



2005

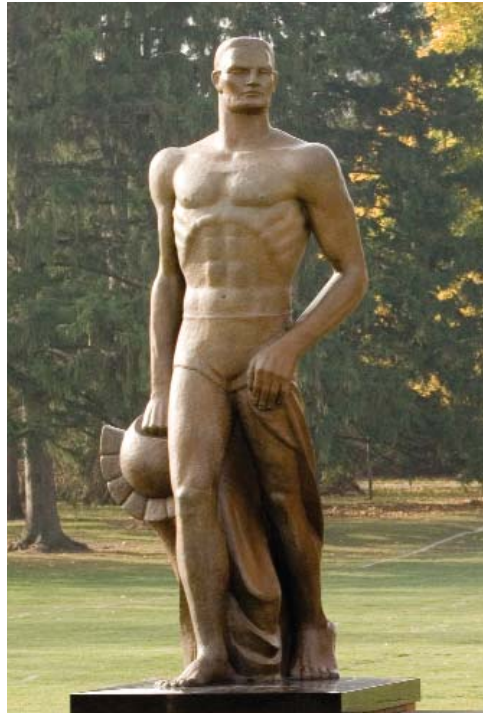
Annual Report



Michigan Agricultural
Experiment Station



Michigan State
University



In 2005, Michigan State University celebrated the 150th anniversary of its founding as the pioneer land-grant institution.

2005 Annual Report

This annual report not only highlights the research activities supported by the Michigan Agricultural Experiment Station, it recognizes the people making that research happen.

**MICHIGAN
AGRICULTURAL
EXPERIMENT STATION**

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Report prepared under the direction of John C. Baker, acting director of the Michigan Agricultural Experiment Station, and Brian Wilson, Communications Assistant.

Design by Chris Altese; editing and production by Brian Wilson and Jamie DePolo, MAES editor.

All photos by Harley Seeley and Kurt Stepnitz, MSU photographers, unless otherwise noted.

2005: Research to Preserve and Expand the Michigan Economy



Dr. John C. Baker

While serving as acting director of the Michigan Agricultural Experiment Station during 2005, I was struck by how almost all MAES-supported research relates to the Michigan economy — whether preserving, expanding or helping develop the Michigan economy of the future. Projects on bovine tuberculosis, the emerald ash borer and soybean rust are helping to preserve the economy and the livelihoods of many agricultural and natural resources

industries. Support for the MSU Product Center for Agriculture and Natural Resources is helping to expand the economy by assisting entrepreneurs as well as established businesses in starting or expanding and bringing new biobased products and services to Michigan consumers. Research on economic development is helping communities across the state look at their local economies in new ways, as well as assisting in creating a skilled workforce. Basic and applied research on new processes to create biodiesel fuel from soybean oil and glucose from plant material is helping shape the economy of the future by creating new, cutting-edge biobased industries for Michigan.

2005 was a year of transition for the Michigan Agricultural Experiment Station. Though some may view transition as unsettling, I am proud to say MAES scientists achieved notable accomplishments in 2005.

- Jerry Dodgson, MAES microbiology and molecular genetics researcher, who has worked on mapping the chicken genome for the past 17 years, was part of the international team that analyzed the sequenced chicken genome in the British science journal *Nature*. The bird whose genome was sequenced, a red jungle fowl (*Gallus gallus*) known by her wing band number, 256, lived her life on the MSU campus in a facility that serves Dodgson's lab. Widely used in biomedical research, the chicken is an important model for vaccine production and the study of embryology and development, as well as for research into the connection between viruses and some types of cancer. Dodgson said the sequenced genome may someday allow poultry producers to know why certain chickens lay more eggs than others or why certain broiler chickens may have less fat. They then can identify commercial chickens with the same genetic predisposition to these desirable traits.
- MAES plant biologist and university distinguished professor John Ohlrogge was co-author of a *Nature* paper that addressed a longstanding question in plant biology — why do oilseed plants rely on a seemingly inefficient metabolic process to produce such prodigious amounts of energy-rich oil? The answer, according to the researchers, is that plant seeds are more efficient than anyone thought. According to Ohlrogge, understanding the pathways that plants use to make oil will help researchers develop new crop varieties with greater oil content, which is especially important as the world petroleum supplies decrease.
- MAES horticultural scientist Ning Jiang co-authored a paper in *Nature* exploring how transposable elements or so-called “jumping genes” influence evolution. Jiang's research, which picks up on the Nobel Prize-winning work of Barbara McClintock that discovered transposable elements, shows that these transposable elements are common and provides some new insights into how they work in genome evolution.
- Jianguo “Jack” Liu, MAES fisheries and wildlife researcher, who holds the Rachel Carson chair in sustainability, joined with Pulitzer-prize-winning author Jared Diamond, professor of geography and physiology at UCLA, to write “China's Environment in a Globalizing World — How China and the Rest of the World Affect Each Other,” the cover story in the June 30 issue of *Nature*. According to Liu and Diamond, globalization is making the world smaller, and the costs of this newfound neighborliness are high. The scientists present sweeping evidence that China's challenges — from polluted air and water to making and consuming goods to family life — already are making a big impact on the environment and human well-being in China and other parts of the world, including North America and Europe. Developed nations must take a more active role — with policy, with aid and through business — to assist and support developing countries and recognize that the only real borders are drawn on paper, the scientists said.

Other notable projects include:

- Research funded by a 3-year, \$5.9-million grant from the W.K. Kellogg Foundation to the MSU Land Policy Program to support land use policy research, education and innovation.
- Research supported through the MSU Environmental Science and Policy Program.
- A partnership between the MAES and MSU Extension (MSUE) to revitalize the Eastern Market in Detroit and cultivate the market as a catalyst for redevelopment in the area.
- Research on organic production funded by the U.S. Department of Agriculture and done in partnership with MSUE and farmers around the state.
- Research on processes to make the production of fuels from plants (biofuels) more efficient and cost-effective.
- A \$10 million grant from the U.S. Environmental Protection Agency and the Department of Homeland Security that allows MSU to take the lead in the Center for Advancing Microbial Risk Assessment (CAMRA), a consortium of scientists from seven universities with expertise in quantitative microbial risk assessment methods, biosecurity and infectious disease transmission through environmental exposure.

Michigan Agricultural Experiment Station Mission and Areas of Emphasis

The Michigan Agricultural Experiment Station generates knowledge through strategic research to enhance agriculture, natural resources, and families and communities in Michigan.

This mission, effectively executed by more than 300 scientists in five colleges at Michigan State University, has enabled the MAES to be one of the most successful agricultural experiment stations in the country. This success is due to our outstanding researchers; close ties with MSU Extension, state agencies and commodity groups and other stakeholders; and exceptional legislative support.

The challenges facing Michigan agriculture and natural resources are increasingly complex and diverse. MAES research programs are continually evaluated for relevance and progress. A strategic visioning process, linked to those of MAES-affiliated colleges at MSU (Agriculture and Natural Resources, Veterinary Medicine, Engineering, Social Science and Natural Science) and MSU Extension, has identified five areas of emphasis that are driving the MAES research agenda over the next decade. In 2005-06, the MAES and MSU Extension are working together to gather public input on the issues of greatest concern to Michigan citizens:

- Statewide surveys and focus groups will be used to ask: what are the major issues in Michigan?
- A Web-based survey and input sessions held in all Michigan counties will be used to learn: what are the concerns that Michigan Agricultural Experiment Station research and MSU Extension educational programs should address?
- In subject-specific focus groups, community groups and other state and local partners will be asked: what are the specific concerns in your field of interest that MSU Extension educational programs and Michigan Agricultural Experiment Station research should address?

This input will be used to refine the MAES areas of emphasis to ensure that our research programs are relevant and responsive to citizens' needs.

The MAES areas of emphasis address the research priorities of Michigan agriculture and natural resources industries and family and community needs but are also linked to national goals and new initiatives.

MAES Areas of Research Emphasis:

- **Food and Health.** Microbial and chemical food safety, nutritional enhancement of foods (functional foods), nutritional immunology, consumer choice and diet, food security, general nutrition and epidemiology.
- **Environmental Stewardship and Natural Resources Policy and Management.** Land use policy and management, air quality, soil conservation, waste management and use of waste products, landscape ecology, ecosystem management and water research (quality, watershed management, and water use for agriculture and natural resources businesses).
- **Enhancing Profitability in Agriculture and Natural Resources.** Basic research in the plant and animal sciences to reduce dependency on chemicals and enhance resistance to diseases, insects and environmental stresses, integrated crop management, and the identification and development of value-added agriculture opportunities for Michigan.
- **Secure Food and Fiber System.** Basic and applied research on new, emerging and reemerging infectious diseases, invasive species (insects, plants, pathogens and aquatic animals) and agrosecurity.
- **Families and Community Vitality.** Community and economic development, recreation/tourism, youth, aging, family dynamics, demographics, and rural and urban community security.

This research will result in profitable Michigan agriculture and natural resources industries, enhanced rural and urban community development, and strong and healthy families. As programs develop, the MAES strives to maintain a balance between applied and basic research.

In addition to their relationship to the Michigan economy, all MAES projects also support our five areas of research emphasis:

- Food and Health.
- Environmental Stewardship and Natural Resources Policy and Management.
- Enhancing Profitability in Agriculture and Natural Resources.
- Secure Food and Fiber System.
- Families and Community Vitality.

After serving as acting director for a year, I am returning to my position as associate dean for research and graduate studies in the MSU College of Veterinary Medicine. Steve Pueppke, who has been associate dean for research in the College of Agricultural, Consumer and Environmental Sciences at the University of Illinois since 1998, begins as MAES director on Jan. 1, 2006.

I have appreciated the opportunity to serve as acting director, and I have a greater understanding of the MAES, as well as of the university. I would like to thank the deans, department chairs, faculty members and MAES staff members, especially Gary Lemme, former associate director, who is now dean of the College of Agriculture and Biological Sciences at South Dakota State University; Doug Buhler, acting associate director; and Doreen Woodward, assistant director. It has been my privilege to work with all of you.

John C. Baker
Acting Director

Michigan Agricultural Experiment Station

As of 10-1-2005

John C. Baker, Acting Director
Doug Buhler, Associate Director
Doreen K. Woodward, Assistant Director
Jamie DePolo, Editor
Jackie DeSander, Administrative Assistant
Candace Ebbinghaus, Administrative Assistant
Jawed Faruqi, IT Manager
Linda Haubert, Projects Administrator
Debbie McCaffrey, Administrative Assistant
Gwendolyn Skinner, Public Relations Manager
Brian Wilson, Communications Assistant



MAES research is helping gardeners transform barren, shady, wet or dry spots into green plots, allowing anyone to have the garden or yard of their dreams.



Specialized research is conducted on potatoes at the Montcalm Research Farm, an MAES field research station, in Lakeview. Here, seed potatoes are being planted.

MAES Affiliated Deans

As of 10-1-2005

Jeffrey D. Armstrong, Dean
 College of Agriculture & Natural Resources

Satish Udpa, Acting Dean
 College of Engineering

George E. Leroi, Dean
 College of Natural Science

Marietta L. Baba, Dean
 College of Social Science

Lonnie J. King, Dean
 College of Veterinary Medicine

MAES Unit Administrators

(Units receiving funding)

As of 10-1-2005

Steven D. Hanson, Chairperson
Agricultural Economics

Karen Plaut, Chairperson
Animal Science

Shelagh Ferguson-Miller, Chairperson
Biochemistry & Molecular Biology

Ajit K. Srivastava, Chairperson
Biosystems & Agricultural Engineering

Martin Hawley, Chairperson
Chemical Engineering & Materials Science

Scott G. Witter, Chairperson
Community, Agriculture, Recreation & Resource Studies

James J. Kells, Acting Chairperson
Crop & Soil Sciences

Richard W. Merritt, Chairperson
Entomology

Anne K. Soderman, Acting Chairperson
Family & Child Ecology

William W. Taylor, Chairperson
Fisheries & Wildlife

Gale M. Strasburg, Chairperson
Food Science & Human Nutrition

Daniel E. Keathley, Chairperson
Forestry

Richard E. Groop, Chairperson
Geography

Ronald L. Perry, Chairperson
Horticulture

Katherine L. Gross, Director
Kellogg Biological Station

Charles J. Reid, Director
Land Management

Thomas H. Herdt, Chairperson
Large Animal Clinical Sciences

Walter J. Esselman, Chairperson
Microbiology & Molecular Genetics

Ewen C.D. Todd, Director
National Food Safety & Toxicology Center

Sara J. Risch, Director
School of Packaging

Willie M. Reed, Chairperson
Pathobiology & Diagnostic Investigation

William S. Spielman, Chairperson
Physiology

Richard E. Triemer, Chairperson
Plant Biology

Raymond Hammerschmidt, Chairperson
Plant Pathology

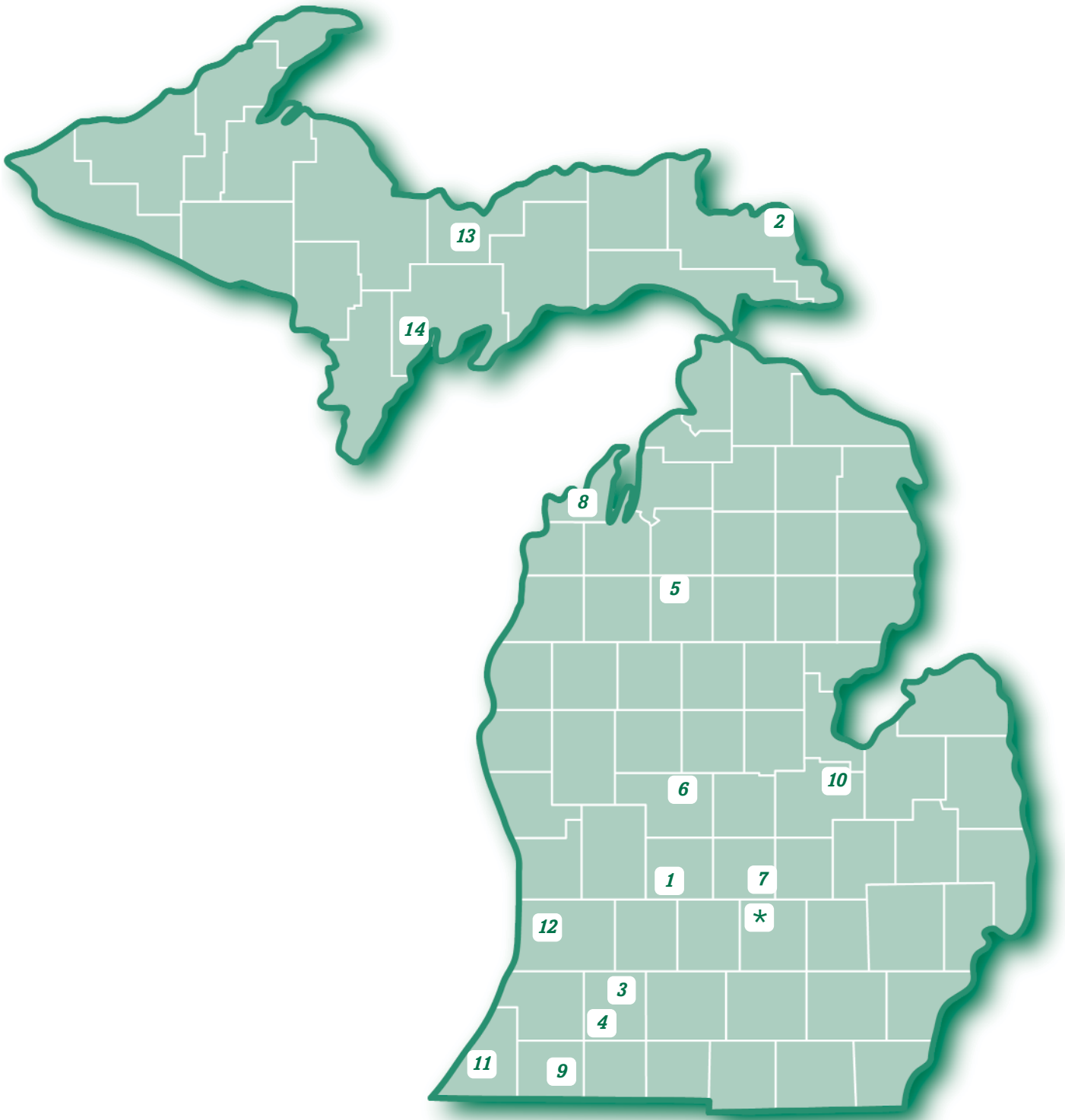
Kenneth Keegstra, Director
Plant Research Laboratory (MSU-DOE)

Gary R. Anderson, Director
School of Social Work

Janet K. Bokemeier, Chairperson
Sociology

Jon F. Bartholic, Director
Institute of Water Research

Michigan Agricultural Experiment Station Outlying Stations — 10-1-2005



- 1. CLARKSVILLE HORTICULTURAL EXPERIMENT STATION**
Established 1974
 9302 Portland Road
 Clarksville, MI 48815
 Phone: 616-693-2193
 FAX: 616-693-2317
 Gerald Skeltis
Farm Manager
 Phil Schwallier
Coordinator
- 2. DUNBAR FOREST EXPERIMENT STATION**
Established 1925
 12839 S. Scenic Drive
 Rt. 1, Box 179
 Sault Ste. Marie, MI 49783
 Phone: 906-632-3932 or
 906-786-1575
 Ray Miller
Nonresident Forester
- 3. W. K. KELLOGG BIOLOGICAL STATION**
Established 1928
 3700 E. Gull Lake Drive
 Hickory Corners, MI 49060
 FAX: 269-671-2351
 Kay Gross: 269-671-2341
Director
- 4. W. K. KELLOGG EXPERIMENTAL FOREST**
Established 1932
 7060 N. 42nd Street
 Augusta, MI 49012
 Phone: 269-731-4597
 FAX: 269-731-4597
 Greg Kowalewski
Resident Forester
- 5. LAKE CITY EXPERIMENT STATION**
Established 1928
 5401 W. Jennings Road
 Lake City, MI 49651
 Phone: 231-839-4608
 FAX: 231-839-8663
 Doug Nielsen
Farm Manager
- 6. MONTCALM RESEARCH FARM**
Established 1966
 4747 McBride Road
 Lakeview, MI 48850
 Phone: 989-365-3473
 FAX: 989-365-3473
 Richard Crawford
Research Technician
- 7. MUCK SOILS RESEARCH FARM**
Established 1941
 Rt. 3
 9370 E. Herbison Road
 Laingsburg, MI 48848
 Phone: 517-641-4062
 Ron Gnagey
Farm Manager
- 8. NORTHWEST MICHIGAN HORTICULTURAL RESEARCH STATION**
Established 1979
 6686 S. Center Highway
 Traverse City, MI 49684
 Phone: 231-946-1510
 FAX: 231-946-1404
 Bill Klein
Farm Manager
 James Nugent
Coordinator
- 9. FRED RUSS FOREST EXPERIMENT STATION**
Established 1942
 20673 Marcellus Highway
 Decatur, MI 49045
 Phone: 269-782-5652 or
 269-731-4597
 Greg Kowalewski
Nonresident Forester
- 10. SAGINAW VALLEY BEAN AND BEET RESEARCH FARM**
Established 1971
 3066 S. Thomas Road
 Saginaw, MI 48609
 Phone: 989-781-1160
 FAX: 989-781-5282
 Paul Horny
Farm Manager
- 11. SOUTHWEST MICHIGAN RESEARCH AND EXTENSION CENTER**
Established 1987
 1791 Hillandale Road
 Benton Harbor, MI 49022
 Phone: 269-944-1477
 FAX: 269-944-3106
 Dave Francis
Farm Manager
 Thomas Zabadal
Coordinator
- 12. TREVOR NICHOLS RESEARCH COMPLEX**
Established 1967
 6237 124th Avenue
 Fennville, MI 49408
 Phone: 269-561-5040
 FAX: 269-561-5314
 Matthew Daly
Farm Manager
 John Wise
Coordinator
- 13. UPPER PENINSULA EXPERIMENT STATION**
Established 1899
 P.O. Box 168
 E3774 University Drive
 Chatham, MI 49816
 Phone: 906-439-5114
 FAX: 906-439-5698
 Paul Naasz
Operations Supervisor
- 14. UPPER PENINSULA TREE IMPROVEMENT CENTER**
Established 1986
 6005 J Road
 Escanaba, MI 49829
 Phone: 906-786-1575
 FAX: 906-786-9370
 Ray Miller
Resident Forester
- ★ **EAST LANSING FIELD RESEARCH FACILITIES**
Established 1888
 109 Agriculture Hall
 East Lansing, MI 48824-1039
 Phone: 517-355-3272
 FAX: 517-353-5406
 Charles J. Reid
Director, Land Management

Alphabetical List of MAES Scientists

As of 10-1-2005

Faculty members with dual MAES appointments are listed in both of the departments in which they serve.

NAME	UNIT
Adams, Gerard C.	Plant Biology
Adams, Gerard C.	Plant Pathology
Alaimo, Katherine	Food Science & Human Nutrition
Allen, Michael S.	Animal Science
Allison, Richard F.	Plant Biology
Allison, Richard F.	Plant Pathology
Alocilja, Evangelyn C.	Biosystems & Agricultural Engineering
Ayers, George S.	Entomology
Bagdasarian, Michael	Microbiology & Molecular Genetics
Balander, Richard J.	Animal Science
Bates, Ronald O.	Animal Science
Batie, Sandra S. ¹	Agricultural Economics
Beaudry, Randolph M.	Horticulture
Beede, David K. ⁵	Animal Science
Behe, Bridget K.	Horticulture
Bence, James R. ⁶	Fisheries & Wildlife
Benning, Christoph	Biochemistry & Molecular Biology
Bennink, Maurice R.	Food Science & Human Nutrition
Benson, Margaret E.	Animal Science
Berglund, Kris A.	Biosystems & Agricultural Engineering
Bickert, William G.	Biosystems & Agricultural Engineering
Biernbaum, John A.	Horticulture
Bingen, R. James	Community, Agriculture, Recreation & Resource Studies
Bitsch, Vera	Agricultural Economics
Bix, Laura	Packaging (School of)
Black, J. Roy	Agricultural Economics
Bolin, Carole A.	Pathobiology & Diagnostic Investigation
Bolin, Steven R.	Pathobiology & Diagnostic Investigation
Booren, Alden M.	Animal Science
Booren, Alden M.	Food Science & Human Nutrition
Bourquin, Leslie D.	Food Science & Human Nutrition
Boyd, Stephen A.	Crop & Soil Sciences
Bremigan, Mary T. ⁶	Fisheries & Wildlife
Breznak, John A.	Microbiology & Molecular Genetics
Britton, Robert A.	Microbiology & Molecular Genetics
Bughrara, Suleiman S.	Crop & Soil Sciences

NAME	UNIT
Bursian, Steven J.	Animal Science
Burton, Jeanne L.	Animal Science
Burton, Zachary F.	Biochemistry & Molecular Biology
Busch, Lawrence M.	Sociology
Buskirk, Daniel D.	Animal Science
Cameron, Arthur C.	Horticulture
Campa, Henry III	Fisheries & Wildlife
Champness, Wendy C.	Microbiology & Molecular Genetics
Chou, Karen	Animal Science
Cibelli, Jose B.	Animal Science
Ciche, Todd A.	Microbiology & Molecular Genetics
Clarke, Robert H.	Packaging (School of)
Claycombe, Kate	Food Science & Human Nutrition
Coe, Paul H.	Animal Science
Coussens, Paul M.	Animal Science
Crawford, Eric W.	Agricultural Economics
Cregg, Bert M.	Horticulture
Crum, James L.	Crop & Soil Sciences
Dazzo, Frank B.	Crop & Soil Sciences
Dazzo, Frank B.	Microbiology & Molecular Genetics
Della Penna, Dean	Biochemistry & Molecular Biology
DiFonzo, Christina D.	Entomology
Dodgson, Jerry	Microbiology & Molecular Genetics
Dolan, Kirk D.	Biosystems & Agricultural Engineering
Dolan, Kirk D.	Food Science & Human Nutrition
Dong, Ke	Entomology
Douches, David S.	Crop & Soil Sciences
Doumit, Matthew E.	Animal Science
Doumit, Matthew E.	Food Science & Human Nutrition
Epperson, Bryan K.	Forestry
Ernst, Catherine W.	Animal Science
Erskine, Ronald J.	Large Animal Clinical Sciences
Fernandez, R. Tom	Horticulture
Ferris, Theodore A.	Animal Science
Flore, James A.	Horticulture
Fogwell, Ralph L.	Animal Science
Fraker, Pamela J.	Biochemistry & Molecular Biology
Fraker, Pamela J.	Food Science & Human Nutrition
Frank, Kevin W.	Crop & Soil Sciences
Freed, Russell D.	Crop & Soil Sciences

NAME	UNIT
Fulbright, Dennis W.	Plant Pathology
Gage, Stuart H.	Entomology
Gangur, Venugopal	Food Science & Human Nutrition
Garling, Donald L.	Fisheries & Wildlife
Gehl, Ronald J.	Crop & Soil Sciences
Giesy, John P.	National Food Safety & Toxicology Center
Grafius, Edward J.	Entomology
Grooms, Daniel L.	Large Animal Clinical Sciences
Grumet, Rebecca	Horticulture
Güt, Larry	Entomology
Guyer, Daniel E.	Biosystems & Agricultural Engineering
Hamm, Michael W. ²	Community, Agriculture, Recreation & Resource Studies
Hamm, Michael W. ²	Crop & Soil Sciences
Hamm, Michael W. ²	Food Science & Human Nutrition
Han, Kyung-Hwan	Forestry
Hancock, James F.	Horticulture
Hanson, Erik J.	Horticulture
Harkema, Jack	Pathobiology & Diagnostic Investigation
Harris, Craig K.	Sociology
Harsh, Stephen B.	Agricultural Economics
Hausbeck, Mary K.	Plant Pathology
Hausinger, Robert P.	Biochemistry & Molecular Biology
Hausinger, Robert P.	Microbiology & Molecular Genetics
Hayes, Daniel B. ⁶	Fisheries & Wildlife
He, Sheng Yang	Plant Research Laboratory (MSU-DOE)
Hill, Gretchen M.	Animal Science
Hoehn, John P.	Agricultural Economics
Hoerr, Sharon M.	Food Science & Human Nutrition
Holecek, Donald F.	Community, Agriculture, Recreation & Resource Studies
Hollingsworth, Rawle I.	Biochemistry & Molecular Biology
Hollingsworth, Robert M.	Entomology
Horan, Richard D.	Agricultural Economics
Hord, Norman G.	Food Science & Human Nutrition
Howe, Gregg A.	Plant Research Laboratory (MSU-DOE)
Howell, G. Stanley	Horticulture
Huang, Zachary Y.	Entomology
Iezzoni, Amy F.	Horticulture
Imig, David R.	Family & Child Ecology
Ireland, James J.	Animal Science
Isaacs, Rufus	Entomology

NAME	UNIT
Jacobs, Lee W.	Crop & Soil Sciences
Jarosz, Andrew M.	Plant Pathology
Jiang, Ning	Horticulture
Johnson, Nan E.	Sociology
Jones, Arthur Daniel	Biochemistry & Molecular Biology
Jones, Michael L. ⁶	Fisheries & Wildlife
Jump, Donald B.	Physiology
Kaguni, Jon M.	Biochemistry & Molecular Biology
Kakela, Peter J.	Community, Agriculture, Recreation & Resource Studies
Kamdem, Donatien-Pascal	Forestry
Kaneene, John B.	Large Animal Clinical Sciences
Kaplowitz, Michael C.	Community, Agriculture, Recreation & Resource Studies
Kells, James J.	Crop & Soil Sciences
Kelly, James D.	Crop & Soil Sciences
Kirk, William W.	Plant Pathology
Kirkwood, Roy N.	Large Animal Clinical Sciences
Kobe, Richard K.	Forestry
Kravchenko, Alexandra N.	Crop & Soil Sciences
Kroos, Lee R.	Biochemistry & Molecular Biology
La Pres, John J.	Biochemistry & Molecular Biology
Landis, Douglas A.	Entomology
Lang, Gregory A.	Horticulture
Lang, Nancy Suzanne	Horticulture
Last, Robert L.	Plant Biology
Leefers, Larry A.	Forestry
Leep, Richard H.	Crop & Soil Sciences
Lenski, Richard E. ³	Crop & Soil Sciences
Li, Hui	Crop & Soil Sciences
Li, Weiming ⁶	Fisheries & Wildlife
Linz, John E.	Food Science & Human Nutrition
Liu, Jianguo ⁹	Fisheries & Wildlife
Lloyd, James W.	Agricultural Economics
Loescher, Wayne H.	Horticulture
Lownds, Norman K.	Horticulture
Lupi, Frank ⁶	Agricultural Economics
Lupi, Frank ⁶	Fisheries & Wildlife
Luster, Thomas J.	Family & Child Ecology
MacFarlane, David	Forestry
Mahoney, Edward M.	Community, Agriculture, Recreation & Resource Studies
Malmström, Carolyn	Plant Biology
Mansfield, Linda S.	Large Animal Clinical Sciences
Marks, Bradley P.	Biosystems & Agricultural Engineering
Matuana, Laurent M.	Forestry

NAME	UNIT
Maurer, Brian A.	Fisheries & Wildlife
McCullough, Deborah G.	Entomology
McDonough, Maureen H.	Forestry
Meek, Katheryn	Pathobiology & Diagnostic Investigation
Melakeberhan, Haddish	Entomology
Millenbah, Kelly F.	Fisheries & Wildlife
Miller, James R.	Entomology
Mohanty, Amar K.	Packaging (School of)
Mokma, Delbert L.	Crop & Soil Sciences
Montgomery, Alesia F.	Sociology
Myers, Robert S.	Agricultural Economics
Nair, Muraleedharan G.	Horticulture
Ng, Perry K. W.	Food Science & Human Nutrition
Ngouajio, Mathieu	Horticulture
Nicholls, Sarah C.	Community, Agriculture, Recreation & Resource Studies
Nielsen, Brian D.	Animal Science
Norris, Patricia E.	Agricultural Economics
Norris, Patricia E.	Community, Agriculture, Recreation & Resource Studies
Northcott, William J.	Biosystems & Agricultural Engineering
Oehmke, James F.	Agricultural Economics
Ofoli, Robert Y.	Food Science & Human Nutrition
Ohlrogge, John B.	Plant Biology
Olsen, Larry G.	Entomology
Olson, Beth	Food Science & Human Nutrition
Orth, Michael W.	Animal Science
Osteryoung, Katherine W.	Plant Biology
Patterson, Jon S.	Pathobiology & Diagnostic Investigation
Peacor, Scott D.	Fisheries & Wildlife
Penner, Donald	Crop & Soil Sciences
Pestka, James J.	Food Science & Human Nutrition
Peterson, H. Christopher ⁷	Agricultural Economics
Peyton, R. Benny ⁶	Fisheries & Wildlife
Poff, Ken	Horticulture
Potter-Witter, Karen L.	Forestry
Prather, L. Alan	Plant Biology
Preiss, Jack	Biochemistry & Molecular Biology
Propst, Dennis B.	Forestry
Pursley, James R.	Animal Science
Raper, Kellie K.	Agricultural Economics
Reddy, C. Adinarayana	Microbiology & Molecular Genetics
Renner, Karen A.	Crop & Soil Sciences
Rieschleger, Joanne	Social Work (School of)

NAME	UNIT
Riley, Shawn J. ⁶	Fisheries & Wildlife
Robertson, G. Philip	Crop & Soil Sciences
Robinson, Norman E. ¹⁰	Large Animal Clinical Sciences
Robison, Lindon J.	Agricultural Economics
Rogers, John N. III	Crop & Soil Sciences
Romsos, Dale R.	Food Science & Human Nutrition
Rook, Joseph S.	Large Animal Clinical Sciences
Rosa, Guilherme J. M.	Animal Science
Rosenbaum, Rene P.	Community, Agriculture, Recreation & Resource Studies
Rothstein, David E.	Forestry
Rowe, D. Bradley	Horticulture
Rubino, Maria	Packaging (School of)
Rudy, Alan P.	Sociology
Rugh, Clayton L.	Crop & Soil Sciences
Runkle, Erik S.	Horticulture
Rust, Steven R.	Animal Science
Ryser, Elliott T.	Animal Science
Ryser, Elliott T.	Food Science & Human Nutrition
Safferman, Steven I.	Biosystems & Agricultural Engineering
Safir, Gene R.	Plant Pathology
Sang, Tao	Plant Biology
Schemske, Douglas W. ³	Horticulture
Schilder, Annemiek C.	Plant Pathology
Schindler, Melvin S.	Biochemistry & Molecular Biology
Schmid, A. Allan	Agricultural Economics
Schmidt, Thomas M.	Microbiology & Molecular Genetics
Schultink, Gerhardus	Community, Agriculture, Recreation & Resource Studies
Schweikhardt, David B.	Agricultural Economics
Scriber, J. Mark	Entomology
Scribner, Kim T. ⁶	Fisheries & Wildlife
Sears, Barbara B.	Plant Biology
Sears, Phillip M.	Large Animal Clinical Sciences
Seita, John R.	Social Work (School of)
Singh, Sher Paul	Packaging (School of)
Sink, Kenneth C.	Horticulture
Skole, David L.	Geography
Smith, George W.	Animal Science
Smitley, David R.	Entomology
Smucker, A.J.M.	Crop & Soil Sciences
Snapp, Sieglinde S.	Crop & Soil Sciences
Snapp, Sieglinde S.	Horticulture
Soranno, Patricia A.	Fisheries & Wildlife
Sordillo, Lorraine M. ⁸	Large Animal Clinical Sciences
Sprague, Christy L.	Crop & Soil Sciences

NAME	UNIT
Staatz, John S.	Agricultural Economics
Steffe, James F.	Biosystems & Agricultural Engineering
Steffe, James F.	Food Science & Human Nutrition
Straw, Barbara E.	Large Animal Clinical Sciences
Sundin, George W.	Plant Pathology
Surbrook, Truman C.	Biosystems & Agricultural Engineering
Swinton, Scott M.	Agricultural Economics
Tempelman, Robert J.	Animal Science
Teppen, Brian J.	Crop & Soil Sciences
Thelen, Kurt D.	Crop & Soil Sciences
Thiem, Suzanne M.	Entomology
Thomashow, Michael F.	Crop & Soil Sciences
Thomashow, Michael F.	Microbiology & Molecular Genetics
Thornsbury, Suzanne D.	Agricultural Economics
Tiedje, James M.	Crop & Soil Sciences
Tiedje, James M.	Microbiology & Molecular Genetics
Trail, Frances	Plant Pathology
Triezenberg, Steven J.	Biochemistry & Molecular Biology
Trottier, Nathalie L.	Animal Science
Turetsky, Merritt R.	Fisheries & Wildlife
Turetsky, Merritt R.	Plant Biology
Uebersax, Mark A.	Food Science & Human Nutrition
Ustunol, Zeynep	Food Science & Human Nutrition
Van Ee, Gary R.	Biosystems & Agricultural Engineering
van Nocker, Steven R.	Horticulture
VandeHaar, Michael J.	Animal Science
Vander Stoep, Gail A.	Community, Agriculture, Recreation & Resource Studies
Vargas, Joseph M. Jr.	Plant Pathology
Vogt, Christine A.	Community, Agriculture, Recreation & Resource Studies
Walker, Edward D.	Entomology
Walker, Edward D.	Microbiology & Molecular Genetics
Walker, Kevin D.	Biochemistry & Molecular Biology
Walters, Michael B. ⁶	Forestry
Walton, Jonathan D.	Plant Research Laboratory (MSU-DOE)
Wang, Dechun	Crop & Soil Sciences
Wang, John L.	Biochemistry & Molecular Biology
Ward, Richard W.	Crop & Soil Sciences
Warncke, Darryl D.	Crop & Soil Sciences
Warner, Ryan M.	Horticulture
Watson, J. Throck	Biochemistry & Molecular Biology
Weatherspoon, Dave D.	Agricultural Economics

NAME	UNIT
Weber, Michael T.	Agricultural Economics
Weber-Nielsen, Miriam S.	Animal Science
Whalon, Mark E.	Entomology
Whipple, Judith M.	Agricultural Economics
Whittam, Thomas S. ³	Food Science & Human Nutrition
Whittam, Thomas S. ³	Microbiology & Molecular Genetics
Williams, Kurt	Pathobiology & Diagnostic Investigation
Winterstein, Scott R.	Fisheries & Wildlife
Wolf, Christopher A.	Agricultural Economics
Yin, Runsheng	Forestry
Yokoyama, Melvin T.	Animal Science
Zabadal, Thomas J.	Horticulture
Zacharewski, Timothy R.	Biochemistry & Molecular Biology
Zandstra, Bernard H.	Horticulture
Zanella, Adroaldo J.	Animal Science
Zile, Maija H.	Food Science & Human Nutrition

Other Faculty Affiliated with MAES

FACULTY	RANK	INTEREST
Adelaja, Adesoji O. ³	12	Land Use
Kalof, Linda	12	Environmental Values & Ethics/Animals & Society
Pysarchik, Dawn I.	12	Merchandising Management
Rose, Joan B. ⁴	12	Water Research
Sontag, M. Suzanne	12	Apparel Design & Textiles
Sternquist, Brenda J.	12	Merchandising Management

- ¹ Elton R. Smith Professor in Food and Agricultural Policy
- ² C.S. Mott Distinguished Professor of Sustainable Agriculture
- ³ John A. Hannah Distinguished Professor
- ⁴ Homer Nowlin Chair of Water in Agricultural and Natural Resources Systems
- ⁵ Clinton E. Meadows Endowed Chair
- ⁶ Partnerships for Ecosystem Research and Management (PERM) positions with salary funded by the Michigan Department of Natural Resources
- ⁷ Homer Nowlin Chair of Consumer Responsive Agriculture
- ⁸ Meadow Brook Chair in Farm Animal Health and Well-being
- ⁹ Rachel Carson Chair in Ecological Sustainability
- ¹⁰ Matilda Wilson Chair

MAES Scientists and Projects by Department

The names listed here represent faculty members who have an MAES appointment and are in the tenure stream as of 10-1-2005. Faculty members with dual MAES appointments are listed in both of the departments in which they serve.

SCIENTISTS	PROJECTS
MAES = Michigan Agricultural Experiment Station	Projects listed are as of 10-1-2005.
MSUE = Michigan State University Extension	*Signifies Multistate Project
Joint = Joint appointment in an MAES-affiliated College or Department	
12 = Professor	
13 = Associate Professor	
14 = Assistant Professor	

Advertising

Phone: 355-2314

PROJECTS

MICL01775	Processed Food Industries in India: Market Evolution	Pysarchik, D.
MICL01833	Food Retailer's Buyer-Supplier Relationships in Emerging Markets	Sternquist, B.
MICL02024	Ecological Theory Construction in Clothing and the Self	Sontag, M.
MICL08316	Market Development of Processed Food in India: Opportunities for U.S. Food Processors and Marketers	Pysarchik, D.

Agricultural Economics

Phone: 355-4563



Steven D. Hanson, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Batie, Sandra S. ¹	12	0.60	0.20	0.20	Food & Agriculture Policy
Bitsch, Vera	14	0.30	0.55	0.15	Human Resources & Farm Management
Black, J. Roy	12	0.60	0.20	0.20	Farm Management
Crawford, Eric W.	12	0.40	0.35	0.25	International Development
Harsh, Stephen B.	12	0.20	0.50	0.30	Farm Management
Hoehn, John P.	12	0.85	0.00	0.15	Natural Resource & Environmental Economics
Horan, Richard D.	13	0.80	0.00	0.20	Natural Resource & Environmental Economics
Lloyd, James W.	12	0.19	0.00	0.81	Livestock Production/Health Management/Food Safety
Lupi, Frank ⁶	13	0.15	0.42	0.43	Fisheries & Wildlife Economics
Myers, Robert S.	12	0.80	0.00	0.20	International Trade/Price Analysis
Norris, Patricia E.	12	0.12	0.30	0.58	Land Use Management/Public Resource Economics
Oehmke, James F.	12	0.75	0.00	0.25	Price Analysis/Research Policy
Peterson, H. Christopher ⁷	12	0.50	0.35	0.15	Food and Agribusiness Management
Raper, Kellie K.	14	0.75	0.00	0.25	Livestock Industry Marketing Economist
Robison, Lindon J.	12	0.65	0.00	0.35	Social Capital Theory
Schmid, A. Allan	12	0.60	0.00	0.40	Land Economics/Public Policy
Schweikhardt, David B.	12	0.25	0.40	0.35	Food, Agricultural & Trade Policy
Staatz, John S.	12	0.25	0.00	0.75	International Development
Swinton, Scott M.	12	0.70	0.00	0.30	Production Economics
Thornsbury, Suzanne D.	14	0.40	0.50	0.10	Food System Marketing

Agricultural Economics (continued)

FACULTY

Weatherspoon, Dave D.	13	0.40	0.00	0.60	Food & Agribusiness Management
Weber, Michael T.	12	0.80	0.00	0.20	International Development
Whipple, Judith M.	13	0.30	0.20	0.50	Food & Agribusiness Management
Wolf, Christopher A.	13	0.50	0.50	0.00	Dairy Farm Management Economics
TOTALS:		11.86	4.47	7.67	

PROJECTS

MICL01625	Financial Decision Making and Investment in Agriculture	Hanson, S.
MICL01635	Collective Action in Agriculture, Natural Resources and Rural Development	Schmid, A.
MICL01732	Analysis of the Economics and Political Economy of National and International Agricultural Policies and Decision Processes	Schweikhardt, D.
MICL01770	Economic Analysis of Public Policies Affecting the Performance of Michigan Agriculture	Batie, S.
MICL01788	Economic Analysis of Tactical and Operational Decisions on Michigan Farms and the Design/Development of Information Systems to Support These Decisions	Harsh, S.
MICL01790	Structural Adjustments in Michigan's Beef and Crop Sectors with Risk Management Considerations	Black, J.
MICL01815	The Political Economy of Agribusiness Structure, Agricultural Research, and the Biotechnology Industry	Oehmke, J.
MICL01844	Risk Analysis and Management in U.S. Agriculture	Myers, R.
MICL01905	Agricultural Production Economics and Environmental Risk Management	Swinton, S.
MICL01949	Global Agribusiness Trade and Marketing Research	Weatherspoon, D.
MICL01960	Structural Change, Competition, and Marketing Challenges in Agricultural and Livestock Industries	Raper, K.
MICL01963	Economics of Fishery and Wildlife Management	Lupi, F.
MICL01989	The Economics of Managing Environmental Resources	Horan, R.
MICL02006*	Impact Analysis and Decision Strategies for Agricultural Research	Oehmke, J.
MICL02014	Human Resources Management in Agriculture	Bitsch, V.
MICL02045*	Rural Communities, Rural Labor Markets and Public Policy	Bitsch, V.
MICL02049*	Benefits and Costs of Natural Resources Policies Affecting Public and Private Lands	Hoehn, J.
MICL02070	Produce Markets and Global Competitiveness	Thornsbury, S.
MICL02076*	Rural Development, Work and Poverty in the North Central Region	Loveridge, S.
MICL02092*	Agricultural and Rural Finance Markets in Transition	Hanson, S.
MICL02100	Improving Non-Technical Skills, Knowledge, Aptitudes, and Attitudes in the Veterinary Profession	Lloyd, J.
MICL02101*	Fruit and Vegetable Marketing Innovations and Demand Assessment	Thornsbury, S.
MICL02103	Innovation, Entrepreneurship and New Ventures in Agriculture and Natural Resources	Peterson, H.
MICL03384	Assessing the Economic Structure, Performance, Viability and Competitiveness of the Michigan Dairy Industry	Wolf, C.
MICL03385	Coordination and Consumer Responsiveness in the Michigan Food Supply Chain	Whipple, J.
MICL03387	Agricultural Economics Research on International Agricultural Development and the Environment	Weber, M.
MICL03408	Strengthening Community Vitality Research in Michigan	Loveridge, S.
MICL03410	Capacity Building in Land Policy at Michigan State University	Adelaja, A.
MICL08309	Rural Household Adjustment Mechanisms and Attitudes Toward Public Investments in Michigan's Upper Peninsula	Loveridge, S.
MICL08358	Rural Household Adjustment Mechanisms and Attitudes Towards Public Investments in the United States	Loveridge, S.

Practical benefits yielded by MAES research on bovine TB has guided regulatory efforts, eased strains in testing efforts, and answered questions about the basic science of the disease.



Animal Science

Phone: 355-8383



Karen Plaut, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Allen, Michael S.	12	0.50	0.50	0.00	Forage Nutrition
Balander, Richard J.	13	0.40	0.00	0.60	Avian Physiology/Reproduction
Bates, Ronald O.	13	0.20	0.80	0.00	Swine Genetics/Management
Beede, David K. ⁵	12	0.50	0.50	0.00	Dairy Nutrition/Dairy Management
Benson, Margaret E.	12	0.35	0.00	0.65	Ruminant Nutrition/Sheep
Booren, Alden M.	12	0.10	0.10	0.80	Meat/Poultry/Fish
Bursian, Steven J.	12	0.85	0.00	0.15	Physiology/Toxicology
Burton, Jeanne L.	13	0.90	0.00	0.10	Immunology/Dairy Cattle
Buskirk, Daniel D.	13	0.50	0.50	0.00	Ruminant Nutrition/Beef
Chou, Karen	13	0.80	0.00	0.20	Toxicology
Cibelli, Jose B.	12	0.50	0.00	0.50	Animal Biotechnology
Coe, Paul H.	13	0.20	0.00	0.80	Animal Health
Coussens, Paul M.	12	0.90	0.00	0.10	Molecular Biology
Doumit, Matthew E.	13	0.25	0.00	0.75	Meat Science/Muscle Biology
Ernst, Catherine W.	13	0.80	0.00	0.20	Molecular Genetics
Ferris, Theodore A.	12	0.20	0.80	0.00	Dairy Genetics
Fogwell, Ralph L.	12	0.30	0.00	0.70	Reproductive Physiology
Hill, Gretchen M.	12	0.75	0.00	0.25	Swine Nutrition
Ireland, James J.	12	0.95	0.00	0.05	Reproductive Physiology
Nielsen, Brian D.	13	0.60	0.00	0.40	Equine Exercise Physiology
Orth, Michael W.	13	0.80	0.00	0.20	Turkey Nutrition/Growth Biology
Pursley, James R.	13	0.20	0.80	0.00	Reproductive Management
Rosa, Guilherme J. M.	14	0.50	0.00	0.50	Population Genetics
Rozeboom, Dale W.	13	0.15	0.50	0.35	Swine Nutrition/Management
Rust, Steven R.	12	0.50	0.50	0.00	Beef Feedlot Nutrition
Ryser, Elliott T.	13	0.17	0.00	0.83	Dairy Manufacturing/Microbiology
Smith, George W.	13	0.85	0.00	0.15	Reproductive Physiology
Tempelman, Robert J.	13	0.50	0.00	0.50	Statistics/Biometry/Statistical Genetics
Trottier, Nathalie L.	13	0.75	0.00	0.25	Swine Nutrition/Management
VandeHaar, Michael J.	12	0.65	0.00	0.35	Dairy Nutrition
Weber-Nielsen, Miriam S.	13	0.30	0.00	0.70	Dairy Management
Yokoyama, Melvin T.	12	0.20	0.00	0.80	Animal Nutrition/Microbiology
Zanella, Adroaldo J.	13	0.75	0.00	0.25	Ethology/Stress Physiology
TOTALS:		16.87	5.00	11.13	

Animal Science (continued)

PROJECTS

MICL01182*	Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation	Doumit, M.
MICL01573	Regulation of Folliculogenesis in Cattle	Ireland, J.
MICL01604	Increasing the Efficiency of Protein Production in Dairy Cattle	VandeHaar, M.
MICL01622	Developmental and Reproductive Toxicity of Environmental Contaminants	Chou, K.
MICL01643	Microbial Ecology of Rumen, Gastrointestinal Tract, Ensiled Feeds, Probiotics, and Livestock Waste	Yokoyama, M.
MICL01652*	Environmental and Economic Impacts of Nutrient Management on Dairy Forage Systems	Allen, M.
MICL01727	The Fate and Biological Effects of Xenobiotics in Animals	Bursian, S.
MICL01760	Nutrient Management and Well-Being of the Sow	Hill, G.
MICL01800	Investigating Ways to Improve Utilization, and Reduce and Predict the Excretion of Phosphorus by Dairy Cattle	Beede, D.
MICL01802	Optimizing the Nutritional Utilization of Forages by Dairy Cattle	Allen, M.
MICL01803	Nutritional Management and Other Applied Studies Using Poultry and Other Avian Species	Balander, R.
MICL01822	Development and Application of Hierarchical Statistical Models to Inferential Problems in Animal Science	Tempelman, R.
MICL01823	Methods to Enhance Decision Making by Dairy Producers	Ferris, T.
MICL01836	Genetic and Physiological Factors Regulating the Neutrophil System in Parturient Dairy Cows	Burton, J.
MICL01852	Improving Skeletal Health in Livestock and Companion Animals	Orth, M.
MICL01853	Early Experience and Animal Welfare	Zanella, A.
MICL01854	Optimizing Protein and Amino Acid Utilization	Trottier, N.
MICL01861	Management of Athletic Horses to Reduce Musculoskeletal Injuries and Improve Performance	Nielsen, B.
MICL01877	Discovery and Evaluation of Genetic Factors That Influence Growth, Carcass Merit and Meat Quality of the Pig	Bates, R.
MICL01880	Regulation of Skeletal Muscle Growth and Meat Quality	Doumit, M.
MICL01890	Mechanisms of Ovulation in Dairy Cattle	Smith, G.
MICL01928*	Reproductive Performance in Domestic Ruminants	Smith, G.
MICL01929	Identification and Evaluation of Genes Controlling Economically Important Traits in Pigs and Cattle	Ernst, C.
MICL01952	Increasing Efficiency of Milk Production in Dairy Cattle	Weber-Nielsen, M.
MICL01961	An Integrated Approach to Improve Embryonic Survival in Lactating Dairy Cows	Pursley, J.
MICL02033*	Management Systems to Improve the Economic and Environmental Sustainability of Dairy Enterprises	Beede, D.
MICL02034*	Metabolic Relationships in Supply of Nutrients for Lactating Cows	VandeHaar, M.
MICL02035*	Interpreting Cattle Genomic Data: Biology, Applications and Outreach	Burton, J.
MICL02038*	Methods to Increase Reproductive Efficiency in Cattle	Pursley, J.
MICL02043*	Genetic and Functional Genomic Approaches to Improve Production and Quality of Pork	Ernst, C.
MICL02058	Accounting for Genotyping Errors in Linkage Map and QTL Analyses	Rosa, G.
MICL02071	Johne's Disease Pathogenesis and Host Response to <i>Mycobacterium paratuberculosis</i>	Coussens, P.
MICL02087	Using Change in Body Condition Score to Schedule Artificial Insemination in Dairy Cows	Fogwell, R.
MICL02104*	Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation	Doumit, M.
MICL03360	Nutrition and Management Regimes for Efficient Feed Utilization by Beef Cattle	Buskirk, D.
MICL03374	Maximum Utilization of Michigan Grown Feedstuffs for Growing-Finishing Cattle	Rust, S.
MICL03402	Animal Functional Genomics	Coussens, P.
MICL06901	Dynamics of Immune Responses to Johne's Disease in Infected and Vaccinated Calves	Coussens, P.
MICL06909	Use of Halothane Gas to Identify Novel SR Calcium Release Channel Protein Defects in Pigs	Doumit, M.
MICL06912	Pain and Behavior Development	Zanella, A.
MICL08262	Intrafollicular Role of A2-Macroglobulin in Regulation of Estradiol Production	Ireland, J.

Animal Science (continued)

PROJECTS

MICL08263	Neuroendocrine Regulation of the Stress Response in Cattle	Smith, G.
MICL08266	Functional Genomics of Well-Being and Milk Quality in Cattle	Coussens, P.
MICL08274	Enhancing Management and Profitability on Small and Mid-Sized Dairy Farms	Pursley, J.
MICL08290	Intrafollicular Signaling Pathways That Control Follicle Rupture in Dairy Cattle	Smith, G.
MICL08299	Interaction of IGF-I and Leptin in Bovine Mammary Development	VandeHaar, M.
MICL08308	Gene Expression Profiling During Porcine Skeletal Muscle Development and Growth Using a cDNA Microarray	Ernst, C.
MICL08320	Propionate Regulation of Feed Intake	Allen, M.
MICL08324	Integration of Transcriptional Profiles with Genetic Marker Data for Identifying Genes Controlling Economically Important Traits in Pigs	Ernst, C.
MICL08331	Significance of Numbers of Antral Follicles in Ovarian Follicular Waves in Cattle	Ireland, J.
MICL08340	Extending the Net Fitness Model for Prediction of Transgene Fate to Incorporate Uncertainty and Validation of the Model	Rosa, G.
MICL08347	Design and Development of Structural Elements for a Web-Based Course in Animal Welfare	Zanella, A.
MICL08348	A Novel Dairy Management Learning Experience for Undergraduates: The Dairy Challenge	Weber-Nielsen, M.
MICL08356	Local Role of CART in Regulation of Follicular Estradiol Production	Smith, G.
MICL08369	Immune Modulation in Bovine Paratuberculosis: Macrophage T Cell Interactions	Coussens, P.

Biochemistry & Molecular Biology

Phone: 355-1600



Shelagh Ferguson-Miller,
Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Benning, Christoph	13	0.67	0.00	0.33	Plant Biochemistry
Burton, Zachary F.	12	0.20	0.00	0.80	Molecular Biology
Della Penna, Dean	12	0.25	0.00	0.75	Nutritional Genomics
Fraker, Pamela J.	12	0.30	0.00	0.70	Immunology
Hausinger, Robert P.	12	0.25	0.00	0.75	Enzymology
Hollingsworth, Rawle I.	12	0.25	0.00	0.75	Renewable Resource Chemistry
Jones, Arthur Daniel	12	0.25	0.00	0.75	Mass Spectrometry
Kaguni, Jon M.	12	0.43	0.00	0.57	Molecular Biology
Kroos, Lee R.	12	0.54	0.00	0.46	Molecular Biology
La Pres, John J.	14	0.25	0.00	0.75	Functional Genomics
Preiss, Jack	12	0.25	0.00	0.75	Starch Biochemistry
Schindler, Melvin S.	12	0.35	0.00	0.65	Cell Biology
Triezenberg, Steven J.	12	0.20	0.00	0.80	Molecular Biology
Walker, Kevin D.	14	0.20	0.00	0.80	Bio-organic Chemistry
Wang, John L.	12	0.20	0.00	0.80	Cell Biology
Watson, J. Throck	12	0.50	0.00	0.50	Analytical Biochemistry
Zacharewski, Timothy R.	13	0.20	0.00	0.80	Biochemical Toxicology
TOTALS:		5.29	0.00	11.71	

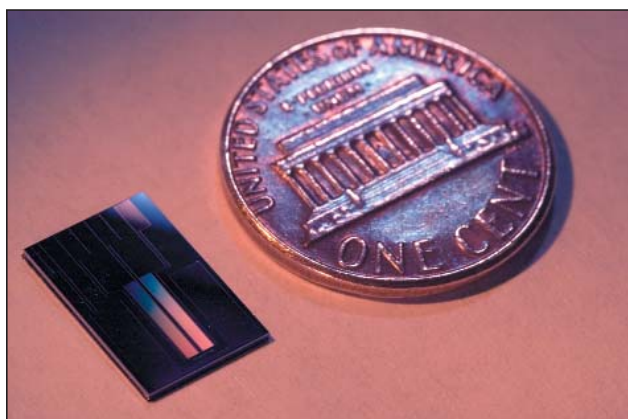
PROJECTS

MICL01598	Gene Regulation During Development of Soil Bacteria	Kroos, L.
MICL01601	DNA Replication and its Regulation in <i>Escherichia coli</i>	Kaguni, J.
MICL01608	Activation of Gene Expression by a Herpes Simplex Virion Protein	Triezenberg, S.
MICL01610	Elongation by Human RNA Polymerase II	Burton, Z.

Biochemistry & Molecular Biology (continued)

PROJECTS

MICL01754	Influence of Disulfide Bond Formation on Local Structure of Peptides/Proteins as Assessed by Hydrogen/Deuterium Exchange and Mass Spectrometry	Watson, J.
MICL01906	Comprehensive Assessment of Estrogenic Endocrine Disruptors and Their Mixtures	Zacharewski, T.
MICL01924	Dietary Zinc: Its Effects on the Immune Response	Fraker, P.
MICL01940	Regulation of Metabolism in Developing Seeds of <i>Arabidopsis</i>	Benning, C.
MICL01973	Identification and Cloning of Quantitative Trait Loci Affecting Seed Tocopherol Levels	Della Penna, D.
MICL01997	The SMN Complex in Spinal Muscular Atrophy	Wang, J.
MICL02037*	Regulation of Photosynthetic Processes	Preiss, J.
MICL02099	Recovery of Sugars and Pectic Polysaccharides from Plant Materials	Hollingsworth, R.
MICL02107	Evaluation of the Specificity and the Structure/Function of Taxol Biosynthesis Acyltransferases Isolated from Taxus Plant Cultures	Walker, K.
MICL07685	Bioprocessing for Utilization of Agricultural Resources	Zeikus, J.
MICL08364	Molecular Design of Oxidoreductases for the Biosynthesis of Carbohydrate-Based Industrial Polyols	Zeikus, J.



MAES scientists are creating sensors to detect harmful pathogens in water and food, as well as studying new, emerging pathogens that can jump from animals to people.

Biosystems & Agricultural Engineering

Phone: 355-4720



Ajit K. Srivastava, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Alocilja, Evangelyn C.	13	0.40	0.00	0.60	Biosensors/Environmental Quality/ Food Safety
Berglund, Kris A.	12	0.49	0.00	0.51	Bioprocess/Biotechnology
Bickert, William G.	12	0.20	0.80	0.00	Livestock Facilities/Environment/ Manure Management
Dolan, Kirk D.	13	0.25	0.00	0.75	Food Engineering/Value-Added Processing/Plant Products
Guyer, Daniel E.	12	0.25	0.50	0.25	Fruit/Vegetable Storage/Handling
Marks, Bradley P.	13	0.50	0.00	0.50	Biosystems Engineering/Food Safety- Meat Products
Northcott, William J.	14	0.40	0.00	0.60	Watershed Hydrology/Water Quality/ GIS Applications
Safferman, Steven I.	13	0.50	0.20	0.30	Nutrient Management
Steffe, James F.	12	0.25	0.00	0.75	Food Engineering/Rheology
Surbrook, Truman C.	12	0.25	0.00	0.75	Electrical Technology /Stray Voltage
Van Ee, Gary R.	12	0.25	0.00	0.75	Chemical Application/Power & Machinery
TOTALS:		3.74	1.50	5.76	

Biosystems & Agricultural Engineering (continued)

PROJECTS

MICL01245*	Improvement of Thermal and Alternative Processes for Foods	Steffe, J.
MICL01581	Postharvest Technology for Fruit, Vegetable, and Chestnuts	Guyer, D.
MICL01799	Integrating Alternative Manure Treatments into Conventional Animal Manure Handling and Storage Systems	Bickert, W.
MICL01862	Bio-Energy Based Electrical Systems and Their Safe, Efficient Applications	Surbrook, T.
MICL01967	Engineering Methods to Optimize the Safety, Yield, and Quality of Value-Added Protein Foods	Marks, B.
MICL01972	Methods for Improving Water Quality in Agricultural Watersheds	Northcott, W.
MICL02004*	Animal Manure and Waste Utilization, Treatment and Nuisance Avoidance for a Sustainable Agriculture	von Bernuth, R.
MICL02007	Development of Lab-On-Chip Biosensor for Food and Environmental Safety and Biosecurity	Alocilja, E.
MICL02041*	Assuring Fruit and Vegetable Product Quality and Safety Through the Handling and Marketing Chain	Guyer, D.
MICL02102*	Improvement of Thermal and Alternative Processes for Foods	Steffe, J.
MICL03413	Artisan Distilling for Value-Added Agriculture	Berglund, K.
MICL07658	Achieving Lethality Performance Standards for Fully-Cooked Meat Products	Marks, B.
MICL08312	Conductometric Biosensor for Foodborne Pathogen Detection in Fresh Produce	Alocilja, E.
MICL08313	Optimizing the Design and Operation of Commercial Cooking Systems for Ready-To-Eat Meat and Poultry Products	Marks, B.
MICL08314	Improving Cooking Yield of Ready-To-Eat Meat and Poultry Products via Mechanistic Models for Fat and Moisture Transport	Marks, B.
MICL08315	Modeling Pathogen Migration and Thermal Resistance in Marinated Whole-Muscle Meat and Poultry Products	Marks, B.

Chemical Engineering

Phone: 355-5135

PROJECTS

MICL02047*	Science and Engineering for a Biobased Industry and Economy	Worden, R.
MICL03414	Enabling Biorefineries	Dale, B.
MICL07695	Bioprocessing for Utilization of Agricultural Raw Materials	Dale, B.
MICL08298	Novel High-Value Products from Biomass-Derived Organic Acids	Miller, D.

Community, Agriculture, Recreation & Resource Studies

Phone: 355-5190



Scott G. Witter, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Bingen, R. James	12	0.40	0.00	0.60	International Development
Hamm, Michael W. ²	12	0.20	0.05	0.75	Sustainable Agriculture
Holecek, Donald F.	12	0.70	0.20	0.10	Resource Economics/Tourism
Kakela, Peter J.	12	0.70	0.00	0.30	Natural Resources Management
Kaplowitz, Michael C.	13	0.50	0.00	0.50	Land Use Law
Mahoney, Edward M.	12	0.20	0.50	0.30	Tourism
Nicholls, Sarah C.	14	0.25	0.00	0.75	Tourism
Norris, Patricia E.	12	0.08	0.20	0.72	Land Use
Rosenbaum, Rene P.	13	0.40	0.40	0.20	Community Economic Development
Schultink, Gerhardus	12	0.50	0.00	0.50	Natural Resources Management

Community, Agriculture, Recreation & Resource Studies (continued)

FACULTY

Vander Stoep, Gail A.	13	0.25	0.25	0.50	Communications/Human Dimensions
Vogt, Christine A.	13	0.50	0.00	0.50	Tourism/Marketing/Communications
TOTALS:		4.68	1.60	5.72	

PROJECTS

MICL01536	Comparative Indicators for Urban and Rural Development, Environmental Planning and Public Policy Formulation	Schultink, G.
MICL01817	Water Security in Our Rural and Urban Communities	Witter, S.
MICL01850	Incentives for and Impacts of Land Use Change	Norris, P.
MICL01859	Organic Agriculture and Rural Development Policy	Bingen, J.
MICL01979	The Role of Economics and Law on Environmental Management	Kaplowitz, M.
MICL01994	Integrating Interpretation, Heritage and Community with Tourism Development and Resource Management: Maritime/Coastal Focus	Vander Stoep, G.
MICL02060*	Sustaining Local Food Systems in a Globalizing Environment: Forces, Responses, Impacts	Bingen, J.
MICL02062	Consumer Decision Making Behavior in Selected Tourism and Recreation Contexts	Vogt, C.
MICL03280	Travel, Tourism and Recreation Resource Center	Holecek, D.
MICL03352	Mineral Lands Development, Energy Requirements, and Environmental Impacts	Kakela, P.
MICL03358	Michigan Seasonal Agriculture Labor Markets	Rosenbaum, R.
MICL03409	Community-Based, Sustainable Food Systems for Michigan and Beyond: Developing a Coherent Strategy	Hamm, M.

Composite Materials & Structures Center

Phone: 353-5466

PROJECTS

MICL08264	Biocomposites from Engineered Bio-Fibers and Bio-Plastics	Drzal, L.
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Crop & Soil Sciences

Phone: 355-0271



James J. Kells, Acting Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Boyd, Stephen A.	12	0.75	0.00	0.25	Environmental Soil Chemistry
Bughrara, Suleiman S.	14	0.75	0.25	0.00	Turfgrass Breeding & Genetics
Crum, James L.	12	0.15	0.00	0.85	Soil Class/Genesis/Turfgrass
Dazzo, Frank B.	12	0.10	0.00	0.90	Microbial Ecology
Douches, David S.	12	0.90	0.00	0.10	Potato Breeding/Genetics
Frank, Kevin W.	14	0.30	0.70	0.00	Turfgrass Management
Freed, Russell D.	12	0.34	0.00	0.66	International Agronomy/Plant Breeding
Gehl, Ronald J.	14	0.40	0.60	0.00	Soil Fertility & Nutrient Management
Hamm, Michael W. ²	12	0.15	0.10	0.75	Sustainable Agriculture
Jacobs, Lee W.	12	0.50	0.50	0.00	Environmental Waste Management
Kells, James J.	12	0.25	0.60	0.15	Weed Science
Kelly, James D.	12	0.85	0.00	0.15	Dry Bean Breeding
Kravchenko, Alexandra N.	14	0.50	0.00	0.50	Spatial Variability in Agroecosystems
Leep, Richard H.	12	0.35	0.50	0.15	Soil Fertility/Forage Management
Lenski, Richard E. ³	12	0.40	0.00	0.60	Microbial Ecology & Evolutionary Biology

Crop & Soil Sciences (continued)

FACULTY					
Li, Hui	14	0.60	0.00	0.40	Soil Chemistry
Mokma, Delbert L.	12	0.50	0.15	0.35	Soil Classification/Genesis
Penner, Donald	12	0.85	0.00	0.15	Crop/Weed/Physiology
Renner, Karen A.	12	0.25	0.00	0.75	Weed Seed Decay/Predation/Emergence
Robertson, G. Philip	12	0.38	0.00	0.62	Ecosystem Ecology
Rogers, John N. III	12	0.25	0.00	0.75	Turfgrass Management
Rugh, Clayton L.	14	0.25	0.00	0.75	Phytoremediation, Molecular & Cellular Genetics
Smucker, A.J.M.	12	0.75	0.00	0.25	Soil Biophysics
Snapp, Sieglinde S.	13	0.25	0.25	0.50	Integrated Production & Management of Vegetable Crops
Sprague, Christy L.	14	0.50	0.50	0.00	Weed Science
Teppen, Brian J.	13	0.75	0.00	0.25	Surface Soil Chemistry
Thelen, Kurt D.	13	0.40	0.60	0.00	Cropping Systems Agronomist
Thomashow, Michael F.	12	0.76	0.00	0.24	Plant & Microbial Molecular Genetics
Tiedje, James M.	12	0.60	0.00	0.40	Soil Microbiology/Microbial Ecology
Wang, Dechun	14	0.75	0.00	0.25	Soybean Breeding & Genetics
Ward, Richard W.	13	0.75	0.00	0.25	Wheat Breeding
Warncke, Darryl D.	12	0.50	0.50	0.00	Greenhouse/Vegetable Soil Fertility
TOTALS:		15.78	5.25	10.97	

PROJECTS

MICL00319	Classification, Genesis and Evaluation of Michigan Soils	Mokma, D.
MICL00569	Breeding and Testing Oats, Barley and Canola for Michigan	Freed, R.
MICL00908	Fundamental Factors in Cultural and Chemical Weed Control, Weed Competition, and Weed Life Cycles	Renner, K.
MICL01568	Plant Biotechnology: Molecular Approaches to Improve Environmental Stress Tolerance	Thomashow, M.
MICL01574	Movement and Degradation of Organic Contaminants and Pesticides in Soils and Sediments	Boyd, S.
MICL01617*	Characterizing Weed Population Variability for Improved Weed Management Decision Support Systems to Reduce Herbicide Use	Kells, J.
MICL01654	Genetic Improvement of Bean (<i>Phaseolus vulgaris L.</i>) For Yield, Pest Resistance and Food Value	Kelly, J.
MICL01761	Weed Management as a Component of Field Crop Production Systems	Kells, J.
MICL01779	The Physiology and Biochemistry of Herbicide Action, Selectivity, and Degradation	Penner, D.
MICL01780	Impact Absorption, Traction, and Wear Tolerance Investigation on Turf and Soil Surfaces	Rogers, J.
MICL01782	Application of Organic and Other Waste Residuals to Agricultural Soils as a Waste Management Option	Jacobs, L.
MICL01806	Breeding and Genetics for the Improvement of Potato (<i>Solanum tuberosum L.</i>) For Yield, Quality and Pest Resistance	Douches, D.
MICL01807	Properties of High Sand Content Soils for Turfgrass Uses	Crum, J.
MICL01821	Microbial Ecology of Soil and Biodegradation	Tiedje, J.
MICL01830	Wheat Breeding and Genetics	Ward, R.
MICL01855	The Role of Mutation in Bacterial Evolution	Lenski, R.
MICL01872	Greenhouse Gas Mitigation and Carbon Sequestration in Row-Crop Agriculture	Robertson, G.
MICL01884	Soil Aggregate Porosity Contributions to Carbon Sequestration	Smucker, A.
MICL01953	Fundamental Interactions of Soil Colloids with Environmental Chemicals	Teppen, B.
MICL01965	Corn and Soybean Cropping Systems	Thelen, K.
MICL01975	Genetic and Turfgrass Breeding	Bughrara, S.

Crop & Soil Sciences (continued)

PROJECTS

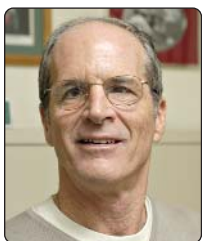
MICL01985*	Reducing the Potential for Environmental Contamination by Pesticides and Other Organic Chemicals	Boyd, S.
MICL01987	Improvement of Plants for Environmental Decontamination by Integrated Ecosystems and Biotechnological Approaches	Rugh, C.
MICL01990	Nitrogen Use and Fate in Turfgrass	Frank, K.
MICL02013	Genetic Improvement of Soybean for Food Value, Yield and Pest Resistance	Wang, D.
MICL02015	Development and Correlation of Soil Test Procedures with Crop Yields and Plant Nutrient Contents	Warncke, D.
MICL02051	Quantitative Methods for Analyzing Spatial Variability of Soil Properties and Crop Yields	Kravchenko, A.
MICL02081*	Environmental and Genetic Determination of Seed Quality and Performance	McGrath, J.
MICL02091*	The Chemical and Physical Nature of Particulate Matter Affecting Air, Water and Soil Quality	Smucker, A.
MICL02097*	Chemistry, Bioavailability, and Toxicity of Constituents in Residuals and Residual-Treated Soils	Jacobs, L.
MICL02098	Influence of Cultural and Chemical Factors on Weed Management	Sprague, C.
MICL03260	Evaluation of Forage Management Systems in Michigan	Leep, R.
MICL03324	Environmental Impacts on Crop Growth and Development	Foster, E.
MICL03405	Seed Biology of Annual Weed Species in Turf and Agronomic Crop Systems	Buhler, D.
MICL07682	Improving the Sustainable Production of Specialty Crops	Kelly, J.
MICL07684	Sustainable Agriculture 2003: Expanding and Refining the Ecosystem Base	Buhler, D.
MICL07689	Sustainable Agriculture 2004: Production and Food Ecology Systems	Buhler, D.
MICL07698	Improving the Sustainable Production of Specialty Crops	Kelly, J.
MICL07700	Sustainable Agriculture 2005: Sustainable Agriculture and Food Systems	Hamm, M.
MICL08296	Mechanisms and Forces Controlling Pesticide Retention by Soil Clay Minerals	Teppen, B.
MICL08344	Mechanisms and Forces Controlling Pesticide Retention by Soil Clay Minerals	Teppen, B.



Cooperating with industry and commodity group representatives, MAES plant breeders have developed some of the most popular and prolific selections and are working on even better ones.

Entomology

Phone: 355-4663



Richard W. Merritt, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Ayers, George S.	12	0.25	0.00	0.75	IPM/ Apiculture & Pollination
DiFonzo, Christina D.	13	0.20	0.65	0.15	Field Crop Entomology/Pesticide Education Coordinator
Dong, Ke	13	0.25	0.00	0.75	Insect Toxicology & Neurobiology
Gage, Stuart H.	12	0.48	0.12	0.40	Computational Ecology/Bioinformatics
Grafius, Edward J.	12	0.20	0.65	0.15	Vegetable Insect Ecology Management

Entomology (continued)

FACULTY

Güt, Larry	12	0.25	0.65	0.10	Tree Fruit Insects
Hollingworth, Robert M.	12	0.62	0.11	0.27	Pesticide Toxicology/Action, Insecticide Resistance/NRSP 4 Program
Huang, Zachary Y.	13	0.21	0.53	0.26	Apiculture
Isaacs, Rufus	13	0.45	0.45	0.10	Small Fruit Insect Management
Landis, Douglas A.	12	0.66	0.18	0.16	Insect Ecology/Biological Control
McCullough, Deborah G.	13	0.30	0.50	0.20	Forest Entomology
Melakeberhan, Haddish	13	0.20	0.00	0.80	Physiology of Plant Nematode Interactions/Genetic Diversity
Miller, James R.	12	0.42	0.00	0.58	Insect Behavior/Physiology
Olsen, Larry G.	12	0.20	0.80	0.00	Agrimedicine/PIAP Program
Scriber, J. Mark	12	0.50	0.00	0.50	Insect Ecology
Smitley, David R.	12	0.25	0.60	0.15	Landscape/Turf/Greenhouse Insect Management
Thiem, Suzanne M.	13	0.40	0.00	0.60	Insect Molecular Biology/Pathology
Walker, Edward D.	12	0.29	0.00	0.71	Medical/Veterinary Entomology
Whalon, Mark E.	12	0.60	0.00	0.40	Fruit Insect Pest Management/Insecticide Resistance Management
TOTALS:		6.73	5.24	7.03	

PROJECTS

MICL01606	Mitigating Outbreaks of Japanese Beetle and European Chafer in Michigan Through Host Plant Resistance and Introduction of Natural Enemies	Smitley, D.
MICL01640*	Ecology and Management of European Corn Borer and Other Lepidopteran Pests of Corn	DiFonzo, C.
MICL01644	Plant Chemical Defenses: Insect Detoxification and Ecological Factors Affecting Gene Flow and Host Selection in Generalist <i>Lepidoptera</i>	Scriber, J.
MICL01663	Biology and Management of Insect Pests of Vegetable Crops	Grafius, E.
MICL01700	Ecology and Management of Forest Insects in Michigan	McCullough, D.
MICL01730*	A National Agricultural Program to Clear Pest Control Agents for Minor Uses	Hollingworth, R.
MICL01733	Baculovirus Biotechnology	Thiem, S.
MICL01783	Arthropod Biological Control	Landis, D.
MICL01792	Physiological Basis for Integrated Approach Towards Sustainable Management of Plant-Parasitic Nematodes	Melakeberhan, H.
MICL01814	Applied Behavioral Ecology of Insects	Miller, J.
MICL01826	Development of Bee Forage Systems	Ayers, G.
MICL01915	Assessment of Change in Natural and Managed Ecosystems	Gage, S.
MICL01936	Molecular Characterization of Knockdown Resistance to Pyrethroids in Agricultural Important Arthropod Pests	Dong, K.
MICL01951	Better Pest and Disease Management Through Studying Their Mode of Action and Effect on Honey Bees	Huang, Z.
MICL01971	Ecology and Management of Insects in Michigan's Small Fruit Industries	Isaacs, R.
MICL01986	Tree Fruit IPM/ICM and Pesticide Regulatory Policy in Michigan	Whalon, M.
MICL02052*	Dynamic Soybean Pest Management for Evolving Agricultural Technologies and Cropping Systems	DiFonzo, C.
MICL02080*	Genetic Variability in the Cyst and Root-Knot Nematodes	Melakeberhan, H.
MICL02094*	Impact of Climate and Soils on Crop Selection and Management	Gage, S.
MICL02095*	Alternative Management Systems for Plant-Parasitic Nematodes in Horticultural and Field Crops	Bird, G.
MICL03338	Emerging Vector-Borne Disease in Michigan: Landscape Ecology and Risk Analysis	Walker, E.

Entomology (continued)

PROJECTS

MICL03361	Monitoring the Effects of Human Perturbations on Aquatic Habitats Using Freshwater Invertebrates	Merritt, R.
MICL03365	Biology and Management of Insects, and Assessment of Pesticide Use/ Exposure, in Michigan Field Crops	DiFonzo, C.
MICL03379	New Arthropod Pest Controls and Management Strategies for Michigan Tree Fruit Production Systems	Güt, L.
MICL07694	Mating Disruption, Host Resistance, and Insecticide Management Strategies for Tree Fruit Pests	Brewer, M.
MICL07696	Mating Disruption, Host Resistance, and Insecticide Management Strategies for Tree Fruit Pests	Brewer, M.
MICL08242	North Central Region Pest Management Center	Olsen, L.
MICL08284	Field Test of an Alternative Method for Controlling the Most Serious Honey Bee Pest, the Varroa Mite	Huang, Z.
MICL08289	Methyl Bromide Alternatives Research-Education for Herbaceous Perennial-Woody Ornamentals and Vegetables in MI, NY and RI	Bird, G.
MICL08297	Parasitism in Grass-Dominant Agroecosystems Affected by Landscape Structure	Brewer, M.
MICL08306	Molecular Mechanism of High Level Resistance to Imidacloprid in the Colorado Potato Beetle	Hollingworth, R.
MICL08310	Research Evaluations of and Outreach for Methyl Bromide Alternatives in Conifer Seedlings and Herbaceous Perennials	Brown-Rytlewski, D.
MICL08319	Reduced Risk Pest Management Systems for U.S. Tart Cherry Production	Whalon, M.
MICL08323	Integrating New Natural Enemies into Soybean Aphid Biological Control	Brewer, M.
MICL08326	Integrating Alternative Approaches to Control Key Pests in Eastern U.S. Vineyards	Isaacs, R.
MICL08327	Improved Bait-and-Kill for Fruit Fly Control in FQPA-Targeted Fruit Crops	Güt, L.
MICL08330	Does Intraguild Predation Limit Soybean Aphid Parasitoid Impacts?	Landis, D.
MICL08337	Soybean Aphid in the North Central U.S.: Implementing IPM at the Landscape Scale	Landis, D.
MICL08338	Development and Optimization of Pre- and Post-Harvest Pest Management Strategies in Cherries: A Multi-Tactic Approach	Wise, J.
MICL08345	Using Demographic Models to Assess Biocontrol of an Invasive Plant	Landis, D.
MICL08346	Pyrethroid Resistance Mechanism in Arachnids	Dong, K.
MICL08349	Pesticide Reduction in the Face of Japanese Beetle Invasion: Testing a Local IPM Strategy in the Context of Regional Invasion	Isaacs, R.
MICL08367	Development and Delivery of Alternative Insect Management Strategies for Eastern U.S. Vineyards	Isaacs, R.

Extension Education

Phone: 355-2308

PROJECTS

MICL08279	Extension Education for the Michigan Agriculture Environmental Assurance Program	Krizek, A.
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Family & Child Ecology

Phone: 355-7680



Anne K. Soderman, Acting Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Imig, David R.	12	0.25	0.00	0.75	Family Ecology
Luster, Thomas J.	12	0.30	0.00	0.70	Child Development
TOTALS:		0.55	0.00	1.45	

Family & Child Ecology (continued)

PROJECTS

MICL02067*	Rural Low-Income Families: Tracking Their Well-Being and Function in an Era of Welfare Reform	Imig, D.
MICL03411	Risk and Resilience	Luster, T.

Fisheries & Wildlife

Phone: 355-4478



William W. Taylor, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Bence, James R. ⁶	13	0.75	0.20	0.05	Fish Population Dynamics/Fish Ecology
Bremigan, Mary T. ⁶	13	0.60	0.00	0.40	Fish Management
Campa, Henry III	12	0.50	0.00	0.50	Wildlife Habitat Ecology
Garling, Donald L.	12	0.17	0.71	0.12	Aquaculture
Hayes, Daniel B. ⁶	13	0.75	0.20	0.05	Stream Fisheries Biology
Jones, Michael L. ⁶	12	0.75	0.20	0.05	Fisheries Stream Models
Li, Weiming ⁶	13	0.75	0.20	0.05	Fish Physiology
Liu, Jianguo ⁹	12	0.50	0.00	0.50	Wildlife Systems Models
Lupi, Frank ⁶	13	0.10	0.28	0.62	Natural Resource Economics
Maurer, Brian A.	13	0.41	0.00	0.59	Landscape Ecology
Millenbah, Kelly F.	13	0.37	0.00	0.63	Restoration Ecology
Peacor, Scott D.	14	0.25	0.00	0.75	Aquatic Ecological/Ecosystem Modeler
Peyton, R. Benny ⁶	12	0.65	0.17	0.18	Human Dimensions
Riley, Shawn J. ⁶	14	0.47	0.00	0.53	Wildlife Ecologist
Scribner, Kim T. ⁶	13	0.75	0.20	0.05	Molecular Ecology
Soranno, Patricia A.	13	0.50	0.00	0.50	Limnology
Turetsky, Merritt R.	14	0.20	0.00	0.80	Wetland Ecology/Biogeochemistry
Winterstein, Scott R.	12	0.50	0.00	0.50	Wildlife Biometry
TOTALS:		8.97	2.16	6.87	

PROJECTS

MICL01540	The Consequences of Globalization on Fisheries Resources in the Great Lakes and Other Shared Fisheries	Taylor, W.
MICL01646	Wildlife Responses to Habitat Management	Campa, H.
MICL01740	Development of Commercial Aquaculture Techniques	Garling, D.
MICL01758	Relationship Between Habitat Characteristics and Fish Population Dynamics	Hayes, D.
MICL01759	Tools and Information for Improved Management of Great Lakes' Fisheries	Bence, J.
MICL01785	A Spatially Explicit Approach to Modeling Wildlife Habitats and Populations Across Heterogeneous Landscapes	Liu, J.
MICL01868	The Influence of Landscapes on Freshwater Ecosystems	Soranno, P.
MICL01893	Uncertainty and the Management of Great Lakes Fisheries	Jones, M.
MICL01894	Pheromone Communication in Fish	Li, W.
MICL01904	Developing Landscape-Based Classification Systems for Lake Management	Bremigan, M.
MICL01976	Understanding Spatial Patterns of Wildlife Habitat Use in Human-Modified Ecosystems at Different Scales	Maurer, B.
MICL02030	Modeling Great Lakes Food Webs to Understand Broad Effects of Disturbances	Peacor, S.
MICL02031	Adaptive Impact Management: Improving Decision-Making Capacity of Stakeholders in Fish and Wildlife Management	Riley, S.

Fisheries & Wildlife (continued)

PROJECTS

MICL02044*	Landscape Ecology of White-Tailed Deer in Agro-Forest Ecosystems: A Cooperative Approach to Support Management	Campa, H.
MICL03378	Wildlife Response to Ecological Restoration	Millenbah, K.
MICL03380	Modeling Wildlife Population Dynamics	Winterstein, S.
MICL03383	Assessment of Anthropogenic Impacts to Genetic Diversity of Native and Introduced Fisheries in the Great Lakes	Scribner, K.
MICL03386	Improving the Effective Use of Public Involvement in Wildlife Management	Peyton, R.
MICL08292	Integrating Ecology and Economics for Managed Forest Landscapes	Liu, J.
MICL10013	Regional Aquaculture Center	Batterson, T.
MICL10014	Support for a National Coordinator for New Animal Drug Applications	Batterson, T.
MICL10015	Regional Aquaculture Center - North Central Region	Batterson, T.
MICL10016	Regional Aquaculture Center - North Central Region	Batterson, T.
MICL10017	Regional Aquaculture Center - North Central Region	Batterson, T.
MICL10018	Regional Aquaculture Center - North Central Region	Batterson, T.



MAES researchers found that bovine TB prevalence varied widely by geographic area. Deer from the core infection area were almost 150 times as likely to be TB-positive than deer from other areas.

Food Science & Human Nutrition

Phone: 355-8474



Gale M. Strasburg, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Alaimo, Katherine	14	0.50	0.00	0.50	Community Nutrition
Bennink, Maurice R.	12	0.50	0.00	0.50	Nutritional Biochemistry
Booren, Alden M.	12	0.15	0.65	0.20	Meat/Poultry/Fish
Bourquin, Leslie D.	13	0.25	0.75	0.00	Food Safety
Claycombe, Kate	14	0.50	0.00	0.50	Nutritional Biochemistry
Dolan, Kirk D.	13	0.25	0.50	0.25	Plant & Food Engineering
Doumit, Matthew E.	13	0.25	0.00	0.75	Meat Quality
Fraker, Pamela J.	12	0.20	0.00	0.80	Cellular Immunology
Gangur, Venugopal	14	0.25	0.00	0.75	Food Allergy
Hamm, Michael W. 2	12	0.15	0.10	0.75	Sustainable Agriculture
Hoerr, Sharon M.	12	0.40	0.00	0.60	Community Nutrition
Hord, Norman G.	13	0.35	0.00	0.65	Nutritional Epidemiology
Linz, John E.	12	0.50	0.00	0.50	Food Microbiology
Ng, Perry K. W.	12	0.50	0.00	0.50	Cereal Science
Ofoli, Robert Y.	13	0.49	0.00	0.51	Colloid/Interface Science

Food Science & Human Nutrition (continued)

FACULTY

Olson, Beth	14	0.24	0.76	0.00	Community Nutrition
Pestka, James J.	12	0.60	0.00	0.40	Food Microbiology/Immunology
Romsos, Dale R.	12	0.50	0.00	0.50	Lipid Metabolism
Ryser, Elliott T.	13	0.53	0.00	0.47	Dairy Foods/Microbiology
Steffe, James F.	12	0.25	0.00	0.75	Food Engineering/Rheology
Uebersax, Mark A.	12	0.60	0.00	0.40	Food Processing
Ustunol, Zeynep	12	0.70	0.00	0.30	Dairy Foods
Whittam, Thomas S. ³	12	0.08	0.00	0.92	Nutritional Genomics
Zile, Maija H.	12	0.50	0.00	0.50	Nutritional Biochemistry
TOTALS:		9.24	2.76	12.00	

PROJECTS

MICL01413	Metabolism and Function of Vitamin A	Zile, M.
MICL01448	Microbial Foodborne Disease	Pestka, J.
MICL01478*	Genetic Improvement of Beans (<i>Phaseolus vulgaris L.</i>) For Yield, Disease Resistance and Food Value	Uebersax, M.
MICL01599	Improving Quality and Safety of Muscle Food Products	Strasburg, G.
MICL01623	Comparative Aspects of Nutrition and Lipid Metabolism	Romsos, D.
MICL01664	Enhancing the Value of Dairy and Dairy-Based Products	Ustunol, Z.
MICL01699	Molecular Structure of Soft Wheat Proteins in Relation to End-Use Quality	Ng, P.
MICL01706	Interactions of Biological Macromolecules at Fluid-Like Interfaces	Ofoli, R.
MICL01762	Relationship of Diet and Cancer	Bennink, M.
MICL01804*	Using Stage Based Interventions to Increase Fruit and Vegetable Intake in Young Adults	Hoerr, S.
MICL01856	Aflatoxin B1 Biosynthesis in <i>Aspergillus</i>	Linz, J.
MICL01878	Relation of Family Meals and Lifestyle Factors to Obesity and Diet Quality of Children and Youth	Hoerr, S.
MICL01895	Influence of Diet and Phytochemicals on Colon Carcinogenesis	Bourquin, L.
MICL01920*	Management of Grain Quality and Security for World Markets	Ng, P.
MICL01932	Microbial Safety of Foods	Ryser, E.
MICL01937	Processing Treatments Influencing Functional Properties and Utilization of Muscle Foods	Booren, A.
MICL01945*	The Poultry Food System: A Farm to Table Model	Booren, A.
MICL01948	Plant-Derived Dietary Components and Chronic Disease Risk	Hord, N.
MICL01964*	Enhancing Food Safety Through Control of Food-Borne Disease Agents	Ryser, E.
MICL01981	Enhancing Economic and Nutritional Value of Plant Products Through Food Processing Technology	Dolan, K.
MICL02019	Evolution of Acid Resistance in Pathogenic <i>E. Coli</i>	Whittam, T.
MICL02023	Assessment of Allergenic Potential of Food	Gangur, V.
MICL02036*	N-3 Polyunsaturated Fatty Acids and Human Health and Disease	Claycombe, K.
MICL02042*	Nutrient Bioavailability-Phytonutrients and Beyond	Bennink, M.
MICL02053*	Beneficial and Adverse Effects of Natural Bioactive Dietary Chemicals on Human Health and Food Safety	Pestka, J.
MICL02064*	Parent and Household Influences on Calcium Intake Among Preadolescents	Olson, B.
MICL02065	Obesity-Induced Systemic Inflammation: Effects of Anti-Inflammatory Nutrients	Claycombe, K.
MICL02096	The Effect of Environmental Influences on Health Behaviors Contributing to Overweight and Obesity Among Infants and Children	Olson, B.
MICL02114	Community-Based Environmental and Policy Supports for Physical Activity and Healthy Eating	Alaimo, K.
MICL03363	Institute for Food Laws and Regulations	Hegarty, P.
MICL08275	Apple Juice and HACCP: Hazard Surveillance, Training, and Perceptions	Bourquin, L.

Food Science & Human Nutrition (continued)

PROJECTS

MICL08311	Modeling Thermal and Mechanical Effects on Retention of Nutraceuticals in Extruded Foods	Dolan, K.
MICL08342	Regulation of Embryonic Vascular Development by Vitamin A	Zile, M.
MICL08353	Identification, Differential Expression, and Mapping of Muscle Genes in Genetically Selected Turkeys	Strasburg, G.
MICL08363	Identification of Molecular Mechanisms of Stress-Resistance in Turkeys to Improve Meat Quality	Strasburg, G.
MICL08368	Natural Transformation of <i>Campylobacter jejuni</i> in Chickens: Impact on Food Safety	Linz, J.

Forestry

Phone: 355-0091



Daniel E. Keathley,
Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Epperson, Bryan K.	12	0.70	0.00	0.30	Forest Genetics
Han, Kyung-Hwan	13	0.70	0.00	0.30	Genomics
Kamdem, Donatien-Pascal	12	0.70	0.00	0.30	Wood Science
Kobe, Richard K.	13	0.70	0.00	0.30	Forest Ecology
Leefers, Larry A.	13	0.50	0.00	0.50	Forest Economics
MacFarlane, David	14	0.60	0.00	0.40	Forest Measurements/Modeling
Matuana, Laurent M.	13	0.60	0.00	0.40	Wood Composites
McDonough, Maureen H.	12	0.15	0.50	0.35	Forest Sociology
Potter-Witter, Karen L.	13	0.20	0.65	0.15	Forest Economics
Propst, Dennis B.	12	0.50	0.00	0.50	Psychology/Policy/Economics
Rothstein, David E.	14	0.60	0.00	0.40	Forest Nutrient Dynamics
Walters, Michael B. ⁶	13	0.75	0.20	0.05	Forest Ecology
Yin, Runsheng	14	0.70	0.00	0.30	Forest Economics
TOTALS:		7.40	1.35	4.25	

PROJECTS

MICL01693*	The National Atmospheric Deposition Program (NADP)	Kobe, R.
MICL01748	Economic Analysis of Forest Management Opportunities in Michigan	Potter-Witter, K.
MICL01774	Managing the Genetic Diversity of Michigan Pines	Epperson, B.
MICL01811	Sustaining Forest Resources: Public Institutions and Impacts	Leefers, L.
MICL01871	Mechanisms Underlying Tree Species Distribution Across Soil Resource Gradients	Kobe, R.
MICL01899	Citizen Expectations from Public Participation	McDonough, M.
MICL01993	Soil-Hydrology Research for Productive and Sustainable Michigan Forests and Woody Plant Crops	Hart, J.
MICL01996	A Study of Producer Performance and Products Markets of Michigan's Forest Products Industry	Yin, R.
MICL02008	Durability and Protection of Wood Products	Kamdem, D.
MICL02009	Forest Biogeochemistry in a Glaciated Landscape	Rothstein, D.
MICL02022	Integrating Ecology and Economics for Ecosystem Management of Forested Landscapes	Walters, M.
MICL02061	Molecular Biology of Wood Formation	Han, K.
MICL02072	Microcellular Foaming of Wood-Plastic Composite Lumber	Matuana, L.
MICL02073	Modeling Forest Growth and Productivity as a Function of Temporal-Spatial Variability in Environmental Resource Distribution	MacFarlane, D.
MICL02074	Geospatial and Multi-Scale Investigations of Landscape-Scale Effects of Forest Management	Friedman, S.
MICL02086	Constructing and Evaluating a Knowledge Management System in Resource-Based Recreation Management	Propst, D.

Forestry (continued)

PROJECTS

MICL07675	Advanced Technology Applications to Eastern Hardwood Utilization	Kamdem, D.
MICL07687	Advanced Technology Applications to Eastern Hardwood Utilization	Keathley, D.
MICL07702	Advanced Technology Applications to Eastern Hardwood Utilization	Kamdem, D.
MICL08295	Seed, Substrate and Resource Limits to Tree Regeneration in Red Pine Plantations	Walters, M.
MICL09012	Corps of Engineers Recreation Program: Development of Analytical Tools and Transfer of Knowledge to Outdoor Recreation Managers and Planners	Propst, D.



According to MAES research, acid rain is still an issue, but is more commonly described as the atmospheric deposition of acidifying chemicals. The MAES participates in a nationwide effort to monitor the chemical makeup of precipitation.

Geography

Phone: 355-4649



Richard E. Groop, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Skole, David L.	12	0.18	0.00	0.82	Land Use & Land Cover Change
TOTALS:		0.18	0.00	0.82	

PROJECTS

MICL01983	Land Use and Cover Change Dynamics Using Geospatial Information	Skole, D.
MICL03373	Impacts of Weather and Climate on Michigan Agriculture	Andresen, J.

Horticulture

Phone: 355-5191



Ronald L. Perry, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Beaudry, Randolph M.	12	0.50	0.50	0.00	Postharvest Physiology
Behe, Bridget K.	12	0.40	0.20	0.40	Horticulture Marketing
Biernbaum, John A.	12	0.20	0.20	0.60	Plant Physiology/Sustainable Horticulture/Organics

FACULTY

Cameron, Arthur C.	12	0.70	0.00	0.30	Plant Physiology/Landscape Horticulture
Cregg, Bert M.	13	0.50	0.50	0.00	Plant Physiology/Woody Ornamentals
Fernandez, R. Tom	13	0.25	0.50	0.25	Integrated Crop Management for Nurseries
Flore, James A.	12	0.65	0.00	0.35	Plant Physiology/Pomology
Grumet, Rebecca	12	0.84	0.00	0.16	Vegetable Breeding/Genetics
Hancock, James F.	12	0.84	0.00	0.16	Small Fruit Breeding/Genetics
Hanson, Erik J.	12	0.35	0.42	0.23	Pomology Small Fruits
Howell, G. Stanley	12	0.80	0.00	0.20	Plant Physiology/Viticulture/Enology
Iezzoni, Amy F.	12	0.80	0.00	0.20	Fruit Breeding/Genetics
Jiang, Ning	14	0.25	0.00	0.75	Genomics/Transposable Elements (TE's)
Lang, Gregory A.	12	0.75	0.25	0.00	Pomology/Growth & Development
Lang, Nancy Suzanne	13	0.46	0.00	0.54	Plant Physiology/Integrated Crop Management/Turfgrass
Loescher, Wayne H.	12	0.75	0.00	0.25	Plant Physiology
Lownds, Norman K.	13	0.25	0.00	0.75	Landscape Horticulture/Stress Physiology
Nair, Muraleedharan G.	12	0.90	0.00	0.10	Natural Products/Chemistry
Ngouajio, Mathieu	14	0.40	0.50	0.10	Vegetable Crops
Poff, Ken	12	0.25	0.00	0.75	Plant Physiology
Rowe, D. Bradley	13	0.25	0.00	0.75	Landscape Horticulture
Runkle, Erik S.	14	0.50	0.50	0.00	Floriculture/Integrated Crop Management
Schemske, Douglas W. ³	12	0.10	0.00	0.90	Plant Adaptation & Evolution of Pollinations Systems
Sink, Kenneth C.	12	0.75	0.00	0.25	Genetics/Plant Breeding
Snapp, Sieglinde S.	13	0.25	0.25	0.50	Vegetable/Integrated Crop Management
van Nocker, Steven R.	13	0.75	0.00	0.25	Reproductive Development/Genetics
Warner, Ryan M.	14	0.75	0.00	0.25	Floriculture/Stress Physiology
Zabadal, Thomas J.	13	0.25	0.75	0.00	Viticulture
Zandstra, Bernard H.	12	0.25	0.75	0.00	Vegetable Crops/Weed Science
TOTALS:		14.69	5.32	8.99	

PROJECTS

MICL01222*	Conservation, Management, Enhancement and Utilization of Plant Genetic Resources	Iezzoni, A.
MICL01272	Physiology of Carbon Balance in Fruit Crops: Abiotic and Biotic Thresholds	Flore, J.
MICL01305*	Rootstock and Interstem Effects on Pome- and Stone-Fruit Trees	Perry, R.
MICL01325	Weed Control in Vegetable Crop Management Systems	Zandstra, B.
MICL01680	Value-Added Products for Improving Human, Animal and Plant Health	Nair, M.
MICL01731	Genetic and Biotechnology Studies for Selected Horticultural Crops	Sink, K.
MICL01753	Application of Molecular Genetic Approaches to Vegetable Crop Improvement	Grumet, R.
MICL01810	Genetic Improvement of Strawberries and Blueberries	Hancock, J.
MICL01839	Efficient Use of Fertilizers in Fruit Production	Hanson, E.
MICL01848	Enhancement of Control over Quality Loss in Horticultural Commodities Following Harvest	Beaudry, R.
MICL01908	Species Selection and Stormwater Runoff Analysis from Green Roof Systems	Rowe, D.
MICL01933	Greenhouse Organic Crop Production for Small Farms	Biernbaum, J.
MICL01938	The Law of Reciprocity and the Interaction with Concept of Cross-Stimuli in Plants	Poff, K.

Horticulture (continued)

PROJECTS

MICL01955*	Technical and Economical Efficiencies of Producing, Marketing, and Managing Environmental Plants	Behe, B.
MICL01956*	Postharvest Quality and Safety in Fresh-Cut Vegetables and Fruits	Beaudry, R.
MICL01978	Water and Nutrient Management in Nursery and Landscape Systems	Cregg, B.
MICL01980	Integrated Crop Management to Improve Resource Efficiency and Resilience of Vegetable Systems	Snapp, S.
MICL01998	Site-Specific Management Using Remote Sensing for Detection of Abiotic/Biotic Stress in Horticultural Crops	Lang, N.
MICL02002	Integrated Tree Fruit Physiology, Genetics, and Management	Lang, G.
MICL02003	Polyol Metabolism, Compartmentation, and Transport	Loescher, W.
MICL02010	Phytoremediation of Agricultural Chemicals Using Ornamental Plants	Fernandez, R.
MICL02011	Improving Vegetable Production and Ecology Under Short Crop Rotation	Ngouajio, M.
MICL02021	Environmental and Cultural Strategies to Control Growth and Development of Floriculture Crops	Runkle, E.
MICL02032	Genetic Improvement of Sour Cherry and Sweet Cherry Rootstocks	Iezzoni, A.
MICL02057	New Floriculture Crops: Selection and Development of Production Protocols	Cameron, A.
MICL02075*	Best Management Practices for Turf Systems in the East	Lang, N.
MICL02078*	Postharvest Biology of Fruit	Beaudry, R.
MICL02085	Consumer and Market Research of Hard Ciders, Fresh Premium Cherries, Processed Chestnuts, and New Flowering Potted Plants	Behe, B.
MICL02106*	Managing and Marketing Environmental Plants for Improved Production, Profitability, and Efficiency	Behe, B.
MICL03218	Achieving Sustainable Grapevine Yields, Maximum Processed Quality, Resistance to Environmental Stresses	Howell, G.
MICL03305	Vineyard Mechanization in Michigan Vineyards	Zabadal, T.
MICL03375	Plant Science Education Outreach Through the MSU Horticultural Gardens	Lownds, N.
MICL03388	Molecular Biology of Plant Development Relating to the Needs of Michigan Horticulture	van Nocker, S.
MICL03406	Peach Germplasm Improvement	Shane, W.
MICL08301	Characterization of <i>Arabidopsis</i> Flowering Regulators VIP3 and VIP4	van Nocker, S.
MICL08303	Value-Added Components of <i>Cornus mas</i> Fruits for Prevention and Treatment of Diabetes	Nair, M.
MICL08325	Genetic and Molecular Characterization of Self-Incompatibility and Self-Compatibility in Tetraploid Sour Cherry	Iezzoni, A.
MICL08332	Reducing Use of the At-Risk Pesticides, Atrazine, Simazine, and Chlorothalonil in Christmas Trees	Zandstra, B.
MICL08335	An Integrated Program to Replace Methyl Bromide Fumigation for Black Root Rot Control in Strawberries	Hancock, J.
MICL08350	Genomic Resources to Improve Fruit Size and Quality in Cherry	Iezzoni, A.
MICL08351	Identifying the Genes Associated with Day-Neutrality in Strawberries Using a QTL Approach	Hancock, J.
MICL08354	Pack-Mules in Rice and Their Impact on the Evolution of C-Repeat Binding Factor (CBF) Gene Family	Jiang, N.
MICL08370	Partnering to Cultivate Organic Agriculture in Michigan and the Midwest	Snapp, S.
MICL08371	Environmental Risk Assessment of Secondary Effects Associated with Engineered Abiotic Stress Tolerance Using Regulatory or Metabolic Genes	Grumet, R.



MAES scientists continue to find new ways to connect kids and plants in real ways. The flowers shown here are a sample of what students will see when they visit the Michigan 4-H Children's Garden.

Kellogg Biological Station

Phone: (269) 671-2341

PROJECTS

MICL08276	Genetic Mechanisms of Adaptation and Integration Among Floral Traits in a Weed	Conner, J.
MICL08317	Enhancing Phosphorus Reduction Strategies in the Kalamazoo River Basin	Solomon, D.

Large Animal Clinical Sciences

Phone: 355-9593



Thomas H. Herdt, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Erskine, Ronald J.	12	0.25	0.33	0.42	Dairy Cattle Mastitis
Grooms, Daniel L.	13	0.50	0.50	0.00	Beef Disease Management
Kaneene, John B.	12	0.27	0.00	0.73	Epidemiology/Disease Impact
Kirkwood, Roy N.	13	0.37	0.00	0.63	Swine Reproduction
Mansfield, Linda S.	12	0.23	0.00	0.77	Food Safety/Campylobacter Pathogenesis
Robinson, Norman E. ¹⁰	12	0.25	0.00	0.75	Respiratory Physiology
Rook, Joseph S.	12	0.20	0.60	0.20	Small Ruminant Animals
Sears, Phillip M.	12	0.35	0.41	0.24	Dairy Disease Management
Sordillo, Lorraine M. ⁸	12	0.22	0.00	0.78	Bovine Immunology & Mastitis
Straw, Barbara E.	12	0.28	0.60	0.12	Swine Veterinary Medicine
TOTALS:		2.92	2.44	4.64	

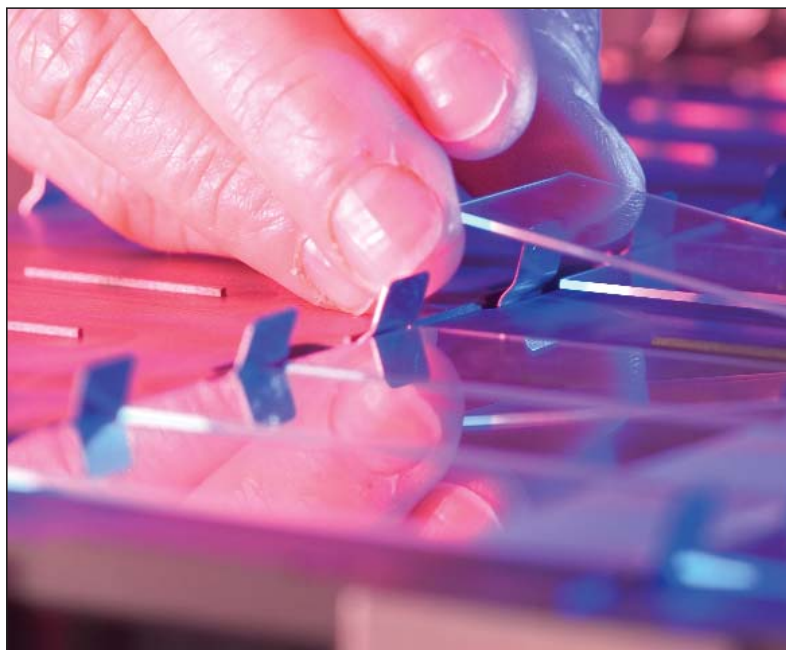
PROJECTS

MICL01417*	Evolving Pathogens, Targeted Sequences, and Strategies for Control of Bovine Respiratory Disease	Grooms, D.
MICL01708	Reducing Economic Losses and Food Safety Risks Related to Mastitis	Erskine, R.
MICL01801	Hemorrhagic Bowel Syndrome and Antimicrobial Resistance in Swine	Straw, B.
MICL01916	Diagnosis and Prevention of Bovine Viral Diarrhea Virus (BVDV)	Grooms, D.

Large Animal Clinical Sciences (continued)

PROJECTS

MICL02016	Preharvest Food Safety: Reducing the Risk of Preharvest Pathogens, Antibiotic Residues and Antibiotic Resistance in Cows	Sears, P.
MICL02017	Improving the Reproductive Performance of Swine Herds	Kirkwood, R.
MICL02025	Elimination of <i>Campylobacter jejuni</i> from the Food Chain	Mansfield, L.
MICL02039*	Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety	Mansfield, L.
MICL02040*	Mastitis Resistance to Enhance Dairy Food Safety	Erskine, R.
MICL02082	Epidemiology and Antibiotic Resistance of <i>Campylobacter</i> and <i>Salmonella</i> Isolates from Food Animals, Milk, and Meat	Kaneene, J.
MICL02108	Enhanced Resistance to Mastitis in Dairy Cattle	Sordillo, L.
MICL03355	Perinatal Lamb Mortality and Production Issues Associated with Pasture Lambing Systems in Michigan	Rook, J.
MICL06906	Natural Transformation Between Genetically Marked <i>Campylobacter jejuni</i> Strains in the Pig Intestine	Mansfield, L.
MICL06907	Development of a Biosensor for Rapid Detection of Viruses	Grooms, D.
MICL06910	Equine Chronic Airway Disease	Robinson, N.
MICL07681	Bovine Tuberculosis: Epidemiology, Diagnosis, and Pathogenesis	Kaneene, J.
MICL07691	Bovine Tuberculosis: Epidemiology, Diagnosis, and Pathogenesis	Kaneene, J.
MICL07692	Bovine Tuberculosis: Epidemiology, Diagnosis, and Pathogenesis	Kaneene, J.
MICL08273	Antimicrobial Resistance in Swine Given 5 In-Feed Antibiotic Regimens	Straw, B.
MICL08294	Interventions for Controlling Antimicrobial Resistance of <i>Salmonella</i> and <i>Campylobacter</i> in Dairy Cattle	Kaneene, J.
MICL08355	Development of a Field-Based Biosensor to Enhance the Epidemiological Study, Diagnosis and Control of Bovine Viral Diarrhea Virus	Grooms, D.
MICL08359	Increased Susceptibility to Bovine Mastitis During Oxidant Stress	Sordillo, L.



Scientists who use biotechnology have the same goals as traditional plant breeders: making the food supply safer, less expensive, larger and more readily available to the world's growing population.

Michigan Agricultural Experiment Station

Phone: 355-0123

PROJECTS

MICL03369 Families, Children and Their Communities: Promoting Behavioral and Social Science Approaches

Bokemeier, J.

Microbiology & Molecular Genetics

Phone: 355-6463



Walter J. Esselman, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Bagdasarian, Michael	12	0.39	0.00	0.61	Molecular Biology
Breznak, John A.	12	0.30	0.00	0.70	Microbial Ecology
Britton, Robert A.	14	0.40	0.00	0.60	Genomics/Microbial Genetics
Champness, Wendy C.	12	0.50	0.00	0.50	Microbial Genetics
Ciche, Todd A.	14	0.50	0.00	0.50	Host Pathogen/Microbe Interactions
Dazzo, Frank B.	12	0.15	0.00	0.85	Microbial Ecology
Dodgson, Jerry	12	0.36	0.00	0.64	Molecular Genetics
Hausinger, Robert P.	12	0.40	0.00	0.60	Microbial Physiology
Reddy, C. Adinarayana	12	0.46	0.00	0.54	Microbial Physiology/Ecology
Schmidt, Thomas M.	12	0.40	0.00	0.60	Microbial Ecology
Thomashow, Michael F.	12	0.14	0.00	0.86	Plant & Microbial Molecular Genetics
Tiedje, James M.	12	0.15	0.00	0.85	Soil Microbiology
Walker, Edward D.	12	0.14	0.00	0.86	Medical/Veterinary Entomology
Whittam, Thomas S. ³	12	0.17	0.00	0.83	Nutritional Genomics
TOTALS:		4.46	0.00	9.54	

PROJECTS

MICL01314	Beneficial Plant-Microbe Interactions of Agricultural Importance	Dazzo, F.
MICL01629	Molecular Biology and Enzymology of Lignin Degradation by Basidiomycete Fungi	Reddy, C.
MICL01728*	The National Animal Genome Research Project	Dodgson, J.
MICL01757	Understanding the Distribution of Microbial Populations in Soils	Schmidt, T.
MICL01857	Physiology and Phylogenetic Diversity of Termite Gut Symbionts	Breznak, J.
MICL01918	Enzymology of Alpha-Ketoglutarate-Dependent Dioxygenases	Hausinger, R.
MICL02020	Pathogenicity Factors of <i>Vibrio</i> and <i>E. coli</i> O157: Secretion of Toxins and Dissemination of Genes	Bagdasarian, M.
MICL02068*	Advanced Technologies for the Genetic Improvement of Poultry	Dodgson, J.
MICL06902	Requirement for Branched-Chain Amino Acid Biosynthesis in <i>Actinobacillus pleuropneumoniae</i> Disease	Mulks, M.
MICL08265	Bridging Genome Sequence to the Prevention of Marek's Disease in Poultry	Dodgson, J.
MICL08281	In vivo Expressed Genes of <i>Actinobacillus pleuropneumoniae</i>	Mulks, M.
MICL08333	Use of RNAi to Block Viral Infections in Poultry	Dodgson, J.
MICL08339	Impact of Changing Land Use on Microbial Community Genetic Diversity in Soil: A Novel Application of Suppressive Subtractive Hybridization	Antonopoulos, D.
MICL08352	A Physical and Comparative Map of Turkey Genome	Dodgson, J.

National Food Safety & Toxicology Center

Phone: 432-3100



Ewen C. D. Todd, Director

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Giesy, John P.	12	0.25	0.00	0.75	Aquatic Toxicology
TOTALS:		0.25	0.00	0.75	

PROJECTS

MICL01919	Fates and Effects of Potential Endocrine Modulating Compounds in the Environment	Giesy, J.
MICL01995	A Toxicogenomic Approach to Understanding Environmental Pollutants	La Pres, J.
MICL07680	NC Region IR-4 Leader Lab Program to Clear Pest Control Agents for Minor Uses	Hollingworth, R.
MICL07697	NC Region IR-4 Leader Lab Program to Clear Pest Control Agents for Minor Uses	Hollingworth, R.
MICL08362	A Risk-Based Approach to Determine Best-Consumed-By Dates to Control Exposure to Listeria Monocytogenes in Delicatessen Meats	Todd, E.
MICL08366	Induced Acid Resistance of Pathogenic Bacteria in Food Matrices	Whittam, T.

The MAES is supporting research to enhance profitability in both plant and animal science and develop value-added opportunities for agriculture and natural resources producers in the state.



Packaging (School of)

Phone: 355-9580



Sara J. Risch, Director

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Bix, Laura	14	0.25	0.00	0.75	Medical Packaging
Clarke, Robert H.	13	0.50	0.00	0.50	Manufacturing Operations
Mohanty, Amar K.	13	0.60	0.00	0.40	Materials Science
Rubino, Maria	14	0.25	0.00	0.75	Plastic Materials/Food & Medical Packaging
Singh, Sher Paul	12	0.20	0.00	0.80	Distribution/Transportation/ Environmental Measuring/Packaging Dynamics
TOTALS:		1.80	0.00	3.20	

PROJECTS

MICL01735	New Reusable Containers for the Fresh Produce and Meat Packaging	Singh, S.
MICL01921	Radio Frequency Tagging for Track, Trace and Security Issues	Clarke, R.

Packaging (School of) (continued)

PROJECTS

MICL02069	Improving the Healthcare System Through the Use of Packaging	Bix, L.
MICL02079	Biobased/Green Materials and Nanotechnology for Packaging	Mohanty, A.
MICL02109	Sustainable Green Nano-Biocomposites from Wood Fibers and Polyhydroxyalkanoates (PHAS) Bioplastics	Mohanty, A.

Pathobiology & Diagnostic Investigation

Phone: 432-4685



Willie M. Reed, Chair

FACULTY

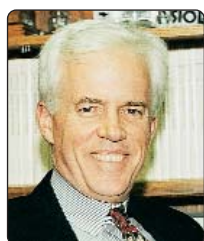
	RANK	MAES	MSUE	JOINT	INTEREST
Bolin, Carole A.	12	0.22	0.00	0.78	Infectious Diseases of Livestock & Companion Animals
Bolin, Steven R.	12	0.22	0.00	0.78	Infectious Diseases of Livestock & Companion Animals
Harkema, Jack	12	0.31	0.00	0.69	Toxicology
Meek, Katheryn	13	0.25	0.00	0.75	Molecular Immunology
Patterson, Jon S.	13	0.25	0.00	0.75	Veterinary Pathology/Infectious
Williams, Kurt	14	0.30	0.00	0.70	Comparative Pulmonary Pathology/Lung Injury & Repair
TOTALS:		1.55	0.00	4.45	

PROJECTS

MICL01776	Endotoxin/Ozone Co-Exposures and Airway Epithelial Remodeling	Harkema, J.
MICL01999	Diagnosis and Epizootiology of Emerging Infectious Diseases of Livestock and Poultry	Bolin, S.
MICL02012	Mechanisms of Protective Immunity in Bovine Leptospirosis	Bolin, C.
MICL02054	Developing an Animal Model of Idiopathic Pulmonary Fibrosis, an Important Disease of Agricultural Workers	Williams, K.
MICL02083	West Nile Virus Infection in Animals	Patterson, J.
MICL02090*	A Collaborative Initiative for Domestic Surveillance, Diagnosis, and Therapy of Transmissible Spongiform Encephalopathies	Bolin, S.
MICL06908	Equine Cushing's Disease: Changes in Immune System Function and in Epidermal Laminae with Laminitis	Bowker, R.
MICL06911	Defining Relevant Targets of the DNA Dependent Protein Kinase	Meek, K.

Physiology

Phone: 355-6475



William S. Spielman, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Jump, Donald B.	12	0.50	0.00	0.50	Molecular Endocrinology
TOTALS:		0.50	0.00	0.50	

PROJECTS

MICL01892	Dietary Fat Regulation of Hepatic Gene Expression	Jump, D.
MICL08302	The Role of Hepatic Metabolism in the Control of Transcription Factor Function	Jump, D.

Plant Biology

Phone: 355-4683



Richard E. Triemer, Chair

FACULTY

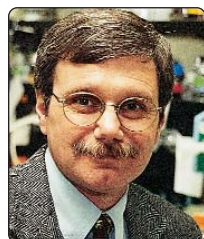
	RANK	MAES	MSUE	JOINT	INTEREST
Adams, Gerard C.	13	0.20	0.00	0.80	Mycology/Plant Pathology
Allison, Richard F.	13	0.53	0.00	0.47	Plant Molecular Virology
Last, Robert L.	12	0.25	0.00	0.75	Plant Biochemistry/Functional Genomics
Malmström, Carolyn	14	0.25	0.00	0.75	Ecosystem Dynamics/Ecological Role of Plant Pathogens
Ohlrogge, John B.	12	0.84	0.00	0.16	Plant Biochemistry/Molecular Biology/Plant Lipid Synthesis/Oilseeds
Osteryoung, Katherine W.	13	0.25	0.00	0.75	Plant Biochemistry/Molecular Biology/Cell Biology
Prather, L. Alan	13	0.25	0.00	0.75	Plant Systematics & Evolution
Sang, Tao	13	0.25	0.00	0.75	Genetics & Genomics of Plant Diversity
Sears, Barbara B.	12	0.25	0.00	0.75	Molecular Biology & Genetics of Plant Organelles
Turetsky, Merritt R.	14	0.20	0.00	0.80	Wetland Ecology/Biogeochimistry
TOTALS:		3.27	0.00	6.73	

PROJECTS

MICL01533	Genetic Engineering of Oilseed Crops	Ohlrogge, J.
MICL01679	Chloroplast Microsatellite Mutators	Sears, B.
MICL01808	Viral Transgene Recombination in Gene Silenced Virus Resistant Transgenic Plants	Allison, R.
MICL01896	Genetics of Adaptation of Wild Rice (<i>Oryza</i>)	Sang, T.
MICL01910	Molecular Biology of Plant-Bacterial Interactions	He, S.
MICL01912	Pathogen Ecology and Population Genetics as Tools in Developing Disease Control Strategies	Jarosz, A.
MICL01922	Plant Evolution and Conservation: The Role of Flower Form and Function	Prather, L.
MICL01988	Analysis of Chloroplast Division in Plants	Osteryoung, K.
MICL02029	Ecological Genetics of Adaptation in <i>Lobelia cardinalis</i>	Schemske, D.
MICL02055	The Effects of the Barley and Cereal Yellow Dwarf Viruses on the Dynamics of Natural Grasslands	Malmström, C.
MICL08282	Viral Transgene Recombination in Gene Silenced Virus Resistant Transgenic Plants	Allison, R.
MICL08318	Characterizing Plant Coenzyme a Biosynthesis	Tilton, G.
MICL08336	Polyester Synthetases for Polymerization of Omega-Hydroxy Fatty Acids	Pollard, M.
MICL08343	Functional Relations Between Lignin Monomer Composition and Xylem Properties	Telewski, F.
MICL08361	Production and Utilization of Acetyl Glyceride Oils in Transgenic Oilseeds	Pollard, M.

Plant Pathology

Phone: 353-8645



Raymond Hammerschmidt, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Adams, Gerard C.	13	0.35	0.27	0.38	Mycology/Plant Pathology
Allison, Richard F.	13	0.20	0.00	0.80	Plant Molecular Virology
Fulbright, Dennis W.	12	0.83	0.00	0.17	Plant Pathology/Plant Pathogen Genetics/Christmas, Oak, and Nut Tree Diseases
Hausbeck, Mary K.	12	0.40	0.60	0.00	Plant Pathology/Ornamentals, Vegetables & Greenhouse Crops

Plant Pathology (continued)

FACULTY

Jarosz, Andrew M.	13	0.30	0.00	0.70	Plant Pathology/Pathogen Epidemiology
Kirk, William W.	13	0.45	0.45	0.10	Plant Pathology/Vegetables/Potatoes/ Perennial Herbaceous Plants
Safir, Gene R.	12	0.78	0.00	0.22	Plant Pathology/Mycorrhizal Fungi
Schilder, Annemiek C.	14	0.45	0.45	0.10	Plant Pathology/Small Fruits
Sundin, George W.	13	0.50	0.50	0.00	Plant Pathology/Fruit Tree Crops/ Phytopathology
Trail, Frances	13	0.27	0.00	0.73	Host Pathogen Interactions
Vargas, Joseph M. Jr.	12	0.26	0.49	0.25	Plant Pathology/Diseases/Sod & Turf
TOTALS:		4.79	2.76	3.45	

PROJECTS

MICL01259*	Mycotoxins in Cereal Grains	Trail, F.
MICL01499	Development and Yield Simulation of Crop and Crop Stresses (Disease/Water/Nutrient) Over Time at Expanded Spatial Scales	Safir, G.
MICL01562	Physiology of Resistance and Induced Resistance to Disease in Potato	Hammerschmidt, R.
MICL01662	Managing Tree Diseases in Michigan	Fulbright, D.
MICL01673	Biology and Control of Pathogens of Field Crops	Hart, L.
MICL01756*	Multidisciplinary Evaluation of New Apple Cultivars	Sundin, G.
MICL01832	Management of Turfgrass Diseases	Vargas, J.
MICL01907	Development and Dispersal of Inoculum for the Wheat Head Scab Fungus, <i>Gibberella zeae</i>	Trail, F.
MICL01954	Epidemiology and Integrated Management of Small Fruit Diseases	Schilder, A.
MICL01966	Management of Soil, Seed and Foliar Diseases of Potato and Vegetable Crops in Michigan in Relation to Environment and Host Specificity	Kirk, W.
MICL02018	Oak Wilt Management in Michigan Using a Hypovirulent Strain of the Pathogen	Fulbright, D.
MICL02066*	Biological Improvement, Habitat Restoration, and Horticultural Development of Chestnut by Management of Populations, Pathogens, and Pests	Fulbright, D.
MICL02084	Bacterial Diseases of Tree Fruit Crops and Their Control	Sundin, G.
MICL02088	Mechanisms of Asexual Variation Resulting in Changes of Race and Fungicide Sensitivity in Emerging Plant Pathogens	Adams, G.
MICL03377	Management of Diseases of Upland and Muck Vegetables, Ginseng, Vegetable Transplants, and Greenhouse Ornamentals	Hausbeck, M.
MICL07657	A Partnership Among Eastern U.S. Carrot Stakeholders to Develop and Implement IPM	Hausbeck, M.
MICL07679	Controlling Armillaria Root Rot of Cherry	Hammerschmidt, R.
MICL07686	Controlling Fire Blight Disease of Apple Trees	Sundin, G.
MICL07688	Controlling Armillaria Root Rot of Cherry	Hammerschmidt, R.
MICL07690	Controlling Fire Blight Disease of Apple Trees	Sundin, G.
MICL07701	Controlling Fire Blight Disease of Apple Trees	Sundin, G.
MICL08270	Seeking Alternatives to B2 Fungicides and Carbamate Insecticides for Asparagus Production	Hausbeck, M.
MICL08285	A Strategy to Advance IPM for Celery Growers in Michigan, California and Florida	Hausbeck, M.
MICL08305	Using Reduced Risk Fungicides and a Disease Forecaster to Manage Foliar Blights on Ginseng	Hausbeck, M.
MICL08307	Comparative Genomic Analysis of the <i>Pseudomonas syringae</i> PPT23A Plasmid Family	Sundin, G.
MICL08341	A Partnership Among Eastern U.S. Carrot Stakeholders to Develop and Implement IPM	Hausbeck, M.
MICL08360	Development of Scouting- and Weather-Based Decision Guides for Disease Control in Blueberries	Schilder, A.

Plant Research Laboratory (MSU-DOE)

Phone: 353-2270



Kenneth Keegstra, Director

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
He, Sheng Yang	13	0.25	0.00	0.75	Plant Pathology
Howe, Gregg A.	13	0.23	0.00	0.77	Plant/Insect Defense
Walton, Jonathan D.	12	0.23	0.00	0.77	Plant Pathology
TOTALS:		0.71	0.00	2.29	

PROJECTS

MICL01886	Mechanisms of Fungal Pathogenicity	Walton, J.
MICL01900	Molecular Genetics of Plant Defense Against Insects	Howe, G.
MICL08291	Regulation and Manipulation of Gibberellin Metabolism and Stem Growth in Long-Day Rosette Plants	Zeevaart, J.
MICL08293	Role of the HRP Pilus in Type III Secretion in <i>Pseudomonas syringae</i> Pathogenesis	He, S.
MICL08357	Disabling the Function of Type III Effectors for Inhibiting Bacterial Pathogenesis	He, S.

Political Science

Phone: 355-6590

PROJECTS

MICL03403	Brownfield Redevelopment in Michigan	Hula, R.
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Population Medicine Center

Phone: 353-5941

PROJECTS

MICL07676	Bovine Tuberculosis: Epidemiology, Diagnosis, and Pathogenesis	Kaneene, J.
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Remote Sensing, GIS Research and Outreach Services

Phone: 353-7195

PROJECTS

MICL03404	Applications of Spatial Information Technologies to Management of Agriculture and Natural Resources	Groop, R.
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Social Work (School of)

Phone: 353-8616



Gary R. Anderson,
Director

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Riebschleger, Joanne	14	0.25	0.00	0.75	Family & Community Development
Seita, John R.	14	0.25	0.25	0.50	Youth Development
TOTALS:		0.50	0.25	1.25	

PROJECTS

MICL02056	A Study of Factors That Impact Transition for Young People Who Age Out of Foster Care	Seita, J.
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Sociology

Phone: 355-6632



Janet L. Bokemeier, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Busch, Lawrence M.	12	0.47	0.00	0.53	Agriscience Structure/Agricultural Research Policy
Harris, Craig K.	13	0.50	0.00	0.50	Sociology of Agriculture/Environmental Sociology/Sociology of Fisheries
Johnson, Nan E.	12	0.50	0.00	0.50	Demography
Montgomery, Alesia F.	14	0.25	0.00	0.75	Urban Issues
Rudy, Alan P.	14	0.30	0.00	0.70	Sociology of Agriculture
TOTALS:		2.02	0.00	2.98	

PROJECTS

MICL01874	Social Processes in Disability and Death for Nonmetro Americans	Johnson, N.
MICL01926	Tightly Coupled Social and Natural Systems in Agriculture, Food Safety, Fisheries, and Wildlife	Harris, C.
MICL01969*	Rural Labor Markets: Workers, Firms and Communities in Transition	Bokemeier, J.
MICL01992*	Systems Analyses of the Relationships of Agriculture and Food Systems to Community Health	Ten Eyck, T.
MICL02005	Standards and Strategies in Commodity Subsector Organization	Busch, L.
MICL03412	Developing Sustainability Indicators	Dietz, T.

Telecommunication Information Studies & Media

Phone: 355-8372

PROJECTS

MICL08334	Closing the Rural Broadband Gap: A Field Experiment	LaRose, R.
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Water Research (Institute of)

Phone: 353-3744

PROJECTS

MICL02026*	Development and Evaluation of TMDL Planning and Assessment Tools and Processes	Bartholic, J.
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Faculty Appointments

	MAES	MSUE	JOINT
GRAND TOTALS	129.90	39.45	137.65
¹ Elton R. Smith Professor in Food and Agricultural Policy			⁶ Partnerships for Ecosystem Research and Management (PERM) positions with salary funded by the Michigan Department of Natural Resources
² C.S. Mott Distinguished Professor of Sustainable Agriculture			⁷ Homer Nowlin Chair of Consumer Responsive Agriculture
³ John A. Hannah Distinguished Professor			⁸ Meadow Brook Chair in Farm Animal Health and Well-being
⁴ Homer Nowlin Chair of Water in Agricultural and Natural Resources Systems			⁹ Rachel Carson Chair in Ecological Sustainability
⁵ Clinton E. Meadows Endowed Chair			¹⁰ Matilda Wilson Chair

Futures is the magazine of the Michigan Agricultural Experiment Station. If you live in the United States and would like to receive *Futures* free of charge, write to *Futures* Editor, MAES, 109 Agriculture Hall, MSU, East Lansing, MI 48824-1039, call 517-355-0123 or e-mail depolo@msu.edu. *Futures* is also available for viewing on the MAES Web site at www.maes.msu.edu.



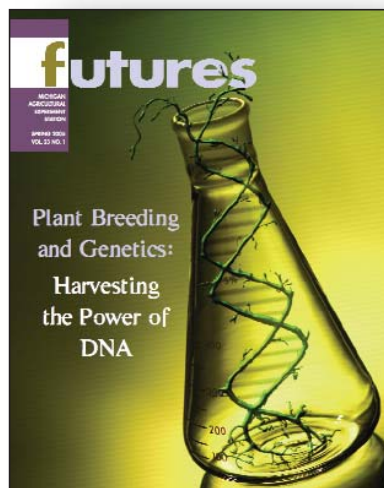
**Winter 2005
Vol. 22 No. 4**

Environmental Stewardship and Natural Resources Policy and Management

Michigan has more than 36 million acres of land with more than 10,000 inland lakes and 36,000 miles of streams. No place in Michigan is more than 85 miles from one of the Great Lakes. Thirty-

six million acres sounds like a lot of land, and perhaps to someone conditioned to the pressed-in feeling of New York City or Chicago or Boston, it is a huge space, but consider that this land and water are ultimately the final sources of our sustenance. Then their finiteness is startling. Our land and water support the plants and animals that provide our shelter, food and fiber. They provide us with minerals and other inorganic materials. They are the final repository for all our waste. For many years we behaved as if our land and water supplies were limitless. Today we know that they are not, and we also know that our actions may affect our neighbors and our children — compromises and trade-offs must be made.

Environmental stewardship and natural resources policy and management is one of five target areas driving the MAES research agenda over the next decade. It is a broad area, encompassing land use, air quality, soil conservation, waste management, landscape ecology, ecosystem management and water research. In this issue of *Futures*, we highlight just a small fraction of the MAES research being done in these areas.



**Spring 2005
Vol. 23 No. 1**

Plant Breeding and Genetics

Since its creation, the Michigan Agricultural Experiment Station has been helping growers by developing new plant varieties and cultural techniques. Breeding and variety release are an outgrowth of the Hatch Act, passed by

Congress in 1887, which created the MAES.

In 1877, William Beal established the first seed testing laboratory in the United States at what was then the Michigan Agricultural College. Beal was also the first person to cross-fertilize corn to increase yield through hybrid vigor. In 1940, Stanley Johnston, superintendent of the MAES field station at South Haven, made history by releasing the Redhaven peach variety, an early-ripening, red-skinned peach he had developed. Redhaven, the first commercial red-skinned peach, was one of 11 “Haven” peach varieties developed at MSU, and it went on to become the most widely grown cultivar in the world.

Michigan growers continue to need new varieties to remain competitive, and MAES plant breeders are working on developing even better, more productive varieties. MAES plant geneticists and microbiologists also are creating new tools that plant breeders can use when developing these plants. In this issue of *Futures*, we feature just a small portion of the MAES-supported plant breeding and genetics research.

Biotechnology is used to improve plants and make food production more efficient and profitable. But because the science is difficult to understand and often poorly explained in the media, many people have fears about the technology and its use. The MSU Plant Transformation Center (PTC), one of nine such centers around the country, is helping to ease those fears by providing education and information about biotechnology. The PTC is a hub for biotechnology techniques at MSU, and one of its goals is to develop biotechnology methods for crops advantageous to Michigan agriculture, as well as provide services and training to MSU researchers.



**Summer 2005
Vol. 23 No. 2**

Biomedical Research for Animal and Human Health

Asthma, cystic fibrosis, Lyme disease, premature birth, campylobacteriosis and diseases caused by West Nile virus, *E. coli* and bovine viral diarrhea viruses afflict hundreds of thousands

of people and animals each year, many times with devastating effects.

Keeping people and animals healthy is a large and important part of the MAES mission; many times animal health research and human health research are intertwined. For example, Susan Ewart, acting associate dean for research for the College of Veterinary Medicine and director of the MSU Molecular Respiratory and Equine Genetics Laboratory, started studying pulmonary diseases in horses that keep the animals from reaching their peak performance. Today, one of her research projects is searching for the genes responsible for human asthma. Her long-term goal is identifying people with genetic susceptibility to the disease and then offering them counseling about their environment, diet and exercise tailored to their specific needs.

In this issue of *Futures*, we feature the research of a number of scientists that is focused on finding treatments and ways to prevent illness in humans and animals.

The MSU Diagnostic Center for Population and Animal Health (DCPAH) protects the state's people and animals from disease and potential biological attacks or outbreaks. Dedicated in September 2004, the new facility allows MSU scientists to run more than 1.3 million tests per year, making it one of the top three diagnostic labs in the country and the only lab with a biosafety level III (BL-3) necropsy floor. The DCPAH is certified to work with nine agents of concern that are on the federal government's overlap list (meaning they affect both animals and humans).



**Fall 2005
Vol. 23 No. 3**

Go Green: Turf and Landscape Research

Walt Whitman compared a leaf of grass to the complexity and beauty of the stars in the heavens. In the 1870s, Michigan Agricultural College (MAC) researcher William Beal believed that a well-kept plot of grass called a lawn was

the most satisfying way to beautify an area. Research has shown that a lawn is the most economical landscape for new construction. Compared with all the alternatives, a lawn is the least expensive and offers tangible benefits such as erosion prevention, water filtering and oxygen production, too.

But turf is more than just a pretty green face. Turfgrass covers nearly 1.9 million acres in Michigan, and each year the turf industry adds nearly \$1.86 billion into the Michigan economy and employs more than 30,000 workers.

To help keep the industry thriving and competitive, the Michigan Agricultural Experiment Station supports research on a number of turf research projects. MAES scientists from a range of disciplines are looking at all aspects of turf: the management techniques to establish and maintain a lawn, golf course or athletic field; how to be environmentally proactive in managing turf so all environmental rules and regulations are met or exceeded; the insects and diseases that attack turf; and development of curricula to educate and train skilled workers and future scientists to fill the need for qualified employees.

But there is more to a home, urban or suburban landscape than turf — trees, shrubs and flowers also are part of the panorama. In 2002, a large part of this landscape came under attack from a small, jewel-toned beetle. Since its discovery 3 years ago, the emerald ash borer (EAB) has killed at least 10 million to 15 million ash trees in southeastern Michigan. To combat and control the EAB, MAES scientists and other researchers at MSU are working with the Michigan departments of Agriculture and Natural Resources, the U.S. Department of Agriculture Forest Service and Animal and Plant Health Inspection Service, as well as Purdue University and Ohio State University.

MAES Contributors

July 1, 2004 to June 30, 2005

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MAES horticulture researchers often speak to gardening clubs about new plants and growing techniques, as well as new ways to control pests and diseases.

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PHOTO: MERRITT TURESKY

MAES scientists are studying how wetlands can hold carbon. Research has found that certain sphagnum mosses take up more carbon as the climate warms.

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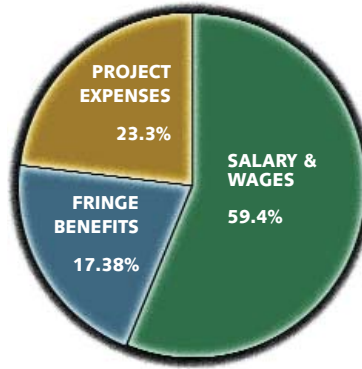
As part of the wheat breeding work done at MSU, MAES researchers run the state variety trials each year. Results are distributed online and through Michigan Farm Bureau.

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Financial Report

July 1, 2004 to June 30, 2005

DISTRIBUTION OF APPROPRIATED FUNDS



INCOME:

Federal Appropriations		
Hatch	\$	3,886,667
McIntire-Stennis	\$	204,285
Hatch RRF	\$	922,843
Hatch Animal and Disease, Section 1433	\$	94,056
Total Federal Appropriations	\$	5,107,851
State Appropriations	\$	33,163,800
TOTAL APPROPRIATIONS	\$	38,271,651
Grants — Federal, State and Private*	\$	45,406,684
TOTAL INCOME	\$	<u>83,678,335</u>

EXPENSES:

Salaries	\$	22,743,951
Fringe Benefits	\$	6,626,503
Project Expenses	\$	8,901,197
Grants — Federal, State and Private*	\$	45,406,684
TOTAL EXPENSES	\$	<u>83,678,335</u>

Personnel

(Full-time Equivalents Funded From Appropriated Funds)

Research Staff	
Professors	65.75
Associate Professors	34.20
Assistant Professors	18.25
Research Associates and Specialists	13.58
TOTAL RESEARCH STAFF**	131.78
Support Staff	
Administrative Professionals	65.44
Supervisors	24.93
Clerical	26.87
Technicians	4.60
TOTAL SUPPORT STAFF	121.84

* Grants are reported using most recent three-year average

** Does not include department chairpersons and unit administrators

MICHIGAN AGRICULTURAL EXPERIMENT STATION

John C. Baker, Acting Director

109 Agriculture Hall

Michigan State University

East Lansing, Michigan 48824-1039

MICHIGAN
AGRICULTURAL
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SR-124 · December 2005

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