigan Department of Agriculture plays in their daily lives. The department's broad spectrum of responsibilities touches virtually every Michigan resident and visitor every day. Given the nature of some of MDA's ongoing responsibilities, it would be difficult to include it all in a single report. However, this report details MDA's significant accomplishments from January 1, 1999 to January 1, 2000, and outlines most of the daily activities of each division throughout the year.

For more information about the Michigan Department of Agriculture, write to
MDA, PO Box 30017, Lansing, MI 48909 or visit our World Wide Website at http://www.mda.state.mi.us.

The administration and staff of MDA respectfully submit this report to the citizens of Michigan. We hope you will find it informative and helpful.

Part II:

Michigan Agricultural Statistics 1999-2000

Office Staff

Diana Ackley	Judy Hawkins	Dan Ledbury
Denise Bowman	Rose Ann Husted	Mary Martin
Sam Bruner	Diane Hutchins	Brad Marten
Chad Cloos	Adrienne Jones	Ed Molenda
Neva Coleman	Gene Kenyon	Nellie Raines
Nathan Elias	Gary Keough	Marty Saffell
Quonda Fayorsey	Sue Landon	Lynn Spisak

National Association of State Departments of Agriculture

National Association of State Departments of Agriculture (NASDA) enumerators collect data for the Michigan Agricultural Statistics Service. NASDA workers who gathered information for this publication were:

Office Telephone Enumerators

Vena Hutton, *Night Supervisor*	Debra Jones	Linda Newcomb
Flo Hill, *Day Supervisor*	Lisa Jones	Mindy Parsons
Sue Alward	Juliann Kline	Carol Sakraska
Carol Catlow	Pat Linton	Delores Tabor
Barb Daymon	Virginia Ludlow	Karen Welsh
Kathy Fleming	Sharyn McIntyre	Norma Wilde
Ebony Hosey	Mike McManus	
Karen Jacobs	Jane Mosier	

Field Enumerators

West Central Michigan
Carl DeKline, *Supervisor*, Grand Haven
Babette Burmeister, Shelby
Beverly Eitniear, Hart
Bryon Carpenter, Grand Haven
Sharon Martin-House, Shelby
Virginia McIntyre, Shelby
Ardith Rubingh, Hudsonville
Lewis Stenberg, Pentwater
Albert TerHaar, Hudsonville
Irene TerHaar, Hudsonville
Gerald VanDenTop, Coopersville

Southwest Michigan
Cindra Mikel, *Supervisor*, Cassopolis
Margaret Glidden, Paw Paw
Steve Lamberton, Niles
Joyce Landis, Homer
Bob Larsen, Coloma
Velma Lohmann, Alto
Rosie Nimtz, Eau Claire
Don Trull, Buchanan
Allen Weiderman, Sturgis
LaVon Zelmer, Buchanan

Southeast Michigan
Myrle Dean, *Supervisor*, Holly
Rachel Bakowski, Ottawa Lake
Don King, Holt
Carol Piligian, Rochester
Hugh Smith, Jackson
Edwin Widing, Fenton

North Michigan and Upper Peninsula
Herb Hemmes, *Supervisor*, Harbor Springs
Lori Ankerson, Traverse City
Becky Bloom, Sparta
Jim Cranick, Harbor Springs
Ruth Ealy, Traverse City
Ann Hermatz, Harrietta
Ila Howe, Baldwin
Janet Janda, Traverse City
Carol McAllister, Suttons Bay
Gordon McDonald, Munising
Elizabeth Ramirez, Buckley
Jim Sherwood, Alpena
Bob Venable, Luzerne
Kitty Venable, Luzerne

Central Michigan
Ken Kralik, *Supervisor*, Riverdale
Gary Baker, Lakeview
Pat Bitler, Hersey
Ron Feher Sr., Lansing
Mary Hubbard, Riverdale
Nancy McWethy, Clare
Steve McWethy, Clare

East Central Michigan
Mona Kaczuk, *Supervisor*, Bad Axe
M. Keith Corlew, Davison
Diane McPhee, Kinde
Jim Sparks, Fenton

Michigan Agricultural Statistics Service

P.O. Box 26248
Lansing, Michigan 48909-6248

Telephone: (517) 324-5300
Facsimile: (517) 324-5299
e-mail: NASS-MI@nass.usda.gov
http://www.mda.state.mi.us/mass/

Table 1.1—Rank in U.S. agriculture by selected commodities, 1999

Rank	Item and unit	Production or inventory in thousands	Percent of U.S. production	Leading state
1	Beans, dry, black, *cwt*.	2,260	67.0	Michigan
	Beans, dry, cranberry, *cwt.*	496	85.8	Michigan
	Beans, dry, light red kidney, cwt.	306	22.2	Michigan
	Beans, dry, navy, *cwt.*	3,450	47.3	Michigan
	Blueberries, *pounds*	72,000	39.9	Michigan
	Cherries, tart, *pounds*	185,000	72.5	Michigan
	Cucumbers (processing), *tons*	159	26.0	Michigan
	Flowering hanging baskets, *number*	4,037	11.1	Michigan
	Geraniums (seed and cuttings), *pots*	21,720	20.2	Michigan
	Lilies, Easter, *pots*	1,440	15.5	Michigan
2	Beans, dry, all, *cwt*.	7,350	22.1	North Dakota
	Beans, dry, dark red kidney, *cwt.*	153	14.7	Minnesota
	Beans, dry, small red, *cwt.*	310	34.4	Idaho
	Celery, *cwt*.	855	9.9	California
	Flowering bedding plants, *flats*	13,154	12.9	California
	Grapes, Niagara, *tons*	14.4	28.5	New York
3	Apples, *pounds*	1,210,000	11.6	Washington
	Asparagus, *cwt.*	297	13.6	California
	Beans, snap (processing), *tons*	101	13.0	Wisconsin
	Carrots (fresh market), *cwt.*	1,316	3.5	California
4	Carrots (processing), *tons*	39	6.8	Washington
	Cauliflower, *cwt.*	52	0.7	California
	Cucumbers (fresh market), *cwt.*	1,452	12.2	Florida
	Cherries, sweet, *tons*	27	11.8	California
	Grapes, Concord, *tons*	57.3	11.9	Washington
	Plums, *tons*	4.0	2.0	California
	Sugarbeets, *tons*	3,534	10.6	Minnesota
	Tomatoes (processing), *tons*	87.0	0.7	California
5	Chrysanthemums, (hardy/garden), pots	3520.0	5.7	Texas
	Grapes, all, *tons*	75.0	1.2	California
	Peppers, bell, *cwt*.	400	2.6	Florida
7	Maple syrup, *gallons*	44	3.6	Vermont
	Mushrooms, *pounds*	10,106	1.2	Pennsylvania
9	Milk, *pounds*	5,455,000	3.4	California
	Potatoes, *cwt.*	14,963	3.1	Idaho
10	Corn, for grain, *bushels*	253,500	2.7	Iowa
	Soybeans, *bushels*	77,600	2.9	Iowa
13	Hogs, as of Dec. 1, *head*	980	1.6	Iowa
	Wheat, winter, *bushels*	41,400	2.4	Kansas
16	Eggs, *number*	1,533,000	1.9	Ohio
	Hay, all, *tons*	4,415	2.8	Texas
21	Cash receipts, *dollars*	3,470,098	1.8	California
31	Cattle, as of Jan. 1, *head*	1,010	1.0	Texas

Table 1.2—Farm numbers: Acreage, and value of farm real estate

[USDA estimates of farm numbers 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."

Year	Farms	Average size per farm	Total land in farms	Farm real estate average value per acre	Cropland average value per acre	Average cash rent per acre
	Number	*Acres*	*1,000 acres*	*Dollars*	*Dollars*	*Dollars*
1996	54,000	196	10,600	1,420		52.20
1997	53,000	196	10,400	1,530	1,360	57.30
1998	52,000	200	10,400	1,670	1,480	60.00
1999	53,000	196	10,400	1,850	1,670	60.00
2000				2,100	1,920	65.00

Table 1.3—Number of farms and land in farms by economic sales class

Year	Economic sales class			Total
	$1,000-$9,999	$10,000-$99,999	$100,000 and over	
	Number of farms			*Number of farms*
1995	31,000	17,000	7,000	55,000
1996	29,800	17,000	7,200	54,000
1997	28,500	17,000	7,500	53,000
1998	27,000	17,000	8,000	52,000
1999	28,500	16,500	8,000	53,000
	1,000 acres			*1,000 acres*
1995	2,200	3,200	5,300	10,700
1996	2,200	3,100	5,300	10,600
1997	2,000	2,900	5,500	10,400
1998	1,900	2,800	5,700	10,400
1999	1,900	2,800	5,700	10,400

Table 1.4—Field crops: Record highs and lows

Field crops	Record high		Record low		Year estimates started
	Quantity	Year	Quantity	Year	
Barley:					
Harvested acres, *1,000*	303	1932	16	1974	1866
Yield per acre, *bushels*	68	1985	13.5	1933	
Production, *1,000 bushels*	8,400	1918	546	1866	
Beans, dry:					
Harvested acres, *1,000*	690	1930	170	1988	1909
Yield per acre, *cwt.*	21	1999	3.2	1917	
Production, *1,000 cwt.*	8,585	1963	1,656	1916	
Corn for grain:					
Harvested acres, *1,000*	2,800	1981	480	1866	1866
Yield per acre, *bushels*	130	1999	21.5	1917	
Production, *1,000 bushels*	293,180	1982	15,120	1869	
Corn for silage:					
Harvested acres, *1,000*	498	1971	211	1942	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*	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*	2,907	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*	1,658	1918	60	1996	1866
Yield per acre, *bushels*	67	1985, 1989	18.5	1921	
Production, *1,000 bushels*	69,388	1946	3,600	1996	
Potatoes:					
Harvested acres, *1,000*	374	1895	36.4	1975	1866
Yield per acre, *cwt.*	315	1998, 1999	26	1887, 1916	
Production, *1,000 cwt.*	23,256	1904	3,557	1876	
Rye:					
Harvested acres, *1,000*	913	1919	7	1866	1866
Yield per acre, *bushels*	36	1999	8.8	1934	
Production, *1,000 bushels*	12,143	1919	105	1866	
Soybeans:					
Harvested acres, *1,000*	1,940	1999	1	1930	1924
Yield per acre, *bushels*	40	1995, 1999	8	1927	
Production, *1,000 bushels*	77,600	1999	10	1930	
Spearmint:					
Harvested acres, *1,000*	8.7	1954	0.7	1935	1935
Yield per acre, *pounds*	47	1935	20	1965	
Production, *1,000 pounds*	280	1948	27	1996	
Sugarbeets:					
Harvested acres, *1,000*	190	1999	48	1943	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*	1,515	1953	400	1987	1909
Yield per acre, *bushels*	69	1999	10.5	1912	
Production, *1,000 bushels*	45,600	1984	7,350	1912	

Table 1.5—Vegetables: Record highs and lows

Vegetables	Record high		Record low		Year estimates started
	Quantity	Year	Quantity	Year	
Asparagus:					
Harvested acres, *1,000*	23	1989	1	1928	1928
Yield per acre, *cwt.*	31	1947	9	1981	
Production, *1,000 cwt.*	306	1995	17	1928	
Beans, snap (processing):					
Harvested acres, *1,000*	27	1999	0.8	1921	1918
Yield per acre, *tons*	3.89	1998	0.6	1947	
Production, *1,000 tons*	100,970	1999	0.6	1921	
Carrots:					
Harvested acres, *1,000*	7.7	1994	0.5	1929	1929
Yield per acre, *cwt.*	398	1995	155	1957	
Production, *1,000 cwt.*	2,610	1995	132	1936	
Cauliflower:					
Harvested acres, *1,000*	1.9	1958	0.4	1997, 1998, 1999	1939
Yield per acre, *cwt.*	150	1998	41	1973	
Production, *1,000 cwt.*	212	1949	38	1973	
Celery:					
Harvested acres, *1,000*	7.2	1941	1.8	1966,1968	1928
Yield per acre, *cwt.*	520	1996	174	1935	
Production, *1,000 cwt.*	1,915	1941	576	1966	
Corn, sweet (fresh market):					
Harvested acres, *1,000*	15.2	1961	9	1988	1949
Yield per acre, *cwt.*	85	1994, 1995, 1996	42	1949	
Production, *1,000 cwt.*	1,020	1994	525	1949	
Cucumbers (processing):					
Harvested acres, *1,000*	46.3	1949	9.3	1932	1918
Yield per acre, *tons*	6.7	1987	0.6	1924	
Production, *1,000 tons*	160.8	1987	8.9	1932	
Onions:					
Harvested acres, *1,000*	12.7	1935	4.1	1999	1928
Yield per acre, *cwt.*	350	1960	120	1935	
Production, *1,000 cwt.*	2,833	1948	852	1928	
Tomatoes (fresh market):					
Harvested acres, *1,000*	9.4	1943	2.4	1995, 1996	1928
Yield per acre, *cwt.*	210	1998	60	1959	
Production, *1,000 cwt.*	797	1943	204	1988	
Tomatoes (processing):					
Harvested acres, *1,000*	9.7	1982	1	1921	1918
Yield per acre, *tons.*	36	1998	2.7	1943	
Production, *1,000 tons*	205	1982	5	1921	

Table 1.6—Fruit: Record highs and lows

Fruit	Record high		Record low		Year estimates started
	Quantity	Year	Quantity	Year	
Apples, *million pounds*	1,220	1995	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	18	1927	1925
Grapes, *tons*	77,900	1932	4,200	1889	1889
Peaches, *million pounds*	245	1946	7	1918	1889
Pears, *tons*	48,600	1964	2,425	1890	1889
Prunes and plums, *tons*	25,000	1971	1,700	1945	1919
Strawberries, *1,000 cwt.*	451	1940	56	1996	1928

Table 1.7—Livestock: Record highs and lows

Livestock	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*	250	1991	57	1931	1930
Chickens, all, *1,000* head [1]	15,512	1944	6,300	1992	1924
Cows, beef, *1,000 head*	239	1977	24	(2)	1920
Cows, milk, *1,000 head*	1,080	1945	225	1867	1867
Eggs, *million eggs* [3]	1,697	1944	1,104	1929	1924
Hogs and pigs, *1,000 head* [1]	1,397	1943	512	1935	1867
Honey, *1,000 pounds*	11,780	1939	4,386	1980	1921
Milk, *million pounds*	5,758	1964	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] 1925,1933. [3] December 1 previous year to November 30.

Table 1.8—Crop acreage, production, and value by crop

Year	Field crops	Fruit	Vegetables	Total
Acres harvested		*1,000 acres*		
1995	6,649	128	118	6,895
1996	6,695	127	114	6,936
1997	6,741	126	113	6,980
1998	6,663	125	112	6,900
1999	**6,730**	**124**	**114**	**6,968**
Value of production		*1,000 dollars*		
1995	2,050,990	220,893	185,982	2,457,865
1996	1,723,530	201,979	173,465	2,098,974
1997	1,892,458	244,732	170,356	2,307,546
1998	1,503,206	205,855	183,399	1,892,460
1999	1,614,949	245,953	177,903	2,038,805
Value per acre		*Dollars*		
1995	308	1,726	1,576	356
1996	257	1,603	1,535	303
1997	281	1,912	1,508	331
1998	226	1,647	1,637	274
1999	**240**	**1,983**	**1,564**	**293**

Growing Season Weather Summary

The winter of 1998/1999, influenced by a moderate to strong LaNina event in the equatorial Pacific, was characterized by large swings in temperature and very winterlike conditions during the month of January. Precipitation totals during the off-season remained near to below normal, which continued a drier than normal trend that began during the 1998 growing season. As a result of the persistent dryness, lake, pond, and soil moisture levels across much of the state fell to much below normal levels by the beginning of the 1999 growing season. Climatologically, dry subsoil conditions in the late winter and early spring are uncommon in Michigan and are associated with increased risk of subsequent water/moisture shortages for crops during the growing season.

For precipitation to occur in Michigan, two meteorological conditions are necessary: 1) a supply of water vapor from a large water source (usually the Gulf of Mexico) from which precipitation can form, and 2) an atmospheric lifting mechanism, such as a front or an area of low pressure, to lift the water vapor high enough into the atmosphere for condensation/precipitation formation to occur.

During the spring of 1999, jet stream steering currents were predominantly from the west/northwest or northwest, which provided a number of lifting mechanisms but very little transport of water vapor into the region. As a result, rainfall totals during much of April and May remained well below normal. The drier than normal conditions early in the season, most acute in northern sections of the state, greatly favored spring fieldwork activities but also slowed crop germination and early vegetative growth, as well as delaying the activation of many herbicides.

Another result of the milder than normal temperatures as well as the lack of late winter season snow pack in northern sections of the state was an unusually small difference in growing degree day accumulations between northern and southern growing areas in the state, a phenomenon known as growing degree day compression. The degree day compression resulted in relatively small differences in crop and insect phenology across the state for much of the early part of the growing season.

During June, the jet stream shifted to a southwesterly orientation across the region, with low-level southerly flow bringing hot, muggy conditions and an almost daily occurrence of scattered showers and thunderstorms. Some of the thunderstorms brought localized severe weather, with damaging hail reported in western sections of the state on June 11 and 12. More importantly, the new jet stream pattern and associated rainfall led to a replenishment of topsoil moisture just in time for summer crops entering their periods of maximum water usage.

July was similar weatherwise to June, with mean temperatures for the month generally ranging 2-6 degrees F above normal. July precipitation, usually a key variable in determining summer crop yield potential, ranged from much above normal in northern sections (some northern locations received in excess of 200 percent of normal rainfall) to below normal in the southern Lower Peninsula. Southern Michigan was on the fringes of a large area to our east and south experiencing prolonged heat, dryness, and drought.

Drier and cooler than normal weather returned in August and continued into September. The first killing freeze of the season in many sections of the Lower Peninsula occurred during the last week in September, at least one week earlier than normal. However, due to the advanced phenological stage of most crops, little if any damage or problems were reported. For the second consecutive year, fall harvest activities were greatly favored by abnormally mild, dry weather in late September and October which led to rapid field drydown rates, reduced drying costs, and trafficable fields. As was the case in 1998, subsoil moisture at the end of the growing season remained at abnormally low levels in many areas of the state (especially in the south) above normal off-season precipitation is needed to replenish soil moisture reserves prior to the year 2000 growing season.

Source:
Jeffrey A. Andresen, Ph.D.
Extension Agricultural Meteorologist
Department of Geography
Michigan State University

Farm Income

Net farm income in 1999 rose 84 percent to $659 million. This was due mainly to $389 million of government payments, up 87 percent from 1998. The total agriculture output was $4.0 billion dollars, up 2 percent from 1998. Production expenses were $3.75 billion in 1999, down 1 percent from the previous year.

Preliminary cash receipts from 1999 marketings of Michigan crops, livestock and livestock products totaled $3.47 billion, down 1 percent from 1998. Michigan ranked twenty-first nationally in total cash receipts.

Crop receipts fell 2 percent from 1998 to $2.14 billion. Declines in the values of corn and soybeans, the major field crops, contributed the most to the decline. Livestock cash receipts of $1.33 billion were up 1 percent from a year earlier. Increases in the value of sales of meat animals more than offset declines in milk and poultry receipts.

In 1999, the top ten Michigan commodities ranked by cash receipts (Table 2.3) were: milk, floriculture and nursery, soybeans, corn, cattle and calves, hogs, sugarbeets, dry beans, potatoes, and apples.

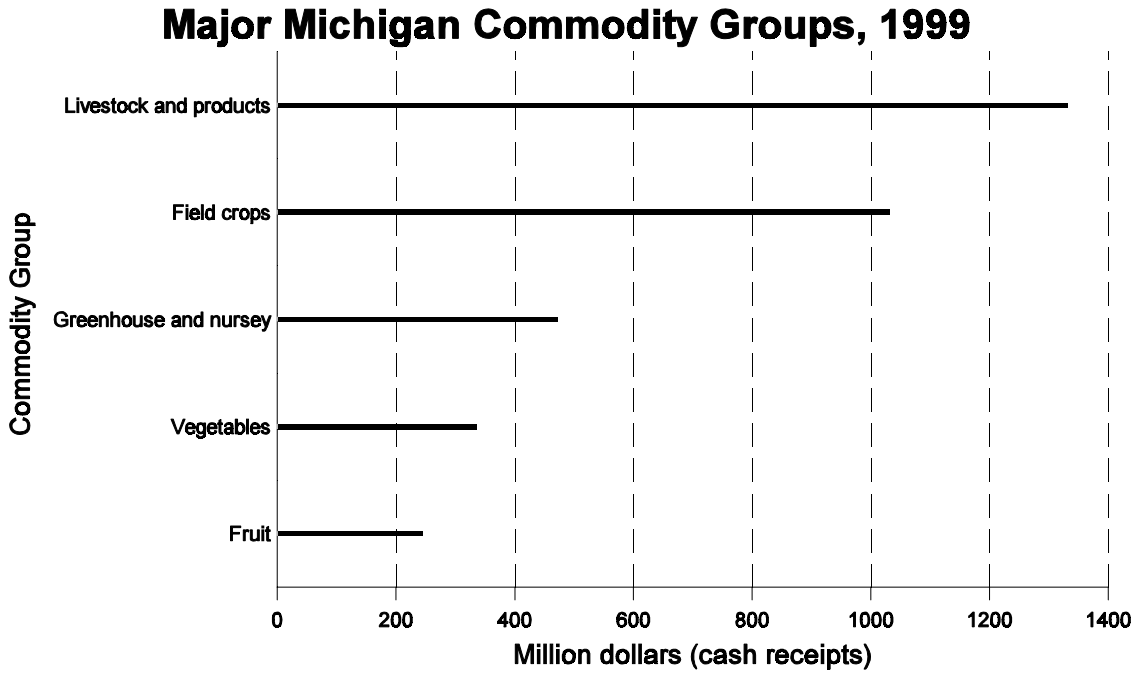


Table 2.1—Government payments

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

Program	1995	1996	1997	1998	1999
			1,000 dollars		
Conservation programs	22,817	22,963	20,854	17,488	16,893
Wheat programs	5,186	--	--	--	--
Feed grain programs	86,358	--	--	--	--
Production flexibility contract payments	--	--	--	100,556	87,116
Loan deficiency payments	--	--	--	38,577	131,482
Miscellaneous programs	[1] 36,635	[1] 86,622	[1] 100,433	[2] 51,755	10,569
Supplemental Funding	–	–	–	--	[3] 143,076
Total	**150,996**	**109,585**	**121,287**	**208,077**	**389,099**

[1] Programs included are CAT, Disaster, Loan Deficiency, NAP, and Production Flexibility, and repayments by farmers.
[2] No longer includes Loan Deficiency and Production Flexibility payments.
[3] Provided by the Omnibus Supplemental Appropriations Act of 1999 & Emergency Assistance Provisions of Agriculture Appropriation 2000.

Table 2.2—Value added to the economy by the Michigan agricultural sector

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

Item [1]	1995	1996	1997	1998	1999
	Million dollars				
Final crop output	2,284.7	2,043.5	2,370.3	2,136.6	2,259.2
Food grains	143.7	95.2	104.5	68.2	82.3
Feed crops	537.4	508.7	494.3	419.9	362.5
Oil crops	364.1	320.6	406.4	415.2	342.1
Fruits and tree nuts	204.1	225.2	237.6	216.6	244.3
Vegetables	423.0	442.3	379.9	428.9	440.4
All other crops	589.6	560.0	633.2	637.3	667.5
Home consumption	3.7	3.6	3.6	3.6	3.8
Value of inventory adjustment [2]	19.2	-112.1	110.8	-53.1	116.4
Final animal output	1,330.9	1,441.2	1,320.6	1,335.1	1,302.2
Meat animals	469.4	459.4	451.7	338.2	385.7
Dairy products	717.5	807.5	732.1	814.0	801.4
Poultry and eggs	121.2	150.5	133.6	119.2	96.3
Miscellaneous livestock	44.5	49.1	47.4	48.6	47.6
Home consumption	10.1	9.9	9.9	9.3	9.7
Value of inventory adjustment [2]	-31.8	-35.1	-54.1	5.8	-38.5
Services and forestry	371.1	401.9	435.0	457.2	458.8
Machine hire and customwork	32.9	45.8	34.9	49.7	37.9
Forest products sold	10.0	10.0	10.0	10.0	10.0
Other farm income	70.0	71.0	96.2	88.4	98.3
Gross imputed rental value of farm dwellings	258.2	275.1	293.9	309.2	312.7
Final agricultural sector output	3,986.7	3,886.6	4,125.9	3,928.9	4,020.2
less: Intermediate consumption outlays	2,108.8	2,072.4	2,311.7	2,207.7	2,171.2
Farm origin	622.0	613.0	689.8	657.4	619.9
Feed purchased	388.7	381.7	422.9	374.1	325.9
Livestock and poultry purchased	46.9	38.2	40.6	38.9	44.6
Seed purchased	186.4	193.1	226.3	244.4	249.4
Manufactured inputs	644.7	652.4	714.3	663.9	627.2
Fertilizers and lime	269.3	251.2	281.6	249.9	221.9
Pesticides	192.8	206.2	228.7	228.7	217.9
Petroleum fuel and oils	127.2	138.6	145.5	128.7	129.2
Electricity	55.4	56.3	58.5	56.6	58.3
Other intermediate expenses	842.1	807.1	907.7	886.4	924.2
Repair and maintenance of capital items	252.1	291.8	302.5	307.5	298.8
Machine hire and customwork	65.9	58.5	68.3	77.5	72.5
Marketing, storage, and transportation expenses	125.2	107.3	116.5	93.0	113.4
Contract labor	9.7	12.2	15.3	21.8	16.1
Miscellaneous expenses	389.2	337.3	405.1	386.6	423.5
plus: Net government transactions	-42.1	-84.7	-81.3	23.4	207.5
+ Direct Government payments	151.0	109.6	121.3	207.9	389.1
- Motor vehicle registration and licensing fees	8.5	8.1	11.7	10.7	9.3
- Property taxes	184.6	186.2	191.0	173.8	172.3
Gross value added	1,835.8	1,729.5	1,732.9	1,744.6	2,056.5
less: Capital consumption	540.8	541.0	536.0	544.8	563.5
Net value added	1,295.0	1,188.4	1,196.9	1,199.8	1,493.0
less: Factor payments	665.4	752.4	779.1	842.7	834.4
Employee compensation (total hired labor)	402.8	464.8	477.1	514.5	499.8
Net rent received by nonoperator landlords	35.1	44.1	52.4	73.8	81.7
Real estate and nonreal estate interest	227.5	243.4	249.5	254.4	252.9
Net farm income	629.6	436.0	417.8	357.1	658.6

[1] 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 oper-ators' 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.

[2] 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.

Table 2.3—Cash receipts by commodity groups and selected commodities

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

Item	1995	1996	1997	1998	1999
			1,000 dollars		
Dairy (milk)	717,469	807,489	732,135	813,960	801,420
Cattle and calves	278,193	238,675	230,906	196,656	235,830
Hogs	186,293	215,629	213,722	138,347	147,758
Sheep and lambs	4,952	5,079	7,045	3,233	2,111
Meat animals	469,438	459,383	451,673	338,236	385,699
Eggs	50,431	68,426	61,927	57,639	59,021
Poultry	70,796	82,055	71,720	61,594	37,259
Poultry/eggs	121,227	150,481	133,647	119,233	96,280
Honey	6,961	8,726	4,582	4,488	4,095
Mink pelts	1,733	2,767	2,012	1,854	1,339
Trout	1,850	2,058	1,486	1,151	1,113
Other	33,909	35,581	39,323	41,112	41,092
Miscellaneous livestock	44,453	49,132	47,403	48,605	47,639
Total livestock and products	**1,352,587**	**1,466,485**	**1,364,858**	**1,320,034**	**1,331,038**
Beans, dry	105,872	123,955	85,027	101,836	105,865
Corn	475,024	458,202	429,042	382,201	326,031
Hay	57,003	43,734	59,659	32,468	31,412
Soybeans	363,061	319,930	405,792	414,785	341,715
Sugarbeets	100,386	81,661	117,040	101,586	129,698
Wheat	143,232	94,857	104,098	67,826	81,608
Other	13,708	14,058	14,289	13,386	13,905
Field crops	1,258,286	1,136,397	1,214,947	1,114,088	1,030,234
Asparagus	20,106	20,110	17,792	17,320	18,822
Beans, snap	12,048	13,657	15,597	21,659	19,493
Carrots	34,564	17,736	18,903	19,281	16,717
Celery	14,255	13,294	14,358	13,327	11,005
Corn, sweet	16,166	17,229	17,408	12,900	13,282
Cucumbers, fresh	15,390	16,720	18,048	21,366	22,506
Cucumbers, pickles	21,307	21,497	20,550	21,970	26,076
Onions, storage	13,475	15,775	11,170	9,636	8,640
Peppers, green	8,104	7,360	7,817	8,640	9,600
Potatoes	81,428	94,642	69,505	82,603	100,592
Tomatoes, fresh	10,944	10,454	9,680	18,596	16,549
Tomatoes, processing	8,870	10,539	9,771	7,560	7,308
Other	60,492	59,328	64,261	72,166	63,905
Vegetables	317,149	318,341	294,860	327,024	334,495
Apples	102,095	109,624	89,617	92,324	96,037
Blueberries	33,450	36,330	50,042	30,260	56,920
Cherries, sweet	15,700	15,607	19,986	18,551	14,149
Cherries, tart	13,448	31,202	34,380	32,162	39,926
Grapes	15,196	13,555	17,873	20,660	21,484
Peaches	12,594	10,250	14,450	11,551	5,440
Strawberries	6,822	4,512	7,411	7,089	6,412
Other	4,768	4,073	3,800	3,987	3,948
Fruit	204,073	225,153	237,559	216,584	244,316
Floriculture & Nursery	424,625	415,253	451,384	468,444	471,945
Miscellaneous crops	57,690	56,785	57,146	59,950	58,070
Total crops	**2,261,823**	**2,151,929**	**2,255,896**	**2,186,090**	**2,139,060**
Total cash receipts	**3,614,410**	**3,618,414**	**3,620,754**	**3,506,124**	**3,470,098**

Table 2.4—Crop prices received by farmers

Year	Marketing year average prices								
	Corn per bushel	Wheat per bushel	Oats per bushel	Soybeans per bushel	Dry beans per cwt.	Navy Beans per cwt.	Potatoes per cwt.	All hay per ton	Alfalfa hay per ton
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1995	3.20	4.10	1.90	6.52	19.40	--	6.90	66.00	67.00
1996	2.66	3.91	2.41	7.15	21.70	--	5.80	106.00	108.00
1997	2.40	3.26	1.86	6.47	18.90	--	6.45	101.00	103.00
1998	1.90	2.33	1.42	4.99	21.60	--	6.70	89.00	90.00
1999 [1]	1.85	2.15	1.35	4.70	18.50	--	6.70	68.00	70.50
1998 and 1999 Marketing years	**Monthly prices**								
	Corn per bushel	Wheat per bushel	Oats per bushel	Soybeans per bushel	Dry beans per cwt.	Navy Beans per cwt.	Potatoes per cwt.	All hay per ton	Alfalfa hay per ton
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*		*Dollars*	*Dollars*	*Dollars*
1998: June								93.00	95.00
July		2.39	1.36				6.25	81.00	85.00
August		2.09	1.30				5.70	92.00	95.00
September		2.28	1.39	5.21	21.60	18.00	5.25	93.00	95.00
October	1.89	2.51	1.61	5.16	23.00	17.50	5.60	92.00	95.00
November	1.88	2.56	1.61	5.29	24.00	18.80	6.40	97.00	100.00
December	1.89	2.41	1.52	5.21	24.00	19.80	6.55	86.00	90.00
1999: January	1.97	2.49	1.48	5.04	21.00	19.80	6.80	85.00	90.00
February	1.95	2.43	1.54	4.86	19.00	18.90	7.10	80.00	85.00
March	1.97	2.32	1.50	4.42	19.00	17.40	7.50	85.00	90.00
April	2.01	2.33	1.55	4.69	18.00	18.70	7.95	80.00	85.00
May	2.00	2.22	1.60	4.38	21.00	22.40	8.15	76.00	80.00
June	1.99	2.19	1.37	4.49	22.00	23.80			
July	1.77			4.26	21.00	21.50			
August	1.83			4.45	21.00	22.00			
September	1.77								
1999: June								62.00	65.00
July		2.01	1.38				8.30	54.00	55.00
August		2.14	1.24				6.45	61.00	65.00
September		2.24	1.31	4.58	19.00	19.80	5.85	68.00	70.00
October	1.72	2.23	1.35	4.50	18.00	18.00	5.85	78.00	80.00
November	1.68	1.83	1.20	4.40	15.00	15.80	6.25	64.00	65.00
December	1.70	2.04	1.58	4.42	15.90	13.80	6.75	81.00	85.00
2000: January	1.85	2.20	1.50	4.63	15.00	16.00	6.90	77.00	80.00
February	1.95	2.24	1.42	4.78	14.60	13.00	7.20	72.00	75.00
March	2.08	2.41	1.42	4.88	13.70	12.00	7.35	67.00	70.00
April	2.03	2.08	1.42	5.09	15.00	18.40	7.80	72.00	75.00
May	2.08	2.20	1.60	5.21	14.20	11.20	8.35	74.00	80.00
June	1.67	2.00	1.44	4.52	11.80	12.20			
July[1]	1.60			4.50	13.00	11.50			
August									
September									

[1] Preliminary prices.

Table 2.5—Livestock prices received by farmers

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.
	Marketing year average prices							
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1995	39.70	52.00	37.00	58.50	1,150	69.30	0.435	13.00
1996	51.40	49.80	31.50	54.60	1,100	51.60	0.623	15.00
1997	53.10	50.80	35.80	60.60	1,090	54.00	0.560	13.60
1998	33.90	47.70	34.40	55.40	1,130	51.70	0.495	15.30
1999	29.80	50.50	35.30	58.70	1,310	68.90	0.420	14.80
1999 and 2000 Marketing Years	**Monthly prices**							
	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*
1998 December	16.40						0.600	
1999 January	25.80	46.40	33.10	55.20	1,300	48.00	0.580	18.20
February	28.00	47.00	34.20	55.60		65.00	0.430	16.80
March	27.30	47.80	34.00	57.00		66.00	0.490	16.50
April	31.90	48.40	35.00	57.30	1,200	66.00	0.360	12.80
May	33.10	50.60	36.50	56.70		70.00	0.310	12.90
June	31.10	53.20	36.20	57.50		72.50	0.320	13.30
July	29.50	52.60	36.60	59.50	1,350	70.00	0.440	13.30
August	36.30	54.00	36.50	61.50		73.50	0.390	13.90
September	33.50	49.30	35.50	58.50		70.00	0.390	15.90
October	33.60	51.10	35.90	61.30	1,400	67.00	0.270	16.30
November	33.10	50.90	35.20	61.40		73.00	0.430	16.00
December		54.40	36.50	62.00		83.00		12.60
1999 December	34.20						0.410	
2000 January	37.10	54.20	36.00	62.00	1,290	86.00	0.380	12.30
February	39.40	55.50	38.00	63.00		89.00	0.505	12.40
March	40.60	58.20	40.50	65.80		97.00	0.310	12.60
April	45.90	58.40	40.50	66.00	1,400	108.00	0.470	12.70
May	46.00	58.40	40.50	66.00		120.00	0.290	12.80
June	45.40	57.20	41.00	65.00		115.00	0.410	12.90
July [4]	45.30	56.50	40.00	63.50	1,350	110.00	0.370	13.50
August								
September								
October								
November								
December								

[1] Combined price for "Cows" and "Steers and Heifers."

[2] Cull dairy cows sold for slaughter.

[3] Sold for dairy herd replacement only. Prices published January, April, July, and October.

[4] Preliminary prices.

Farm Marketings: Percent of sales by month

Table 2.6—Beans, dry

Month	1994-95	1995-96	1996-97	1997-98	1998-99
			Percent		
September . .	24	26	6	5	30
October	30	11	32	16	12
November . . .	8	8	8	11	6
December . . .	8	8	6	16	10
January	12	7	15	11	20
February	2	5	6	10	5
March	2	6	3	6	3
April	7	5	6	6	4
May	2	10	3	5	7
June	2	7	7	5	1
July	1	4	5	5	1
August	2	3	3	4	1

Table 2.7—Corn

Month	1994-95	1995-96	1996-97	1997-98	1998-99
			Percent		
October	3	18	5	5	16
November . . .	18	19	22	20	14
December . . .	14	13	12	19	14
January	14	20	15	16	12
February	6	10	9	9	6
March	6	6	6	7	8
April	5	7	5	5	3
May	5	3	3	5	4
June	11	1	5	4	5
July	7	1	6	3	5
August	7	1	6	3	9
September . .	4	1	6	4	4

Table 2.8—Hay

Month	1994-95	1995-96	1996-97	1997-98	1998-99
			Percent		
June	11	12	11	13	13
July	10	9	9	13	13
August	9	6	6	9	9
September . .	6	3	3	6	6
October	6	6	6	6	6
November . . .	6	4	4	12	5
December . . .	6	7	7	12	6
January	10	8	8	8	7
February	9	14	14	6	11
March	12	15	15	7	11
April	8	12	12	5	9
May	7	4	5	3	4

Table 2.9—Oats

Month	1994-95	1995-96	1996-97	1997-98	1998-99
			Percent		
July	8	4	11	7	23
August	50	39	33	39	25
September . .	7	4	10	7	9
October	3	6	4	2	3
November . . .	2	5	1	2	2
December . . .	3	1	2	2	2
January	5	12	3	1	4
February	4	8	6	4	7
March	3	3	5	11	2
April	9	6	5	15	5
May	3	8	5	4	9
June	3	4	15	6	9

Table 2.10—Soybeans

Month	1994-95	1995-96	1996-97	1997-98	1998-99
			Percent		
September . .	2	9	2	1	12
October	26	41	34	31	34
November . . .	20	8	15	19	8
December . . .	9	7	8	8	9
January	12	14	15	8	8
February	8	6	6	7	5
March	5	4	6	5	7
April	4	5	4	4	5
May	4	3	2	4	2
June	4	1	1	5	4
July	3	1	4	4	3
August	3	1	3	4	3

Table 2.11—Wheat

Month	1994-95	1995-96	1996-97	1997-98	1998-99
			Percent		
July	29	38	27	20	30
August	29	26	39	27	12
September . .	12	5	8	7	21
October	5	7	3	3	4
November . . .	2	8	1	25	3
December . . .	7	3	3	3	6
January	7	6	7	3	5
February	3	5	3	5	3
March	2	1	4	2	6
April	1	1	4	2	3
May	1	--	1	2	3
June	2	--	--	1	4

Table 2.12—Prices paid by farmers

[Regional and U.S. data only. Published in April]

Item and unit	1996	1997	1998	1999	2000
			Dollars		
Dairy feed, 16% protein, *ton* [1]	226	212	190	171	167
Hog concentrate, 38-42% protein, *ton* [1]	339	393	300	273	288
Soybean meal, 44% protein, *cwt.* [1]	14.40	16.40	11.50	9.50	10.90
Gasoline, unleaded, bulk, *gallon* [1]	1.32	1.30	1.16	1.17	1.48
Diesel fuel, *gallon* [1]	0.98	0.91	0.79	0.76	1.12
Tractors: 110-129 hp, *each* [2]	55,400	57,400	59,500	60,100	62,400
200-280 hp, 4-wd., *each* [2]	100,000	111,000	116,000	116,000	120,000
Planter, row crop, 8-row, *each* [2]	24,400	25,800	25,700	26,000	26,900
Grain drill, press, 23-25 openers, *each* [2]	13,300	14,400	16,300	15,600	17,500
Combine, self-propelled with grain head, large capacity	137,000	135,000	140,000	142,000	146,000
Ammonium nitrate, *ton* [3]	220	218	179	168	181
Muriate of potash, 60-62% K_2O, *ton* [3]	151	150	161	166	162
Superphosphate, 44-46% P_2O_5, *ton* [3]	256	255	248	252	227
Anhydrous ammonia, *ton* [3]	309	314	256	211	231
2,4-D, 4 lb/gal EC, *gallon* [2]	14.80	14.90	14.90	14.90	14.70
Lasso, 4 lb/gal EC, *gallon* [2]	28.70	25.30	25.70	24.90	24.50
Bladex, 4 lb/gal liquid, *gallon* [2]	29.40	30.00	31.60	32.30	33.10
Dual, 8 lb/gal EC, *gallon* [2]	69.40	69.50	72.60	77.70	82.60
Treflan, 4 lb/gal EC, *gallon* [2]	32.60	31.40	29.90	29.20	25.50

EC=Emulsifiable Concentrate.
[1] Lake States=MI, MN, WI.
[2] United States.
[3] North Central Region=IL, IN, IA, MI, MN, MO, OH, WI.

Table 2.13—Farm production expenses

Item	1995	1996	1997	1998	1999
			Million dollars		
Feed purchased	391.3	380.9	425.3	373.4	
Livestock and poultry purchased	47.2	37.6	40.2	38.2	
Seed purchased	186.4	193.1	226.3	244.4	
Fertilizers and lime	266.6	269.4	293.8	263.2	
Pesticides	192.8	206.2	228.7	231.1	
Petroleum fuel and oils	127.2	138.6	145.5	129.5	
Electricity	55.4	56.3	58.5	56.6	
Repair and maintenance of capital items	250.9	290.7	299.7	299.6	
Machine hire and custom work	65.9	58.5	68.3	77.5	
Contract and hired labor expenses	412.5	461.1	492.4	540.3	
Marketing, storage, and transportation expenses	125.0	107.2	116.5	93.3	
Capital consumption	527.8	531.6	523.1	529.2	
Real estate and nonreal estate interest	228.0	243.9	257.2	270.4	
Property taxes	184.5	186.1	190.8	188.5	
Net rent received by nonoperator landlords	35.1	44.2	52.2	69.0	
Miscellaneous expenses	397.0	344.9	416.3	397.6	
Total production expenses	3,493.6	3,550.3	3,834.8	3,801.8	

Farm Labor

The number of self-employed and unpaid workers dropped in 1999, while the number of hired workers rose. Self-employed workers decreased 7 percent to 34,300 and unpaid workers rose 38 percent to 11,000. Hired workers rose 5 percent to 25,100. Wage rates for all hired workers increased 4 percent to $8.21.

Table 2.14—Farm workers: Annual average number and hours worked

Year	Number			Hours worked
	Self employed	Unpaid	Hired	Hired workers
	1,000	*1,000*	*1,000*	*Hours per week*
1995	38.0	11.8	25.0	39.2
1996	39.8	10.3	17.8	34.5
1997	38.3	8.5	21.8	36.9
1998	36.8	8.0	23.8	38.6
1999	34.3	11.0	25.1	38.8

Table 2.15—Hired farm workers: Annual average wage rates

Year	All hired workers	Field workers	Field and livestock workers
	Dollars per hour	*Dollars per hour*	*Dollars per hour*
1995	6.64	6.40	6.33
1996	6.96	6.73	6.61
1997	7.14	6.78	6.62
1998	7.87	7.39	7.39
1999	8.21	7.44	7.37

Cold Storage: Capacity of Refrigerated Warehouses

The usable capacity of refrigerated warehouses in Michigan as of October 1, 1999, was 66.3 million cubic feet. There were 11.5 million cubic feet of usable cooler space, up from 9.2 million cubic feet in October 1997. That figure excludes apple storage capacity. Usable freezer space increased to 54.8 million cubic feet from 44.7 million cubic feet in October 1997. The number of general cold storage warehouses in Michigan increased from 42 in 1997 to 46 in 1999.

Nationally, usable refrigerated space in general storage was 2.28 billion cubic feet, or 79 percent of the gross space. Usable freezer space was 78 percent of the usable refrigerated space with the remaining 22 percent used as cooler space. Convertible refrigerated space was classified as usable freezer space. Public general warehouse capacity totaled 2.15 billion gross cubic feet in 1999,accounting for 74 percent of the general storage. Public general storage capacity has increased 36 percent since 1991 and is over twice the capacity of 1981. Private and semiprivate general warehouse capacity totaled 757 million gross cubic feet, or 26 percent of the general gross refrigerated space. Apple and pear storage totaled 702 million gross cubic feet, up slightly from October 1, 1997. Controlled atmosphere (CA) capacity totaled 155 million bushels, up 3 percent from 1997. The State of Washington had 80 percent of the Nation's CA capacity.

Table 3.1— Refrigerated warehouses: Total space October 1, 1999, by type

Type	Refrigerated warehouses	Gross refrigerated space	Usable refrigerated space	Gross cooler space	Usable cooler space	Gross freezer space	Usable freezer space
	Number	*1,000 cubic feet*		*1,000 cubic feet*		*1,000 cubic feet*	
General warehouses:							
Public	28	69,417	54,363	8,489	7,008	60,928	47,355
Private and semiprivate	18	14,768	11,921	5,199	4,443	9,569	7,478
Apple storage	181	32,838	28,787	-	-	-	-
Total	227	117,023	95,071	13,688	11,451	70,497	54,833

Table 3.2—Controlled atmosphere storages: Number and capacity, Michigan and U. S.

Year	Michigan		United States	
	Number	Capacity	Number	Capacity
	1,000 bushels		*1,000 bushels*	
1991	122	7,533	613	123,120
1993	124	8,288	617	131,049
1995	111	7,816	608	144,139
1997	104	7,929	590	151,093
1999	102	7,733	584	154,855

Agricultural Chemical Usage, 1999

The 1999 Fruit and Nut Chemical Usage Summary and the 1999 Field Crops Chemical Usage Summary were released this year and provide the data for this section. The USDA Pesticide Data Program funded these reports. This data series addresses the increased public interest in the use of agricultural chemicals and allows government agencies to respond effectively to food safety and water quality issues.

Fruit chemical use statistics have been published every other year since 1990, alternating with vegetable chemical use statistics.

Field crops chemical usage data are published every year. Potatoes were published for Michigan this year for the first time since the 1995 report. Corn and soybeans have been published for the State every year since 1990.

The entire series of chemical usage statistics since 1990 for Michigan and the U.S. can be found on the NASS web site at:

http://www.usda.gov/nass/

A list of associated trade names is provided below as an aid in reviewing the data and does not mean to imply use of any specific trade name.

Table 4.1–Agricultural chemicals: Common and trade names by class

Herbicides	
Common name	Trade name
2, 4-D	several
Acetochlor	Harness, Topnotch
Alachlor	Lasso
Atrazine	AAtrex, Atrazine
Bentazon	Basagran, Pledge
Clopyralid	Reclaim, Stinger
Dicamba	Banvel
Diuron	Direx, Karmex
Flumetsulam	Broadstrike
Glyphosate	Ranger, Rattler, Rodeo, Roundup
Imazaquin	Scepter
Imazethapyr	Pursuit
Linuron	Linex, Lorox
Metolachlor	Dual, Bicep
Metribuzin	Axiom, Lexone, Sencor
Nicosulfuron	Accent
Oryzalin	Surflan
Paraquat	Cyclone, Gramoxone, Starfire
Pendimethalin	Prowl
Rimsulfuron	Basis
Simazine	Princep, Simazine
Terbacil	Sinbar
Thifensulfuron	Pinnacle

Insecticides	
Common name	Trade name
Abamectin	Agri-Mek
Azinphos-methyl	Guthion
Bt	several
Carbaryl	Savit, Sevin
Chlorpyrifos	Lorsban
Clofentezine	Apollo
Cyfluthrin	Baythroid
Dimethoate	several
Endosulfan	Thiodan
Esfenvalerate	Asana
Hexythiazox	Savey
Imidacloprid	Admire
Malathion	several
Methamidophos	Monitor
Methomyl	Lannate
Methyl parathion	several
Oxamyl	Vydate
Permethrin	Ambush, Pounce
Petroleum distillate	several
Phorate	Thimet
Phosmet	Imidan
Pyridaben	Nexter, Pyramite
Spinosad	SpinTor, Success, Tracer
Tebufenozide	Folicur, Lynx

Table 4.1–Agricultural chemicals: Common and trade names by class

Fungicides	
Common name	Trade name
Azoxystrobin	Abound,Heritage,Quadris
Benomyl	Benlate
Captan	Captan
Chlorothalonil	Bravo, Daconil
Copper hydroxide	several
Copper oxychlo. sul.	C-O-C-S
Copper sulfate	Copper sulfate
Cyprodinil	Switch, Vangard
Dodine	Cyprex, Syllit
Fenarimol	Rubigan
Fenbuconazole	RH-7592
Ferbam	Carbamate
Iprodione	Rovral
Kresoxim-methyl	Sovran
Mancozeb	several
Maneb	several
Mefenoxam	Ridomil Gold
Metalaxyl	Ridomil
Metiram	Polyram
Myclobutanil	Rally, Nova
Oxytetracycline	Mycoshield
Propiconazole	Banner, Orbit
Streptomycin	Agri-Strep
Sulfur	several
Tebuconazole	Folicur, Lynx
Thiophanate-methyl	Topsin
Thiram	Thiram
Triadimefon	Bayleton
Triforine	Funginex
Triphenyltin hydroxide	several
Ziram	Ziram

Other	
Common name	Trade name
6-benzyladenine	Accel
Butenoic Acid Hydr.	Retain
Cytokinins	Triggrr, Promalin
Diquat	Diquat
Dodecanol	Isomate
E,E-8,10-Dodecadien	Disrupt, Checkmate
Ethephon	Ethrel
Gibberellic acid	ProGibb, ProVide, GibGro, Promalin
Maleic hydrazide	Royal MH-30, Super Sprout Stop
Naphthaleneactic ac.	Fruit-Fix, NAA
Tetradecanol	Isomate
Z-8-Dodecenyl Acetate	Checkmate, Disrupt, Isomate
Zinc phosphide	several

Table 4.2—Agricultural chemical applications: Apples, 1999

[Bearing acres in 1999 were 52,500 acres]

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	19	1.0	0.61	0.64	6.5
Diuron	21	2.1	0.33	0.72	8.0
Glyphosate	57	2.0	0.42	0.87	26.0
Oryzalin	2	1.0	2.06	2.15	2.7
Paraquat	28	1.4	0.46	0.66	9.6
Simazine	21	1.0	0.90	0.92	10.0
Terbacil	6	1.1	0.35	0.39	1.2
Insecticides:					
Abamectin	9	1.1	0.01	0.01	2/
Azinphos-methyl	92	3.5	0.70	2.44	117.5
Bt (Bacillus thur.) 1/	42	2.4			
Carbaryl	32	1.1	0.72	0.85	14.4
Chlorpyrifos	63	1.5	0.85	1.28	42.6
Clofentezine	21	1.3	0.10	0.14	1.5
Dimethoate	3	1.8	0.74	1.38	2.3
Endosulfan	10	1.5	0.77	1.19	6.3
Esfenvalerate	50	1.3	0.04	0.05	1.4
Hexythiazox	3	1.1	0.09	0.10	0.2
Imidacloprid	67	1.6	0.05	0.09	3.2
Methomyl	32	1.1	0.72	0.85	14.4
Methyl parathion	10	3.1	0.52	1.62	8.8
Oxamyl	3	1.0	0.84	0.85	1.4
Permethrin	19	1.1	0.12	0.13	1.3
Petroleum distillate	36	1.2	19.63	23.84	449.9
Phosmet	74	2.8	1.31	3.72	145.0
Pyridaben	32	1.0	0.16	0.16	2.7
Spinosad	22	1.6	0.09	0.14	1.7
Tebufenozide	8	1.7	0.18	0.32	1.3
Fungicides:					
Benomyl	7	2.3	0.19	0.44	1.7
Captan	90	5.3	1.90	10.26	484.7
Copper hydroxide	23	1.5	1.11	1.74	21.4
Copper oxychlo. sul.	12	1.2	1.47	1.90	12.4
Copper sulfate	4	1.5	1.26	1.98	4.4
Cyprodinil	15	2.2	0.14	0.31	2.5
Fenarimol	30	2.6	0.05	0.15	2.4
Kresoxim-methyl	19	1.6	0.13	0.21	2.1
Mancozeb	49	4.4	1.97	8.86	227.2
Maneb	4	3.7	2.49	9.39	18.0
Metiram	39	3.5	2.79	9.80	203.1
Myclobutanil	57	3.1	0.10	0.32	9.4
Streptomycin	45	1.4	0.16	0.23	5.4
Sulfur	41	4.8	3.63	17.41	371.3
Thiophanate-methyl	3	1.3	0.56	0.77	1.0
Thiram	7	2.5	2.75	7.04	26.3
Triadimefon	19	1.9	0.06	0.12	1.2
Ziram	46	2.4	2.64	6.50	158.1

Table 4.2—Agricultural chemical applications: Apples, 1999 (continued)

[Bearing acres in 1999 were 52,500 acres]

Agricultural chemical [1]	Area applied	Applications	Rate per application	Rate per crop year	Total applied
	Percent	*Number*	*Pounds per acre*	*Pounds per acre*	*1,000 pounds*
Other chemicals:					
6-benzyladenine	5	1.0	0.03	0.03	0.1
Butenoic Acid Hydro	3/	1.0	0.06	0.06	2/
Cytokinins	2	1.0	0.02	0.02	2/
Gibberellic acid	8	1.2	0.01	0.01	2/
Naphthaleneacetic acid	20	1.1	0.06	0.07	0.7
Zinc phosphide	15	1.0	0.11	0.11	0.9

[1] Rates and total applied are not available because amounts of active ingredient are not comparable between products.
[2] Total applied is less than 50 pounds.
[3] Area applied is less than one percent.

Table 4.3—Agricultural chemical applications: Blueberries, 1999

[Harvested acres in 1999 were 16,600 acres]

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:					
Diuron	44	1.0	0.79	0.81	5.9
Glyphosate	30	1.2	0.36	0.44	2.2
Paraquat	4	1.3	0.12	0.16	0.1
Simazine	32	1.0	0.91	0.91	4.8
Terbacil	38	1.0	0.29	0.30	1.9
Insecticides:					
Azinphos-methyl	74	1.5	0.57	0.90	11.1
Bt (Bacillus thur.) [1]	11	1.4			
Carbaryl	24	1.5	1.43	2.26	9.0
Malathion	58	2.1	1.53	3.32	32.1
Methomyl	43	1.3	0.51	0.67	4.7
Phosmet	67	1.9	0.88	1.67	18.6
Fungicides:					
Benomyl	52	1.3	0.47	0.65	5.6
Captan	67	2.3	2.14	5.10	56.7
Chlorothalonil	21	1.1	2.46	2.79	9.9
Fenbuconazole	14	1.3	0.10	0.13	0.3
Triforine	47	1.2	0.30	0.38	3.0
Ziram	32	1.9	2.31	4.51	23.6

[1] Rates and total applied are not available because amounts of active ingredient are not comparable between products.

Table 4.4—Agricultural chemical applications: Cherries, sweet, 1999

[Bearing acres in 1999 were 8,100 acres]

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	19	1.0	0.80	0.81	1.3
Glyphosate	34	1.1	0.74	0.81	2.2
Oryzalin	2	1.0	1.69	1.69	0.3
Paraquat	19	1.0	0.33	0.34	0.5
Simazine	15	1.0	1.47	1.48	1.8
Insecticides:					
Azinphos-methyl	86	3.1	0.52	1.67	11.6
Carbaryl	22	1.1	2.23	2.59	4.5
Esfenvalerate	32	1.6	0.04	0.06	0.2
Permethrin	35	1.5	0.12	0.18	0.5
Petroleum distillate	5	1.7	2.45	4.19	1.6
Phosmet	6	1.4	1.07	1.53	0.7
Fungicides:					
Benomyl	15	1.5	0.42	0.63	0.8
Captan	23	2.2	1.71	3.86	7.1
Chlorothalonil	48	1.6	2.07	3.43	13.3
Copper hydroxide	3	1.0	1.68	1.84	0.4
Fenbuconazole	72	3.1	0.07	0.23	1.3
Ferbam	28	1.7	2.09	3.69	8.3
Iprodione	8	1.4	0.91	1.34	0.9
Myclobutanil	20	1.6	0.11	0.19	0.3
Sulfer	80	4.5	4.40	20.12	129.7
Tebuconazole	51	2.7	0.16	0.42	1.7
Ziram	9	2.2	2.42	5.34	4.1
Other chemicals:					
Ethephon	65	1.0	0.40	0.43	2.3

Table 4.5—Agricultural chemical applications: Cherries, tart, 1999

[Bearing acres in 1999 were 28,100 acres]

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	13	1.0	0.65	0.65	2.3
Glyphosate	37	1.1	0.67	0.75	7.8
Paraquat	28	1.1	0.30	0.35	2.7
Simazine	23	1.1	0.93	1.05	6.8
Insecticides:					
Azinphos-methyl	84	2.5	0.48	1.21	28.6
Carbaryl	9	1.1	1.88	2.24	5.9
Chlorpyrifos	24	1.2	0.66	0.84	5.7
Esfenvalerate	23	1.5	0.03	0.05	0.3
Methyl parathion	4	2.7	0.57	1.56	1.6
Permethrin	8	1.7	0.12	0.21	0.5
Phosmet	69	1.4	0.89	1.29	24.8
Fungicides:					
Benomyl	5	2.1	0.36	0.75	1.1
Captan	22	2.2	1.39	3.08	19.4
Chlorothalonil	89	2.1	1.56	3.40	84.7
Copper hydroxide	3	1.6	1.28	2.13	1.7
Dodine	19	2.1	0.53	1.15	6.0
Fenarimol	4	1.7	0.04	0.08	0.1
Fenabuconazole	57	2.4	0.08	0.19	3.0
Myclobutanil	46	1.9	0.08	0.16	2.0
Propiconazole	5	1.2	0.10	0.12	0.2
Sulfur	81	5.0	3.27	16.50	376.4
Tebuconazole	80	3.1	0.11	0.35	7.8
Other chemicals:					
Ethephon	72	1.1	0.17	0.20	4.0
Gibberellic acid	33	1.3	0.01	0.02	0.2

Table 4.6—Agricultural chemical applications: Grapes, 1999

[Bearing acres in 1999 were 11,700 acres]

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:					
Diuron	50	1.2	1.00	1.21	7.0
Glyphosate	77	1.2	0.61	0.78	7.0
Oryzalin	4	1.0	1.32	1.32	0.6
Paraquat	80	1.5	0.38	0.60	5.6
Simazine	30	1.0	1.23	1.23	4.3
Insecticides:					
Azinphos-methyl	17	1.1	0.60	0.69	1.4
Carbaryl	60	2.3	1.44	3.35	23.3
Chlorpyrifos	22	1.0	1.00	1.00	2.5
Imidacloprid	32	1.3	0.03	0.04	0.1
Methomyl	15	1.2	0.50	0.61	1.1
Methyl parathion	71	2.3	0.67	1.56	13.0
Phosmet	13	1.2	1.12	1.45	2.2
Fungicides:					
Azoxystrobin	44	1.3	0.18	0.24	1.3
Benomyl	11	1.0	0.31	0.32	0.4
Captan	8	2.2	1.65	3.64	3.5
Ferbam	8	1.4	2.53	3.64	3.5
Iprodione	4	1.5	0.97	1.50	0.7
Mancozeb	90	2.3	2.25	5.21	54.9
Metalaxyl	9	1.5	0.21	0.32	0.3
Myclobutanil	48	2.7	0.09	0.26	1.4
Sulfur	7	1.6	3.79	6.37	5.5
Tebuconazole	37	3.1	0.11	0.36	1.5
Triadimefon	18	1.2	0.11	0.14	0.3
Ziram	71	2.4	2.43	5.91	49.3

Table 4.7—Agricultural chemical applications: Peaches, 1999

[Bearing acres in 1999 were 4,600 acres]

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	14	1.0	0.48	0.52	0.3
Diuron	6	1.1	0.76	0.86	0.2
Glyphosate	18	1.1	0.57	0.65	0.5
Paraquat	23	1.2	0.36	0.45	0.5
Simazine	14	1.0	1.04	1.04	0.7
Terbacil	10	1.0	0.40	0.40	0.2
Insecticides:					
Azinphos-methyl	34	1.8	0.62	1.16	1.8
Carbaryl	11	1.8	1.92	3.51	1.7
Endosulfan	7	1.3	1.26	1.69	0.5
Esfenvalerate	59	2.3	0.04	0.08	0.2
Methyl parathion	14	2.4	0.88	2.19	1.4
Permethrin	24	2.1	0.12	0.26	0.3
Petroleum distillate	4	1.1	7.87	8.68	1.8
Phosmet	12	1.6	1.14	1.91	1.1
Fungicides:					
Benomyl	4	1.5	0.33	0.52	0.1
Captan	25	2.7	1.49	4.11	4.7
Chlorothalonil	5	1.4	2.25	3.36	0.8
Copper hydroxide	16	1.0	1.37	1.45	1.1
Copper oxychlo. sul.	18	1.0	2.40	2.59	2.1
Copper sulfate	7	1.1	1.26	1.50	0.5
Dodine	4	5.0	0.21	1.06	0.2
Fenbuconazole	47	3.0	0.08	0.24	0.5
Ferbam	10	1.4	2.82	4.17	1.8
Myclobutanil	17	1.6	0.10	0.16	0.1
Oxytetracycline	7	2.5	0.09	0.23	0.1
Propiconazole	37	1.9	0.10	0.19	0.3
Sulfur	41	4.1	5.13	21.33	39.9
Tebuconazole	22	2.4	0.13	0.31	0.3
Other Chemicals:					
Dodecanol	8	1.0	0.01	0.10	1/
E, E-8, 10-Dodecadien	8	1.0	0.02	0.02	1/
Tetradecanol	8	1.0	0.002	0.002	1/
Z-8-Dodecenyl Acetate	15	1.0	2/	2/	1/

[1] Total applied is less than 50 pounds.
[2] Amount applied is less than 0.0005 lbs.

Table 4.8—Agricultural chemical applications: Corn, 1999

[Planted acres in 1999 were 2.2 million acres]

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	5	1.2	0.42	0.52	60
Acetochlor	43	1.0	1.75	1.75	1,644
Alachlor	11	1.0	2.64	2.64	668
Atrazine	69	1.0	1.25	1.25	1,906
Clopyralid	8	1.0	0.09	0.09	16
Dicamba	13	1.0	0.36	0.36	100
Flumetsulam	15	1.0	0.06	0.06	22
Glyphosate	19	1.2	0.76	0.92	389
Metolachlor	30	1.0	1.52	1.59	1,057
Nicosulfuron	10	1.0	0.02	0.02	3
Rimsulfuron	7	1.0	0.01	0.01	2

Table 4.9—Fertilizer applications: Corn, 1999

[Planted acres in 1999 were 2.2 million acres]

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	1.8	69	126	277.9
Phosphate	$P_2 0_5$	92	1.0	44	46	91.9
Potash	$K_2 0$	91	1.3	63	87	174.4

Table 4.10—Agricultural chemical applications: Fall Potatoes, 1999

[Bearing acres in 1999 were 48,000 acres]

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:					
Glyphosate	4	1.0	1.02	1.02	2
Linuron	79	1.0	0.66	0.66	25
Metolachlor	80	1.0	1.69	1.71	66
Metribuzin	77	1.0	0.21	0.21	8
Rimsulfuron	17	1.0	0.02	0.02	2/
Insecticides:					
Carbaryl	2	1.3	1.54	2.07	2
Cyfluthrin	29	1.3	0.02	0.03	2/
Dimethoate	55	1.9	0.49	0.97	25
Endosulfan	1/	1.3	0.98	1.36	2/
Esfenvalerate	12	1.4	0.05	0.07	2/
Imidacloprid	93	1.1	0.18	0.20	9
Methamidophos	7	1.2	0.90	1.12	4
Permethrin	11	1.0	0.14	0.15	1
Phorate	3	1.0	2.81	2.81	4
Phosmet	1/	1.0	0.96	1.01	2/
Fungicides:					
Azoxystrobin	53	1.4	0.10	0.14	4
Chlorothalonil	82	9.9	0.95	9.41	370
Copper hydroxide	1	2.0	0.43	0.89	1
Copper sulfate	1	1.0	0.56	0.62	2/
Mancozeb	28	4.1	1.17	4.85	65
Mefenoxam	52	1.9	0.12	0.24	6
Metiram	44	3.9	1.20	4.75	101
Triphenyltin hydrox.	50	2.9	0.10	0.29	7
Other Chemicals:					
Diquat	84	1.6	0.27	0.44	18
Maleic hydrazide	56	1.0	0.58	0.59	16

[1] Area applied is less than one percent.
[2] Total applied is less than 1,000 lbs.

Table 4.11—Fertilizer applications: Fall Potatoes, 1999

[Planted acres in 1999 were 48,000 acres]

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	3.8	55	211	10.1
Phosphate	$P_2 0_5$	98	1.1	120	140	6.6
Potash	$K_2 0$	100	1.3	152	210	10.0

Table 4.12—Agricultural chemical applications: Soybeans, 1999

[Planted acres in 1999 were 1.95 million acres]

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	9	1.0	0.46	0.46	84
Bentazon	2	1.2	0.64	0.79	32
Glyphosate	68	1.3	0.78	1.08	1,421
Imazaquin	11	1.0	0.06	0.06	14
Imazethapyr	22	1.0	0.04	0.04	19
Linruon	1	1.0	0.39	0.39	9
Metolachlor	10	1.0	1.75	1.75	332
Metribuzin	5	1.0	0.31	0.31	28
Pendimethalin	13	1.0	0.99	0.99	257
Thifensulfuron	7	1.0	0.003	0.003	**

** Total applied is less than 1,000 pounds.

Table 4.13—Fertilizer applications: Soybeans, 1999

[Planted acres in 1999 were 1.95 million acres]

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	31	1.0	16	16	9.5
Phosphate	$P_2 0_5$	45	1.0	32	32	27.7
Potash	$K_2 0$	65	1.0	83	87	109.5

Table 4.14—Commercial fertilizer consumption: 1995-99

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

Item	Year ending June 30				
	1995	1996	1997	1998	1999
	Short tons				
Primary plant nutrients:					
Total N	264,572	229,150	275,600	248,102	263,948
N in multi-nutrients	75,182	61,853	64,017	58,790	62,713
Total P_2O_5	108,593	100,462	112,286	92,236	94,890
P_2O_5 in multi-nutrients	105,504	98,261	101,154	90,323	92,063
Total K_2O	220,154	222,550	246,467	213,954	211,739
K_2O in multi-nutrients	73,101	74,159	77,110	66,246	60,635
Total plant nutrients	593,320	552,162	634,354	554,291	570,576
Average analysis	44.2	44.3	44.5	44.8	43.1
Total nutrients in multi-nutrients	253,786	234,272	242,281	215,360	215,411
Selected single-nutrient materials:					
Ammonium nitrate	8,257	7,900	9,401	6,483	9,533
Anhydrous ammonia	74,863	61,777	88,775	71,765	68,349
Nitrogen solutions	250,770	226,868	260,369	269,136	300,761
Urea	95,768	84,740	87,173	88,167	98,820
Ammonium sulfate	21,964	15,093	71,007	20,168	20,468
Concentrated superphosphate	6,493	4,762	5,202	3,961	4,880
Potassium chloride	234,845	237,984	271,868	237,257	244,519
Multiple-nutrient fertilizers:					
N-P-K	433,577	418,228	434,859	387,053	388,303
N-P	124,929	109,463	125,241	115,178	124,833
N-K	30,269	28,418	31,768	26,527	27,386
P-K	9,844	9,321	11,435	7,891	5,526
Leading multiple-nutrient grades:					
10-34-0	37,092	33,995	40,220	35,525	42,668
18-46-0	48,160	38,217	42,223	36,974	37,709
19-19-19	18,670	18,677	20,139	18,527	21,201
11-52-0	11,110	9,107	8,682	14,860	20,069
12-12-12	9,310	10,051	11,752	11,512	13,868
6-24-24	14,321	13,977	13,385	10,375	12,529
Fertilizer consumption by classes:					
Dry bulk single-nutrient	429,404	395,402	490,328	401,282	430,931
Dry bagged single-nutrient	7,021	12,918	8,820	9,267	7,581
Fluid single-nutrient	328,046	292,718	369,706	348,333	371,425
Dry bulk multiple-nutrient	349,590	329,203	349,906	293,499	283,761
Dry bagged multiple-nutrient	182,292	167,705	174,006	179,578	187,767
Fluid multiple-nutrient	66,736	68,522	79,392	63,570	76,463
Organics, secondary and micronutrients	20,514	34,463	20,345	38,839	37,943
Total fertilizer	**1,383,604**	**1,300,930**	**1,492,503**	**1,334,370**	**1,395,870**

Table 5.1—Field crops: Area, production, and value

Item and unit	Year	Area		Production		Price received [1]	Value of production
		Planted	Harvested	Per acre	Total		
		1,000 acres	*1,000 acres*		*1,000*	*Dollars*	*1,000 dollars*
Barley, *bushels*	1995	25	23	50	1,150	2.65	3,048
	1996	28	25	48	1,200	2.40	2,880
	1997	25	22	58	1,276	1.90	2,424
	1998	27	23	50	1,150	1.50	1,725
	1999	23	21	66	1,386	1.70	2,356
Beans, dry, *cwt.* [2]	1995	390	385	1,800	6,930	19.40	134,442
	1996	340	320	1,450	4,640	21.70	100,688
	1997	315	305	1,620	4,941	18.90	93,385
	1998	300	295	1,500	4,425	21.60	95,580
	1999	350	350	2,100	7,350	18.50	135,975
Corn, all, *bushels*	1995	2,450	--	--	--	--	--
	1996	2,600	--	--	--	--	--
	1997	2,500	--	--	--	--	--
	1998	2,300	--	--	--	--	--
	1999	2,200	--	--	--	--	--
Corn, for grain, *bushels*	1995	--	2,170	115	249,550	3.20	798,560
	1996	--	2,250	94	211,500	2.66	562,590
	1997	--	2,180	117	255,060	2.40	612,144
	1998	--	2,050	111	227,550	1.90	432,345
	1999	--	1,950	130	253,500	1.85	468,975
Corn, for silage, *tons*	1995	--	260	15.0	3,900	--	--
	1996	--	310	12.5	3,875	--	--
	1997	--	300	14.5	4,350	--	--
	1998	--	240	12.5	3,000	--	--
	1999	--	235	17.5	4,113	--	--
Hay, all, *tons*	1995	--	1,350	3.72	5,025	66.00	331,995
	1996	--	1,300	3.22	4,190	106.00	442,895
	1997	--	1,250	3.01	3,760	101.00	378,530
	1998	--	1,250	2.85	3,565	86.00	306,410
	1999	--	1,300	3.40	4,415	68.00	300,793
Hay, alfalfa, *tons*	1995	--	1,050	4.10	4,305	67.00	288,435
	1996	--	950	3.60	3,420	108.00	369,360
	1997	--	900	3.40	3,060	103.00	315,180
	1998		850	3.30	2,805	90.00	252,450
	1999		950	3.80	3,610	70.50	254,505
Hay, alfalfa, seedings	1995	--	--	--	--	--	--
	1996	--	--	--	--	--	--
	1997	160	--	--	--	--	--
	1998	95	--	--	--	--	--
	1999	100	--	--	--	--	--
Hay, other, *tons*	1995	--	300	2.40	720	60.50	43,560
	1996	--	350	2.20	770	95.50	73,535
	1997	--	350	2.00	700	90.50	63,350
	1998	--	400	1.90	760	71.00	53,960
	1999	--	350	2.30	805	57.50	46,288

See footnotes at end of table.

Table 5.1—Field crops: Area, production, and value (continued)

Item and unit	Year	Area		Production		Price received [1]	Value of production
		Planted	Harvested	Per acre	Total		
		1,000 acres	*1,000 acres*		*1,000*	*Dollars*	*1,000 dollars*
Oats, *bushels*	1995	110	90	57	5,130	1.90	9,747
	1996	70	60	60	3,600	2.41	8,676
	1997	95	80	61	4,880	1.86	9,077
	1998	110	100	48	4,800	1.42	6,816
	1999	100	75	65	4,875	1.35	6,581
Potatoes, *cwt.*	1995	55.0	54.5	300	16,350	6.90	112,815
	1996	52.0	46.0	300	13,800	5.80	80,040
	1997	48.0	47.5	300	14,250	6.45	91,913
	1998	47.0	46.5	315	14,648	6.70	98,142
	1999	48.0	47.5	315	14,963	6.70	100,252
Rye, *bushels*	1995	90	16	34	544	2.40	1,306
	1996	80	13	27	351	3.20	1,123
	1997	75	15	30	450	2.90	1,305
	1998	65	15	28	420	2.50	1,050
	1999	105	21	36	756	1.70	1,285
Soybeans, *bushels*	1995	1,500	1,490	40.0	59,600	6.52	388,592
	1996	1,650	1,640	28.5	46,740	7.15	334,191
	1997	1,870	1,860	38.5	71,610	6.47	463,317
	1998	1,900	1,890	39.0	73,710	4.99	367,813
	1999	1,950	1,940	40.0	77,600	4.70	364,720
Spearmint for oil, *pounds*	1995	--	2.2	42	92	11.50	1,058
	1996	--	1.3	21	27	12.20	329
	1997	--	1.5	34	51	11.00	561
	1998	--	1.7	42	71	11.20	795
	1999	--	1.7	40	68	10.00	680
Sugarbeets, *tons*	1995	190	188	15.8	2,970	33.80	100,386
	1996	153	130	15.1	1,963	41.60	81,661
	1997	163	160	19.0	3,040	38.50	117,040
	1998	177	173	16.0	2,768	36.70	101,586
	1999	194	190	18.6	3,534	(3)	(3)
Wheat, winter, *bushels*	1995	630	620	60	37,200	4.10	152,520
	1996	680	600	38	22,800	3.91	89,148
	1997	530	520	62	32,240	3.26	105,102
	1998	600	570	54	30,780	2.33	71,717
	1999	610	600	69	41,400	2.15	89,010

[1] Marketing year average.
[2] Yield per acre in pounds.
[3] Not available at publication time.

Table 5.2—Beans, dry: Acres, yield, and production

Class	Year	Area planted	Area harvested	Yield	Production
		Acres	*Acres*	*Pounds/acre*	*1,000 cwt.*
Black	1995	89,000	88,000	1,930	1,700
	1996	60,000	57,000	1,650	940
	1997	80,000	78,000	1,790	1,400
	1998	135,000	134,000	1,570	2,100
	1999	108,000	108,000	2,090	2,260
Cranberries	1995	28,000	27,000	1,740	470
	1996	27,000	25,000	1,600	400
	1997	32,000	31,000	1,680	520
	1998	27,000	26,000	1,100	285
	1999	31,000	31,000	1,600	496
Navy	1995	220,000	218,000	1,810	3,950
	1996	210,000	200,000	1,400	2,800
	1997	150,000	145,000	1,580	2,290
	1998	75,000	74,000	1,600	1,180
	1999	150,000	150,000	2,300	3,450
Pinto	1995	4,000	4,000	1,750	70
	1996	9,000	8,000	1,500	120
	1997	10,000	10,000	1,400	140
	1998	21,000	20,000	1,470	293
	1999	9,000	9,000	1,890	170
Red kidney, dark	1995	16,000	15,000	1,400	210
	1996	11,000	9,000	1,110	100
	1997	12,000	11,500	1,040	120
	1998	9,000	9,000	1,000	90
	1999	9,000	9,000	1,700	153
Red kidney, light	1995	12,000	12,000	1,670	200
	1996	12,000	10,000	1,400	140
	1997	14,000	14,000	1,640	230
	1998	14,000	13,000	1,310	170
	1999	17,000	17,000	1,800	306
Small red	1995	9,000	9,000	1,780	160
	1996	3,000	3,000	1,170	35
	1997	10,000	9,000	1,670	150
	1998	11,000	11,000	1,820	200
	1999	15,000	15,000	2,070	310
Small white [1]	1995	1,000	1,000	1,500	15
	1996	--	--	--	--
	1997	--	--	--	--
	1998	--	--	--	--
	1999	--	--	--	--
Others	1995	11,000	11,000	1,410	155
	1996	8,000	8,000	1,310	105
	1997	7,000	6,500	1,400	91
	1998	8,000	8,000	1,340	107
	1999	11,000	11,000	1,860	205
Total	1995	390,000	385,000	1,800	6,930
	1996	340,000	320,000	1,450	4,640
	1997	315,000	305,000	1,620	4,941
	1998	300,000	295,000	1,500	4,425
	1999	350,000	350,000	2,100	7,350

[1] Included in others after 1995.

Dry Beans

Michigan's 1999 total dry bean production was 7,350,000 hundredweight (cwt) which represents 24% of US production. Michigan ranks second in dry bean production for 1999. The number one dry bean producer in the nation was North Dakota with 9,798,000 cwt.

Michigan dry bean planting was ahead of schedule for the spring of 1999. Warm weather with adequate rainfall throughout the growing season pushed maturity and dry bean harvest was completed ahead of schedule. Yields averaged 2,100 pounds per acre, up 600 pounds from 1998.

Michigan continues to lead the country in Navy, Cranberry, and Black Bean production. Michigan dry beans are consumed throughout the world and are largely shipped to the United Kingdom, Japan, France, Mexico, and Italy. Dry Beans are and continue to be an important and valuable commodity to Michigan agriculture.

Table 5.3—Beans, dry: Stocks in commercial elevators

Month and year	Navy	All other	Total
		1,000 cwt.	
December 31,1995	2,800	2,000	4,800
1996	3,400	1,550	4,950
1997	2,850	1,700	4,550
1998	1,400	2,100	3,500
1999	2,900	2,900	5,800
August 31,1995	370	300	670
1996	1,400	700	2,100
1997	1,530	240	1,770
1998	1,050	180	1,230
1999	210	720	930

Corn

Michigan had 2.2 million acres planted to corn in 1999, down 100,000 acres from 1998. Grain corn production was 253.5 million bushels, up 11 percent from 1998; 1.95 million acres were harvested for grain. The yield of 130 bushels per acre was a record high. Farmers harvested 235,000 acres of corn for silage with an average yield of 17.5 tons per acre. Planting of corn in Michigan began in earnest the last week of April. It was ahead of the average schedule throughout May and was virtually completed by June 10. Seeding rates and plant populations continued to increase; planting of narrow rows became more common.

Above normal temperatures combined with below normal precipitation during May and early June. By June 13, about 3/4 of the acres were in good-excellent condition. The crop was well ahead of normal as of August 1. Timely storms during that period kept drought areas to a minimum. Above average growing degree days in June and July brought rapid development. Although temperatures were slightly below normal in August, the corn crop was well ahead of normal schedule by September 1.

Harvest was well underway by October 1. The harvest was 75 percent complete by November 1, a record pace; it was nearly completed mid-November. Yields in southern counties were reduced by a dry September. Yields in central and east central areas, however, were phenomenal. The warm, dry fall virtually eliminated the need for artificial drying. There were storage shortages at some commercial elevators.

The 1999 corn crop was valued at $469 million, up 8 percent from 1998. Corn continued to be Michigan's number one crop in value of production. The top five counties in corn production in 1999 were Huron, Saginaw, Sanilac, Tuscola, and Lenawee.

Table 5.4—Corn for grain: Stocks by quarter

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*	
1995	130,000	63,494	65,000	48,336	28,000	20,780	7,000	4,352
1996	125,000	49,882	65,000	36,842	36,000	16,748	11,000	5,445
1997	150,000	55,615	80,000	53,870	46,000	30,017	22,000	15,223
1998	150,000	59,500	90,000	44,200	58,000	21,000	20,000	13,650
1999	145,000	65,300	95,000	49,700	53,000	30,500		

Table 5.5—Corn: Percentage of acreage planted, 1995-1999

Year	Month and day					
	April		May			June
	20	30	10	20	30	10
1995	0	3	19	56	85	98
1996	0	0	14	27	65	92
1997	0	15	48	67	88	98
1998	0	20	50	88	96	100
1999	0	5	46	80	94	99
5-YEAR-AVERAGE . . .	0.0	8.6	35.4	63.6	85.6	97.4

Table 5.6—Corn: Percentage of acreage tasseled, 1995-1999

Year	Month and day					
	July				August	
	1	10	20	30	10	20
1995	0	0	22	71	92	99
1996	0	0	2	19	67	88
1997	0	0	3	33	83	99
1998	0	11	40	79	95	100
1999	0	10	46	88	100	100
5-YEAR-AVERAGE . . .	0	4.2	22.6	58	87.4	97.2

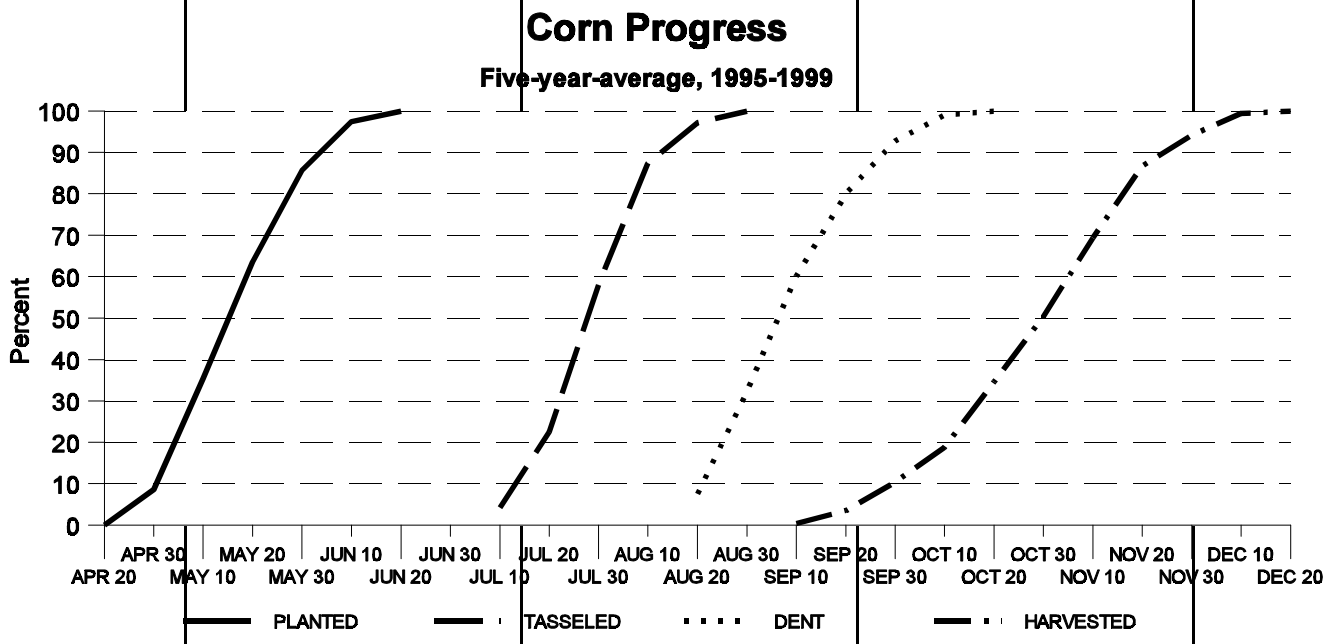
Table 5.7—Corn: Percentage of acreage dent stage, 1995-1999

Year	Month and day							
	August			September			October	
	10	20	30	10	20	30	10	20
1995	0	2	40	80	97	100	100	100
1996	0	0	8	26	57	84	98	100
1997	0	0	4	20	55	80	97	100
1998	0	19	60	90	94	100	100	100
1999	0	17	50	85	97	100	100	100
5-YEAR-AVERAGE . . .	0	7.6	32.4	60.2	80	92.8	99	100

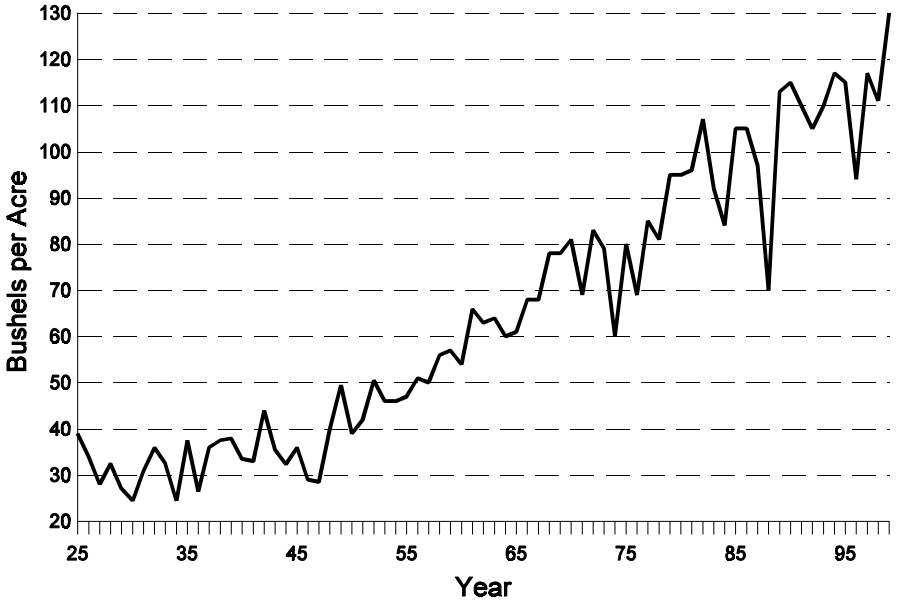
Table 5.8—Corn: Percentage of acreage harvested for grain, 1995-1999

Year	Month and day										
	September			October			November			December	
	10	20	30	10	20	30	10	20	30	10	20
1995	0	6	17	22	48	66	88	99	100	100	100
1996	0	0	2	8	13	28	52	79	92	100	100
1997	0	0	1	4	7	11	31	62	80	97	100
1998	0	5	19	32	55	71	87	98	100	100	100
1999	2	7	13	28	50	76	89	96	99	10	100
	0.4	3.6	10.4	18.8	34.6	50.4	69.4	86.8	94.2	81.4	100

5-YEAR-AVERAGE



Michigan Corn Yields, 1925-99



Barley

Michigan barley growers planted 23,000 acres and harvested 21,000 acres in 1999. This represents a 15 percent decrease in the number of acres planted and a 9 percent decrease in the number of acres of harvested. Total production was 1.39 million bushels, up 21 percent over 1998. The average yield increased 16 bushels to 66 bushels per acre. Fair weather allowed Michigan's barley growers to get into fields and plant early which, followed by timely rains, allowed for the highest average yield in the past 5 years. Menominee, Huron, Delta, Tuscola, and Ogemaw counties were the top five barley producing counties in the state.

Oats

Oat acreage decreased in Michigan during 1999. Growers planted 100,000 acres of oats in 1999 compared with 110,000 the year before. Harvested acres, at 75,000, went down by 25 percent from last year's level. The 1999 oat production was 4.88 million bushels, up 2 percent from the previous year. Yields were up 17 bushels per acre from 1998, at 65 bushels per acre. Good planting weather allowed farmers to get the crop planted at least one week earlier than average. Yield did not suffer from the hot conditions in July and August as harvest was completed ahead of the 5- year average. Sanilac county ranked first in oat production for 1999, while Huron, Presque Isle, Alpena, and Isabella round out the top five counties.

Table 5.9—Grain storage capacity

Year	Off farm		On farm capacity
	Facilities	Rated capacity	
	Number	*1,000 bushels*	*1,000 bushels*
1995	293	146,000	250,000
1996	292	146,000	240,000
1997	289	146,000	250,000
1998	286	143,000	270,000
1999	270	141,000	280,000

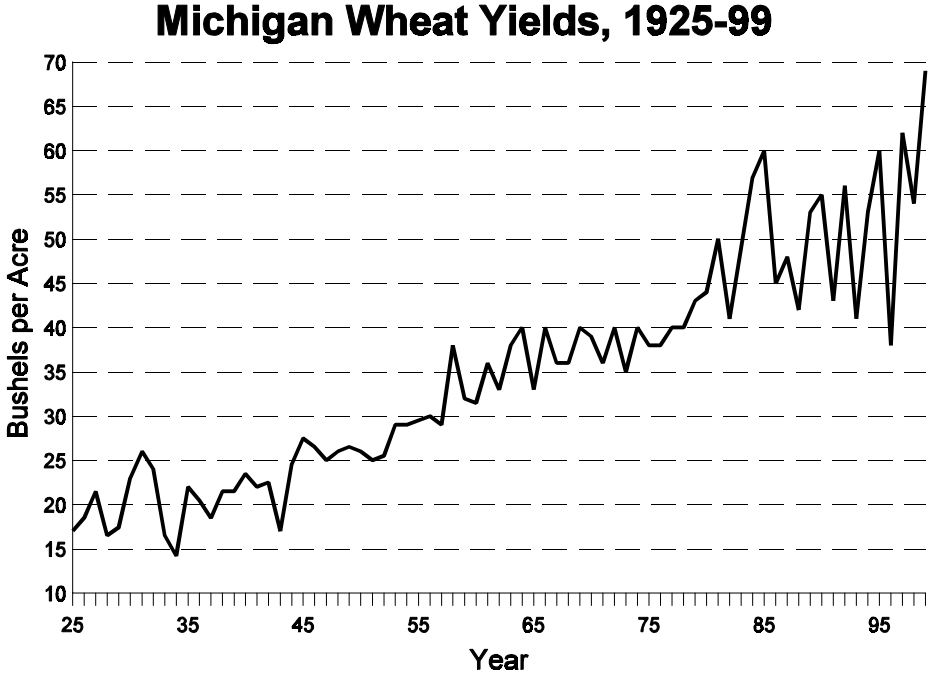
Wheat, winter

Michigan's 1999 winter wheat crop totaled 41.4 million bushels, up 34 percent from 1998. Planted acres were up 10,000 from the previous year to 610,000. Harvested acreage rose 30,000 from 1998 to 570,000. The average yield was a record high 69 bushels per acre. There was little winter damage. The cool spring minimized disease problems; moisture was adequate for heading. Harvest weather was excellent. The value of the crop increased 24 percent to $89 million. Sanilac, Huron, Lenawee, Saginaw, and Shiawassee were the top five counties in wheat production.

The planting began on schedule with Hessian fly-free dates. The quickness of row crop harvest permitted rapid winter wheat seeding. Emergence was ahead of the normal schedule. Almost two-thirds of acres were rated good to excellent in mid-November. There was no snow cover, however, until two-four inches fell December 21-22. An arctic blast accompanied that snow. The wheat harvest began at the end of June, well ahead of normal. It was virtually complete by July 26, as the above normal July temperature ripened the wheat rapidly.

Table 5.10—Wheat: Stocks by quarter

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*	
1995	1,800	23,892	1,300	16,380	700	10,869	300	4,531
1996	2,300	12,963	1,300	9,952	800	9,108	400	5,235
1997	2,700	18,750	1,900	16,005	1,200	11,035	500	6,223
1998	6,500	25,200	4,500	21,000	3,000	17,500	1,100	12,000
1999	5,000	31,050	3,200	23,300	2,800	19,450	1,900	13,300



Hay

Michigan hay production was estimated at 4.4 million tons, up 24 percent from 1998. Alfalfa and alfalfa mixtures accounted for 82 percent of all dry hay produced. All hay harvested acres increased to 1.3 million, up from last year's 1.25 million acres. The average all hay yield was 3.4 tons per acre, up 0.55 tons from 1998. The first and second cuttings of the Michigan hay crop benefitted from warm temperatures and timely rains. The third and fourth cutting did not go as well with hot, dry weather stunting hay growth to the point that many farmers throughout the State did not have a fourth cutting. Alfalfa and alfalfa mixtures accounted for 950,000 acres of the total with a yield of 3.8 tons per acre. Other hay accounted for 350,000 acres with a yield of 2.3 tons per acre. Value of the hay crop was $300.8 million, down 2 percent from 1998.

Rye

There were 105,000 acres planted to rye in 1999; 21,000 of those acres were harvested for grain. This represents a 62 percent increase in the number of acres planted and a 40 percent increase in the number of acres harvested of rye. The remaining acres not harvested for grain were used primarily as a cover crop. Average rye yields were 36 bushels per acre, an increase of 8 bushels over 1998 and the highest average yield recorded for the past 5 years.

Table 5.11—Hay: Stocks on farms

Year	May 1	December 1
	1,000 tons	
1996	754	2,514
1997	460	1,993
1998	414	2,093
1999	566	2,110
2000	1,170	

Maple Syrup

Michigan maple syrup production was estimated at 44,000 gallons for the 2000 season, 29,000 gallons below the 1999 harvest. This season was a difficult year for the production of quality syrup. For most, the season was too short, due to much warmer than normal temperatures in March. The average price received per gallon was $32.00 compared with $28.20 last year. Total value of production was estimated at $1.4 million, down 32 percent from last spring. Michigan ranked seventh in maple production in 2000, down from sixth last year, and produced about 4 percent of the total US production.

Table 5.12—Maple syrup: Production and price

Year	Production	Price received	Value of production
	Gallons	Dollars	1,000 dollars
1996	88,000	31.10	2,737
1997	75,000	31.50	1,913
1998	55,000	32.00	1,760
1999	73,000	28.20	2,058
2000	44,000	32.00	1,408

Potatoes

Michigan's 1999 potato production increased 2 percent to 14.96 million hundredweight (cwt.). The state's average yield was 315 cwt. per acre, tying 1998's record high yield. Planted acres were 48,000 and harvested acres were 47,500, each up 1,000 acres from 1998. Weather was favorable throughout the growing season. Above average growing degree days in June and July brought rapid development. The warm temperatures combined with timely rainfall resulted in another record yield.

Michigan ranked ninth among states in potato production in 1999. Most Michigan potatoes are whites, which comprise approximately 82 percent of planted acreage, followed by russets and reds which comprise approximately 15 and 3 percent of planted acreage, respectively. Whites are sold for table use or processed for potato chips while russets are used for french fries and other frozen products.

Table 5.13—Potatoes: Stocks by type as percent of total stocks, December 1

Type	1995	1996	1997	1998	1999
	Percent				
White	78	78	72	81	87
Russet	20	19	27	18	11
Red	2	3	1	1	2

Table 5.14—Potatoes: Production and disposition

Year	Production	Total used for seed	Farm Dispostion		Sold
			Sed, feed, and home use	Shrinkage and loss	
	1,000 cwt.		*1,000 cwt.*		*1,000 cwt.*
1995	16,350	962	168	690	15,492
1996	13,800	768	300	1,300	12,200
1997	14,250	864	200	1,300	12,750
1998	14,648	888	200	1,348	13,100
1999	14,963	(1)	(1)	(1)	(1)

[1] Not available at publication time.

Table 5.15—Potatoes: Stocks

Crop year	December 1	January 1	February 1	March 1	April 1	May 1
	1,000 cwt.					
1995	9,600	8,300	6,500	4,800	2,700	1,200
1996	8,000	6,600	4,600	3,300	1,900	1,000
1997	8,500	7,000	5,500	3,800	2,300	1,000
1998	9,100	7,500	5,400	4,100	2,200	800
1999	8,800	7,100	5,800	4,200	2,700	1,300

Soybeans

Michigan soybean production totaled 77.6 million bushels, up from 1998, setting a record high for the third year in a row. The yield was 40 bushels per acre in 1999, matching the record high originally set in 1995. Planted and harvested acres were also up from the 1998 total to 1.95 million and 1.94 million, respectively. Germination was slowed by dry conditions but growth advanced rapidly with timely rains and hot weather. By June 1, farmers had 81 percent of the soybean acres planted. Dry weather in September helped to mature the crop. Ideal harvest conditions let farmers harvest quickly and easily as dry weather continued through October. The total crop value was $364.7 million, down from the 1998 amount by 1 percent. Lenawee, Saginaw, and Sanilac were the top counties in soybean production, with Gratiot, Monroe, and Shiawassee completing the top six counties.

Table 5.16—Soybeans: Stocks by quarter

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*	
1995	14,000	18,888	10,000	9,836	3,300	4,489	900	1,186
1996	12,000	15,068	7,000	8,642	3,000	2,767	700	865
1997	19,000	20,931	12,000	10,646	4,000	4,677	1,500	1,262
1998	30,000	18,000	22,000	9,950	11,000	5,600	4,000	2,150
1999	33,000	19,800	17,000	12,750	6,000	6,350		

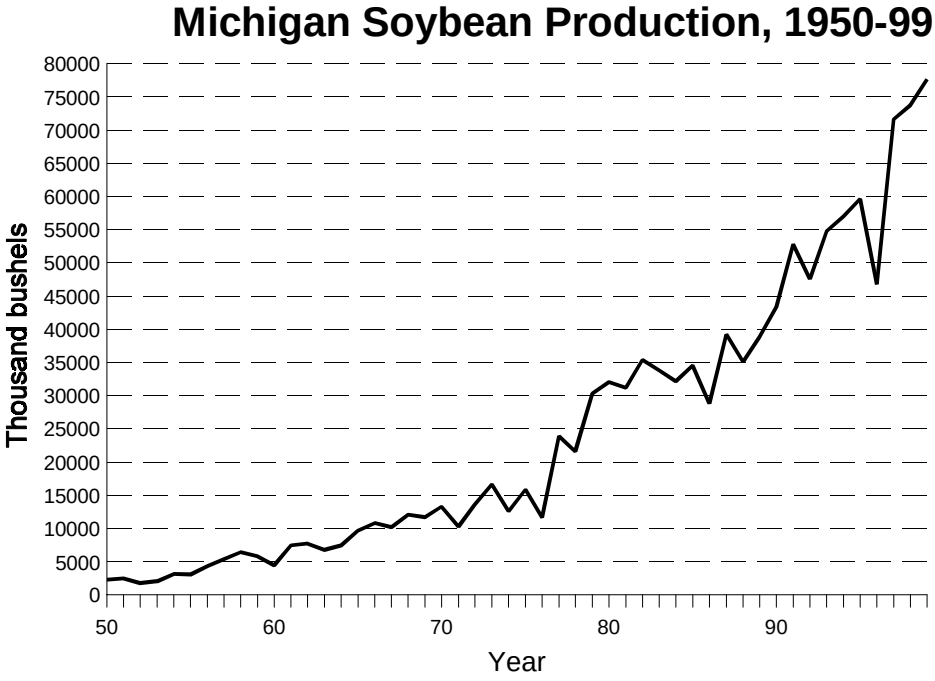


Table 5.17—Soybeans: Percentage of acreage planted, 1995-1999

Year	Month and day						
	May			June			July
	10	20	30	10	20	30	10
1995	0	18	62	87	97	100	100
1996	[1]	7	32	71	77	94	100
1997	5	19	60	84	100	100	100
1998	10	56	81	92	98	100	100
1999	12	49	81	93	99	100	100
5-YEAR-AVERAGE	5.6	29.8	63.2	85.4	94.2	98.8	100

Table 5.18—Soybeans: Percentage of acreage setting pods, 1995-1999

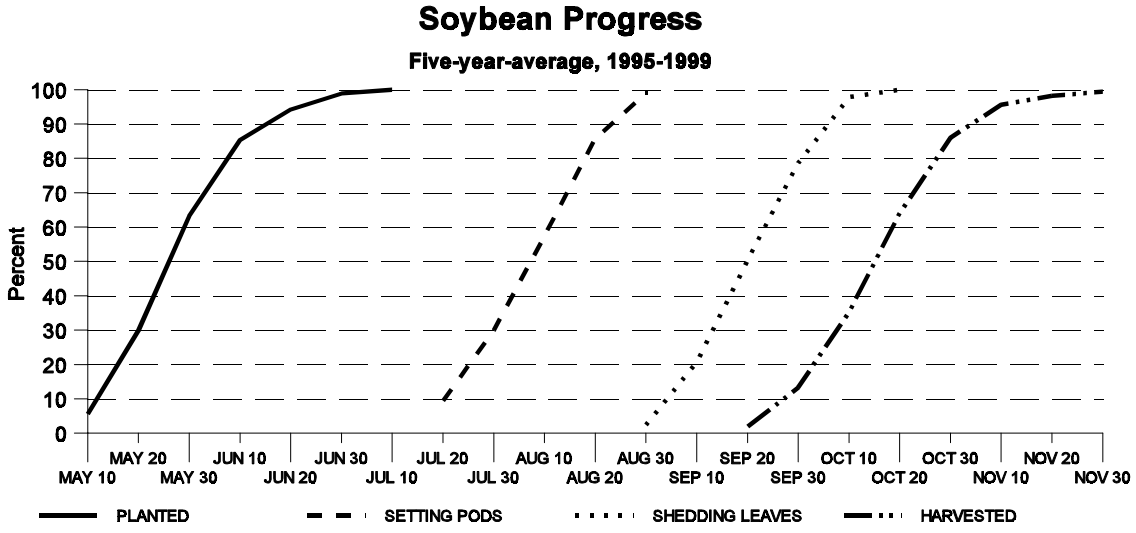
Year	Month and day					
	July			August		
	10	20	30	10	20	30
1995	0	8	25	64	96	100
1996	0	0	0	20	51	95
1997	0	2	20	53	93	100
1998	0	17	57	73	96	100
1999	0	20	48	77	93	100
5-YEAR-AVERAGE	0	9.4	30	57.4	85.8	99

Table 5.19—Soybeans: Percentage of acreage shedding leaves, 1995-1999

Year	Month and day						
	August		September			October	
	20	30	10	20	30	10	20
1995	0	0	22	74	96	100	100
1996	0	1	4	20	56	91	100
1997	0	0	7	24	57	98	100
1998	0	9	40	68	87	100	100
1999	0	2	31	66	98	100	100
5-YEAR-AVERAGE	0	2.4	20.8	50.4	78.8	97.8	100

Table 5.20—Soybeans: Percentage of acreage harvested, 1995-1999

Year	Month and day								
	September			October			November		
	10	20	30	10	20	30	10	20	30
1995	0	2	16	50	83	94	98	100	100
1996	0	0	3	11	40	70	93	96	99
1997	0	0	4	25	64	81	90	95	98
1998	0	3	22	44	66	93	99	100	100
1999	0	5	22	46	67	92	98	100	100
5-YEAR-AVERAGE	0	2	13.4	35.2	64	86	95.6	98.2	99.4



Sugarbeets

Acres planted for sugarbeets rose for the fourth consecutive year in Michigan and increased 9.6 percent in 1999, to 194,000 acres planted. Harvested acreage, at 190,000, increased 10 percent from the previous year, setting a new state record. Most of the crop was planted by the end of April. Some fields were replanted due to damage from crusting and high winds. The crop suffered from a lack of rain in early fall. Conditions for harvest were ideal as two weeks of dry weather were enough to harvest most of the crop. Yields averaged 18.6 tons per acre compared with 16.0 tons per acre in 1998. The total tonnage increased 28 percent from 1998, to a record 3.53 million tons. Huron and Tuscola were the top sugarbeet producing counties for 1999.

Fruit

Warm, dry weather during the 1999 growing season pushed fruit maturity from one to two weeks ahead of normal. Apple, blueberry, grape, and pear yields increased from the previous year. The weather helped some fruit crops but hindered others. For grapes, 1999 was the best wine vintage in recent history. Plum yields were reduced in the southwest by dry conditions while yields in the west central and northwest were excellent. The fresh market peach crop in Michigan was also sharply reduced due to a January freeze in four southwestern counties. The yields, however, were excellent in eastern Michigan and in the processing peach west central region. The yield and quality of Michigan processing pears were excellent. Some fresh market pears were lost due to labor shortages. Tart and sweet cherry set was below average in the northwest and west central but the southwest showed a strong fruit set that led to substantially higher yields. The crops matured about two weeks ahead of normal with excellent quality in most areas.

Apple production was a record high 1.21 billion pounds, up from 1.0 billion pounds in 1998. The preliminary farm-level value of the crop was $102.0 million, up 23 percent from 1998. The yield estimate was 23,000 pounds per acre. Michigan was third among states in apple output. Washington, New York, and California orchardists produced 5.0 billion, 1.26 billion, and 825 million pounds of apples, respectively.

Tart cherry production was 185 million pounds, 73 percent of the national total. The yield in Michigan fell to 6,580 pounds per bearing acre, down from 9,260 pounds in 1998. Sweet cherry production fell 23 percent from 1998 to 27,000 tons; California, Washington, and Oregon produced 79,500, 67,000, and 50,000 tons, respectively.

Michigan's output of cultivated blueberry production was 72 million pounds, 40 percent of the U.S. total. The farm-level value was nearly $57 million. Seventy-two percent of Michigan's blueberries were frozen or canned. New Jersey growers produced 41 million pounds. Strawberry production in Michigan slipped 5 percent to 9.0 million pounds.

Peach production dropped to 23 million pounds in 1999 from 42.5 million pounds a year earlier. Pear output dropped slightly from 5,040 to 5,000 tons.

The Michigan grape yields were superb and juice grape quality was excellent. The production of grapes increased 7 percent to 75,000 tons. There were 57,300 tons of Concords and 14,400 tons of Niagaras processed. Grapes processed for wine rose from 2,500 tons in 1998 to 3,000 tons in 1999.

Table 6.1—Fruit: Area, production, and value

Item	Year	Bearing area	Yield per acre	Production		Price per pound	Value of production
				Total	Utilized		
		Acres	*Pounds*	*Million pounds*		*Dollars*	*1,000 dollars*
Apples	1995	54,000	22,600	1,220	1,220	0.099	120,680
	1996	54,000	13,000	700	700	0.126	88,125
	1997	54,000	18,500	1,000	1,000	0.098	98,200
	1998	54,000	18,500	1,000	960	0.087	83,200
	1999	52,500	23,000	1,210	1,190	0.086	102,030
Blueberries [1]	1995	16,300	4,110	67	67	0.499	33,450
	1996	16,500	2,550	42	42	0.865	36,330
	1997	16,500	4,360	72	72	0.695	50,042
	1998	16,400	2,990	49	49	0.618	30,260
	1999	16,600	4,340	72	72	0.791	56,920
Cherries, tart	1995	30,000	10,300	310	250	0.054	13,448
	1996	29,100	6,700	195	195	0.160	31,202
	1997	28,400	7,920	225	221	0.156	34,380
	1998	28,400	9,260	263	229	0.140	32,162
	1999	28,100	6,580	185	185	0.216	39,926
Peaches	1995	5,500	10,900	60	60	0.210	12,594
	1996	5,300	7,170	38	38	0.270	10,250
	1997	5,000	11,000	55	55	0.263	14,450
	1998	5,000	8,600	43	42.5	0.272	11,551
	1999	4,600	5,000	23	23.0	0.237	5,440

Item	Year	Bearing area	Yield per acre	Production		Price per ton	Value of production
				Total	Utilized		
		Acres	*Tons*	*Tons*		*Dollars*	*1,000 dollars*
Cherries, sweet	1995	7,600	3.55	27,000	27,000	581	15,700
	1996	7,700	2.86	22,000	22,000	709	15,607
	1997	7,800	3.46	27,000	27,000	740	19,986
	1998	7,900	4.43	35,000	33,000	562	18,551
	1999	8,100	3.33	27,000	26,500	534	14,149
Grapes	1995	11,800	5.93	70,000	64,000	237	15,196
	1996	11,900	5.46	65,000	59,500	228	13,555
	1997	12,300	4.96	61,000	61,000	293	17,873
	1998	12,300	5.72	70,400	70,400	293	20,660
	1999	11,700	6.41	75,000	75,000	286	21,484
Pears	1995	1,000	5.50	5,500	5,000	280	1,400
	1996	1,000	6.00	6,000	6,000	260	1,560
	1997	900	4.44	4,000	4,000	250	1,000
	1998	900	5.60	5,040	4,800	271	1,302
	1999	850	5.88	5,000	4,900	265	1,300
Plums	1995	1,700	4.41	7,500	7,000	229	1,603
	1996	1,300	1.92	2,500	2,500	335	838
	1997	1,150	3.48	4,000	4,000	348	1,390
	1998	1,100	3.27	3,600	3,600	300	1,080
	1999	900	4.44	4,000	3,750	299	1,120

[1] Harvested acres.

Table 6.2—Apples: Utilization and price

Year	Fresh market		Processing		Total utilization	
	Quantity	Price received	Quantity	Price received	Quantity	Price received
	Million pounds	*Dollars per pound*	*Million pounds*	*Dollars per pound*	*Million pounds*	*Dollars per pound*
1995	400	0.150	820	0.073	1,220	0.099
1996	225	0.170	475	0.105	700	0.126
1997	300	0.150	700	0.076	1,000	0.098
1998	320	0.140	640	0.060	960	0.087
1999	370	0.145	820	0.059	1,190	0.086

Table 6.3—Apples, processing: Utilization and price

Year	Canned		Frozen		Juice and cider		Other	
	Quantity	Price received	Quantity	Price received	Quantity	Price received	Quantity	Price received
	Million pounds	*Dollars per pound*	*Million pounds*	*Dollars per pound*	*Million pounds*	*Dollars per pound*	*Million pounds*	*Dollars per pound*
1995	250	0.082	165	0.092	400	0.060	5	0.087
1996	200	0.110	125	0.125	140	0.080	10	0.085
1997	265	0.090	160	0.096	270	0.052	5	0.060
1998	230	0.073	100	0.087	300	0.041	10	0.050
1999	245	0.073	110	0.085	450	0.045	15	0.058

Table 6.4—Blueberries: Utilization and price

Year	Production		Fresh market		Processed	
	Total	Utilized	Quantity	Price per pound	Quantity	Price per pound
	Million pounds		*Million pounds*	*Dollars*	*Million pounds*	*Dollars*
1995	67	67	19	0.750	48	0.400
1996	42	42	15	1.000	27	0.790
1997	72	72	19	0.988	53	0.590
1998	49	49	16	0.860	33	0.500
1999	72	72	20	1.130	52	0.660

Table 6.5—Cherries, sweet: Production and utilization

Year	Total production	Utilized production			
		Fresh	Canned	Brined	Other [1]
	Tons	*Tons*			
1995	27,000	1,000	2,800	20,300	2,900
1996	22,000	500	1,200	16,800	3,500
1997	27,000	500	800	21,500	4,200
1998	35,000	700	4,700	24,500	3,100
1999	27,000	1,400	3,900	19,300	2,350

[1] Frozen, juice, etc.

Table 6.6—Cherries, tart: Utilization

Year	Production		Fresh market	Utilization of sales		
				Processed		
	Total	Utilized		Canned	Frozen	Other
	Million pounds		*Million pounds*	*Million pounds*		
1995	310	250	1	70	160	19
1996	195	195	1	55	135	4
1997	225	221	1	70	145	5
1998	263	229	1	65	150	13
1999	185	185	1	69	100	15

Table 6.7—Cherries, tart: Production by region

Region	1995	1996	1997	1998	1999
	Million pounds				
Northwest	160	140	140	186	108
West Central	97	35	70	59	48
Southwest and other	53	20	15	18	29
State total	310	195	225	263	185

Table 6.8—Cherries, tart ,frozen : Stocks in cold storage

Month	East North Central region [1]				48 States total [2]			
	Crop year				Crop year			
	1996	1997	1998	1999	1996	1997	1998	1999
	1,000 pounds				*1,000 pounds*			
July	78,289	83,634	144,388	141,216	103,795	105,283	169,624	162,135
August	124,960	170,555	139,644	131,875	155,678	194,571	165,591	156,754
September	121,793	144,201	133,436	126,300	151,751	168,173	157,631	149,070
October	114,624	133,493	121,605	114,435	146,260	154,891	143,413	136,220
November	108,223	129,212	112,595	105,799	137,226	148,945	133,236	125,343
December	99,813	118,540	100,308	98,574	127,102	136,297	122,205	116,364
January	88,843	109,747	89,465	88,934	112,844	127,244	108,846	105,384
February	81,106	92,744	82,191	82,887	100,144	106,880	100,498	97,224
March	72,915	80,498	73,785	72,925	90,809	93,271	90,498	85,032
April	64,563	66,823	65,852	67,478	78,561	78,377	79,947	78,395
May	57,579	57,279	58,847	57,753	70,508	67,565	70,786	66,628
June	49,977	53,753	49,763	53,553	60,953	62,012	58,361	61,387

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

Table 6.9—Grapes: Utilization

Year	Fresh market utilization	Processed utilization		Utilized production
		Juice	Wine	
	Tons	*Tons*		*Tons*
1995	500	61,500	2,000	64,000
1996	400	57,500	1,600	59,500
1997	200	58,200	2,600	61,000
1998	400	67,500	2,500	70,400
1999	500	71,500	3,000	75,000

Table 6.10—Grapes: Processed by variety

Year	Variety			
	Concord	Niagara	Other	Total
	Tons			
1995	50,300	11,200	2,000	63,500
1996	47,500	10,000	1,600	59,100
1997	45,200	13,400	2,200	60,800
1998	53,800	13,700	2,500	70,000
1999	57,300	14,400	2,800	74,500

Table 6.11—Plums: Production and utilization

Year	Total production	Utilization	
		Fresh	Processed
	Tons	*Tons*	
1995	7,500	3,300	3,700
1996	2,500	1,250	1,250
1997	4,000	1,500	2,500
1998	3,600	1,200	2,400
1999	4,000	1,100	2,650

Table 6.12—Strawberries: Area, production, and value

Year	Area		Production		Price per cwt.	Value of production
	Planted	Harvested	Yield per acre	Total		
	Acres	*Acres*	*Cwt.*	*1,000 cwt.*	*Dollars*	*1,000 dollars*
1995	1,800	1,700	60	102	66.90	6,822
1996	1,700	1,500	40	60	75.20	4,512
1997	1,600	1,500	65	98	75.60	7,411
1998	1,500	1,400	68	95	74.60	7,089
1999	1,400	1,400	64	90	71.20	6,412

Table 6.13—Strawberries: Utilization and value

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*
1995	90	71.00	6,390	12	36.00	432
1996	56	78.00	4,368	4	36.00	144
1997	87	80.00	6,960	11	41.00	451
1998	82	79.00	6,478	13	47.00	611
1999	71	78.00	5,538	19	46.00	874

Vegetables

Michigan vegetable growers produced 759,270 tons of fresh and processed vegetables in 1999, a 7 percent increase from last year's production. Harvested acreage at 113,900 for fresh market and processed vegetables, was up from last year's number of 106,850. Value of production for all vegetables was $178 million, down 3 percent from the previous year. Nationally, Michigan ranked eighth and sixth in fresh market and processing vegetable sales, respectively.

Most of the state's vegetables are grown in the southern half of the Lower Peninsula. Fresh market produce grown in Michigan is shipped to major markets throughout the nation. The amount of fresh market vegetables produced this year was 7.38 million hundredweight, a 1 percent increase from 1998. Many vegetable crops got off to a good start due to favorable weather conditions. Dry fall conditions helped facilitate harvest. Timely rains benefitted cabbage and snap beans. Harvest of vegetables was generally early with no weather problems. The top ten vegetable counties were Oceana, St. Joseph, Van Buren, Allegan, Berrien, Newaygo, Mason, Gratiot, Ottawa, Lenawee, and Macomb. Processed vegetables are used by both in and out-of-state processors. Production amounted to 390,370 tons, an increase of 13 percent from 1998. Michigan was the top state in pickle production.

Dual purpose vegetable acreage is used for both fresh market and processing. Nationally, Michigan ranked third for dual purpose asparagus production. Favorable growing and harvest conditions in Michigan led to record yields in some asparagus fields. Harvest continued until mid-June with few problems.

Table 7.1—Principal vegetables, fresh market: Area, production, and value

Year	Area planted	Area harvested	Production	Value
	Acres	*Acres*	*1,000 cwt.*	*1,000 dollars*
1995	61,800	58,200	8,299	140,815
1996	60,600	55,600	8,154	124,626
1997	59,900	56,950	8,034	123,086
1998	56,600	53,550	7,307	136,522
1999	56,500	54,000	7,378	124,282

Table 7.2—Principal vegetables, processing: Area, production, and value

Year	Area planted	Area harvested	Production	Value
	Acres	*Acres*	*Tons*	*1,000 dollars*
1995	64,200	59,500	409,600	45,167
1996	62,000	58,500	420,240	48,839
1997	57,900	56,400	394,500	47,270
1998	55,000	53,300	345,740	46,877
1999	61,500	59,900	390,370	53,621

Table 7.3—Vegetables, processing: Area, production, and value

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

Item	Year	Area		Production		Value	
		Planted	Harvested	Per acre	Total	Per ton	Total
		Acres	*Acres*	*Tons*	*Tons*	*Dollars*	*1,000 dollars*
Beans, snap	1995	23,000	21,500	2.86	61,490	162.00	9,961
	1996	22,000	21,000	3.30	69,300	164.00	11,365
	1997	23,200	22,800	3.45	78,660	171.00	13,451
	1998	21,500	21,000	3.89	81,600	171.00	13,973
	1999	28,000	27,000	3.74	100,970	166.00	16,765
Carrots	1995	1,700	1,600	21.00	33,600	59.70	2,006
	1996	1,700	1,600	23.00	36,800	65.10	2,396
	1997	1,600	1,500	25.00	37,500	62.40	2,340
	1998	1,700	1,600	19.00	30,400	59.40	1,806
	1999	1,600	1,500	26.00	39,000	67.60	2,636
Cucumbers	1995	28,000	26,000	5.50	143,000	149.00	21,307
	1996	28,000	26,000	5.30	137,800	156.00	21,497
	1997	27,000	26,000	5.20	135,200	152.00	20,550
	1998	27,000	26,000	5.00	130,000	169.00	21,970
	1999	27,000	26,500	6.00	159,000	164.00	26,076
Tomatoes	1995	4,600	4,500	30.00	135,000	65.70	8,870
	1996	4,600	4,400	32.50	143,000	73.70	10,539
	1997	4,300	4,300	31.00	133,300	73.30	9,771
	1998	2,600	2,500	36.00	90,000	84.00	7,560
	1999	2,900	2,900	30.00	87,000	84.00	7,308

Table 7.4—Vegetables, fresh market: Area, production, and value

Item	Year	Area		Production		Value [1]	
		Planted	Harvested	Per acre	Total	Per cwt.	Total
		Acres	*Acres*	*Cwt.*	*1,000 cwt.*	*Dollars*	*1,000 dollars*
Beans, snap	1995	1,800	1,700	45	77	27.10	2,087
	1996	1,700	1,500	40	60	38.20	2,292
	1997	1,700	1,600	45	72	29.80	2,146
	1998	2,200	2,100	60	126	61.00	7,686
	1999	2,200	2,200	40	88	31.00	2,728
Cabbage	1995	1,800	1,700	220	374	12.00	4,488
	1996	1,800	1,700	310	527	9.00	4,743
	1997	1,900	1,900	260	494	7.80	3,853
	1998	1,800	1,700	260	442	13.30	5,879
	1999	1,900	1,800	280	504	8.60	4,334
Cantaloups	1995	900	850	150	128	16.30	2,086
	1996	1,000	800	90	72	17.00	1,224
	1997	1,000	950	150	143	19.80	2,831
	1998	800	750	150	113	19.00	2,147
	1999	800	700	140	98	17.30	1,695
Carrots	1995	6,200	5,700	340	1,938	16.80	32,558
	1996	6,000	5,000	260	1,300	11.80	15,340
	1997	5,500	5,300	250	1,325	12.50	16,563
	1998	4,700	4,600	290	1,334	13.10	17,475
	1999	4,700	4,700	280	1,316	10.70	14,081
Corn, sweet	1995	13,000	11,500	80	920	15.70	14,444
	1996	12,500	10,500	85	893	17.00	15,181
	1997	12,500	11,500	85	978	17.80	17,408
	1998	11,000	10,000	75	750	17.20	12,900
	1999	11,500	10,600	70	742	17.90	13,282
Cucumbers	1995	5,900	5,700	150	855	18.00	15,390
	1996	5,700	5,500	200	1,100	15.20	16,720
	1997	6,500	6,400	200	1,280	14.10	18,048
	1998	7,000	6,500	190	1,235	17.30	21,366
	1999	7,000	6,600	220	1,452	15.50	22,506
Onions	1995	6,500	6,400	290	1,856	9.20	13,736
	1996	6,200	5,800	310	1,798	10.80	15,541
	1997	5,000	4,900	320	1,568	8.90	11,170
	1998	4,500	4,200	260	1,092	11.00	9,614
	1999	4,100	4,000	270	1,080	10.00	8,640
Tomatoes	1995	2,600	2,400	150	360	30.40	10,944
	1996	2,600	2,400	180	432	24.20	10,454
	1997	3,000	2,500	160	400	24.20	9,680
	1998	2,500	2,300	210	483	38.50	18,596
	1999	2,800	2,600	190	494	33.50	16,549

[1] Onions=Value of sales.

Table 7.5—Vegetables, dual purpose: Area, production, and value

Item	Year	Area		Production		Value	
		Planted	Harvested	Per acre	Total	Price per cwt.	Total
		Acres	*Acres*	*Cwt.*	*1,000 cwt.*	*Dollars*	*1,000 dollars*
Asparagus	1995	17,500	17,000	18	306	65.70	20,106
	1996	18,000	17,500	17	298	67.50	20,110
	1997	18,000	17,500	15	263	67.70	17,792
	1998	17,500	17,000	16	278	62.30	17,320
	1999	17,000	16,500	18	297	63.40	18,822
Cauliflower	1995	700	650	120	78	33.60	2,617
	1996	700	600	130	78	30.30	2,367
	1997	500	400	140	56	25.90	1,420
	1998	400	400	150	60	26.20	1,572
	1999	400	400	130	52	20.00	1,040
Celery	1995	2,700	2,500	420	1,050	13.60	14,255
	1996	2,500	2,300	520	1,196	11.10	13,294
	1997	2,500	2,300	470	1,081	13.30	14,358
	1998	2,300	2,200	470	1,034	12.90	13,327
	1999	2,000	1,900	450	855	12.90	11,005
Peppers, bell	1995	2,200	2,100	170	357	22.70	8,104
	1996	2,100	2,000	200	400	18.40	7,360
	1997	1,800	1,700	220	374	20.90	7,817
	1998	1,900	1,800	200	360	24.00	8,640
	1999	2,100	2,000	200	400	24.00	9,600

Table 7.6—Vegetables, dual purpose: Disposition and value

[Cauliflower, celery, bell peppers are not published to avoid disclosure of individual operations]

Item	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*
Asparagus	1995	36	71.00	2,556	13,500	1,300	17,550
	1996	33	79.00	2,607	13,260	1,320	17,503
	1997	39	80.00	3,120	11,200	1,310	14,672
	1998	36	65.00	2,340	12,080	1,240	14,980
	1999	34	74.00	2,516	13,150	1,240	16,306

Table 7.7—U.S. Pickle stocks in tanks, barrels, and fresh pack, December 1,1998-99

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*
1998	248,990	73,924	1,611	34,987	--	359,512
1999	309,822	109,171	6,295	25,553	--	450,841

Table 7.8—Principal vegetables: Harvested and planted acres

Vegetable	1995			1998		
	Total planted	Harvested for processing	Harvested for fresh market	Total planted	Harvested for processing	Harvested for fresh market
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Asparagus	17,500	14,600	2,400	17,500	14,200	2,800
Beans, snap	23,800	20,500	1,700	23,700	21,000	2,100
Cabbage	2,100	300	1,700	2,250	450	1,700
Cantaloups	900	0	850	800	0	750
Carrots	7,900	1,600	5,700	6,400	1,600	4,600
Cauliflower	700	150	500	400	0	400
Celery	2,700	700	1,800	2,300	400	1,800
Corn, sweet	18,000	4,100	11,500	11,000	0	10,000
Cucumbers	33,900	26,000	5,700	34,000	26,000	6,500
Onions, dry	6,500	0	6,400	4,500	0	4,200
Peas, green	1,700	1,500	50	1,765	1,700	50
Peppers, bell	2,200	350	1,750	1,900	250	1,550
Peppers, other	1,400	1,200	150	775	580	140
Potatoes	55,000	31,500	20,400	47,000	29,700	13,850
Pumpkins	3,500	0	3,000	4,100	0	3,800
Radishes	3,300	0	3,000	2,700	0	2,500
Squash, summer	1,900	600	1,200	2,250	900	1,300
Squash, winter	3,100	1,000	2,000	2,900	900	1,800
Tomatoes	7,200	4,500	2,400	5,100	2,500	2,300
Other [1]	3,900	220	3,280	3,800	0	3,600
State total	197,200	108,820	75,480	175,140	100,180	65,740

Table 7.9—Principal vegetables: Number of farms and harvested acres, 1998

County and district	Farms	Processing	Fresh market	Total
	Number	*Acres*	*Acres*	*Acres*
Delta	12	80	1,070	1,150
Dickinson	5	50	340	390
Marquette	4	100	320	420
Other counties	34	50	370	420
Upper Peninsula (1)	**55**	**280**	**2,100**	**2,380**
Grand Traverse	31	890	110	1,000
Kalkaska	6	700	700	1,400
Manistee	22	775	225	1,000
Wexford	4	340	10	350
Other counties	52	515	1,835	2,350
Northwest (2)	**115**	**3,220**	**2,880**	**6,100**
Alpena	11	0	800	800
Presque Isle	17	150	1,700	1,850
Other counties	22	0	350	350
Northeast (3)	**50**	**150**	**2,850**	**3,000**
Mason	65	4,350	350	4,700
Muskegon	32	2,450	650	3,100
Newaygo	40	800	4,850	5,650
Oceana	180	12,000	2,100	14,100
Gratiot	32	4,050	700	4,750
Isabella	13	1,420	750	2,170
Mecosta	23	3,320	280	3,600
Midland	10	480	70	550
Montcalm	47	16,200	1,600	17,800
Other counties	13	130	150	280
West Central (4) and Central (5)	**455**	**45,200**	**11,500**	**56,700**
Arenac	24	2,000	200	2,200
Bay	67	1,950	4,250	6,200
Saginaw	35	3,090	510	3,600
Tuscola	27	4,850	550	5,400
Other counties	27	1,600	1,000	2,600
East Central (6)	**180**	**13,490**	**6,510**	**20,000**
Allegan	70	3,250	4,600	7,850
Berrien	160	700	5,100	5,800
Cass	30	2,050	1,100	3,150
Kalamazoo	35	1,750	400	2,150
Kent	65	1,050	2,400	3,450
Ottawa	90	200	3,200	3,400
Van Buren	85	5,800	2,700	8,500
Southwest (7)	**535**	**14,800**	**19,500**	**34,300**
Branch	22	450	650	1,100
Calhoun	22	0	1,000	1,000
Clinton	27	150	470	620
Eaton	22	150	1,050	1,200
Ingham	21	110	460	570
Ionia	15	260	500	760
Jackson	26	30	720	750
St. Joseph	55	16,500	800	17,300
Other counties	40	50	250	300
South Central (8)	**250**	**17,700**	**5,900**	**23,600**

Table 7.9—Principal vegetables: Number of farms and harvested acres, 1998 (continued)

County and district	Farms	Processing	Fresh market	Total
	Number	*Acres*	*Acres*	*Acres*
Genesee	35	700	700	1,400
Lapeer	40	30	3,050	3,080
Lenawee	40	2,700	600	3,300
Livingston	25	0	650	650
Macomb	70	10	3,390	3,400
Monroe	55	1,900	1,950	3,850
Oakland	20	0	460	460
St. Clair	30	0	800	800
Washtenaw	40	0	1,700	1,700
Wayne	25	0	1,200	1,200
Southeast (9)	380	5,340	14,500	19,840
State total	2,020	100,180	65,740	165,920

Mushrooms

During the 1998-99 marketing year, Michigan growers sold 10.1 million pounds of Agaricus (white button) mushrooms compared with 14.7 million pounds the previous year. Michigan was seventh behind Pennsylvania, California, Florida, Ohio, Indiana, and Washington. Growers in the State used 2.8 million square feet of bed and tray space . The price per pound averaged $1.20, up 5 cents from the 1997-98 season and the highest price on record. The drop in volume of sales caused total value to decrease to $12.1 million, $4.9 million lower than last season.

Table 7.10—Agaricus mushrooms: Area, sales, price, and value

[Marketing year begins July 1 and ends June 30 of the following year]

Year	Area in production [1]	Volume of sales	Yield per square foot	Price per pound	Value of sales
	1,000 sq. ft.	*1,000 pounds*	*Pounds*	*Dollars*	*1,000 dollars*
1994-95	2,581	14,877	5.76	0.938	13,958
1995-96	2,595	14,414	5.56	1.100	15,818
1996-97	2,572	13,638	5.20	1.080	14,679
1997-98	2,760	14,731	5.34	1.150	17,014
1998-99	2,767	10,106	3.66	1.200	12,141

[1] Total fillings.

Michigan Floriculture Sales Increase

Michigan placed fourth nationally in value of wholesale sales of floriculture products in 1999. Only California, Florida and Texas reported larger sales than Michigan. The results in this report are based upon two survey instruments. The 1998 data are from the decennial Census of Horticultural Specialties which contained the traditional questions about floriculture production plus questions about horticultural commodities in general. The 1999 information is from the annual Commercial Floriculture Survey which specifically targets floriculture producers. Reports from Michigan's 738 commercial growers ($10,000 or more in gross sales) showed an estimated wholesale value of $232 million for all surveyed floriculture crops, up 2 percent from last year. 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. Crop category breakdowns for Michigan operations with more than $100,000 in sales and the percent change from 1998 were:

- First, **bedding/garden plants** with $176 million in sales, up 2 percent.
- Second, **flowering potted plants** with $28 million in sales, up 1 percent.
- Third, **cut flowers** with $5 million in sales, down 42 percent.
- Fourth, **foliage** for indoor or patio use with $3 million in sales, down 2 percent.

Michigan leads the nation in value of sales for 10 floriculture crops:

- **Bedding Impatiens** with 2.9 million flats sold, valued at $18.8 million.
- **Other Flowering Hanging Baskets** with 1.9 million baskets sold, valued at $11.5 million.
- **Potted Geraniums** (cuttings) with 7.1 million pots sold, valued at $11.0 million.**Potted Geraniums** (seed) with 14.6 million pots sold, valued at $10.7 million.
- **Bedding Geraniums** with 757,000 flats sold, valued at $6.3 million.
- **Potted Easter Lilies** with 1.4 million pots sold, valued at $5.0 million.
- **New Guinea Impatiens Hanging Baskets** with 727,000 baskets sold, valued at $4.7 million.
- **Geranium Hanging Baskets** with 685,000 baskets sold, valued at $4.4 million.
- **Bedding New Guinea Impatiens** with 151,000 flats sold, valued at $1.4 million.
- **Petunia Hanging Baskets** with 252,000 baskets sold, valued at $1.3.

Other notable Michigan crops that ranked second in value of sales nationally were:

- **Bedding Petunias** with 1.7 million flats sold, valued at $10.5 million.
- **Vegetable Type Bedding Plants** with 827,000 flats sold, valued at $5.5 million.
- **Potted New Guinea Impatiens** with 2.1 million pots sold, valued at $2.8 million.
- **Impatiens Hanging Baskets** with 438,000 baskets sold, valued at $2.2 million.

Total greenhouse cover for all operations in the state decreased 4 percent to 39.8 million square feet. This includes both rigid and film plastic greenhouses and glass greenhouses. Only California and Florida have more total greenhouse cover.

Table 8.1—Floriculture crops: Number of growers by gross value of sales

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						
1996	36	62	30	116	191	125	560
1997	76	105	52	127	255	135	750
1998	77	111	45	139	263	111	746
1999	78	82	49	190	222	117	738

Table 8.2—Floriculture crops: Growing area by type of cover

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						*Acres*
1996	4,316	3,444	25,564	32,324	800	33,124	1,797
1997	4,420	3,467	29,791	37,678	665	38,343	2,414
1998	4,515	3,643	33,174	41,332	836	42,168	2,298
1999	4,487	3,736	31,585	39,808	949	40,757	2,205

Table 8.3—Floriculture crops: Wholesale value of sales by category

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	Expanded wholesale value of reported crops [1]
	1,000 dollars					
1996	10,388	27,442	3,712	131,250	172,803	185,253
1997	11,514	26,477	3,313	153,877	195,229	211,384
1998	8,551	27,621	3,056	172,615	211,509	228,444
1999	4,995	27,834	2,996	175,988	211,860	231,945

[1] 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.

Table 8.4—Bedding plants: Producers, quantity sold, price, and value

Item	Year	Producers	Quantity sold	Percent of sales at wholesale	Wholesale price	Value of sales at wholesale [1]
		Number	*1,000 flats*	*Percent*	*Dollars*	*1,000 dollars*
Vegetables [2]	1996	216	763	82	6.08	4,639
	1997	254	1,026	87	6.15	6,310
	1998	189	1,008	72	6.69	6,744
	1999	210	827	85	6.69	5,533
Geraniums	1996	93	325	81	10.07	3,273
	1997	117	394	85	9.26	3,648
	1998	97	783	94	7.02	5,497
	1999	99	757	88	8.28	6,268
Impatiens	1996	219	2,376	86	6.26	14,874
	1997	270	2,565	87	6.37	16,339
	1998	269	3,314	81	5.88	19,486
	1999	249	2,912	82	6.47	18,841
New Guinea Impatiens	1996	45	99	93	9.99	989
	1997	48	65	53	12.27	798
	1998	36	86	85	8.25	710
	1999	58	151	84	9.21	1,391
Petunias	1996	223	1,383	84	6.36	8,796
	1997	269	1,522	87	6.84	10,410
	1998	272	1,787	79	5.96	10,651
	1999	250	1,651	85	6.35	10,484
Other flowering and foliar	1996	241	5,824	86	6.87	40,011
	1997	296	6,561	87	6.69	43,893
	1998	291	7,152	84	5.83	41,696
	1999	259	7,683	88	6.36	48,864

[1] Equivalent wholesale value of all sales.
[2] Does not include vegetable transplants grown for commercial use.

Table 8.5—Hanging baskets: Producers, quantity sold, price, and value

Item	Year	Producers	Quantity sold	Percent of sales at wholesale	Wholesale price	Value of sales at wholesale [1]
		Number	*1,000 baskets*	*Percent*	*Dollars*	*1,000 dollars*
Geraniums	1996	228	458	78	6.19	2,835
	1997	269	528	80	6.02	3,179
	1998	230	497	71	6.46	3,211
	1999	240	685	67	6.41	4,391
Impatiens	1996	204	345	82	5.31	1,832
	1997	246	498	85	4.62	2,301
	1998	210	406	76	4.90	1,989
	1999	218	438	79	4.94	2,164
New Guinea Impatiens	1996	208	442	84	6.15	2,718
	1997	250	566	86	6.29	3,560
	1998	233	574	80	6.28	3,605
	1999	229	727	73	6.41	4,660
Petunias	1996	166	110	79	5.60	616
	1997	202	185	82	5.07	938
	1998	183	164	76	5.12	840
	1999	210	252	80	5.27	1,328
Other flowering	1996	253	1,348	84	5.64	7,603
	1997	297	1,675	85	5.61	9,397
	1998	244	1,465	71	6.12	8,966
	1999	262	1,935	85	5.92	11,455
Foliage	1996	56	435	95	3.77	1,640
	1997	68	408	95	4.18	1,705
	1998	47	253	90	4.57	1,156
	1999	55	315	93	5.06	1,594

[1] Equivalent wholesale value of all sales.

Table 8.6—Potted plants: Producers, quantity sold, price, and value

Item	Year	Producers	Quantity sold			Percent of sales at wholesale	Wholesale price		Value of sales at wholesale [1]
			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*				*Dollars*		*1,000 dollars*
Chrysanthemums, florist	1996	46	175	569	744	96	1.28	4.21	2,619
	1997	46	125	580	705	95	1.57	3.98	2,505
	1998	41	100	458	558	95	1.49	3.91	1,940
	1999	41	153	434	587	93	1.42	3.88	1,901
Chrysanthemums, hardy garden	1996	119	603	1,493	2,096	93	0.80	2.02	3,498
	1997	149	574	2,221	2,765	90	0.80	1.96	4,812
	1998	139	637	2,294	2,931	86	0.91	1.74	4,571
	1999	131	828	2,692	3,520	93	0.99	2.18	6,688
Poinsettias	1996	119	996	2,960	3,956	90	1.69	3.52	12,102
	1997	118	1,099	2,711	3,810	91	1.61	3.80	12,071
	1998	100	1,111	2,584	3,695	83	2.01	3.96	12,466
	1999	94	1,029	2,894	3,923	90	1.70	3.98	13,267
Easter lilies	1996	63			1,514	94		3.43	5,193
	1997	61			1,467	97		3.41	5,005
	1998	50			1,529	91		3.54	5,413
	1999	58			1,440	96		3.44	4,954
Geraniums (cuttings)	1996	191	3,144	547	3,691	65	1.38	2.69	5,810
	1997	218	3,376	818	4,194	71	1.53	2.69	7,366
	1998	228	6,355	1,173	7,528	78	1.33	2.55	11,443
	1999	203	5,709	1,434	7,143	81	1.32	2.41	10,992
Geraniums (seed)	1996	112	17,552	201	17,753	98	0.76	2.29	13,800
	1997	127	19,078	693	19,771	98	0.75	2.30	15,902
	1998	110	14,360	13	14,373	95	0.74	2.86	10,664
	1999	104	14,469	108	14,577	97	0.72	2.99	10,741
Other flowering plants [3]	1996	81	1,090	1,063	2,153	93	1.33	3.42	5,085
	1997	83	1,271	880	2,151	93	1.10	3.50	4,478
	1998	91	1,171	1,013	2,184	94	1.41	3.67	5,369
	1999	61	1,023	1,377	2,400	92	1.51	2.89	5,524
Cyclamens	1996	46	66	113	179	83	1.79	3.53	517
	1997	50	84	112	196	88	1.47	3.23	485
	1998	42	80	185	265	93	1.58	2.73	631
	1999	40	78	193	271	91	1.57	2.71	645
Impatiens	1996	32	252	50	302	96	0.87	1.74	306
	1997	40	101	52	153	82	0.84	1.52	164
	1998	55	199	53	252	75	0.83	2.56	301
	1999	46	87	90	177	83	0.64	1.41	183

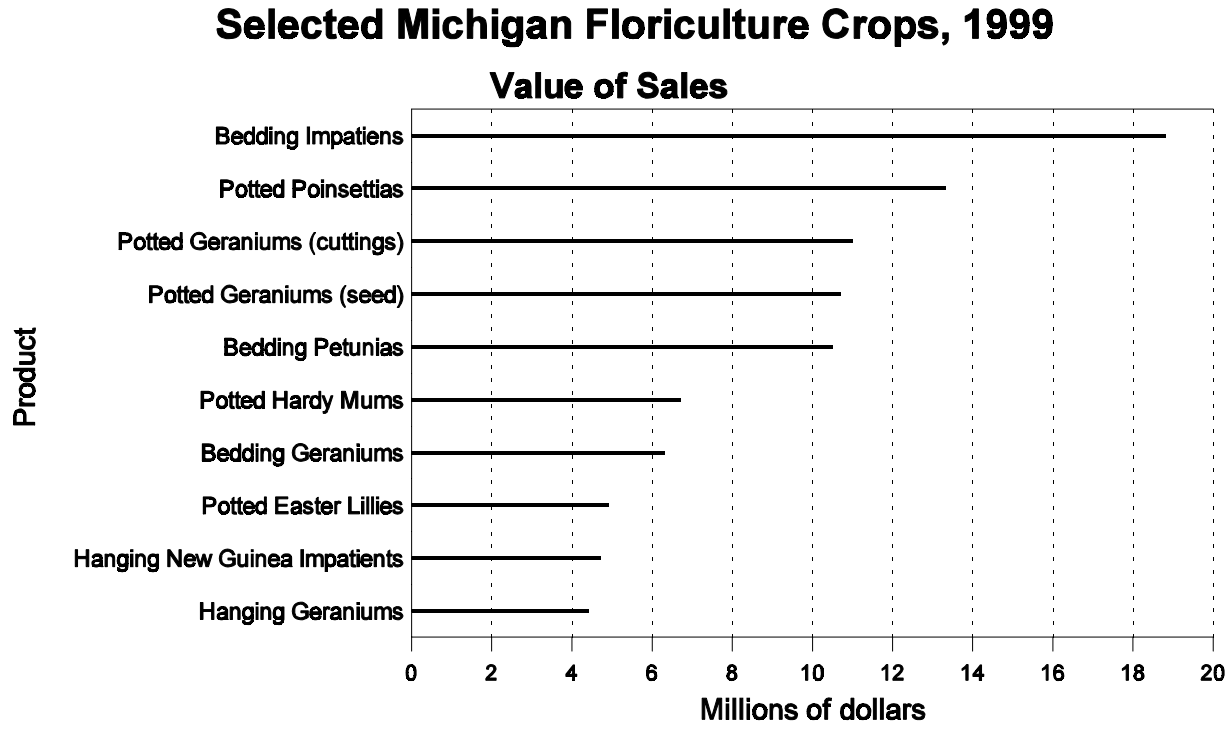
See footnotes at end of table.

Table 8.6—Potted plants: Producers, quantity sold, price, and value (continued)

Item	Year	Producers	Quantity sold			Percent of sales at wholesale	Wholesale price		Value of sales at whole-sale [1]
			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*			*Percent*	*Dollars*		*1,000 dollars*
Azaleas	1996	47	53	167	220	81	2.01	6.74	1,232
	1997	49	41	179	220	87	1.86	6.65	1,267
	1998	39	19	164	183	85	3.14	6.81	1,177
	1999	34	16	149	165	84	3.27	7.12	1,113
New Guinea Impatiens	1996	137	1,087	80	1,167	84	0.93	3.76	1,312
	1997	174	1,340	229	1,569	84	1.18	3.38	2,355
	1998	193	1,469	234	1,703	79	1.14	3.49	2,491
	1999	174	1,832	270	2,102	86	1.12	2.92	2,840
Petunias	1996	29	150	23	173	92	0.80	1.76	160
	1997	45	143	87	230	86	0.80	1.86	276
	1998	45	119	56	175	75	0.76	2.56	234
	1999	61	179	190	369	92	0.97	2.10	573
Other flowering and foliar type bedding plants	1996	153	11,904	1,994	13,898	95	1.04	2.68	17,724
	1997	196	12,632	3,689	16,321	87	0.91	2.61	21,123
	1998	215	8,427	8,740	17,167	83	1.07	3.38	38,558
	1999	198	10,519	5,595	16,114	82	1.08	2.95	27,866
Vegetable type [2]	1996	82	250	136	386	72	0.69	2.07	454
	1997	105	642	282	924	82	0.84	2.01	1,106
	1998	66	470	153	623	64	0.77	1.28	558
	1999	77	651	230	881	81	0.61	1.43	726

[1] Equivalent wholesale value of all sales.

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



Cattle and Calves

The January 1, 2000, Michigan cattle herd totaled 1,010,000 head, down 4 percent from a year ago. The January 1 milk cow inventory, at 300,000 head, was unchanged from the previous year. Milk cow replacement heifers, at 125,000 head, were down 20,000 head from last year. Beef cows, at 95,000 head, were down 10 percent. Beef replacement heifers, at 30,000 head, were down 6 percent from 1999. Calves on hand, at 192,000 head, were down 18,000 head from last year. Steer numbers, at 200,000 head, were up 5,000 head and other heifers, at 50,000 head, were up 5,000 head. The number of bulls remained unchanged at 18,000 head. The 1999 calf crop was 355,000 head, 10,000 less than the previous year.

Cattle on full feed for slaughter totaled 200,000 head, unchanged from the previous year. Michigan has 16,000 operations with cattle, unchanged from last year.

The January 1 Michigan cattle and calf inventory was valued at $838 million, up 4 percent from January 1, 1998. Cash receipts from cattle and calf marketings totaled $236 million, while total liveweight marketed was 461 million pounds.

Table 9.1—Cattle and calves: Number of operations

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

Class	1995	1996	1997	1998	1999
			Number		
Beef cow [1]	9,000	8,500	8,500	7,800	7,200
Milk cow [1]	4,700	4,400	4,200	4,000	3,700
Cattle	19,000	19,000	17,500	16,000	16,000

[1] Included in number of cattle operations.

Table 9.2—Cattle and calves: Number on farms by class, January 1

Class	1996	1997	1998	1999	2000
			1,000 head		
All cows that have calved	450	435	415	405	395
Beef cows	124	123	115	105	95
Milk cows	326	312	300	300	300
Heifers, 500 pounds and over	230	220	210	222	205
Beef cow replacement	30	33	30	32	30
Milk cow replacement	155	145	140	145	125
Other	45	42	40	45	50
Steers, 500 pounds and over	205	200	195	195	200
Bulls, 500 pounds and over	20	20	20	18	18
Calves, under 500 pounds	245	225	210	210	192
All cattle and calves	1,150	1,100	1,050	1,050	1,010

Table 9.3—Cattle and calves: Production and income

Year	Production [1]	Marketings [2]	Average price per cwt.		Value of production	Cash receipts [3]	Value of home consumption	Gross income
			Cattle	Calves				
	1,000 pounds		*Dollars*		*1,000 dollars*			
1995	442,844	528,350	52.00	69.30	231,123	278,193	8,530	286,723
1996	412,059	478,550	49.80	51.60	205,371	238,674	7,991	246,665
1997	386,581	453,480	50.80	54.00	197,154	230,906	7,913	238,819
1998	385,229	411,250	47.70	51.70	183,321	196,656	7,465	204,121
1999	405,770	461,250	50.50	68.90	200,427	235,829	8,067	243,896

[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.

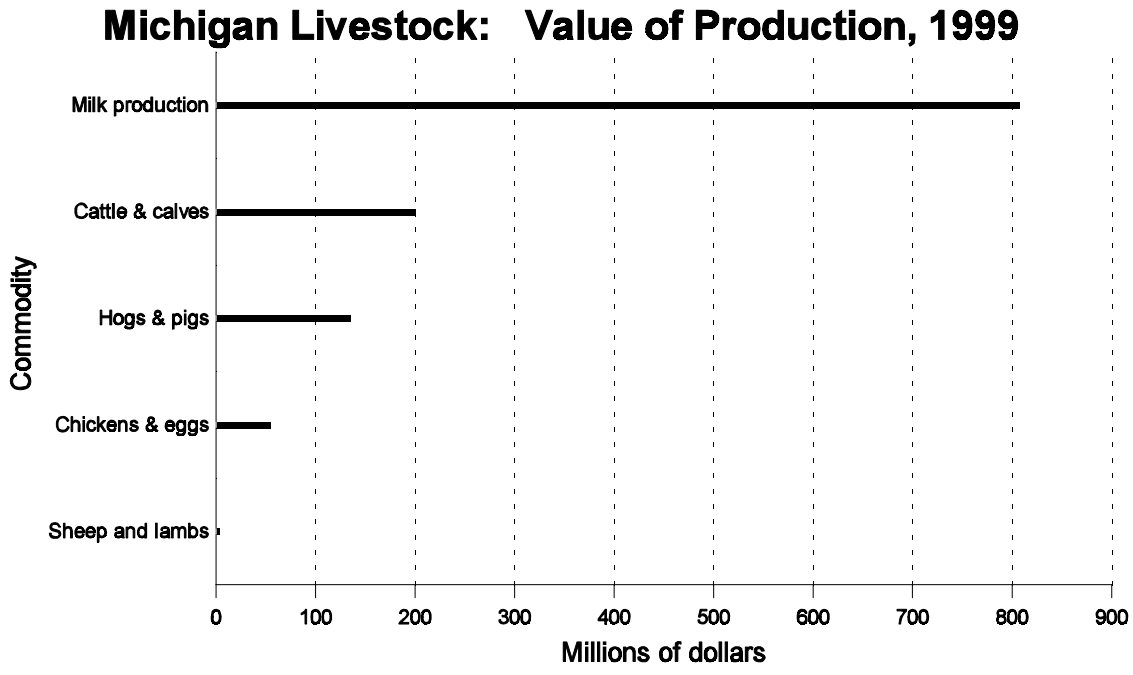
Table 9.4—Cattle and calves: Balance sheet

Year	All cattle and calves on hand January 1	Calf crop	Inship-ments	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*
1995	1,200	420	95	418	59	5	25	58	1,150
1996	1,150	400	75	375	62	5	25	58	1,100
1997	1,100	385	70	363	53	5	25	59	1,050
1998	1,050	365	65	308	37	5	25	55	1,050
1999	1,050	355	70	338	47	5	25	50	1,010

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

Table 9.5—Cattle and calves: Number on feed, January 1

Year	Number
1996	200,000
1997	200,000
1998	200,000
1999	200,000
2000	200,000



Chicken and Eggs

The total value of poultry production in Michigan from eggs, broilers, and other chickens (primarily culled layers) during 1999 was $60.6 million, 3 percent less than a year earlier. Eggs contributed the largest share of the value for all poultry. Egg production totaled 1.53 billion, up 10 percent from last year. The market egg price averaged 46 cents per dozen, 3 cents lower than 1998.

Broiler production totaled 750,000 birds, up 29 percent from last year and was valued at $1.37 million, up 34 percent from a year ago. Other chicken production at 3.29 million birds was up 7 percent. Other chicken production was valued at $224,000, down 35 percent from 1998. The value of turkeys produced during 1999 was $35,092.

Table 9.6—Chickens: Layers on hand, December 1

Class	1995	1996	1997	1998	1999
			1,000 head		
Hens	2,000	1,800	2,343	3,310	2,174
Pullets of laying age	3,430	3,300	2,817	2,441	4,013
Pullets, 3 months plus	420	820	390	286	537
Pullets, less than 3 months	753	390	630	704	1,060
Other chickens	7	10	10	3	3
All chickens (excluding broilers)	**6,610**	**6,320**	**6,190**	**6,744**	**7,787**

Table 9.7—Chickens and broilers: Production and income

[December 1 previous year through November 30]

Year	Chickens				Broilers [1]			
	Number sold	Pounds sold	Price per pound	Value of sales	Number produced	Pounds produced	Price per pound [2]	Value of production
	Thousands	*Number*	*Cents*	*1000 dollars*	*Thousands*	*1000 pounds*	*Cents*	*1000 dollars*
1995	3,432	17,160	1.0	172	630	2,850	34.0	969
1996	2,805	13,184	1.0	132	550	2,200	38.0	836
1997	2,900	13,340	4.0	534	640	2,900	36.5	1,059
1998	3,086	12,653	2.7	342	580	2,800	36.5	1,022
1999	3,294	11,200	2.0	224	750	3,800	36.0	1,368

[1] Broiler production includes other domestic meat-type breeds.

[2] Live weight equivalent prices, derived from ready-to-cook (RTC) prices using the following formulas: RTC price minus processing cost multiplied by dressing percentage=liveweight equivalent price.

Table 9.8—Chickens: Total egg production by month

Month	1996	1997	1998	1999
		Million eggs		
December	115	115	115	132
January	111	110	111	130
February	107	100	102	115
March	114	112	120	129
April	111	110	110	122
May	111	109	111	121
June	105	105	111	117
July	108	111	118	130
August	107	114	124	137
September	104	113	120	129
October	112	117	126	134
November	113	111	125	136
Total [1]	**1,318**	**1,327**	**1,393**	**1,533**

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

Table 9.9—Chickens: Average number of all layers on hand during the month

Month	1996	1997	1998	1999
			1,000 head	
December	5,375	5,016	5,196	5,763
January	5,281	5,021	5,058	5,770
February	5,155	5,115	5,098	5,898
March	5,135	5,136	5,282	5,923
April	5,141	5,089	5,202	5,656
May	5,021	5,024	5,128	5,659
June	4,810	5,046	5,097	5,799
July	4,706	4,980	5,291	5,863
August	4,791	5,010	5,541	5,827
September	4,885	5,086	5,586	5,847
October	4,891	5,150	5,621	6,089
November	4,971	5,210	5,704	6,189
Annual [1]	**5,014**	**5,074**	**5,317**	**5,857**

[1] December 1 previous year through November 30.

Hogs and Pigs

Michigan hog production totaled 458 million pounds in 1999, an increase of 14 percent from 1998. Based on the December 1, 1999 inventory of 980,000 hogs and pigs, Michigan ranks 13th in the nation.

Breeding inventory accounted for 12.2 percent of the total inventory, while market hogs made up the remaining 87.8 percent. Statewide, Cass, Allegan, Ottawa, Huron and Branch are the top five hog producing counties.

The annual average price for all hogs was $29.80 per hundredweight (cwt.) for 1999, compared with the 1998 average price of $33.90 per cwt.

Marketings of all hogs and pigs totaled 486.6 million pounds in 1999, up 21 percent from 1998. In spite of the large 1999 marketing increase, cash receipts rose a more modest 7 percent from the previous year due to the 1999 lower average price.

Table 9.10—Hogs and pigs: Inventory

Month and year	Market hogs and pigs					Breeding stock	Total hogs and pigs
	Under 60 pounds	60-119 pounds	120-179 pounds	180 pounds and over	Total market		
				1,000 head			
March 1							
1996	275	210	190	175	850	150	1,000
1997	270	205	190	155	820	130	950
1998	290	220	195	165	870	130	1,000
1999	280	225	190	185	880	110	990
2000	295	215	170	160	840	120	960
June 1							
1996	450	190	160	120	920	130	1,050
1997	400	185	180	125	890	130	1,020
1998	450	220	190	140	1,000	130	1,130
1999	430	220	200	130	980	120	1,100
2000	400	200	160	130	890	110	1,000
September 1							
1996	310	280	200	170	960	120	1,080
1997	340	260	200	170	970	130	1,100
1998	300	250	195	205	950	120	1,070
1999	310	260	190	160	920	110	1,030
December 1							
1996	295	210	190	180	875	125	1,000
1997	320	200	205	175	900	130	1,030
1998	340	270	180	210	1,000	120	1,120
1999	330	205	170	155	860	120	980

Table 9.11—Hogs and pigs: Number of operations, by size group

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

Year	Operations						
	1-99	100- 499	500-999	1,000-1,999	2,000-4,999	5,000+	Total
	Number						
1995	3,200	1,000	230	140	100	30	4,700
1996	3,200	750	170	150	100	30	4,400
1997	2,050	510	180	130	100	30	3,000
1998	1,900	500	100	150	120	30	2,800
1999	1,100	500	100	130	130	40	2,000

Table 9.12—Hogs and pigs: Sows farrowing and pig crop

Year	December-February			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*
1996	40	8.2	328	65	8.1	527
1997	40	8.4	336	55	8.4	462
1998	40	8.8	352	53	8.9	472
1999	37	9.0	333	55	8.9	490
2000	44	8.8	387	50	9.0	450

Year	June-August			September-November		
	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*
1995	60	8.1	486	45	8.0	360
1996	52	8.3	432	45	8.3	374
1997	54	8.7	470	48	8.7	418
1998	52	8.9	463	52	8.5	442
1999	51	9.0	459	49	9.0	441

Table 9.13—Hogs and pigs: Production and income

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*
1995	446,182	467,999	39.70	175,196	186,293	1,070	187,363
1996	399,495	418,754	51.40	204,117	215,629	1,385	217,014
1997	396,899	401,325	53.10	207,562	213,722	1,495	215,217
1998	402,708	403,550	33.90	132,639	138,347	1,393	139,740
1999	458,421	486,570	29.80	134,499	147,758	1,229	148,987

[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.

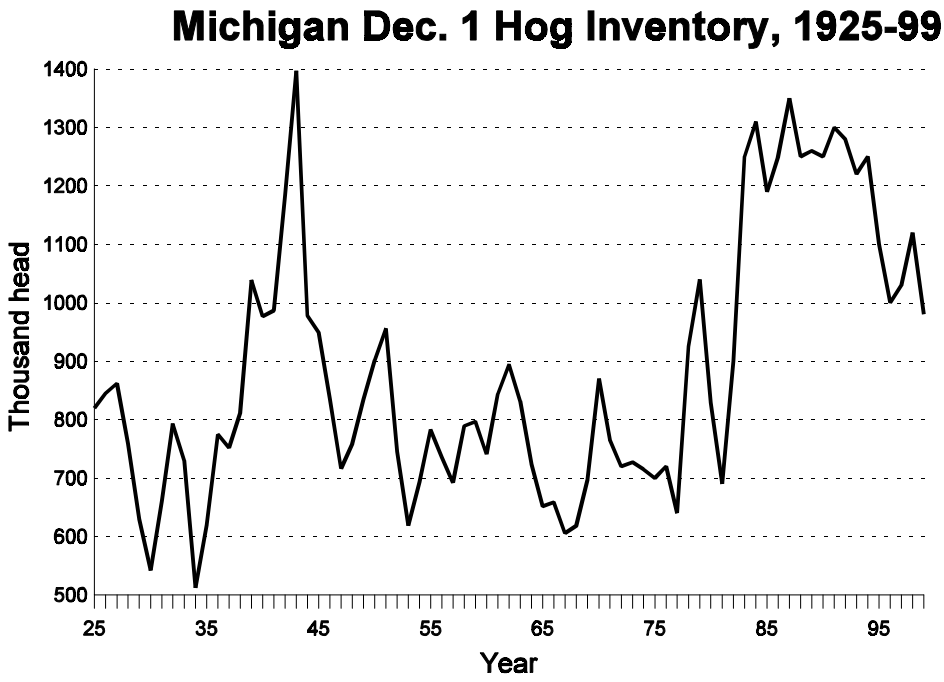
[3] Receipts from marketings and sales of farm slaughter. Includes allowance for higher average price of outshipments of feeder pigs.

Table 9.14—Hogs and pigs: Balance sheet

Year	Beginning inventory	Pig crop	Inship-ments	Market-ings [1]	Farm slaughter [2]	Deaths	Number on hand December 1
		Dec.-Nov.					
				1,000 head			
1995	1,250	1,817	58	1,939	3	83	1,100
1996	1,100	1,661	56	1,726	3	88	1,000
1997	1,000	1,686	85	1,663	3	75	1,030
1998	1,030	1,729	125	1,683	6	75	1,120
1999	1,120	1,723	225	1,999	4	85	980

[1] Includes custom slaughter and state outshipments, but excludes sales within Michigan.

[2] Excludes custom slaughter for farmers at commercial establishments.



Honey

Honey production in Michigan during 1999 totaled 6.2 million pounds, 9 percent less than a year ago. This estimate included honey from producers with 5 or more colonies. Michigan ranked 8th in honey production, up from 9th place a year ago. There were 73,000 colonies in production during 1999, 7,000 fewer than 1998. Yield per colony averaged 85 pounds, unchanged from the previous year.

Michigan honey prices averaged 66 cents per pound, the same as last year. This excludes all government support price payments and CCC loans. Value of production totaled $4,095,000, down 9 percent from 1998. Honey stocks on hand for sale, as of December 15, totaled nearly 3.5 million pounds, down 5 percent from 1998.

Table 9.15—Honey: Production and value

[Includes only producers with 5 or more colonies

Year	Bee colonies	Honey				
		Yield per colony	Production	Average price per pound	Value of production	Stocks Dec. 15 [1]
	Number	*Pounds*	*1,000 pounds*	*Cents*	*1,000 dollars*	*1,000 pounds*
1995	97,000	92	8,924	78	6,961	3,570
1996	90,000	96	8,640	101	8,726	4,320
1997	85,000	70	5,950	77	4,582	3,273
1998	80,000	85	6,800	66	4,488	3,672
1999	73,000	85	6,205	66	4,095	3,475

[1] Stocks held by producers.

Milk Production

Milk production in Michigan during 1999 was 5,455 million pounds, up 1.7 percent from 1998. Michigan ranked 9th nationally in milk production in 1999, accounting for 3.4 percent of U.S. production.

The annual average number of milk cows on Michigan farms during 1999 was 299,000 head, the same as the previous year. The number of operations with milk cows fell to 3,700 from 4,000 in 1998. Milk production per cow was 18,244 pounds in 1999, compared with 17,943 pounds during 1998. The average butterfat content was 3.69 percent compared with 3.63 percent in 1998. Ninety nine percent of milk production was grade A.

Milk prices during the year averaged $14.80 per cwt., down $.50 from the previous year. Cash receipts from milk sales totaled $801 million, down 1.5 percent from 1998. Milk continued as the number one ranked Michigan commodity in cash receipts.

Table 9.16—Milk: Production, utilization, marketings, and value

Production	1995	1996	1997	1998	1999
Total milk produced on farms, *million pounds*	5,565	5,430	5,410	5,365	5,455
Milkfat produced, *million pounds*	203.7	200.4	197.5	194.7	201.3
Milkfat, *percent*	3.66	3.69	3.65	3.63	3.69
Utilization	**1995**	**1996**	**1997**	**1998**	**1999**
Milk used where produced:					
Fed to calves, *million pounds*	55	50	41	40	37
Used for milk, cream, and butter, *million pounds*	6	5	4	5	3
Milk marketed by producers: *million pounds*	5,504	5,375	5,365	5,320	5,415
Average return per 100 pounds of milk, *dollars*	11.04	15.02	13.65	15.30	14.80
Average return per pound milkfat, *dollars*	3.56	4.07	3.74	4.21	4.01
Fluid grade, *percent*	98	99	99	99	99
Total cash receipts, *1,000 dollars*	717,469	807,488	732,135	813,960	801,420
Value	**1995**	**1996**	**1997**	**1998**	**1999**
Value of milk used where produced, *1,000 dollars* [1]	7,951	8,263	6,141	6,885	5,920
Total value of milk produced, *1,000 dollars*	725,420	815,751	738,276	820,845	807,340

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

Table 9.17—Milk cows: Number of operations, by size group

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

Size group by head	Year				
	1995	1996	1997	1998	1999
	Number of operations				
1-29	1,200	1,100	1,100	950	1,000
30-40	1,000	900	900	900	700
50-99	1,400	1,300	1,100	1,100	1,000
100-199	880	880	850	810	750
200-499	220	220	250	205	200
500+	(1)	(1)	(1)	35	50
Total	4,700	4,400	4,200	4,000	3,700

[1] Included in 200+ size group, prior to 1998.

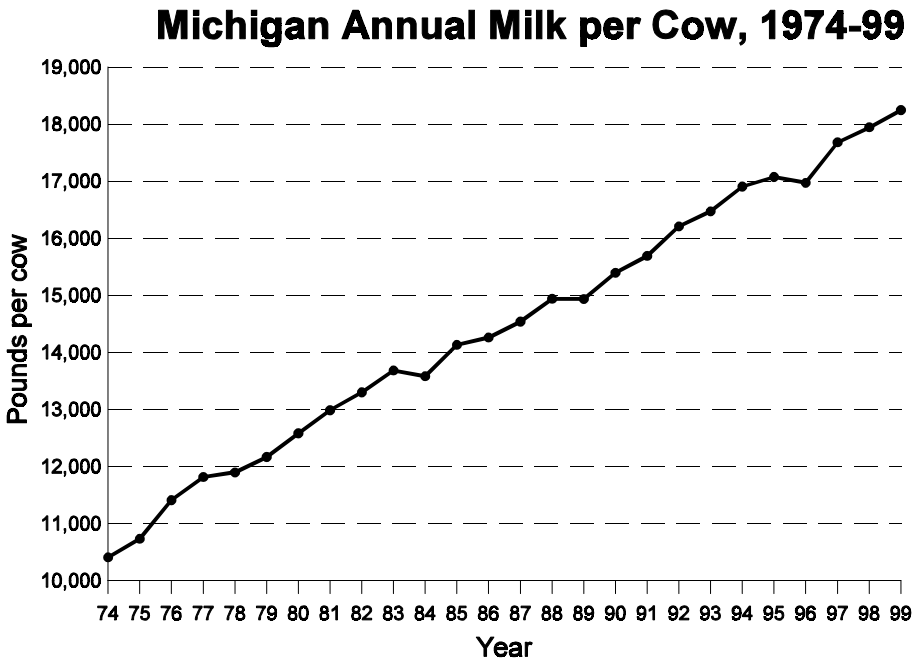


Table 9.18—Milk cows: Number by month

Month	1995	1996	1997	1998	1999
			1,000 head		
January	326	325	311	297	291
February	326	322	310	296	292
March	326	321	306	297	296
April	326	322	306	298	299
May	326	322	308	299	303
June	326	322	310	301	303
July	326	323	309	305	307
August	326	320	308	302	303
September	326	317	304	299	299
October	326	317	303	297	299
November	326	314	301	297	296
December	326	312	301	299	297
Annual	326	320	306	299	299

Table 9.19—Milk production: Rate per cow, by month

Month	1995	1996	1997	1998	1999
			Pounds		
January	1,435	1,425	1,480	1,485	1,520
February	1,315	1,365	1,370	1,370	1,405
March	1,490	1,485	1,520	1,530	1,565
April	1,440	1,440	1,485	1,495	1,530
May	1,510	1,470	1,540	1,565	1,600
June	1,465	1,385	1,490	1,515	1,530
July	1,475	1,405	1,490	1,545	1,555
August	1,425	1,405	1,500	1,520	1,530
September	1,375	1,365	1,430	1,465	1,485
October	1,400	1,415	1,465	1,485	1,520
November	1,340	1,370	1,415	1,450	1,470
December	1,400	1,445	1,473	1,520	1,550
Annual	17,071	16,969	17,680	17,943	18,244

Table 9.20—Milk production: Total by month

Month	1995	1996	1997	1998	1999
	Million pounds				
January	468	463	460	441	442
February	429	440	425	406	410
March	486	477	465	454	463
April	469	464	454	446	457
May	492	473	474	468	485
June	478	446	462	456	464
July	481	454	460	471	477
August	465	450	462	459	464
September	448	433	435	438	444
October	456	449	444	441	454
November	437	430	426	431	435
December	456	451	443	454	460
Annual	5,565	5,430	5,410	5,365	5,455

Table 9.21—Dairy products: Annual production totals

Product	Michigan				
	1995	1996	1997	1998	1999
	1,000 gallons				
Ice cream	27,861	29,296	27,973	24,198	19,572
Ice cream, lowfat	16,194	19,152	19,131	18,583	17,812
Sherbet	1,604	1,747	1,800	2,016	1,369
Ice cream mix, regular	13,459	14,329	13,757	12,161	10,317
Ice cream mix, lowfat	7,221	7,813	8,040	8,729	8,117
Sherbet mix	972	1,060	1,025	1,019	722
Product	East North Central Region [1]				
	1995	1996	1997	1998	1999
	1,000 pounds				
Cheese, total	2,433.8	2,441.5	2,469.6	2,484.4	2,540.0
Cheese, American type [2]	991.1	1,014.4	983.6	982.9	990.2
Cheese, Italian	986.5	985.0	1,008.7	1,025.4	1,032.3
Cottage cheese, curd	111,850	107,715	109,125	115,604	110,960
Cottage cheese, creamed	114,112	106,537	112,389	110,229	96,311
Cottage cheese, low fat	67,606	71,049	72,668	78,354	74,009
Condensed skim milk, unsweetened, bulk	145.1	111.6	128.0	119.2	146.6
Dried milk, nonfat for human food	108.1	73.5	71.4	57.0	58.4
Butter	370.7	379.4	383.2	373.3	349.8
Water & juice ices	9,998	8,979	7,649	8,136	7,521
Yogurt	556.3	547.5	550.5	569.9	624.3

[1] Illinois, Indiana, Michigan, Ohio, and Wisconsin.
[2] Cheddar, Colby, washed curd, stirred curd, Monterey, and Jack.

Table 9.22—Dairy products: Ice cream, regular, total, by month

Month	1995	1996	1997	1998	1999
January	1,662	1,804	1,905	1,644	1,010
February	1,993	2,045	1,944	1,765	1,317
March	2,155	2,204	2,290	2,007	1,652
April	2,492	2,600	2,448	2,271	1,933
May	2,601	2,815	2,814	2,319	1,791
June	3,032	3,338	2,743	2,807	2,283
July	3,083	3,489	2,734	2,643	2,194
August	3,160	3,098	2,611	2,502	2,164
September	2,268	2,432	2,413	2,159	1,626
October	2,133	2,035	2,116	1,591	1,314
November	1,767	1,572	2,125	1,168	990
December	1,515	1,864	1,830	1,322	1,298
Total	27,861	29,296	27,973	24,198	19,572

Mink

Mink pelt production in Michigan increased 5,000 in 1999 to 51,000 pelts. Mahogany was the most popular color class in Michigan, representing 46 percent of Michigan's pelt production. For 1999, Mahogany and Standard accounted for 78 percent of the State's total pelts. Mahogany pelt production totaled 23,500 and Standard totaled 16,500. This compares with the 1998 revised figures of 20,000 Mahogany pelts and 13,900 Standard pelts produced. Female mink bred to produce kits in 2000 totaled 8,800, compared with a revised figure of 15,500 in 1999.Female mink bred to produce kits in 2000 totaled 660,400, down 2 percent from the previous year. Percent of total females bred to produce kits in 2000 by color class are: Standard, 38.5 percent; Mahogany, 23.7 percent; Gunmetal, 17.4 percent; Sapphire, 5.0 percent; Ranch Wild, 4.8 percent. The remaining color classes accounted for 10.6 percent.

Table 9.23—Mink: Pelt production by color class

Color class	1995	1996	1997	1998	1999
			Number of pelts		
Standard	32,100	30,000	25,000	13,900	16,500
Ranch wild	(1)	--	(1)	(1)	(1)
Demi-buff	3,400	400	(1)	(1)	(1)
Pastel	1,600	1,600	1,600	1,200	2,000
Sapphire	1,500	3,400	3,000	27,000	2,300
Gunmetal	1,300	1,600	(1)	(1)	(1)
Violet	1,400	1,200	1,500	(1)	(1)
Pearl	2,100	1,700	1,500	800	(1)
White	2,500	3,800	(1)	4,400	(1)
Mahogany	6,000	12,700	17,000	20,000	23,500
Other	(1)	600	(1)	(1)	(1)
Total	52,100	57,000	56,000	46,000	51,000

[1] Not published to avoid disclosure of individual operations.

Table 9.24—Mink: Number of farms and females bred to produce kits

Year	1995	1996	1997	1998	1999
			Number		
Mink farms	12	9	12	13	13
Females bred for next year	13,400	14,000	15,500	15,500	8,800

Sheep

Michigan sheep operations in 1999 numbered 1,700, down 100 from 1998. All sheep and lamb inventory in Michigan on January 1, 2000 was estimated at 68,000 head, up 10 percent from a year ago. The breeding sheep inventory, at 51,000 head, was up 16 percent from last year. Market sheep and lambs totaled 17,000 head, down 1,000 from a year earlier. The 1999 Michigan lamb crop (lambs born October 1, 1998 through September 30, 1999) was 45,000 head, down 2 percent from the previous year.

Sheep and lamb value of production, was $2.6 million, down 5 percent from 1998. Cash receipts totaled $2.1 million for 1999. All sheep and lambs were valued at $120 per head, down $5 from the previous year.

Sheep shorn in 1999 totaled 61,000 head. The weight per fleece was 7.3 pounds, compared with 7.4 pounds in 1998. Total wool production in Michigan was 445,000 pounds. Wool production was valued at $62,000. The average price per pound decreased to $0.14, down from $0.31 in 1998.

Table 9.25—Sheep and lambs: Number on farms by class, January 1

Class	1996	1997	1998	1999	2000
			Head		
Breeding sheep, 1 year and older:					
Ewes	49,000	50,000	38,000	34,000	38,000
Rams	3,000	3,000	3,000	3,000	3,000
Replacement lambs	9,000	9,000	7,000	7,000	10,000
Total market sheep and lambs	26,000	23,000	24,000	18,000	17,000
All sheep and lambs	87,000	85,000	72,000	62,000	68,000

Table 9.26—Sheep and lambs: Number of operations

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

Year	*Number*
1995	2,000
1996	1,900
1997	1,600
1998	1,600
1999	1,700

Table 9.27—Sheep and lambs: Lamb crop

Year	Breeding ewes (1 year and older January 1)	Lambs per 100 ewes (1 year and older January 1)	Lamb crop
	Head	*Number*	*Head*
1995	49,000	131	64,000
1996	49,000	129	63,000
1997	50,000	124	62,000
1998	38,000	121	46,000
1999	34,000	132	45,000

Table 9.28—Sheep and lambs: Balance sheet

Year	All sheep and lambs on hand January 1	Lamb crop	Inship-ments	Marketings [1]		Farm slaugh-ter [2]	Deaths		All sheep and lambs on hand following January 1
				Sheep	Lambs		Sheep	Lambs	
					Number				
1995	87,000	64,000	10,500	6,500	55,000	2,000	1,000	10,000	87,000
1996	87,000	63,000	10,000	9,000	51,000	2,000	2,000	11,000	85,000
1997	85,000	62,000	13,000	24,000	49,000	2,000	2,000	11,000	72,000
1998	72,000	46,000	8,000	16,000	36,000	2,000	1,000	9,000	62,000
1999	62,000	45,000	5,000	4,000	28,500	2,000	2,500	7,000	68,000

[1] Includes custom slaughter and state outshipments, but excludes sales within Michigan.

[2] Excludes custom slaughter for farmers at commercial establishments.

Table 9.29—Sheep and lambs: Production and income

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		*Dollars*		*1,000 dollars*			
1995	7,093	6,858	22.60	79.50	5,105	4,952	457	5,409
1996	6,465	6,735	25.00	86.50	5,073	5,079	497	5,576
1997	6,140	8,530	35.00	84.00	4,834	5,578	483	6,061
1998	4,270	5,715	32.00	69.00	2,710	3,233	397	3,630
1999	3,982	3,225	30.00	69.00	2,579	2,111	397	2,508

[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.

Table 9.30—Sheep and lambs: Wool production and value

Year	Sheep shorn	Weight per fleece	Production	Price per pound	Value of production [1]
	Head	*Pounds*	*Pounds*	*Cents*	*Dollars*
1995	83,000	7.5	620,000	68	422,000
1996	80,000	7.4	590,000	36	212,000
1997	62,000	7.3	450,000	44	198,000
1998	58,000	7.4	430,000	31	133,000
1999	61,000	7.3	445,000	14	62,000

[1] Production multiplied by marketing year average price.

Trout

Michigan's 30 commercial trout operations sold 427,000 pounds of trout in 1999. This was a decrease of 10 percent from last season. Sales were valued at $1.1million, and included sales of foodsize trout (12 inches or longer), stockers (6 to 12 inches), fingerlings (2 to 6 inches) and eggs.

Foodsize trout had sales of 352,000 pounds with an average liveweight of 1.1 pounds per fish. Foodsize sales totaled $859,000 for an average value of $2.44 per pound. The major sales outlets were direct sales to fee fishing at 45 percent of total, 8 percent to restaurants and retailers and 7 percent to live haulers. Stocker trout sales totaled 65,000 pounds with an average liveweight of 0.33 pounds per trout. The value of sales, at $174,000, decreased from $302,000 and averaged $2.67 per pound. Fee fishing at 57 percent of sales, and sales to other producers at 9 percent accounted for the majority of sales.

Number of fingerlings sold was 310,000, down 3 percent from last year. The value of sales increased to $80,000 and averaged $259.00 per 1,000 fish.

Losses of trout in Michigan amounted to 124,000 fish, weighing 25,000 pounds. Predator loss accounted for 52 percent of all fish lost.

Table 9.31—Trout: Number of operations

Year	Operations
	Number
1996	51
1997	45
1998	41
1999	39
2000	30

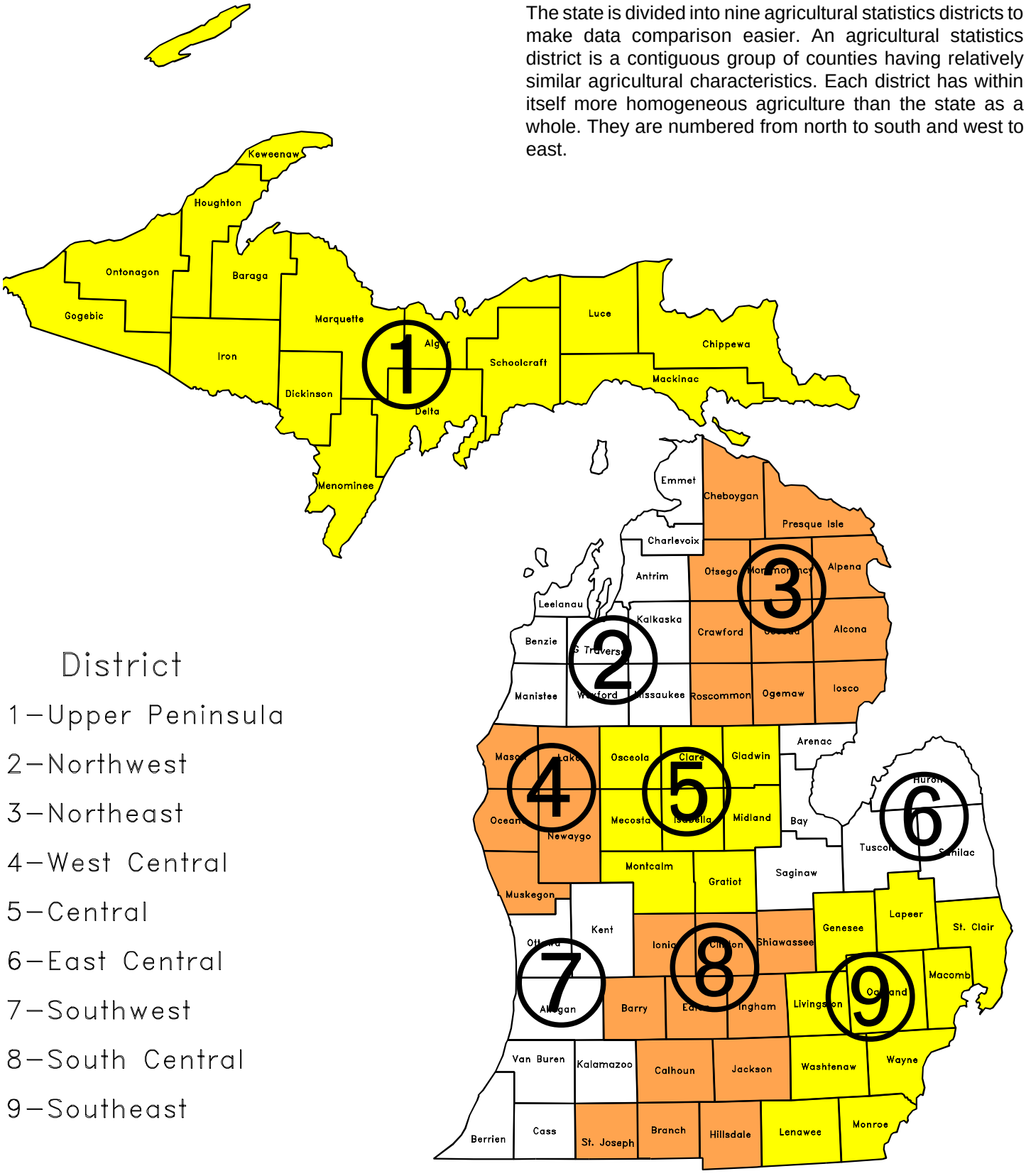
Table 9.32—Trout: Sales by size category

Size category	Number of fish	Live weight	Sales	
			Total	Average per pound
	1,000	*1,000*	*1,000 dollars*	*Dollars*
Foodsize (12 inches long or more):				
1995	580	555	1,300	2.34
1996	605	570	1,330	2.33
1997	550	540	1,255	2.32
1998	340	350	777	2.22
1999	320	352	859	2.44
Stockers (6-12 inches long):				
1995	520	150	350	2.33
1996	620	240	525	2.19
1997	220	75	160	2.13
1998	320	109	302	2.77
1999	200	65	174	2.67
Fingerlings (2-6 inches long):				
1995	700	18	200	11.11
1996	700	18	200	11.11
1997	485	13	70	5.38
1998	320	17	72	[1] 226.00
1999	310	10	80	[1] 259.00

[1] Average per thousand fish.

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

Table 10.1—Principal agricultural counties, 1999

[Rankings based on most current county estimates]

Field Crops

Rank	Beans, dry [1]	Corn [2]	Hay	Oats	Soybeans [1]	Sugarbeets	Wheat
1	Huron	Huron	Sanilac	Sanilac	Lenawee	Huron	Sanilac
2	Tuscola	Saginaw	Isabella	Huron	Saginaw	Tuscola	Huron
3	Gratiot	Sanilac	Missaukee	Presque Isle	Sanilac	Sanilac	Lenawee
4	Bay	Tuscola & Lenawee	Ottawa & Kent	Alpena	Gratiot	Bay	Saginaw
5	Sanilac			Isabella	Monroe & Shiawassee	Gratiot & Saginaw	Shiawassee
6	Saginaw	Gratiot	Montcalm	Tuscola			Tuscola
7	Montcalm	Branch	Osceola	Lapeer	Clinton	Arenac	Clinton
8	Arenac	St. Joseph	Menominee	Kent & Ionia	Eaton	Midland	Monroe
9	Midland	Ionia	Ingham, Ionia & Ogemaw		St. Clair	Isabella	Montcalm & Ingham
10	Isabella	Eaton		Lenawee	Ionia	Gladwin & Montcalm	

Fruit and Vegetables

	Apples [3]	Blueberries [3]	Cherries, tart [3]	Grapes [3]	Asparagus [3]	Beans, snap [3]	Carrots [3]
1	Kent	Van Buren	Oceana	Berrien	Oceana	St. Joseph	Newaygo
2	Berrien & Van Buren	Ottawa	Leelanau	Van Buren	Mason	Montcalm	Lapeer
3		Allegan	Grand Traverse	Cass	Van Buren	Mason	Oceana
4	Ottawa	Muskegon	Berrien	Kalamazoo	Manistee	Oceana	Montcalm
5	Oceana	Berrien	Antrim	Grand Traverse	Berrien	Kalamazoo	Muskegon

See footnotes at end of table.

Table 10.1—Principal agricultural counties, 1999 (continued)

[Rankings based on most current county estimates]

Livestock and Land in Farms						
Rank	All cattle [4]	Cows, beef [4]	Cows, milk [4]	Hogs [4]	Sheep [4]	Land in farms [5]
1	Huron	Osceola	Sanilac	Cass & Allegan	Washtenaw	Sanilac
2	Sanilac	Eaton	Clinton		Kalamazoo	Huron
3	Clinton	Barry	Allegan	Ottawa	Jackson	Lenawee
4	Allegan	Allegan & Calhoun	Huron	Huron	Eaton	Tuscola
5	Ottawa		Ottawa	Branch	St. Joseph	Saginaw
6	Ionia	Kent, Isabella, & Sanilac	Ionia	Kalamazoo	Clinton	Gratiot
7	Isabella		Missaukee	Calhoun & St. Joseph	Ingham	Hillsdale
8	Kent		Montcalm		Allegan	Clinton
9	Barry	Jackson	Isabello & Kent	Hillsdale & Van Buren	Barry, Calhoun & Lapeer	Calhoun
10	Gratiot	Ionia, Lapeer, Ottawa & St. Clair				Montcalm

[1] Based on total production.
[2] Based on grain production only.
[3] Based on acres from Michigan Rotational Surveys.
[4] Based on number of head.
[5] Based on 1997 Census of Agriculture.

Table 10.2—Barley: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Alger	--	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--	--
Chippewa	--	--	--	--	--	--	--	--
Delta	2,000	1,900	45	85,000	1,750	1,750	60	105,000
Dickinson	--	--	--	--	--	--	--	--
Gogebic	--	--	--	--	--	--	--	--
Houghton	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--
Keweenaw	--	--	--	--	--	--	--	--
Luce	--	--	--	--	--	--	--	--
Mackinac	--	--	--	--	--	--	--	--
Marquette	--	--	--	--	--	--	--	--
Menominee	3,100	3,000	45	136,000	3,400	3,300	55	180,000
Ontonagon	--	--	--	--	--	--	--	--
Schoolcraft	--	--	--	--	--	--	--	--
Other counties [1]	2,400	2,000	47	94,000	2,350	2,350	53	125,000
Upper Peninsula (1)	**7,500**	**6,900**	**46**	**315,000**	**7,500**	**7,400**	**55**	**410,000**
Antrim	--	--	--	--	--	--	--	--
Benzie	--	--	--	--	--	--	--	--
Charlevoix	--	--	--	--	--	--	--	--
Emmet	--	--	--	--	--	--	--	--
Grand Traverse	--	--	--	--	--	--	--	--
Kalkaska	--	--	--	--	--	--	--	--
Leelanau	--	--	--	--	--	--	--	--
Manistee	--	--	--	--	--	--	--	--
Missaukee	--	--	--	--	--	--	--	--
Wexford	--	--	--	--	--	--	--	--
Other counties [1]	1,000	1,000	50	50,000	900	900	57	51,000
Northwest (2)	**1,000**	**1,000**	**50**	**50,000**	**900**	**900**	**57**	**51,000**
Alcona	--	--	--	--	--	--	--	--
Alpena	--	--	--	--	--	--	--	--
Cheboygan	--	--	--	--	500	500	110	55,000
Crawford	--	--	--	--	--	--	--	--
Iosco	--	--	--	--	--	--	--	--
Montmorency	--	--	--	--	--	--	--	--
Ogemaw	--	--	--	--	700	700	86	60,000
Oscoda	--	--	--	--	--	--	--	--
Otsego	--	--	--	--	--	--	--	--
Presque Isle	1,600	1,600	42	67,000	900	900	61	55,000
Roscommon	--	--	--	--	--	--	--	--
Other counties [1]	3,600	3,300	40	133,000	2,300	2,100	76	160,000
Northeast (3)	**5,200**	**4,900**	**41**	**200,000**	**4,400**	**4,200**	**79**	**330,000**
Lake	--	--	--	--	--	--	--	--
Mason	--	--	--	--	--	--	--	--
Muskegon	--	--	--	--	--	--	--	--
Newaygo	--	--	--	--	--	--	--	--
Oceana	--	--	--	--	--	--	--	--
Other counties [1]	--	--	--	--	--	--	--	--
West Central (4)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Clare	--	--	--	--	--	--	--	--
Gladwin	--	--	--	--	--	--	--	--
Gratiot	--	--	--	--	--	--	--	--
Isabella	700	400	50	20,000	700	700	77	54,000
Mecosta	--	--	--	--	--	--	--	--
Midland	--	--	--	--	--	--	--	**--**
Montcalm	--	--	--	--	--	--	--	--
Osceola	--	--	--	--	--	--	--	--
Other counties [1]	1,300	1,000	50	50,000	1,000	800	64	51,000
Central (5)	**2,000**	**1,400**	**50**	**70,000**	**1,700**	**1,500**	**70**	**105,000**

Table 10.2—Barley: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Arenac	--	--	--	--	--	--	--	--
Bay	--	--	--	--	--	--	--	--
Huron	4,200	2,900	71	205,000	2,700	1,700	85	145,000
Saginaw	--	--	--	--	--	--	--	--
Sanilac	2,000	1,700	53	90,000	--	--	--	--
Tuscola	1,000	1,000	65	65,000	950	850	86	73,000
Other counties [1]	600	600	50	30,000	1,650	1,450	67	97,000
East Central (6)	**7,800**	**6,200**	**63**	**390,000**	**5,300**	**4,000**	**79**	**315,000**
Allegan	--	--	--	--	--	--	--	--
Berrien	--	--	--	--	--	--	--	--
Cass	--	--	--	--	--	--	--	--
Kalamazoo	--	--	--	--	--	--	--	--
Kent	--	--	--	--	--	--	--	--
Ottawa	--	--	--	--	--	--	--	--
Van Buren	--	--	--	--	--	--	--	--
Other counties [1]	--	--	--	--	--	--	--	--
Southwest (7)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Barry	--	--	--	--	--	--	--	--
Branch	--	--	--	--	--	--	--	--
Calhoun	--	--	--	--	--	--	--	--
Clinton	--	--	--	--	--	--	--	--
Eaton	--	--	--	--	--	--	--	--
Hillsdale	--	--	--	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--
Ionia	--	--	--	--	--	--	--	--
Jackson	--	--	--	--	--	--	--	--
St. Joseph	--	--	--	--	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--
Other counties [1]	1,000	1,000	57	57,000	1,000	900	70	63,000
South Central (8)	**1,000**	**1,000**	**57**	**57,000**	**1,000**	**900**	**70**	**63,000**
Genesee	--	--	--	--	--	--	--	--
Lapeer	500	400	43	17,000	--	--	--	--
Lenawee	--	--	--	--	--	--	--	--
Livingston	--	--	--	--	--	--	--	--
Macomb	--	--	--	--	--	--	--	--
Monroe	--	--	--	--	--	--	--	--
Oakland	--	--	--	--	--	--	--	--
St. Clair	--	--	--	--	--	--	--	--
Washtenaw	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--
Other counties [1]	700	500	40	20,000	1,100	1,100	50	55,000
Southeast (9)	**1,200**	**900**	**41**	**37,000**	**1,100**	**1,100**	**50**	**55,000**
Other districts [2]	1,300	700	44	31,000	1,100	1,000	57	57,000
State	**27,000**	**23,000**	**50**	**1,150,000**	**23,000**	**21,000**	**66**	**1,386,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.3—Beans, dry all: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*Cwt.*	*Acres*	*Acres*	*Ponds*	*Cwt.*
Alger	--	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--	--
Chippewa	--	--	--	--	--	--	--	--
Delta	1,200	1,200	750	9,000	--	--	--	--
Dickinson	--	--	--	--	--	--	--	--
Gogebic	--	--	--	--	--	--	--	--
Houghton	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--
Keweenaw	--	--	--	--	--	--	--	--
Luce	--	--	--	--	--	--	--	--
Mackinac	--	--	--	--	--	--	--	--
Marquette	--	--	--	--	--	--	--	--
Menominee	--	--	--	--	--	--	--	--
Ontonagon	--	--	--	--	--	--	--	--
Schoolcraft	--	--	--	--	--	--	--	--
Other counties [1]	600	500	1,400	7,000	--	--	--	--
Upper Peninsula (1)	**1,800**	**1,700**	**940**	**16,000**	**--**	**--**	**--**	**--**
Antrim	--	--	--	--	--	--	--	--
Benzie	--	--	--	--	--	--	--	--
Charlevoix	--	--	--	--	--	--	--	--
Emmet	--	--	--	--	--	--	--	--
Grand Traverse	--	--	--	--	--	--	--	--
Kalkaska	--	--	--	--	--	--	--	--
Leelanau	--	--	--	--	--	--	--	--
Manistee	--	--	--	--	--	--	--	--
Missaukee	--	--	--	--	--	--	--	--
Wexford	--	--	--	--	--	--	--	--
Other counties [1]	--	--	--	--	--	--	--	--
Northwest (2)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Alcona	1,000	1,000	1,500	15,000	1,400	1,400	1,570	22,000
Alpena	3,000	2,900	930	27,000	2,000	2,000	1,100	22,000
Cheboygan	--	--	--	--	--	--	--	--
Crawford	--	--	--	--	--	--	--	--
Iosco	--	--	--	--	--	--	--	--
Montmorency	--	--	--	--	--	--	--	--
Ogemaw	--	--	--	--	--	--	--	--
Oscoda	--	--	--	--	--	--	--	--
Otsego	--	--	--	--	--	--	--	--
Presque Isle	2,650	2,650	980	26,000	1,950	1,950	2,150	42,000
Roscommon	--	--	--	--	--	--	--	--
Other counties [1]	1,350	1,350	1,260	17,000	1,550	1,550	1,480	23,000
Northeast (3)	**8,000**	**7,900**	**1,080**	**85,000**	**6,900**	**6,900**	**1,580**	**109,000**
Lake	--	--	--	--	--	--	--	--
Mason	--	--	--	--	--	--	--	--
Muskegon	--	--	--	--	--	--	--	--
Newaygo	--	--	--	--	--	--	--	--
Oceana	--	--	--	--	--	--	--	--
Other counties [1]	--	--	--	--	--	--	--	--
West Central (4)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Clare	--	--	--	--	--	--	--	--
Gladwin	2,100	2,050	1,170	24,000	--	--	--	--
Gratiot	22,000	21,900	1,050	230,000	31,500	31,500	2,160	680,000
Isabella	4,950	4,800	1,100	53,000	5,300	5,300	1,620	86,000
Mecosta	5,000	4,600	910	42,000	--	--	--	--
Midland	4,700	4,600	1,150	53,000	5,200	5,200	2,020	**105,000**
Montcalm	16,200	16,000	1,200	192,000	16,800	16,800	1,680	282,000
Osceola	--	--	--	--	--	--	--	--
Other counties [1]	50	50	2,000	1,000	4,200	4,200	2,310	97,000
Central (5)	**55,000**	**54,000**	**1,100**	**595,000**	**63,000**	**63,000**	**1,980**	**1,250,000**

Table 10.3—Beans, dry all: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*Cwt.*	*Acres*	*Acres*	*Ponds*	*Cwt.*
Arenac	9,500	9,500	1,350	128,000	11,000	11,000	1,640	180,000
Bay	33,000	33,000	1,410	465,000	34,500	34,500	1,940	670,000
Huron	92,000	91,500	1,670	1,530,000	107,000	107,000	2,360	2,520,000
Saginaw	15,000	15,000	1,710	257,000	19,500	19,500	2,210	430,000
Sanilac	24,500	24,000	1,600	385,000	30,000	30,000	2,120	635,000
Tuscola	51,000	48,500	1,660	805,000	60,000	60,000	2,090	1,255,000
Other counties [1]	--	--	--	--	--	--	--	--
East Central (6)	**225,000**	**221,500**	**1,610**	**3,570,000**	**262,000**	**262,000**	**2,170**	**5,690,000**
Allegan	--	--	--	--	--	--	--	--
Berrien	--	--	--	--	--	--	--	--
Cass	--	--	--	--	--	--	--	--
Kalamazoo	--	--	--	--	--	--	--	--
Kent	--	--	--	--	3,500	3,500	1,400	49,000
Ottawa	--	--	--	--	--	--	--	--
Van Buren	--	--	--	--	--	--	--	--
Other counties [1]	3,000	3,000	1,500	45,000	600	600	1,500	9,000
Southwest (7)	**3,000**	**3,000**	**1,500**	**45,000**	**4,100**	**4,100**	**1,410**	**58,000**
Barry	--	--	--	--	--	--	--	--
Branch	--	--	--	--	--	--	--	--
Calhoun	--	--	--	--	--	--	--	--
Clinton	--	--	--	--	1,250	1,250	1,760	22,000
Eaton	700	700	2,430	17,000	2,100	2,100	2,380	50,000
Hillsdale	--	--	--	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--
Ionia	--	--	--	--	--	--	--	--
Jackson	--	--	--	--	--	--	--	--
St. Joseph	--	--	--	--	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--
Other counties [1]	2,000	1,900	1,470	28,000	4,050	4,050	1,680	68,000
South Central (8)	**2,700**	**2,600**	**1,730**	**45,000**	**7,400**	**7,400**	**1,890**	**140,000**
Genesee	--	--	--	--	--	--	--	--
Lapeer	--	--	--	--	--	--	--	--
Lenawee	--	--	--	--	--	--	--	--
Livingston	--	--	--	--	--	--	--	--
Macomb	--	--	--	--	--	--	--	--
Monroe	--	--	--	--	--	--	--	--
Oakland	--	--	--	--	--	--	--	--
St. Clair	--	--	--	--	1,400	1,400	1,570	22,000
Washtenaw	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--
Other counties [1]	3,000	2,800	1,890	53,000	3,300	3,300	1,670	55,000
Southeast (9)	**3,000**	**2,800**	**1,890**	**53,000**	**4,700**	**4,700**	**1,640**	**77,000**
Other districts [2]	1,500	1,500	1,070	16,000	1,900	1,900	1,370	26,000
State	**300,000**	**295,000**	**1,500**	**4,425,000**	**350,000**	**350,000**	**2,100**	**7,350,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.4—Beans, dry, navy: Acreage, yield, and production, 1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*Cwt.*	*Acres*	*Acres*	*Pounds*	*Cwt.*
Gratiot	4,000	3,900	900	35,000	10,500	10,500	2,380	250,000
Isabella	--	--	--	--	1,400	1,400	1,140	16,000
Midland	1,000	900	1,220	11,000	2,400	2,400	2,130	51,000
Montcalm	--	--	--	--	800	800	2,750	22,000
Other counties [1]	3,000	2,700	700	19,000	900	900	2,330	21,000
Central (5)	**8,000**	**7,500**	**870**	**65,000**	**16,000**	**16,000**	**2,250**	**360,000**
Arenac	--	--	--	--	2,500	2,500	1,600	40,000
Bay	6,000	6,000	1,500	90,000	12,500	12,500	2,000	250,000
Huron	31,000	31,000	1,710	530,000	62,000	62,000	2,550	1,580,000
Saginaw	--	--	--	--	8,000	8,000	2,380	190,000
Sanilac	6,500	6,500	1,620	105,000	12,000	12,000	2,040	245,000
Tuscola	16,000	15,500	1,680	260,000	31,000	31,000	2,180	675,000
Other counties [1]	3,500	3,500	1,570	55,000	--	--	--	--
East Central (6)	**63,000**	**62,500**	**1,660**	**1,040,000**	**128,000**	**128,000**	**2,330**	**2,980,000**
Eaton	--	--	--	--	700	700	2,140	15,000
Other counties [1]	1,100	1,100	2,270	25,000	900	900	1,890	17,000
South Central (8)	**1,100**	**1,100**	**2,270**	**25,000**	**1,600**	**1,600**	**2,000**	**32,000**
Other counties [1]	1,000	1,000	2,000	20,000	2,500	2,500	1,800	45,000
Southeast (9)	**1,000**	**1,000**	**2,000**	**20,000**	**2,500**	**2,500**	**1,800**	**45,000**
Other districts [2]	1,900	1,900	1,580	30,000	1,900	1,900	1,740	33,000
State	**75,000**	**74,000**	**1,590**	**1,180,000**	**150,000**	**150,000**	**2,300**	**3,450,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.5—Beans, dry, other: Acreage, yield, and production, 1997-98, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Pounds*	*Cwt.*	*Acres*	*Acres*	*Pounds*	*Cwt.*
Other counties [1]	--	--	--	--	5,300	5,300	1,530	81,000
Northeast (3)	**--**	**--**	**--**	**--**	**5,300**	**5,300**	**1,530**	**81,000**
Gratiot	18,000	18,000	1,080	195,000	21,000	21,000	2,050	430,000
Isabella	--	--	--	--	3,900	3,900	1,790	70,000
Midland	3,700	3,700	1,140	42,000	2,800	2,800	1,930	54,000
Montcalm	**--**	**--**	**--**	**--**	16,000	16,000	1,630	260,000
Other counties [1]	25,300	24,800	1,180	293,000	3,300	3,300	2,300	76,000
Central (5)	**47,000**	**46,500**	**1,140**	**530,000**	**47,000**	**47,000**	**1,890**	**890,000**
Arenac	--	--	--	--	8,500	8,500	1,650	140,000
Bay	27,000	27,000	1,390	375,000	22,000	22,000	1,910	420,000
Huron	61,000	60,500	1,650	1,000,000	45,000	45,000	2,090	940,000
Saginaw	--	--	--	--	11,500	11,500	2,090	240,000
Sanilac	18,000	17,500	1,600	280,000	18,000	18,000	2,170	390,000
Tuscola	35,000	33,000	1,650	545,000	29,000	29,000	2,000	580,000
Other counties [1]	21,000	21,000	1,570	330,000	--	--	--	--
East Central (6)	**162,000**	**159,000**	**1,590**	**2,530,000**	**134,000**	**134,000**	**2,020**	**2,710,000**
Other counties [1]	3,000	3,000	1,500	45,000	3,800	3,800	1,390	53,000
Southwest (7)	**3,000**	**3,000**	**1,500**	**45,000**	**3,800**	**3,800**	**1,390**	**53,000**
Eaton	**--**	**--**	**--**	**--**	1,400	1,400	2,500	35,000
Other counties [1]	1,600	1,500	1,330	20,000	4,400	4,400	1,660	73,000
South Central (8)	**1,600**	**1,500**	**1,330**	**20,000**	**5,800**	**5,800**	**1,860**	**108,000**
Other counties [1]	2,000	1,800	1,830	33,000	2,200	2,200	1,450	32,000
Southeast (9)	**2,000**	**1,800**	**1,830**	**33,000**	**2,200**	**2,200**	**1,450**	**32,000**
Other districts [2]	9,400	9,200	950	87,000	1,900	1,900	1,370	26,000
State	**225,000**	**221,000**	**1,470**	**3,245,000**	**200,000**	**200,000**	**1,950**	**3,900,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.
[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.6—Corn: Acreage, yield, and production, 1998, by county

[Estimates are not published for counties with less than 500 acres]

County and district	Planted for all purposes	1998					
		Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Tons*	*Tons*
Alger	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--
Chippewa	--	--	--	--	--	--	--
Delta	3,800	2,600	55	143,000	1,200	7.5	9,000
Dickinson	1,500	600	87	52,000	900	6.2	5,600
Gogebic	--	--	--	--	--	--	--
Houghton	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--
Keweenaw	--	--	--	--	--	--	--
Luce	--	--	--	--	--	--	--
Mackinac	--	--	--	--	--	--	--
Marquette	800	--	--	--	600	9.0	5,400
Menominee	13,600	7,000	93	650,000	6,500	10.6	69,000
Ontonagon	--	--	--	--	--	--	--
Schoolcraft	--	--	--	--	--	--	--
Other counties [1]	1,300	800	69	55,000	700	8.6	6,000
Upper Peninsula (1)	**21,000**	**11,000**	**82**	**900,000**	**9,900**	**9.6**	**95,000**
Antrim	3,900	2,300	100	230,000	1,600	16.9	27,000
Benzie	1,800	1,200	71	85,000	600	5.8	3,500
Charlevoix	2,900	2,200	93	205,000	700	14.3	10,000
Emmet	2,500	1,400	89	125,000	1,100	12.3	13,500
Grand Traverse	8,600	6,600	77	505,000	1,900	10.5	20,000
Kalkaska	1,700	1,400	75	105,000	--	--	--
Leelanau	4,500	3,200	92	295,000	1,200	10.0	12,000
Manistee	1,600	1,200	104	125,000	--	--	--
Missaukee	14,000	4,900	105	515,000	8,900	10.9	97,000
Wexford	3,500	2,600	81	210,000	900	11.3	10,200
Other counties [1]	--	--	--	--	700	9.7	6,800
Northwest (2)	**45,000**	**27,000**	**89**	**2,400,000**	**17,600**	**11.4**	**200,000**
Alcona	1,600	1,000	63	63,000	600	12.8	7,700
Alpena	7,500	6,100	71	435,000	1,400	12.3	17,200
Cheboygan	1,700	800	69	55,000	900	10.3	9,300
Crawford	--	--	--	--	--	--	--
Iosco	6,700	3,800	82	310,000	2,900	8.4	24,500
Montmorency	1,900	1,500	70	105,000	--	--	--
Ogemaw	10,000	4,500	82	370,000	5,300	11.7	62,000
Oscoda	--	--	--	--	500	10.0	5,000
Otsego	--	--	--	--	600	11.8	7,100
Presque Isle	5,700	4,600	78	360,000	1,000	12.0	12,000
Roscommon	--	--	--	--	--	--	--
Other counties [1]	1,900	700	74	52,000	500	10.4	5,200
Northeast (3)	**37,000**	**23,000**	**76**	**1,750,000**	**13,700**	**10.9**	**150,000**
Lake	--	--	--	--	--	--	--
Mason	--	--	--	--	--	--	--
Muskegon	18,500	14,200	102	1,450,000	4,200	8.3	35,000
Newaygo	28,300	20,900	89	1,850,000	7,200	10.8	78,000
Oceana	12,900	9,700	82	800,000	3,100	11.6	36,000
Other counties [1]	12,300	9,200	87	800,000	3,000	10.3	31,000
West Central (4)	**72,000**	**54,000**	**91**	**4,900,000**	**17,500**	**10.3**	**180,000**
Clare	5,900	3,500	83	290,000	2,300	10.4	24,000
Gladwin	8,300	7,300	59	430,000	900	8.3	7,500
Gratiot	82,000	72,900	83	6,020,000	7,800	10.0	78,000
Isabella	48,000	37,300	82	3,040,000	10,100	11.1	112,000
Mecosta	16,500	11,900	92	1,100,000	4,400	7.0	31,000
Midland	20,500	19,800	98	1,950,000	500	13.0	6,500
Montcalm	55,000	48,700	92	4,500,000	5,900	15.4	91,000
Osceola	8,800	3,600	75	270,000	5,100	9.8	50,000
Other counties [1]	--	--	--	--	--	--	--
Central (5)	**245,000**	**205,000**	**86**	**17,600,000**	**37,000**	**10.8**	**400,000**

Table 10.6—Corn: Acreage, yield, and production, 1998, by county

[Estimates are not published for counties with less than 500 acres]

County and district	Planted for all purposes	1998					
		Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Tons*	*Tons*
Arenac	17,000	14,500	93	1,350,000	2,400	14.6	35,000
Bay	43,000	41,800	115	4,800,000	1,000	14.0	14,000
Huron	125,000	106,000	126	13,350,000	18,400	13.0	240,000
Saginaw	78,000	75,400	101	7,650,000	2,300	10.0	23,000
Sanilac	105,000	89,500	129	11,550,000	15,000	15.0	225,000
Tuscola	82,000	77,800	125	9,750,000	3,900	16.2	63,000
Other counties [1]	--	--	--	--	--	--	--
East Central (6)	**450,000**	**405,000**	**120**	**48,450,000**	**43,000**	**14.0**	**600,000**
Allegan	77,000	68,900	110	7,560,000	8,000	15.3	122,000
Berrien	44,000	43,300	118	5,130,000	600	11.5	6,900
Cass	71,000	70,000	90	6,300,000	800	14.1	11,300
Kalamazoo	54,000	52,600	117	6,130,000	1,200	14.8	17,700
Kent	49,000	39,300	90	3,520,000	9,500	12.3	116,500
Ottawa	50,000	41,600	105	4,380,000	8,300	12.4	102,800
Van Buren	35,000	34,300	101	3,480,000	600	21.3	12,800
Other counties [1]	--	--	--	--	--	--	--
Southwest (7)	**380,000**	**350,000**	**104**	**36,500,000**	**29,000**	**13.4**	**390,000**
Barry	37,000	28,500	121	3,450,000	8,800	16.3	143,000
Branch	79,000	77,000	116	8,900,000	1,800	17.8	32,000
Calhoun	74,000	69,300	118	8,200,000	4,500	13.8	62,000
Clinton	64,000	47,600	100	4,780,000	16,200	9.9	160,000
Eaton	65,000	62,800	127	7,980,000	2,000	11.5	23,000
Hillsdale	74,000	69,000	130	9,000,000	4,700	16.0	75,000
Ingham	52,000	48,300	126	6,090,000	3,500	12.9	45,000
Ionia	74,000	65,700	110	7,200,000	8,000	16.6	133,000
Jackson	53,000	48,400	116	5,600,000	4,400	13.6	60,000
St. Joseph	91,000	89,400	101	9,000,000	1,300	17.7	23,000
Shiawassee	47,000	44,000	86	3,800,000	2,800	10.4	29,000
Other counties [1]	--	--	--	--	--	--	--
South Central (8)	**710,000**	**650,000**	**114**	**74,000,000**	**58,000**	**13.5**	**785,000**
Genesee	29,500	28,600	93	2,650,000	900	10.6	9,500
Lapeer	43,000	39,400	114	4,500,000	3,500	16.3	57,000
Lenawee	95,000	91,500	146	13,330,000	3,300	11.8	39,000
Livingston	24,000	22,100	97	2,150,000	1,800	10.8	19,500
Macomb	12,000	11,400	115	1,310,000	600	15.0	9,000
Monroe	58,000	57,100	154	8,780,000	800	18.8	15,000
Oakland	5,500	5,300	79	420,000	--	--	--
St. Clair	23,500	22,300	102	2,270,000	1,100	14.5	16,000
Washtenaw	45,000	42,900	119	5,110,000	2,000	16.0	32,000
Wayne	4,500	4,400	120	530,000	--	--	--
Other counties [1]	--	--	--	--	300	10.0	3,000
Southeast (9)	**340,000**	**325,000**	**126**	**41,050,000**	**14,300**	**14.0**	**200,000**
Other districts [2]	--	--	--	--	--	--	--
State	**2,300,000**	**2,050,000**	**111**	**227,550,000**	**240,000**	**12.5**	**3,000,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.
[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.7—Corn: Acreage, yield, and production, 1999, by county

[Estimates are not published for counties with less than 500 acres]

County and district	Planted for all purposes	1999					
		Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Tons*	*Tons*
Alger	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--
Chippewa	--	--	--	--	--	--	--
Delta	4,000	2,700	111	300,000	1,150	13.0	15,000
Dickinson	--	--	--	--	--	--	--
Gogebic	--	--	--	--	--	--	--
Houghton	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--
Keweenaw	--	--	--	--	--	--	--
Luce	--	--	--	--	--	--	--
Mackinac	--	--	--	--	--	--	--
Marquette	--	--	--	--	--	--	--
Menominee	12,600	5,400	112	605,000	7,000	16.4	115,000
Ontonagon	--	--	--	--	--	--	--
Schoolcraft	--	--	--	--	--	--	--
Other counties [1]	3,400	900	106	95,000	2,350	11.9	28,000
Upper Peninsula (1)	**20,000**	**9,000**	**111**	**1,000,000**	**10,500**	**15.0**	**158,000**
Antrim	4,200	2,600	123	320,000	1,500	16.0	24,000
Benzie	--	--	--	--	--	--	--
Charlevoix	3,300	2,700	111	300,000	500	14.0	7,000
Emmet	2,400	1,350	111	150,000	1,000	17.0	17,000
Grand Traverse	7,800	6,000	120	720,000	1,600	15.6	25,000
Kalkaska	1,700	1,150	109	125,000	500	8.0	4,000
Leelanau	4,500	3,600	103	370,000	--	--	--
Manistee	--	--	--	--	--	--	--
Missaukee	14,500	6,600	146	965,000	7,700	15.6	120,000
Wexford	--	--	--	--	--	--	--
Other counties [1]	6,600	4,000	88	350,000	3,200	13.4	43,000
Northwest (2)	**45,000**	**28,000**	**118**	**3,300,000**	**16,000**	**15.0**	**240,000**
Alcona	--	--	--	--	--	--	--
Alpena	7,300	6,000	98	590,000	1,200	14.2	17,000
Cheboygan	--	--	--	--	--	--	--
Crawford	--	--	--	--	--	--	--
Iosco	6,900	3,700	130	480,000	3,100	11.0	34,000
Montmorency	--	--	--	--	--	--	--
Ogemaw	9,100	5,200	154	800,000	3,800	20.5	78,000
Oscoda	--	--	--	--	--	--	--
Otsego	--	--	--	--	--	--	--
Presque Isle	5,100	4,200	117	490,000	800	12.5	10,000
Roscommon	--	--	--	--	--	--	--
Other counties [1]	6,600	3,900	113	440,000	2,600	15.8	41,000
Northeast (3)	**35,000**	**23,000**	**122**	**2,800,000**	**11,500**	**15.7**	**180,000**
Lake	--	--	--	--	--	--	--
Mason	--	--	--	--	--	--	--
Muskegon	16,500	12,500	112	1,400,000	3,800	13.9	53,000
Newaygo	25,500	18,000	131	2,350,000	7,000	17.1	120,000
Oceana	11,500	8,800	114	1,000,000	2,500	14.0	35,000
Other counties [1]	11,500	8,700	121	1,050,000	2,700	15.6	42,000
West Central (4)	**65,000**	**48,000**	**121**	**5,800,000**	**16,000**	**15.6**	**250,000**
Clare	5,000	3,100	127	395,000	1,900	20.5	39,000
Gladwin	6,700	5,800	115	665,000	--	--	--
Gratiot	78,000	70,000	151	10,550,000	7,500	25.5	191,000
Isabella	41,500	33,000	150	4,940,000	8,400	15.6	131,000
Mecosta	16,000	12,400	141	1,750,000	3,600	13.6	49,000
Midland	20,000	19,500	151	2,950,000	--	--	--
Montcalm	50,000	43,000	136	5,850,000	6,700	19.6	131,000
Osceola	7,800	3,200	125	400,000	4,600	18.9	87,000
Other counties [1]	--	--	--	--	1,300	16.9	22,000
Central (5)	**225,000**	**190,000**	**145**	**27,500,000**	**34,000**	**19.1**	**650,000**

Table 10.7—Corn: Acreage, yield, and production, 1999, by county

[Estimates are not published for counties with less than 500 acres]

County and district	Planted for all purposes	1999					
		Grain			Silage		
		Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Tons*	*Tons*
Arenac	16,000	13,500	130	1,750,000	--	--	--
Bay	40,000	38,500	157	6,050,000	--	--	--
Huron	112,000	91,000	154	14,000,000	20,000	18.0	360,000
Saginaw	79,000	76,000	155	11,750,000	2,700	16.7	45,000
Sanilac	95,000	78,000	142	11,050,000	16,000	16.3	261,000
Tuscola	78,000	74,000	149	11,000,000	3,600	18.9	68,000
Other counties [1]	--	--	--	--	3,700	17.8	66,000
East Central (6)	**420,000**	**371,000**	**150**	**55,600,000**	**46,000**	**17.4**	**800,000**
Allegan	74,000	66,000	120	7,950,000	7,600	17.6	134,000
Berrien	46,000	45,200	119	5,400,000	--	--	--
Cass	67,000	65,800	94	6,170,000	900	12.2	11,000
Kalamazoo	50,000	47,200	111	5,230,000	2,600	18.1	47,000
Kent	44,000	34,500	142	4,900,000	9,300	20.8	193,000
Ottawa	46,000	36,600	115	4,200,000	9,100	14.2	129,000
Van Buren	33,000	31,700	103	3,250,000	--	--	--
Other counties [1]	--	--	--	--	1,500	10.7	16,000
Southwest (7)	**360,000**	**327,000**	**113**	**37,100,000**	**31,000**	**17.1**	**530,000**
Barry	38,000	31,500	127	4,000,000	6,400	20.9	134,000
Branch	83,000	81,000	123	9,980,000	1,600	17.5	28,000
Calhoun	67,000	62,500	111	6,950,000	4,000	15.3	61,000
Clinton	66,000	47,500	130	6,180,000	18,000	20.6	371,000
Eaton	61,000	59,500	138	8,220,000	1,200	19.2	23,000
Hillsdale	71,000	66,200	115	7,630,000	4,200	14.3	60,000
Ingham	49,000	46,000	141	6,490,000	2,500	15.2	38,000
Ionia	71,000	63,000	145	9,160,000	7,300	21.5	157,000
Jackson	53,000	49,500	121	6,000,000	3,400	17.6	60,000
St. Joseph	84,000	83,000	114	9,440,000	900	15.6	14,000
Shiawassee	47,000	44,300	134	5,950,000	2,500	17.6	44,000
Other counties [1]	--	--	--	--	--	--	--
South Central (8)	**690,000**	**634,000**	**126**	**80,000,000**	**52,000**	**19.0**	**990,000**
Genesee	29,000	27,900	132	3,680,000	1,000	19.0	19,000
Lapeer	43,000	39,300	137	5,390,000	3,600	20.8	75,000
Lenawee	96,000	89,000	124	11,000,000	6,300	18.6	117,000
Livingston	25,000	23,200	131	3,050,000	1,600	15.0	24,000
Macomb	11,000	10,200	132	1,350,000	--	--	--
Monroe	59,000	58,000	124	7,200,000	--	--	--
Oakland	--	--	--	--	--	--	--
St. Clair	26,000	24,800	133	3,290,000	1,000	13.0	13,000
Washtenaw	43,000	40,000	116	4,640,000	2,900	15.9	46,000
Wayne	--	--	--	--	--	--	--
Other counties [1]	8,000	7,600	105	800,000	1,600	13.1	21,000
Southeast (9)	**340,000**	**320,000**	**126**	**40,400,000**	**18,000**	**17.5**	**315,000**
Other districts [2]	--	--	--	--	--	--	--
State	**2,200,000**	**1,950,000**	**130**	**253,500,000**	**235,000**	**17.5**	**4,113,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.
[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.8—Hay: Acreage, yield, and production, 1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998			1999		
	Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Tons*	*Tons*	*Acres*	*Tons*	*Tons*
Alger	5,400	1.5	8,000	5,500	2.2	12,000
Baraga	6,500	1.7	11,000	5,500	1.8	10,000
Chippewa	47,000	1.4	67,000	46,500	2.5	117,000
Delta	21,000	1.1	23,000	22,000	2.8	62,000
Dickinson	5,500	1.1	6,000	5,000	1.8	9,000
Gogebic	--	--	--	1,400	1.4	2,000
Houghton	7,500	1.3	10,000	6,500	2.3	15,000
Iron	7,500	1.1	8,000	7,500	2.1	16,000
Keweenaw	--	--	--	--	--	--
Luce	--	--	--	--	--	--
Mackinac	9,000	1.7	15,000	10,000	2.5	25,000
Marquette	5,500	2.0	11,000	4,500	1.6	7,000
Menominee	29,000	1.4	40,000	31,000	4.0	125,000
Ontonagon	12,000	1.3	16,000	11,000	2.7	30,000
Schoolcraft	4,500	1.1	5,000	5,000	1.4	7,000
Other counties [1]	4,600	1.1	5,000	3,600	3.6	13,000
Upper Peninsula (1)	**165,000**	**1.4**	**225,000**	**165,000**	**2.7**	**450,000**
Antrim	11,000	1.3	14,000	14,000	1.9	27,000
Benzie	2,000	1.5	3,000	2,000	2.5	5,000
Charlevoix	7,500	1.6	12,000	10,000	2.5	25,000
Emmet	15,000	3.5	52,000	14,000	2.9	40,000
Grand Traverse	11,000	1.6	18,000	13,000	2.3	30,000
Kalkaska	4,000	1.5	6,000	4,500	1.8	8,000
Leelanau	7,500	2.7	20,000	7,500	2.7	20,000
Manistee	7,000	1.4	10,000	7,000	2.1	15,000
Missaukee	30,000	3.8	114,000	32,000	4.2	135,000
Wexford	10,000	2.6	26,000	11,000	2.7	30,000
Other counties [1]	--	--	--	--	--	--
Northwest (2)	**105,000**	**2.6**	**275,000**	**115,000**	**2.9**	**335,000**
Alcona	16,000	2.2	35,000	16,500	2.1	35,000
Alpena	21,000	1.8	38,000	22,500	2.4	55,000
Cheboygan	13,000	2.5	33,000	12,500	2.6	33,000
Crawford	--	--	--	--	--	--
Iosco	12,000	1.9	23,000	13,000	2.7	35,000
Montmorency	5,000	3.2	16,000	5,500	2.7	15,000
Ogemaw	23,000	2.3	53,000	26,000	4.6	120,000
Oscoda	4,000	1.5	6,000	3,200	1.6	5,000
Otsego	8,500	1.2	10,000	9,000	1.6	14,000
Presque Isle	20,000	2.2	43,000	19,500	2.6	50,000
Roscommon	--	--	--	--	--	--
Other counties [1]	2,500	1.2	3,000	2,300	1.3	3,000
Northeast (3)	**125,000**	**2.1**	**260,000**	**130,000**	**2.8**	**365,000**
Lake	8,000	1.8	14,000	8,500	1.6	14,000
Mason	13,000	3.3	43,000	14,000	4.3	60,000
Muskegon	11,000	3.8	42,000	10,500	5.0	52,000
Newaygo	27,000	3.1	83,000	31,000	3.6	113,000
Oceana	16,000	3.6	58,000	16,000	2.6	41,000
Other counties [1]	--	--	--	--	--	--
West Central (4)	**75,000**	**3.2**	**240,000**	**80,000**	**3.5**	**280,000**
Clare	22,000	1.8	40,000	22,000	3.5	76,000
Gladwin	18,000	2.4	43,000	19,000	2.8	53,000
Gratiot	13,000	3.2	41,000	13,000	4.8	62,000
Isabella	41,000	2.8	114,000	43,000	3.6	153,000
Mecosta	37,000	1.5	55,000	34,000	2.8	95,000
Midland	7,000	1.7	12,000	6,000	2.7	16,000
Montcalm	29,000	3.3	96,000	29,500	4.4	129,000
Osceola	43,000	1.5	64,000	43,500	2.9	126,000
Other counties [1]	--	--	--	--	--	--
Central (5)	**210,000**	**2.2**	**465,000**	**210,000**	**3.4**	**710,000**

Table 10.8—Hay: Acreage, yield, and production, 1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998			1999		
	Harvested	Yield	Production	Harvested	Yield	Production
	Acres	*Tons*	*Tons*	*Acres*	*Tons*	*Tons*
Arenac	7,500	2.3	17,000	8,500	3.5	30,000
Bay	5,000	3.2	16,000	6,000	3.5	21,000
Huron	22,500	3.6	80,000	26,000	4.4	115,000
Saginaw	7,000	4.3	30,000	8,500	5.2	44,000
Sanilac	51,000	4.3	217,000	52,000	4.0	210,000
Tuscola	17,000	3.2	55,000	19,000	3.9	75,000
Other counties [1]	--	--	--	--	--	--
East Central (6)	**110,000**	**3.8**	**415,000**	**120,000**	**4.1**	**495,000**
Allegan	23,000	5.0	114,000	23,000	4.1	94,000
Berrien	7,500	1.9	14,000	8,000	3.1	25,000
Cass	13,000	2.9	38,000	12,000	2.9	35,000
Kalamazoo	8,500	3.4	29,000	8,500	2.9	25,000
Kent	31,000	4.2	130,000	32,000	4.1	130,000
Ottawa	25,000	4.8	119,000	28,000	4.6	130,000
Van Buren	12,000	3.4	41,000	13,500	3.0	41,000
Other counties [1]	--	--	--	--	--	--
Southwest (7)	**120,000**	**4.0**	**485,000**	**125,000**	**3.8**	**480,000**
Barry	26,000	3.8	100,000	26,000	3.7	96,000
Branch	11,500	3.4	39,000	11,500	3.9	45,000
Calhoun	19,000	3.6	69,000	20,500	3.4	70,000
Clinton	19,500	3.7	73,000	29,000	3.8	110,000
Eaton	16,000	2.9	47,000	15,500	2.9	45,000
Hillsdale	22,000	5.1	112,000	21,000	3.6	76,000
Ingham	19,500	5.3	103,000	19,500	4.1	80,000
Ionia	23,000	4.4	101,000	25,500	4.7	120,000
Jackson	24,500	3.1	76,000	23,000	3.7	86,000
St. Joseph	13,500	2.8	38,000	13,000	3.5	45,000
Shiawassee	15,500	4.0	62,000	15,500	3.7	57,000
Other counties [1]	--	--	--	--	--	--
South Central (8)	**210,000**	**3.9**	**820,000**	**220,000**	**3.8**	**830,000**
Genesee	10,500	2.4	25,000	11,500	3.8	44,000
Lapeer	29,000	3.8	111,000	31,000	3.5	110,000
Lenawee	11,000	3.2	35,000	14,000	5.0	70,000
Livingston	14,000	2.3	32,000	12,000	3.2	38,000
Macomb	5,000	1.6	8,000	6,000	2.7	16,000
Monroe	4,000	3.3	13,000	4,500	3.6	16,000
Oakland	9,500	1.4	13,000	7,800	2.6	20,000
St. Clair	23,000	2.3	52,000	25,000	2.9	72,000
Washtenaw	22,500	3.9	87,000	22,000	3.7	81,000
Wayne	1,500	2.7	4,000	1,200	2.5	3,000
Other counties [1]	--	--	--	--	--	--
Southeast (9)	**130,000**	**2.9**	**380,000**	**135,000**	**3.5**	**470,000**
Other districts [2]	--	--	--	--	--	--
State	**1,250,000**	**2.9**	**3,565,000**	**1,300,000**	**3.4**	**4,415,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.9—Oats: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Alger	--	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--	--
Chippewa	3,000	2,800	48	135,000	3,100	2,400	41	98,000
Delta	1,800	1,800	43	78,000	1,900	1,500	65	98,000
Dickinson	--	--	--	--	1,000	850	60	51,000
Gogebic	--	--	--	--	--	--	--	--
Houghton	500	500	54	27,000	--	--	--	--
Iron	750	750	51	38,000	650	550	40	22,000
Keweenaw	--	--	--	--	--	--	--	--
Luce	--	--	--	--	--	--	--	--
Mackinac	--	--	--	--	650	400	53	21,000
Marquette	--	--	--	--	--	--	--	--
Menominee	2,500	1,800	43	77,000	2,500	1,700	45	76,000
Ontonagon	900	900	43	39,000	950	700	41	29,000
Schoolcraft	--	--	--	--	750	600	90	54,000
Other counties [1]	3,550	3,250	37	121,000	1,500	1,300	39	51,000
Upper Peninsula (1)	**13,000**	**11,800**	**44**	**515,000**	**13,000**	**10,000**	**50**	**500,000**
Antrim	--	--	--	--	500	400	55	22,000
Benzie	--	--	--	--	--	--	--	--
Charlevoix	--	--	--	--	--	--	--	--
Emmet	1,100	1,050	35	37,000	750	650	66	43,000
Grand Traverse	1,800	1,750	39	68,000	1,900	1,700	61	103,000
Kalkaska	--	--	--	--	--	--	--	--
Leelanau	600	600	42	25,000	500	400	48	19,000
Manistee	--	--	--	--	--	--	--	--
Missaukee	1,450	1,400	34	47,000	1,450	1,200	64	77,000
Wexford	--	--	--	--	650	400	45	18,000
Other counties [1]	2,050	1,900	49	93,000	750	550	51	28,000
Northwest (2)	**7,000**	**6,700**	**40**	**270,000**	**6,500**	**5,300**	**58**	**310,000**
Alcona	1,100	800	50	40,000	1,050	500	68	34,000
Alpena	5,200	5,100	51	262,000	3,500	2,700	58	157,000
Cheboygan	700	300	40	12,000	650	450	49	22,000
Crawford	--	--	--	--	--	--	--	--
Iosco	1,400	1,000	55	55,000	1,750	1,400	81	113,000
Montmorency	--	--	--	--	--	--	--	--
Ogemaw	3,000	2,500	32	80,000	2,600	1,500	72	108,000
Oscoda	--	--	--	--	--	--	--	--
Otsego	800	800	50	40,000	700	500	52	26,000
Presque Isle	5,150	5,000	45	225,000	4,300	3,600	53	190,000
Roscommon	--	--	--	--	--	--	--	--
Other counties [1]	650	500	52	26,000	450	350	43	15,000
Northeast (3)	**18,000**	**16,000**	**46**	**740,000**	**15,000**	**11,000**	**60**	**665,000**
Lake	--	--	--	--	--	--	--	--
Mason	1,400	1,350	41	56,000	1,350	1,100	66	73,000
Muskegon	--	--	--	--	900	750	61	46,000
Newaygo	1,500	1,300	38	49,000	1,400	1,100	79	87,000
Oceana	900	900	46	41,000	--	--	--	--
Other counties [1]	1,200	1,150	56	64,000	850	650	52	34,000
West Central (4)	**5,000**	**4,700**	**45**	**210,000**	**4,500**	**3,600**	**67**	**240,000**
Clare	1,300	1,300	38	49,000	1,400	1,100	57	63,000
Gladwin	1,400	1,400	41	58,000	1,100	900	78	70,000
Gratiot	--	--	--	--	--	--	--	--
Isabella	3,100	2,900	36	104,000	3,300	2,300	67	153,000
Mecosta	1,900	1,500	37	56,000	1,700	1,400	54	75,000
Midland	--	--	--	--	--	--	--	--
Montcalm	2,700	2,700	42	113,000	2,500	1,800	41	74,000
Osceola	1,300	1,300	32	42,000	1,050	800	69	55,000
Other counties [1]	1,300	900	31	28,000	1,450	1,100	82	90,000
Central (5)	**13,000**	**12,000**	**38**	**450,000**	**12,500**	**9,400**	**62**	**580,000**

Table 10.9—Oats: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Arenac	--	--	--	--	1,850	1,300	84	109,000
Bay	--	--	--	--	800	650	92	60,000
Huron	4,900	4,600	72	332,000	4,500	2,800	86	241,000
Saginaw	1,200	1,200	58	70,000	1,150	950	92	87,000
Sanilac	8,300	7,400	63	465,000	7,100	5,300	85	448,000
Tuscola	2,700	2,700	65	175,000	2,600	2,000	68	135,000
Other counties [1]	2,400	2,100	51	108,000	--	--	--	--
East Central (6)	**19,500**	**18,000**	**64**	**1,150,000**	**18,000**	**13,000**	**83**	**1,080,000**
Allegan	1,400	1,250	41	51,000	1,700	1,300	60	78,000
Berrien	--	--	--	--	--	--	--	--
Cass	--	--	--	--	600	500	40	20,000
Kalamazoo	1,000	400	55	22,000	--	--	--	--
Kent	2,700	2,600	46	120,000	2,000	1,700	68	116,000
Ottawa	1,200	1,100	42	46,000	1,400	1,100	79	87,000
Van Buren	--	--	--	--	900	750	43	32,000
Other counties [1]	2,200	1,650	37	61,000	900	650	57	37,000
Southwest (7)	**8,500**	**7,000**	**43**	**300,000**	**7,500**	**6,000**	**62**	**370,000**
Barry	--	--	--	--	900	400	58	23,000
Branch	--	--	--	--	--	--	--	--
Calhoun	1,600	1,250	42	53,000	1,300	900	46	41,000
Clinton	1,600	1,250	50	63,000	1,250	950	68	65,000
Eaton	1,200	1,200	56	67,000	950	750	76	57,000
Hillsdale	1,100	1,100	55	60,000	1,000	800	68	54,000
Ingham	--	--	--	--	--	--	--	--
Ionia	2,000	1,900	46	87,000	1,950	1,500	77	116,000
Jackson	2,000	1,300	46	60,000	1,500	1,100	61	67,000
St. Joseph	900	900	37	33,000	850	200	45	9,000
Shiawassee	--	--	--	--	2,100	1,600	71	114,000
Other counties [1]	4,600	4,600	49	227,000	1,200	800	68	54,000
South Central (8)	**15,000**	**13,500**	**48**	**650,000**	**13,000**	**9,000**	**67**	**600,000**
Genesee	1,150	1,150	47	54,000	900	750	64	48,000
Lapeer	2,500	2,000	35	69,000	2,400	1,800	67	120,000
Lenawee	1,450	1,450	69	100,000	1,450	1,200	93	112,000
Livingston	500	450	40	18,000	600	450	53	24,000
Macomb	--	--	--	--	500	350	63	22,000
Monroe	--	--	--	--	850	700	86	60,000
Oakland	--	--	--	--	--	--	--	--
St. Clair	1,300	1,300	42	55,000	1,400	900	68	61,000
Washtenaw	2,150	2,100	59	124,000	1,550	1,300	55	71,000
Wayne	--	--	--	--	--	--	--	--
Other counties [1]	1,950	1,850	51	95,000	350	250	48	12,000
Southeast (9)	**11,000**	**10,300**	**50**	**515,000**	**10,000**	**7,700**	**69**	**530,000**
Other districts [2]	--	--	--	--	--	--	--	--
State	**110,000**	**100,000**	**48**	**4,800,000**	**100,000**	**75,000**	**65**	**4,875,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.10—Potatoes: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Alger	--	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--	--
Chippewa	--	--	--	--	--	--	--	--
Delta	1,100	1,100	225	250,000	1,000	950	305	290,000
Dickinson	700	700	220	155,000	700	700	270	190,000
Gogebic	--	--	--	--	--	--	--	--
Houghton	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--
Keweenaw	--	--	--	--	--	--	--	--
Luce	--	--	--	--	500	500	280	140,000
Mackinac	--	--	--	--	--	--	--	--
Marquette	500	500	230	115,000	500	500	280	140,000
Menominee	--	--	--	--	--	--	--	--
Ontonagon	--	--	--	--	--	--	--	--
Schoolcraft	--	--	--	--	--	--	--	--
Other counties [1]	1,200	1,150	235	270,000	600	600	250	150,000
Upper Peninsula (1)	**3,500**	**3,450**	**230**	**790,000**	**3,300**	**3,250**	**280**	**910,000**
Antrim	--	--	--	--	--	--	--	--
Benzie	--	--	--	--	--	--	--	--
Charlevoix	--	--	--	--	--	--	--	--
Emmet	--	--	--	--	--	--	--	--
Grand Traverse	--	--	--	--	--	--	--	--
Kalkaska	--	--	--	--	--	--	--	--
Leelanau	--	--	--	--	--	--	--	--
Manistee	--	--	--	--	--	--	--	--
Missaukee	--	--	--	--	--	--	--	--
Wexford	--	--	--	--	--	--	--	--
Other counties [1]	--	--	--	--	--	--	--	--
Northwest (2)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Alcona	--	--	--	--	--	--	--	--
Alpena	--	--	--	--	--	--	--	--
Cheboygan	--	--	--	--	--	--	--	--
Crawford	--	--	--	--	--	--	--	--
Iosco	--	--	--	--	--	--	--	--
Montmorency	--	--	--	--	--	--	--	--
Ogemaw	--	--	--	--	--	--	--	--
Oscoda	--	--	--	--	--	--	--	--
Otsego	--	--	--	--	600	600	250	150,000
Presque Isle	2,400	2,350	250	590,000	2,500	2,500	250	620,000
Roscommon	--	--	--	--	--	--	--	--
Other counties [1]	900	900	280	250,000	100	100	200	20,000
Northeast (3)	**3,300**	**3,250**	**260**	**840,000**	**3,200**	**3,200**	**245**	**790,000**
Lake	--	--	--	--	--	--	--	--
Mason	--	--	--	--	--	--	--	--
Muskegon	--	--	--	--	--	--	--	--
Newaygo	--	--	--	--	--	--	--	--
Oceana	--	--	--	--	--	--	--	--
Other counties [1]	--	--	--	--	--	--	--	--
West Central (4)	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Clare	--	--	--	--	--	--	--	--
Gladwin	--	--	--	--	--	--	--	--
Gratiot	--	--	--	--	--	--	--	--
Isabella	--	--	--	--	600	600	350	210,000
Mecosta	--	--	--	--	2,500	2,500	390	970,000
Midland	--	--	--	--	--	--	--	--
Montcalm	12,000	11,900	345	4,115,000	13,200	13,100	340	4,450,000
Osceola	--	--	--	--	--	--	--	--
Other counties [1]	3,000	3,000	380	1,133,000	200	200	350	70,000
Central (5)	**15,000**	**14,900**	**350**	**5,248,000**	**16,500**	**16,400**	**350**	**5,700,000**

Table 10.10—Potatoes: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Arenac	--	--	--	--	700	700	245	170,000
Bay	4,200	4,150	275	1,150,000	3,800	3,600	305	1,100,000
Huron	--	--	--	--	700	700	285	200,000
Saginaw	900	900	300	270,000	900	900	280	250,000
Sanilac	--	--	--	--	1,300	1,200	250	300,000
Tuscola	3,400	3,400	290	980,000	2,900	2,900	305	880,000
Other counties [1]	1,500	1,500	265	400,000	--	--	--	--
East Central (6)	**10,000**	**9,950**	**280**	**2,800,000**	**10,300**	**10,000**	**290**	**2,900,000**
Allegan	600	550	345	190,000	900	900	300	270,000
Berrien	--	--	--	--	--	--	--	--
Cass	--	--	--	--	--	--	--	--
Kalamazoo	--	--	--	--	700	700	330	230,000
Kent	--	--	--	--	--	--	--	--
Ottawa	--	--	--	--	--	--	--	--
Van Buren	--	--	--	--	--	--	--	--
Other counties [1]	1,400	1,400	365	510,000	800	800	340	270,000
Southwest (7)	**2,000**	**1,950**	**360**	**700,000**	**2,400**	**2,400**	**320**	**770,000**
Barry	--	--	--	--	--	--	--	--
Branch	--	--	--	--	--	--	--	--
Calhoun	--	--	--	--	--	--	--	--
Clinton	--	--	--	--	--	--	--	--
Eaton	--	--	--	--	--	--	--	--
Hillsdale	--	--	--	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--
Ionia	--	--	--	--	--	--	--	--
Jackson	--	--	--	--	--	--	--	--
St. Joseph	4,800	4,600	370	1,700,000	5,800	5,750	320	1,850,000
Shiawassee	--	--	--	--	--	--	--	--
Other counties [1]	1,700	1,700	355	600,000	1,000	1,000	350	350,000
South Central (8)	**6,500**	**6,300**	**365**	**2,300,000**	**6,800**	**6,750**	**325**	**2,200,000**
Genesee	--	--	--	--	600	600	335	200,000
Lapeer	--	--	--	--	--	--	--	--
Lenawee	--	--	--	--	--	--	--	--
Livingston	--	--	--	--	--	--	--	--
Macomb	--	--	--	--	--	--	--	--
Monroe	1,200	1,200	335	400,000	900	900	335	300,000
Oakland	--	--	--	--	--	--	--	--
St. Clair	--	--	--	--	--	--	--	--
Washtenaw	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--
Other counties [1]	2,000	2,000	280	560,000	800	800	340	270,000
Southeast (9)	**3,200**	**3,200**	**300**	**960,000**	**2,300**	**2,300**	**335**	**770,000**
Other districts [2]	3,500	3,500	290	1,010,000	3,200	3,200	290	923,000
State	**47,000**	**46,500**	**315**	**14,648,000**	**48,000**	**47,500**	**315**	**14,963,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.11—Soybeans: Acreage, yield, and production, 1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Iosco	--	--	--	--	1,300	1,200	45	54,000
Other counties [1]	--	--	--	--	2,700	2,600	31	81,000
Northeast (3)	--	--	--	--	**4,000**	**3,800**	**36**	**135,000**
Muskegon	5,100	5,000	44	220,000	5,000	4,900	39	190,000
Newaygo	2,800	2,800	29	80,000	3,900	3,800	35	133,000
Oceana	--	--	--	--	1,900	1,900	31	58,000
Other counties [1]	4,100	4,100	27	110,000	1,200	1,200	33	39,000
West Central (4)	**12,000**	**11,900**	**34**	**410,000**	**12,000**	**11,800**	**36**	**420,000**
Gladwin	1,800	1,800	22	40,000	2,100	2,100	33	70,000
Gratiot	85,000	84,600	29	2,490,000	80,000	79,800	45	3,600,000
Isabella	35,000	34,800	30	1,050,000	31,500	31,400	44	1,380,000
Midland	22,000	21,900	32	710,000	23,500	23,400	41	960,000
Montcalm	17,700	17,600	23	410,000	16,000	15,900	43	690,000
Other counties [1]	1,500	1,500	27	40,000	1,900	1,900	37	70,000
Central (5)	**163,000**	**162,200**	**29**	**4,740,000**	**155,000**	**154,500**	**44**	**6,770,000**
Arenac	11,000	10,900	27	290,000	11,000	11,000	36	400,000
Bay	41,000	40,800	35	1,410,000	34,000	33,900	44	1,500,000
Huron	45,000	44,800	37	1,660,000	35,000	34,900	40	1,400,000
Saginaw	110,000	109,500	31	3,440,000	117,000	116,600	41	4,800,000
Sanilac	115,000	114,500	41	4,680,000	109,000	108,700	44	4,750,000
Tuscola	73,000	72,500	38	2,720,000	64,000	63,900	40	2,550,000
East Central (6)	**395,000**	**393,000**	**36**	**14,200,000**	**370,000**	**369,000**	**42**	**15,400,000**
Allegan	33,000	32,900	39	1,280,000	41,000	40,900	43	1,750,000
Berrien	51,000	50,800	43	2,200,000	50,000	49,400	37	1,820,000
Cass	48,000	47,800	35	1,660,000	50,000	49,800	30	1,500,000
Kalamazoo	36,000	35,900	39	1,390,000	40,000	39,900	34	1,350,000
Kent	16,000	15,900	37	590,000	17,000	17,000	48	810,000
Ottawa	14,000	13,900	30	420,000	15,000	15,000	40	600,000
Van Buren	37,000	36,800	36	1,320,000	27,000	27,000	33	900,000
Southwest (7)	**235,000**	**234,000**	**38**	**8,860,000**	**240,000**	**239,000**	**37**	**8,730,000**
Barry	27,000	26,900	45	1,200,000	31,000	30,900	41	1,260,000
Branch	51,000	50,700	42	2,150,000	65,000	64,800	36	2,350,000
Calhoun	56,000	55,700	44	2,470,000	64,000	63,800	34	2,150,000
Clinton	72,000	71,700	36	2,600,000	78,000	77,800	42	3,300,000
Eaton	77,000	76,600	44	3,350,000	72,000	71,800	45	3,200,000
Hillsdale	71,000	70,700	46	3,250,000	71,000	70,800	36	2,550,000
Ingham	49,000	48,800	45	2,200,000	55,000	52,700	45	2,350,000
Ionia	57,000	56,700	38	2,170,000	59,000	58,800	47	2,750,000
Jackson	32,000	31,800	44	1,410,000	40,000	39,900	39	1,550,000
St. Joseph	50,000	49,800	40	1,980,000	52,000	51,000	38	1,950,000
Shiawassee	83,000	82,600	30	2,500,000	88,000	87,700	40	3,550,000
South Central (8)	**625,000**	**622,000**	**41**	**25,280,000**	**675,000**	**670,000**	**40**	**26,960,000**
Genesee	38,000	37,800	32	1,200,000	42,000	41,900	38	1,600,000
Lapeer	32,000	31,800	38	1,200,000	39,000	38,900	42	1,650,000
Lenawee	130,000	129,200	51	6,600,000	134,000	133,600	40	5,350,000
Livingston	16,000	15,900	36	580,000	20,000	19,900	41	820,000
Macomb	22,000	21,800	39	860,000	24,000	23,900	40	950,000
Monroe	105,000	104,300	47	4,950,000	103,000	102,000	35	3,550,000
St. Clair	61,000	60,600	38	2,330,000	67,000	66,900	43	2,850,000
Washtenaw	39,000	38,700	45	1,730,000	48,000	47,900	40	1,900,000
Other counties [1]	17,000	16,900	31	520,000	13,000	13,000	33	430,000
Southeast (9)	**460,000**	**457,000**	**44**	**19,970,000**	**490,000**	**488,000**	**39**	**19,100,000**
Other districts [2]	10,000	9,900	25	250,000	4,000	3,900	22	85,000
State	**1,900,000**	**1,890,000**	**39**	**73,710,000**	**1,950,000**	**1,940,000**	**40**	**77,600,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.
[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.12—Sugarbeets: Acreage, yield, and production, 1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Tons*	*Tons*	*Acres*	*Acres*	*Tons*	*Tons*
Gladwin	1,300	1,300	13	16,500	1,600	1,600	16	25,000
Gratiot	18,000	17,500	15	262,000	21,500	20,500	18	375,000
Isabella	2,200	1,900	13	24,000	2,700	2,200	16	35,000
Midland	4,000	4,000	14	57,000	4,400	4,100	17	68,000
Montcalm	800	800	17	13,500	1,300	1,200	21	25,000
Other counties [1]	--	--	--	--	200	200	20	4,000
Central (5)	**26,300**	**25,500**	**15**	**373,000**	**31,700**	**29,800**	**18**	**532,000**
Arenac	5,000	4,900	14	69,000	5,000	5,000	16	80,000
Bay	20,500	20,000	15	304,000	21,500	21,000	18	380,000
Huron	53,000	52,900	17	889,000	58,000	57,500	19	1,110,000
Saginaw	18,500	17,900	16	292,000	21,000	20,500	18	375,000
Sanilac	19,000	18,000	16	294,000	21,500	21,500	19	400,000
Tuscola	31,000	30,300	16	482,000	31,000	30,500	19	590,000
East Central (6)	**147,000**	**144,000**	**16**	**2,330,000**	**158,000**	**156,000**	**19**	**2,935,000**
Clinton	--	--	--	--	500	500	16	8,000
South Central (8)	--	--	--	--	500	500	16	8,000
Lenawee	1,300	1,200	21	25,000	1,300	1,250	17	21,000
St. Clair	1,600	1,500	19	28,000	1,200	1,200	18	21,000
Other counties [1]	500	500	18	9,000	1,000	950	15	14,000
Southeast (9)	**3,400**	**3,200**	**19**	**62,000**	**3,500**	**3,400**	**16**	**56,000**
Other districts [2]	300	300	10	3,000	300	300	10	3,000
State	**177,000**	**173,000**	**16**	**2,768,000**	**194,000**	**190,000**	**19**	**3,534,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.13—Wheat: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Alger	--	--	--	--	--	--	--	--
Baraga	--	--	--	--	--	--	--	--
Chippewa	--	--	--	--	--	--	--	--
Delta	750	700	36	25,000	--	--	--	--
Dickinson	--	--	--	--	--	--	--	--
Gogebic	--	--	--	--	--	--	--	--
Houghton	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--
Keweenaw	--	--	--	--	--	--	--	--
Luce	--	--	--	--	--	--	--	--
Mackinac	--	--	--	--	--	--	--	--
Marquette	--	--	--	--	--	--	--	--
Menominee	--	--	--	--	--	--	--	--
Ontonagon	--	--	--	--	--	--	--	--
Schoolcraft	--	--	--	--	--	--	--	--
Other counties [1]	850	800	31	25,000	1,500	1,400	50	70,000
Upper Peninsula (1)	**1,600**	**1,500**	**33**	**50,000**	**1,500**	**1,400**	**50**	**70,000**
Antrim	--	--	--	--	--	--	--	--
Benzie	--	--	--	--	--	--	--	--
Charlevoix	--	--	--	--	--	--	--	--
Emmet	--	--	--	--	--	--	--	--
Grand Traverse	2,100	2,000	33	66,000	2,200	2,200	50	110,000
Kalkaska	700	660	33	22,000	--	--	--	--
Leelanau	--	--	--	--	--	--	--	--
Manistee	500	490	33	16,000	--	--	--	--
Missaukee	800	750	39	29,000	--	--	--	--
Wexford	--	--	--	--	--	--	--	--
Other counties [1]	1,300	1,300	28	37,000	2,300	2,000	58	115,000
Northwest (2)	**5,400**	**5,200**	**33**	**170,000**	**4,500**	**4,200**	**54**	**225,000**
Alcona	600	600	53	32,000	--	--	--	--
Alpena	2,500	2,450	50	122,000	2,100	2,000	53	105,000
Cheboygan	--	--	--	--	--	--	--	--
Crawford	--	--	--	--	--	--	--	--
Iosco	1,900	1,850	59	110,000	1,900	1,900	82	155,000
Montmorency	800	800	46	37,000	800	800	64	51,000
Ogemaw	1,200	1,150	50	58,000	1,200	1,200	88	105,000
Oscoda	--	--	--	--	--	--	--	--
Otsego	--	--	--	--	--	--	--	--
Presque Isle	2,100	2,050	44	91,000	2,400	2,200	59	130,000
Roscommon	--	--	--	--	--	--	--	--
Other counties [1]	400	400	38	15,000	1,100	1,100	63	69,000
Northeast (3)	**9,500**	**9,300**	**50**	**465,000**	**9,500**	**9,200**	**67**	**615,000**
Lake	--	--	--	--	--	--	--	--
Mason	4,700	4,600	37	170,000	4,400	4,300	48	205,000
Muskegon	--	--	--	--	--	--	--	--
Newaygo	2,200	2,100	44	92,000	1,700	1,600	53	85,000
Oceana	2,400	2,300	41	95,000	2,000	1,900	55	105,000
Other counties [1]	2,200	1,500	49	73,000	1,400	1,400	61	85,000
West Central (4)	**11,500**	**10,500**	**41**	**430,000**	**9,500**	**9,200**	**52**	**480,000**
Clare	1,100	1,100	37	41,000	--	--	--	--
Gladwin	2,600	2,550	43	110,000	2,100	2,100	76	160,000
Gratiot	14,500	13,300	64	845,000	15,000	15,000	79	1,190,000
Isabella	12,400	11,800	53	630,000	13,000	13,000	74	960,000
Mecosta	2,000	1,950	38	74,000	2,100	2,100	52	110,000
Midland	2,800	2,750	60	165,000	3,200	3,200	73	235,000
Montcalm	17,000	15,500	44	685,000	19,000	19,000	68	1,300,000
Osceola	600	550	45	25,000	--	--	--	--
Other counties [1]	--	--	--	--	1,600	1,600	66	105,000
Central (5)	**53,000**	**49,500**	**52**	**2,575,000**	**56,000**	**56,000**	**73**	**4,060,000**

Table 10.13—Wheat: Acreage, yield, and production,1998-99, by county

[Estimates are not published for counties with less than 500 acres]

County and district	1998				1999			
	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	Acres	*Acres*	*Bushels*	*Bushels*	*Acres*	*Acres*	*Bushels*	*Bushels*
Arenac	6,200	6,000	54	325,000	5,400	5,400	81	440,000
Bay	8,800	8,500	59	500,000	7,100	6,900	81	560,000
Huron	47,000	45,000	63	2,830,000	48,000	47,300	79	3,750,000
Saginaw	24,000	23,000	62	1,420,000	28,500	28,100	80	2,250,000
Sanilac	50,000	48,000	58	2,780,000	54,000	53,500	76	4,050,000
Tuscola	24,000	22,500	59	1,325,000	27,000	26,800	75	2,000,000
Other counties [1]	--	--	--	--	--	--	--	--
East Central (6)	**160,000**	**153,000**	**60**	**9,180,000**	**170,000**	**168,000**	**78**	**13,050,000**
Allegan	11,000	10,400	54	560,000	10,000	9,900	60	590,000
Berrien	5,500	5,300	46	243,000	6,000	5,900	44	260,000
Cass	5,800	5,000	49	245,000	6,800	3,300	45	150,000
Kalamazoo	6,500	6,300	47	295,000	6,300	6,200	48	300,000
Kent	6,200	6,000	50	300,000	6,500	6,400	64	410,000
Ottawa	6,300	6,100	43	265,000	6,300	6,200	56	350,000
Van Buren	2,700	1,900	43	82,000	2,100	1,100	36	40,000
Other counties [1]	--	--	--	--	--	--	--	--
Southwest (7)	**44,000**	**41,000**	**49**	**1,990,000**	**44,000**	**39,000**	**54**	**2,100,000**
Barry	10,300	9,900	48	475,000	9,700	9,500	63	600,000
Branch	8,700	8,300	45	370,000	8,800	8,800	56	490,000
Calhoun	15,600	14,900	46	680,000	13,500	13,400	52	700,000
Clinton	22,500	21,200	55	1,165,000	25,500	25,400	74	1,880,000
Eaton	22,700	21,800	55	1,190,000	20,500	20,400	71	1,450,000
Hillsdale	15,000	14,400	47	670,000	15,000	14,900	58	860,000
Ingham	20,000	19,200	55	1,050,000	19,000	18,900	69	1,300,000
Ionia	22,000	21,100	52	1,100,000	20,000	19,900	72	1,430,000
Jackson	10,500	10,000	47	470,000	11,000	11,000	57	630,000
St. Joseph	2,200	2,100	38	80,000	3,000	3,000	47	140,000
Shiawassee	25,500	24,100	56	1,350,000	34,000	33,800	66	2,220,000
Other counties [1]	--	--	--	--	--	--	--	--
South Central (8)	**175,000**	**167,000**	**51**	**8,600,000**	**180,000**	**179,000**	**65**	**11,700,000**
Genesee	8,800	8,600	51	440,000	11,000	10,900	64	700,000
Lapeer	8,700	8,400	53	445,000	9,500	9,400	68	640,000
Lenawee	44,000	41,000	60	2,450,000	40,000	39,700	71	2,800,000
Livingston	7,000	6,800	51	350,000	8,000	7,900	63	500,000
Macomb	5,300	5,200	50	260,000	5,100	5,100	59	300,000
Monroe	30,000	28,500	62	1,760,000	25,500	25,300	73	1,850,000
Oakland	2,700	2,600	44	115,000	2,400	2,400	56	135,000
St. Clair	14,000	13,400	52	695,000	15,500	15,400	69	1,070,000
Washtenaw	18,000	17,000	44	740,000	17,000	16,900	62	1,050,000
Wayne	1,500	1,500	43	65,000	1,000	1,000	55	55,000
Other counties [1]	--	--	--	--	--	--	--	--
Southeast (9)	**140,000**	**133,000**	**55**	**7,320,000**	**135,000**	**134,000**	**68**	**9,100,000**
Other districts [2]	--	--	--	--	**--**	**--**	**--**	**--**
State	**600,000**	**570,000**	**54**	**30,780,000**	**610,000**	**600,000**	**69**	**41,400,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.14—Cattle and sheep: January 1, 1999, by county

[Estimates are not published for counties with less than 500 head]

County and district	1999				
	All cattle and calves	All cows that have calved	Milk cows	Beef cows	All sheep and lambs
	Head	*Head*	*Head*	*Head*	*Head*
Alger	2,100	700	--	--	550
Baraga	1,000	550	--	--	--
Chippewa	8,800	3,200	1,100	2,100	1,200
Delta	8,300	3,500	1,800	1,700	--
Dickinson	2,700	1,300	700	600	--
Gogebic	--	--	--	--	--
Houghton	2,200	800	--	--	--
Iron	2,100	1,000	--	--	--
Keweenaw	--	--	--	--	--
Luce	1,000	--	--	--	--
Mackinac	2,800	1,350	850	500	--
Marquette	2,700	1,450	950	500	--
Menominee	19,500	8,200	6,200	2,000	--
Ontonagon	3,200	1,600	700	900	--
Schoolcraft	1,300	650	--	--	--
Other counties [1]	300	500	1,500	2,700	550
Upper Peninsula (1)	**58,000**	**24,800**	**13,800**	**11,000**	**2,300**
Antrim	5,500	1,650	850	800	--
Benzie	1,700	--	--	--	--
Charlevoix	2,800	1,450	750	700	--
Emmet	5,800	2,600	1,100	1,500	--
Grand Traverse	6,600	2,100	700	1,400	--
Kalkaska	1,100	550	--	--	--
Leelanau	5,300	850	--	--	--
Manistee	2,700	800	--	--	--
Missaukee	24,500	11,400	10,600	800	--
Wexford	4,000	1,500	900	600	--
Other counties [1]	--	300	800	1,700	1,800
Northwest (2)	**60,000**	**23,200**	**15,700**	**7,500**	**1,800**
Alcona	5,000	2,400	700	1,700	--
Alpena	11,000	4,600	2,700	1,900	--
Cheboygan	5,000	2,400	1,400	1,000	--
Crawford	--	--	--	--	--
Iosco	7,200	3,200	1,600	1,600	500
Montmorency	3,000	1,250	750	500	--
Ogemaw	18,500	7,400	5,800	1,600	--
Oscoda	2,400	1,100	600	500	500
Otsego	2,500	850	--	--	--
Presque Isle	8,800	3,600	2,200	1,400	--
Roscommon	--	--	--	--	--
Other counties [1]	600	200	250	800	1,300
Northeast (3)	**64,000**	**27,000**	**16,000**	**11,000**	**2,300**
Lake	2,500	1,150	--	--	650
Mason	9,500	3,650	--	--	800
Muskegon	14,500	8,100	7,500	600	--
Newaygo	22,000	9,900	8,400	1,500	750
Oceana	11,500	4,000	3,100	900	--
Other counties [1]	--	--	3,000	1,800	200
West Central (4)	**60,000**	**26,800**	**22,000**	**4,800**	**2,400**
Clare	14,500	5,200	3,000	2,200	700
Gladwin	7,500	3,100	1,400	1,700	1,100
Gratiot	25,600	8,300	6,800	1,500	--
Isabella	33,000	12,200	9,700	2,500	600
Mecosta	16,300	7,100	5,000	2,100	1,400
Midland	4,600	1,400	700	700	--
Montcalm	21,000	9,800	8,000	1,800	550
Osceola	20,500	8,900	5,400	3,500	1,100
Other counties [1]	--	--	--	--	650
Central (5)	**143,000**	**56,000**	**40,000**	**16,000**	**6,100**

Table 10.14—Cattle and sheep: January 1, 1999, by county

[Estimates are not published for counties with less than 500 head]

County and district	1999				
	All cattle and calves	All cows that have calved	Milk cows	Beef cows	All sheep and lambs
	Head	*Head*	*Head*	*Head*	*Head*
Arenac	8,000	2,900	--	--	--
Bay	4,500	1,600	--	--	--
Huron	64,500	14,100	13,200	900	--
Saginaw	9,000	3,300	2,600	700	--
Sanilac	60,000	24,100	21,600	2,500	--
Tuscola	20,000	7,700	5,800	1,900	950
Other counties [1]	**--**	--	**3,800**	700	1,450
East Central (6)	**166,000**	**53,700**	**47,000**	**6,700**	**2,400**
Allegan	41,000	18,300	15,700	2,600	1,600
Berrien	5,000	2,500	1,500	1,000	--
Cass	7,000	2,800	1,100	1,700	1,150
Kalamazoo	13,000	4,300	3,200	1,100	5,800
Kent	28,000	11,400	8,900	2,500	--
Ottawa	37,000	15,500	13,200	2,300	700
Van Buren	8,000	3,700	1,900	1,800	1,300
Other counties [1]	**--**	**--**	**--**	**--**	750
Southwest (7)	**139,000**	**58,500**	**45,500**	**13,000**	**11,300**
Barry	26,000	12,700	9,800	2,900	1,500
Branch	23,500	6,200	4,000	2,200	1,000
Calhoun	20,000	7,700	5,100	2,600	1,400
Clinton	43,000	18,300	17,200	1,100	2,000
Eaton	18,000	5,700	2,500	3,200	2,100
Hillsdale	24,000	8,300	6,600	1,700	1,000
Ingham	22,000	8,200	6,200	2,000	1,500
Ionia	34,000	13,100	10,800	2,300	500
Jackson	21,000	6,800	4,400	2,400	1,600
St. Joseph	10,500	5,200	3,700	1,500	2,000
Shiawassee	14,000	5,300	4,200	1,100	800
Other counties [1]	**--**	**--**	**--**	**--**	**--**
South Central (8)	**256,000**	**97,500**	**74,500**	**23,000**	**15,400**
Genesee	8,000	2,700	1,700	1,000	1,000
Lapeer	24,000	8,000	5,700	2,300	1,400
Lenawee	20,500	9,300	7,300	2,000	1,300
Livingston	11,000	4,200	3,000	1,200	1,000
Macomb	3,500	1,350	750	600	--
Monroe	6,000	1,150	650	500	1,000
Oakland	2,000	650	--	--	700
St. Clair	10,000	4,100	1,800	2,300	--
Washtenaw	18,000	5,500	4,300	1,200	11,000
Wayne	1,000	550	--	--	--
Other counties [1]	--	--	300	900	600
Southeast (9)	**104,000**	**37,500**	**25,500**	**12,000**	**18,000**
Other districts [2]	--	--	--	--	--
State	**1,050,000**	**405,000**	**300,000**	**105,000**	**62,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.15—Cattle and sheep: January 1, 2000, by county

[Estimates are not published for counties with less than 500 head]

County and district	2000				
	All cattle and calves	All cows that have calved	Milk cows	Beef cows	All sheep and lambs
	Head	*Head*	*Head*	*Head*	*Head*
Alger	2,100	650	--	--	600
Baraga	1,000	600	--	--	--
Chippewa	8,600	3,000	1,000	2,000	1,200
Delta	8,000	3,800	2,000	1,800	--
Dickinson	2,300	1,400	700	700	--
Gogebic	--	--	--	--	--
Houghton	2,000	750	--	--	--
Iron	2,100	1,000	--	--	--
Keweenaw	--	--	--	--	--
Luce	900	--	--	--	--
Mackinac	2,600	1,200	--	--	--
Marquette	2,200	1,200	--	--	--
Menominee	18,500	8,500	6,700	1,800	--
Ontonagon	3,200	1,500	700	800	--
Schoolcraft	1,200	500	--	--	--
Other counties [1]	300	400	3,200	3,100	600
Upper Peninsula (1)	**55,000**	**24,500**	**14,300**	**10,200**	**2,400**
Antrim	5,500	1,700	1,000	700	500
Benzie	1,700	--	--	--	--
Charlevoix	2,800	1,450	750	700	--
Emmet	5,600	2,500	1,100	1,400	--
Grand Traverse	5,800	1,950	650	1,300	--
Kalkaska	1,100	--	--	--	--
Leelanau	4,500	750	--	--	--
Manistee	2,500	750	--	--	--
Missaukee	23,000	10,800	--	--	--
Wexford	3,500	1,450	850	600	--
Other counties [1]	--	650	11,350	1,600	1,600
Northwest (2)	**56,000**	**22,000**	**15,700**	**6,300**	**2,100**
Alcona	5,000	2,200	700	1,500	--
Alpena	10,500	4,400	2,900	1,500	--
Cheboygan	5,000	2,050	1,350	700	--
Crawford	--	--	--	--	--
Iosco	7,500	2,800	1,600	1,200	600
Montmorency	3,000	1,250	--	--	--
Ogemaw	16,000	7,100	5,800	1,300	--
Oscoda	2,400	1,050	--	--	500
Otsego	2,500	550	--	--	--
Presque Isle	8,500	3,100	2,000	1,100	--
Roscommon	--	--	--	--	--
Other counties [1]	600	100	1,650	1,300	1,400
Northeast (3)	**61,000**	**24,600**	**16,000**	**8,600**	**2,500**
Lake	2,500	1,050	--	--	700
Mason	9,000	3,600	2,800	800	700
Muskegon	13,500	7,000	--	--	--
Newaygo	22,000	10,200	8,500	1,700	800
Oceana	10,000	3,650	2,850	800	--
Other counties [1]	--	--	6,850	1,200	300
West Central (4)	**57,000**	**25,500**	**21,000**	**4,500**	**2,500**
Clare	13,000	4,700	2,900	1,800	800
Gladwin	7,500	2,900	1,300	1,600	1,100
Gratiot	24,500	8,700	7,700	1,000	--
Isabella	30,000	12,100	9,100	3,000	600
Mecosta	16,500	7,100	4,800	2,300	1,500
Midland	4,500	1,200	600	600	--
Montcalm	22,000	11,700	10,100	1,600	500
Osceola	21,000	9,000	5,500	3,500	1,000
Other counties [1]	--	--	--	--	700
Central (5)	**139,000**	**57,400**	**42,000**	**15,400**	**6,200**

Table 10.15—Cattle and sheep: January 1, 2000, by county

[Estimates are not published for counties with less than 500 head]

County and district	2000				
	All cattle and calves	All cows that have calved	Milk cows	Beef cows	All sheep and lambs
	Head	*Head*	*Head*	*Head*	*Head*
Arenac	8,300	2,800	--	--	--
Bay	4,200	1,700	--	--	--
Huron	65,500	14,100	13,400	700	--
Saginaw	9,000	3,200	--	--	--
Sanilac	56,000	22,800	20,500	2,300	500
Tuscola	19,000	7,500	5,400	2,100	900
Other counties [1]	**--**	--	**6,700**	1,000	1,100
East Central (6)	**162,000**	**52,100**	**46,000**	**6,100**	**2,500**
Allegan	40,000	17,300	15,200	2,100	1,600
Berrien	5,000	2,500	1,500	1,000	--
Cass	7,000	2,700	1,000	1,700	1,300
Kalamazoo	12,000	4,700	3,700	1,000	5,100
Kent	27,000	11,100	9,100	2,000	--
Ottawa	38,000	14,300	12,300	2,000	700
Van Buren	8,000	3,200	1,700	1,500	1,200
Other counties [1]	**--**	**--**	**--**	**--**	900
Southwest (7)	**137,000**	**55,800**	**44,500**	**11,300**	**10,800**
Barry	25,500	11,200	8,600	2,600	1,500
Branch	20,000	5,800	4,000	1,800	1,100
Calhoun	20,000	7,500	4,900	2,600	1,500
Clinton	44,000	19,000	17,900	1,100	2,000
Eaton	16,000	5,800	2,400	3,400	2,400
Hillsdale	23,000	9,600	7,800	1,800	1,100
Ingham	18,000	7,200	5,500	1,700	1,700
Ionia	35,000	13,300	11,100	2,200	600
Jackson	21,000	7,000	4,400	2,600	4,600
St. Joseph	10,000	4,000	2,500	1,500	2,200
Shiawassee	12,500	6,100	4,900	1,200	900
Other counties [1]	**--**	**--**	**--**	**--**	**--**
South Central (8)	**245,000**	**96,500**	**74,000**	**22,500**	**19,600**
Genesee	8,000	2,500	1,700	800	1,100
Lapeer	21,500	7,800	5,500	2,300	1,500
Lenawee	19,500	9,900	8,400	1,500	1,400
Livingston	10,000	4,300	3,000	1,300	1,100
Macomb	3,500	1,000	--	--	--
Monroe	6,000	1,200	600	600	1,200
Oakland	1,800	--	--	--	800
St. Clair	10,000	3,700	1,900	1,800	--
Washtenaw	17,000	5,500	4,500	1,000	11,600
Wayne	700	--	--	--	--
Other counties [1]	--	700	900	800	700
Southeast (9)	**98,000**	**36,600**	**26,500**	**10,100**	**19,400**
Other districts [2]	--	--	--	--	--
State	**1,010,000**	**395,000**	**300,000**	**95,000**	**68,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.16—Hogs and pigs, chickens: December 1, 1998-99, by county

[Estimates are not published for counties with less than 500 hogs or 1,000 hens and pullets of laying age]

County and district	All hogs and pigs		Hens and pullets of laying age	
	1998	1999	1998	1999
	Head	*Head*	*Head*	*Head*
Alger	--	--	--	--
Baraga	--	--	--	--
Chippewa	700	600	--	--
Delta	--	--	--	1,000
Dickinson	--	--	--	--
Gogebic	--	--	--	--
Houghton	--	--	6,000	6,400
Iron	--	--	--	--
Keweenaw	--	--	--	--
Luce	--	--	--	--
Mackinac	--	--	--	--
Marquette	--	--	--	--
Menominee	--	--	--	--
Ontonagon	--	--	--	--
Schoolcraft	--	--	--	--
Other counties [1]	1,000	900	4,000	4,600
Upper Peninsula (1)	**1,700**	**1,500**	**10,000**	**12,000**
Antrim	1,200	700	--	--
Benzie	1,200	1,000	--	--
Charlevoix	--	--	1,100	--
Emmet	600	600	--	--
Grand Traverse	3,700	3,100	--	--
Kalkaska	1,300	800	--	--
Leelanau	--	--	--	--
Manistee	--	--	--	--
Missaukee	2,800	1,800	--	--
Wexford	--	--	--	--
Other counties [1]	700	500	3,900	5,000
Northwest (2)	**11,500**	**8,500**	**5,000**	**5,000**
Alcona	--	--	--	--
Alpena	500	--	1,000	1,000
Cheboygan	--	--	--	--
Crawford	--	--	--	--
Iosco	--	--	--	--
Montmorency	--	--	--	--
Ogemaw	--	--	--	--
Oscoda	--	--	--	--
Otsego	--	--	1,000	1,000
Presque Isle	--	--	--	--
Roscommon	--	--	--	--
Other counties [1]	1,300	1,600	3,000	3,000
Northeast (3)	**1,800**	**1,600**	**5,000**	**5,000**
Lake	500	600	--	--
Mason	1,000	800	--	--
Muskegon	6,000	5,000	--	--
Newaygo	14,000	11,000	--	--
Oceana	3,500	3,000	--	--
Other counties [1]	--	--	3,000	3,000
West Central (4)	**25,000**	**20,400**	**3,000**	**3,000**
Clare	5,200	4,000	1,000	--
Gladwin	3,000	2,500	2,000	2,500
Gratiot	20,000	19,000	--	--
Isabella	7,500	6,500	--	1,100
Mecosta	11,000	10,000	2,100	2,200
Midland	4,500	3,500	1,400	1,400
Montcalm	18,000	14,000	1,200	1,800
Osceola	800	500	--	--
Other counties [1]	--	--	57,300	58,000
Central (5)	**70,000**	**60,000**	**65,000**	**67,000**

Table 10.16—Hogs and pigs, chickens: December 1, 1998-99, by county

[Estimates are not published for counties with less than 500 hogs or 1,000 hens and pullets of laying age]

County and district	All hogs and pigs		Hens and pullets of laying age	
	1998	1999	1998	1999
	Head	*Head*	*Head*	*Head*
Arenac	1,200	1,000	--	--
Bay	500	500	--	1,000
Huron	71,500	65,000	560,000	565,000
Saginaw	4,800	3,500	--	--
Sanilac	9,000	7,000	2,300	2,800
Tuscola	10,000	8,000	76,000	80,000
Other counties [1]	**--**	**--**	1,700	1,200
East Central (6)	**97,000**	**85,000**	**640,000**	**650,000**
Allegan	150,000	140,000	1,780,000	1,924,000
Berrien	15,500	15,000	--	1,000
Cass	172,000	140,000	--	1,000
Kalamazoo	50,000	45,000	--	271,000
Kent	7,500	7,000	1,100	--
Ottawa	120,000	115,000	1,757,000	1,804,000
Van Buren	35,000	33,000	--	--
Other counties [1]	**--**	**--**	361,900	67,000
Southwest (7)	**550,000**	**495,000**	**3,900,000**	**4,068,000**
Barry	19,000	16,000	1,600	1,900
Branch	70,000	60,000	--	--
Calhoun	43,000	35,000	2,000	5,500
Clinton	20,000	17,000	--	--
Eaton	20,000	17,000	3,500	3,700
Hillsdale	40,000	33,000	71,000	--
Ingham	10,000	8,000	3,400	3,500
Ionia	25,000	20,000	--	--
Jackson	8,600	7,000	1,500	2,000
St. Joseph	42,000	35,000	31,000	--
Shiawassee	2,400	2,000	4,400	4,500
Other counties [1]	**--**	**--**	981,600	1,331,900
South Central (8)	**300,000**	**250,000**	**1,100,000**	**1,353,000**
Genesee	4,000	3,500	--	--
Lapeer	3,800	3,000	2,400	2,500
Lenawee	11,200	10,500	8,400	--
Livingston	2,000	2,000	--	1,100
Macomb	5,000	4,000	1,000	1,000
Monroe	13,000	12,000	2,900	2,700
Oakland	500	500	1,000	1,100
St. Clair	2,000	3,000	2,700	3,100
Washtenaw	21,000	19,000	1,900	2,400
Wayne	500	500	1,000	1,200
Other counties [1]	**--**	**--**	1,700	8,900
Southeast (9)	**63,000**	**58,000**	**23,000**	**24,000**
Other districts [2]	--	--	--	--
State	**1,120,000**	**980,000**	**5,751,000**	**6,187,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.

[2] Districts not published separately because of insufficient data or to avoid disclosure of individual operations.

Table 10.17—Milk: Number of operations and total milk produced 1998-99, by county

[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]

County and district	1998		1999	
	Operations	Total milk produced	Operations	Total milk produced
	Number	*1,000 pounds*	*Number*	*1,000 pounds*
Alger	9	--	9	--
Baraga	10	9,100	10	8,400
Chippewa	30	14,200	23	14,200
Delta	35	27,000	33	27,000
Dickinson	10	8,800	10	12,400
Gogebic	--	--	--	--
Houghton	13	--	10	--
Iron	5	--	4	--
Keweenaw	--	--	--	--
Luce	--	--	--	--
Mackinac	12	15,900	9	16,700
Marquette	6	7,400	4	9,700
Menominee	89	85,000	82	104,000
Ontonagon	17	9,900	14	9,900
Schoolcraft	4	--	2	--
Other counties [1]	--	12,700	--	12,700
Upper Peninsula (1)	**240**	**190,000**	**210**	**215,000**
Antrim	14	17,900	15	18,600
Benzie	3	--	1	--
Charlevoix	13	11,700	11	12,100
Emmet	17	18,100	14	18,900
Grand Traverse	13	13,700	12	12,800
Kalkaska	6	--	4	--
Leelanau	12	6,900	10	7,100
Manistee	7	--	8	--
Missaukee	90	175,000	84	170,000
Wexford	20	14,700	21	15,200
Other counties [1]	--	7,000	--	5,300
Northwest (2)	**195**	**265,000**	**180**	**260,000**
Alcona	15	11,100	11	10,700
Alpena	41	47,800	44	50,000
Cheboygan	12	21,900	10	22,300
Crawford	--	--	--	--
Iosco	25	28,200	23	30,000
Montmorency	13	14,600	13	16,100
Ogemaw	58	103,000	50	103,000
Oscoda	18	--	20	--
Otsego	6	--	4	--
Presque Isle	37	29,700	30	29,000
Roscommon	--	--	--	--
Other counties [1]	--	13,700	--	13,900
Northeast (3)	**225**	**270,000**	**205**	**275,000**
Lake	9	--	6	--
Mason	46	48,700	41	46,600
Muskegon	41	--	33	--
Newaygo	126	144,000	111	153,000
Oceana	48	34,700	39	35,000
Other counties [1]	--	107,600	--	105,400
West Central (4)	**270**	**335,000**	**230**	**340,000**
Clare	60	58,100	55	56,500
Gladwin	76	17,200	75	19,700
Gratiot	64	173,000	60	173,000
Isabella	125	165,000	110	157,000
Mecosta	117	67,800	120	70,000
Midland	13	8,900	10	8,800
Montcalm	120	145,000	120	205,000
Osceola	85	120,000	85	115,000
Other counties [1]	--	--	--	--
Central (5)	**660**	**755,000**	**635**	**805,000**

Table 10.17—Milk: Number of operations and total milk produced 1998-99, by county

[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]

County and district	1998		1999	
	Operations	Total milk produced	Operations	Total milk produced
	Number	*1,000 pounds*	*Number*	*1,000 pounds*
Arenac	25	52,500	25	57,300
Bay	16	17,700	15	17,900
Huron	195	286,000	195	291,000
Saginaw	40	51,800	40	55,800
Sanilac	305	343,000	285	342,000
Tuscola	84	104,000	80	96,000
Other counties [1]	--	--	--	--
East Central (6)	**665**	**855,000**	**640**	**860,000**
Allegan	140	310,000	130	287,000
Berrien	25	34,800	20	37,000
Cass	26	14,800	20	13,500
Kalamazoo	17	56,500	14	71,800
Kent	93	168,000	83	161,000
Ottawa	136	236,000	120	238,000
Van Buren	38	19,900	33	21,700
Other counties [1]	--	--	--	--
Southwest (7)	**475**	**840,000**	**420**	**830,000**
Barry	59	187,000	54	168,000
Branch	93	58,900	103	62,000
Calhoun	75	101,000	68	106,000
Clinton	115	377,000	103	385,000
Eaton	71	43,900	60	42,500
Hillsdale	120	123,000	145	135,000
Ingham	80	117,000	65	107,000
Ionia	100	187,000	95	193,000
Jackson	47	91,800	46	94,000
St. Joseph	77	46,400	67	40,500
Shiawassee	63	77,000	59	77,000
Other counties [1]	--	--	--	--
South Central (8)	**900**	**1,410,000**	**865**	**1,410,000**
Genesee	27	28,200	18	27,900
Lapeer	95	89,000	84	87,000
Lenawee	57	125,000	57	149,000
Livingston	47	74,000	37	67,000
Macomb	16	10,100	15	10,500
Monroe	18	9,900	10	8,500
Oakland	9	--	4	--
St. Clair	38	31,800	38	32,200
Washtenaw	59	74,200	50	76,700
Wayne	4	--	2	--
Other counties [1]	--	2,800	--	1,200
Southeast (9)	**370**	**445,000**	**315**	**460,000**
Other districts [2]	--	--	--	--
State	**4,000**	**5,365,000**	**3,700**	**5,455,000**

[1] Counties not published separately because of insufficient data or to avoid disclosure of individual operations.
[2] Districts 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.mda.state.mi.us
MASS-Michigan Agricultural Statistics Service	www.mda.state.mi.us/mass/index.html
USDA-United States Department of Agriculture	www.usda.gov
NASS-National Agricultural Statistics Service	www.usda.gov/nass
ERS-Economic Research Service	www.econ.ag.gov
FSA-Farm Service Agencies	www.fsa.usda.gov
NRCS-National Resources Conservation Service	www.nrcs.usda.gov

Commodity Groups

Apples-MI Apple Committee	www.michiganapples.com
Asparagus-MI Asparagus Advisory Board	www.asparagus.com
Bluberries-MI Blueberry Growers Association	www.blueberries.com
Cattle-MI Beef Industry Commision	www.mibeef.org
Cherries-Michigan Cherry Committee	www.cherrmkt.org
Dry Beans-Michigan Bean Shippers Association	www.concentric.net/~mbsa
Floriculture-MI Floral Association	www.michiganfloral.org
Floriculture-Allied Florist Association of Metro Detroit	www.alliedflorists.com
Nurserymen-MI Nursery & Landscape Association	www.mnla.org
Plum-Michigan Plum Advisory Board	www.plum.org

Other Related Sites

Implementation Working Group-IWG	www.fqpa-iwg.org.
American Farm Bureau Federation	www.fb.org
Michigan Integrated Food and Farming Systems on-line directory	www.miffsmarketline.org

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

Michigan Agricultural Statistics Service
P.O. Box 26248
Lansing, Michigan 48909-6248

Phone: (517) 324-5300
Fax: (517) 324-5299
E-mail: nass-mi@nass.usda.gov
Web: www.usda.gov/nass

Subscription Form

Below is a list of reports published by the Michigan Agricultural Statistics Service. To subscribe to any of these releases, please check your choice(s) and return to the address at right.

Michigan Agricultural Statistics Service
P.O. Box 26248
Lansing, Michigan 48909-6248

David D. Kleweno
State Statistician

All publications are also available **free** on the Internet. See reverse side for details.

☐ 050 ***Agriculture Across Michigan***: A four page newsletter, reporting the latest Michigan agricultural statistics. Issued monthly.

☐ 053 ***Crop Weather***: A report of crop condition, progress, growth and development, plus temperature and rainfall data. Issued weekly, May through November.

☐ 060 ***Michigan Agricultural Statistics Bulletin (1999-2000)***: An annual summary of Michigan crop, livestock, and price statistics, including county estimates of livestock and major crops. Issued Summer, 2000.

MICHIGAN ROTATIONAL SURVEY BULLETINS:

☐ 030 ***Fruit (1997-98)***: A summary of Michigan fruit acreage, age and number of trees, varieties, etc.

☐ 020 ***Nursery and Christmas Trees (1999-2000)***: A summary of Michigan nursery and Christmas tree statistics. Issued Summer 2000.

☐ 051 ***Vegetables (1998-99)***: A summary of Michigan vegetable statistics.

Send to:

Name:_____

Company:_____

Street:_____

City:_____ State:_____ Zip:_____

Please check the category that best describes your business.

☐ 1. Farm Operator ☐ 4 University
☐ 2. Agribusiness ☐ 5. Other:_____
☐ 3. Government (Federal, State, County)

INTERNET ACCESS

Reports, data products, and services published by Michigan Agricultural Statistics Service, 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.mda.state.mi.us/**

- **Michigan Agricultural Statistics Service (MASS)**

  MASS home page at: **http://www.mda.state.mi.us/mass/index.html**

  Under the **MASS** 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.

AUTOFAX ACCESS

NASSFax service is available for some reports from your fax machine. Please call 202-720-2000, using the handset attached to your fax. Respond to the voice prompts.

PRINTED REPORTS OR DATA PRODUCTS

CALL OUR TOLL-FREE ORDER DESK: 1-800-999-6779 (U.S. and Canada)
Other areas, please call l-703-834-0125 FAX: 1-703-834-0110
(Visa, MasterCard, check, or money order acceptable for payment).

ASSISTANCE

For assistance with general agricultural statistics or further information about NASS or its products or services, contact the **Agricultural Statistics HOTLINE** at **1-800-727-9540**, 7:30 a.m. to 4:30 p.m. ET or E-MAIL: **NASS@NASS.USDA.GOV**.