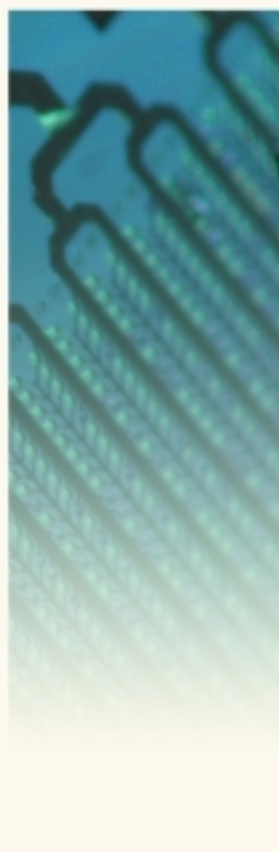


2004 *Annual Report*



MICHIGAN AGRICULTURAL EXPERIMENT STATION



Michigan State University



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

2004 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

**109 Agriculture Hall
Michigan State University
East Lansing, MI 48824-1039
517-355-0123
maesdir@msu.edu
<http://www.maes.msu.edu>**

Report prepared under the direction of John C. Baker, acting director of the Michigan Agricultural Experiment Station, and Geoff Koch, MAES communications manager.

Design by Chris Altese; editing and production by Geoff Koch and Jamie DePolo, MAES editor.

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

RESEARCH FOR YOUR FUTURE

An Enduring Legacy

Director J. Ian Gray's 17-year tenure in the Michigan Agricultural Experiment Station came to a close when he was appointed MSU vice president for research and graduate studies on Sept. 1, 2004. Gray was a driving force behind the expansion of interdisciplinary research, which now is a cornerstone of MSU's vision to advance knowledge and transform lives through exploration and discovery. He expanded the mission of the MAES to include more research in the social science areas and helped bring more basic research into the MAES research portfolio, all the while maintaining the MAES' commitment to the traditional charge of serving the state. Gray's strong belief in multidisciplinary research engaged many faculty members that did not have traditional links to the MAES.

My sadness in writing this last director's letter for the 2004 MAES annual report is tempered by my excitement about the new collaborations and connections that can be formed through the Office of the Vice President for Research and Graduate Studies. MAES research is an integral part of the university research agenda.

Being a part of the MAES has been a wonderful experience. I would like to thank the deans, department chairs, faculty members and MAES staff members for their contributions to the success of the MAES while I was privileged to serve as director. Together, we have made the MAES one of the premier agricultural experiment stations in the country and one of the finest research organizations on the MSU campus. Other experiment stations look to the MAES for national leadership and our approach to oversight has been lauded and emulated around the country.

It has been exciting and gratifying to watch the MAES mission expand to include more research in the social sciences and to forge relationships with scientists that did not have MAES appointments who were in departments that did not have traditional ties to the MAES. At the same time, we have been careful to fully maintain our commitment to Michigan's agricultural and natural resources industries.

In my new role as vice president for research and graduate studies, I plan to promote the MAES as a catalyst of research on campus. In the past the MAES has been instrumental in uniting researchers around the following areas:

- Plant science initiative
- Families and Communities Together (FACT) Coalition
- Environmental science and policy
- Land use and policy
- Food and health
- Animal functional genomics.

Problem-solving is an integral part of the MAES mission, and problem-solving requires a multidisciplinary research approach. As the MAES builds up its strength in basic research areas such as biochemistry, molecular biology, microbiology and molecular genetics, it will be able to compete for and win grants from the National Institutes of Health (NIH). When paired with grants from traditional sources, such as the Department of Agriculture (USDA), the MAES will continue its strong commitment to

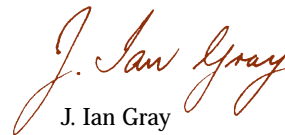
traditional stakeholders and engage new collaborators that are key to its ongoing success.

Our challenge has always been maintaining a balance of basic and applied research to fulfill the MAES mission. As problems become more complex, we need more multidisciplinary research to solve them. Our constituents' issues do not exist in a vacuum — to provide solutions that are successful and sustainable, research must look at entire systems as well as finite difficulties and how the two interact and affect each other.

In recent years, the MAES faced several funding challenges. We survived thanks to our partners in MSU Extension and our stakeholders and supporters throughout the state. The MAES is fortunate to have forged sturdy relationships with state agencies and other government representatives. As we move forward, our partnerships and networks will allow the MAES to continue its mission to serve the people of Michigan.

In my new position I will work closely with the MAES. I am delighted that John Baker has agreed to serve as acting director. Dr. Baker is an excellent scientist and administrator and understands the importance of the MAES mission. The MAES is an integral part of the research program at MSU. I will continue to rely on the university's partnership with the MAES to advance the research culture at MSU.

Again, I would like to thank all the MAES faculty and staff members, deans and chairs for their support and contributions to our success.



J. Ian Gray

Vice President for Research and Graduate Studies



Dr. J. Ian Gray

A WELCOME FROM THE MAES ACTING DIRECTOR

Renewed Creativity and Problem Solving for Michigan

John C. Baker, the associate dean for research and graduate studies for the MSU College of Veterinary Medicine (CVM), was named acting director of the Michigan Agricultural Experiment Station on Nov. 1. Baker, who has been with the CVM for more than 20 years, began his distinguished career in 1984, in the Department of Large Animal Clinical Sciences. Baker will devote the majority of his energies to the MAES, though he's retained his ties to the CVM where he also serves as associate dean and professor of large animal clinical sciences. MSU is conducting a national search, with the goal of having a permanent director of the MAES in place by fall 2005.

It has been interesting to note through conversations with colleagues on and off campus the level of misunderstanding about the MAES and its mission. In fact, when I've mentioned the MAES to people in the community, most of them think I'm talking about an experimental farm in some remote part of the state. It's clear that we need to continue communicating the importance of the MAES to Michigan's citizens and to bring more visibility to the important work we perform.

Of course, we're much more than a single farm. (For starters, we manage 15 research stations around Michigan and support much of the research conducted by MSU academic departments at MSU's south campus experimental plots in East Lansing.) One of the challenges facing the MAES and other agricultural experiment stations around the country is our relative lack of visibility. Even though we do much more than serve growers and producers, people still think of us in this rather narrow historical role.

Today, MAES-funded research addresses problems of economic development, food safety, land use planning, watershed management, family and community development and dozens of other areas relevant to citizens across Michigan. I'm looking forward to speaking up about this relevancy over the next year and beyond.

I'm looking forward to addressing a few other goals for this year, as well, including:

- Participating in efforts to complete AAALAC accreditation across campus, including in the CVM and the College of Agriculture and Natural Resources (CANR). AAALAC — the Association for Assessment and Accreditation of Laboratory Animal Care — is a private, nonprofit organization that promotes the humane treatment of animals in science through voluntary accreditation. Accreditation will allow MSU to be more competitive in animal-related research and to maintain compliance with regulatory agencies. Animals are an important part of MSU's mission in teaching, extension education and research. AAALAC accreditation will demonstrate our commitment to the highest standards of animal care.
- Lending MAES leadership to discussions about high level containment facilities for both plant and animals at MSU. In the post-Sept. 11 world, these types of facilities are needed for MSU to be fully engaged in research related to bioterrorism and agroterrorism. MAES funds research that affects the health of human, animal and plant populations, so

we're in a natural position to lead this issue.

- Being prepared to clearly communicate the capabilities and potential of the MAES, and otherwise laying the groundwork for the incoming director to be successful.
- Most importantly, preserving and strengthening support for existing MAES activities, and remaining fiscally sound in an environment of flat or declining budgets.

Outgoing director Ian Gray did an excellent job steering the MAES through several funding challenges over the last few years. I don't think that funding challenges are permanently behind us, but I also don't think that tight budgets or other hardships should squelch innovation. In fact, when it comes to prospects for innovation, I see reason for optimism in the history of the land grant universities.

President Abraham Lincoln signed the Morrill Act in 1862, establishing land grant colleges in every state and placing instruction in agriculture and home economics in higher education. This was quite an accomplishment in the midst of the Civil War, arguably the most divisive and uncertain time in our country's history. There's no reason that our current climate of possibly permanent belt-tightening can't spur new creativity, problem-solving and visions for the future.

It's a unique time in MSU's history and I'm pleased that my tenure at the MAES will coincide with the university's sesquicentennial anniversary. MSU has a unique role in the development of the land-grant university system and has given much to the state of Michigan and the world during its 150-year history. I think it's important for faculty, administrators, staff and students to help the university formulate its future vision and to step up and take on new responsibilities when asked. It's an honor to be here.

I'll benefit from this experience, as well, and should know a lot more about MSU and our partnerships throughout the state by the time I head back to CVM next fall. Arguably, the span of influence at the MAES is greater than that of any single MSU college. Don't believe me? Browse through this report and look at the breadth of research the MAES supports. At present count, we partially fund the work of more than 350 researchers in more than 20 academic departments, research centers and campus laboratories — agricultural economics to water research.



Dr. John C. Baker

John C. Baker
Acting Director

Michigan Agricultural Experiment Station

As of 1-1-2005

John C. Baker, Acting Director
Gary D. Lemme, Associate Director
Doreen K. Woodward, Assistant Director
Jamie DePolo, Editor
Jawed Faruqi, IT Manager
Geoff Koch, Communications Manager
Gwendolyn Skinner, Public Relations Manager
Debbie McCaffrey, Administrative Assistant
Jackie DeSander, Administrative Assistant
Candace Ebbinghaus, Support Staff
Linda Haubert, Support Staff
Isidra Pérez, Support Staff



MAES food scientist Venugopal Gangur is examining why some foods, such as nuts, trigger allergies in certain people. Tree nuts and peanuts cause about 30,000 life-threatening reactions per year.



MAES horticulture scientist Tom Fernandez is studying how phytoremediation — the use of plants to break down pollutants — can be used to reduce chemical content in runoff water from nurseries. Here, two bottles of nursery bed runoff await analysis.

MAES Affiliated Deans

As of 10-1-2004

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

Won O. Song, Acting Dean
 College of Human Ecology

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 10-1-2004

Steven D. Hanson, Chairperson
Agricultural Economics

Ajit K. Srivastava, Chairperson
Biosystems & Agricultural Engineering

Margaret E. Benson, Acting Chairperson
Animal Science

Shelagh Ferguson-Miller, Chairperson
Biochemistry & Molecular Biology

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

Douglas D. Buhler, 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, Acting Chairperson
Food Science & Human Nutrition

Daniel E. Keathley, Chairperson
Forestry

Richard E. Groop, Chairperson
Geography

Ronald L. Perry, Chairperson
Horticulture

Sally I. Helvenston, Chairperson
Human Environment & Design

Katherine L. Gross, Acting 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
Packaging (School of)

Willie M. Reed, Chairperson
Pathobiology & Diagnostic Investigation

William S. Spielman, Chairperson
Physiology

Richard E. Triemer, Chairperson
Plant Biology

Raymond Hammerschmidt, Chairperson
Plant Pathology

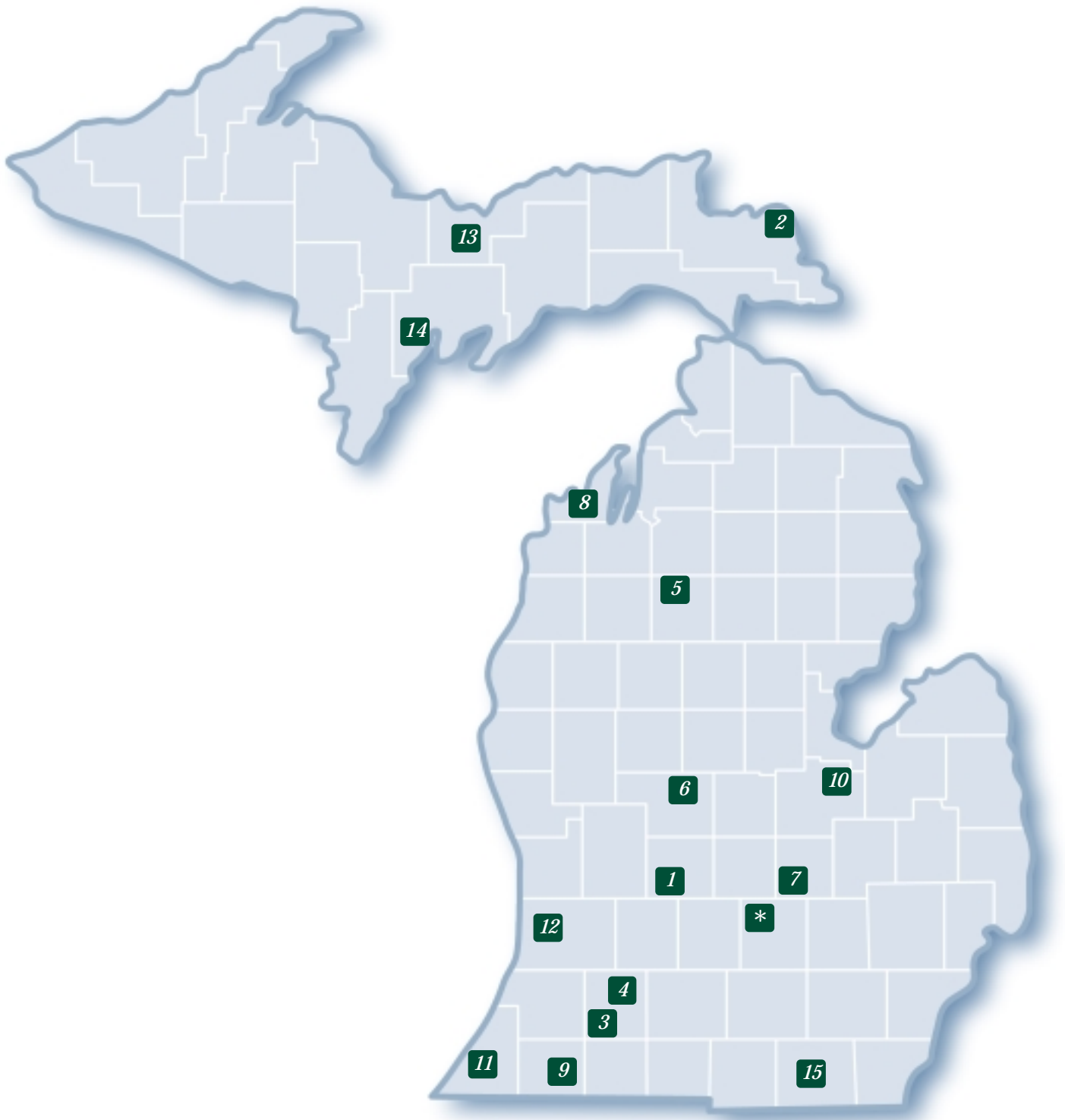
Kenneth Keegstra, Director
Plant Research Laboratory (MSU-DOE)

Gary R. Anderson, Director
Social Work (School of)

Janet L. Bokemeier, Chairperson
Sociology

Jon F. Bartholic, Director
Water Research (Institute of)

Michigan Agricultural Experiment Station Outlying Stations — 10-1-2004



- 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
Acting 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 BEET AND BEAN 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
- 15. MSU MERILLAT EQUINE CENTER**
Established 1997
 2828 Wolf Creek Highway
 Adrian, MI 49221
 Phone: 517-265-6779
 FAX: 517-263-9294
 John Shelle
Coordinator
- * **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 10-1-2004

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
Beckwith, JoAnn	Community, Agriculture, Recreation & Resource Studies
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
Bird, George W.	Entomology
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.	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

NAME	UNIT
Bristow, Catherine	Entomology
Bughrara, Suleiman S.	Crop & Soil Sciences
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
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, Rodney	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

NAME	UNIT
Freed, Russell D.	Crop & Soil Sciences
Friedman, Steven K.	Forestry
Friedman, Steven K.	Geography
Fulbright, Dennis W.	Plant Pathology
Gage, Stuart H.	Entomology
Gangur, Venugopal	Food Science & Human Nutrition
Garling, Donald L. ⁶	Fisheries & Wildlife
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, Eric J.	Horticulture
Harkema, Jack	Pathobiology & Diagnostic Investigation
Harris, Craig K.	Sociology
Harsh, Stephen B.	Agricultural Economics
Hart, James B., Jr.	Forestry
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
Hollingworth, Robert M.	Entomology
Horan, Richard D.	Agricultural Economics
Hord, Norman G.	Food Science & Human Nutrition
Howe, Gregg A.	Plant Research Laboratory (MSU-DOE)
Howell, Gordon S.	Horticulture
Huang, Zachary	Entomology
Iezzoni, Amy F.	Horticulture

NAME	UNIT
Imig, David R.	Family & Child Ecology
Ireland, James J.	Animal Science
Isaacs, Rufus	Entomology
Jacobs, Lee W.	Crop & Soil Sciences
Jarosz, Andrew M.	Plant Biology
Jarosz, Andrew M.	Plant Pathology
Johnson, Nan E.	Sociology
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
Klug, Michael J.	Microbiology & Molecular Genetics
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
Leefers, Larry A.	Forestry
Leep, Richard H.	Crop & Soil Sciences
Lenski, Richard E. ³	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
MacFarlane, David	Forestry
Maes, Roger K.	Microbiology & Molecular Genetics
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

NAME	UNIT
Matuana, Laurent M.	Forestry
Maurer, Brian A. ⁶	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
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
Pysarchik, Dawn I.	Human Environment & Design
Raper, Kellie K.	Agricultural Economics
Reddy, C. Adinarayana	Microbiology & Molecular Genetics
Renner, Karen A.	Crop & Soil Sciences

NAME	UNIT
Riley, Shawn J.	Fisheries & Wildlife
Roberson, Kevin D.	Animal Science
Robertson, G. Philip	Crop & Soil Sciences
Robinson, Norman E. ⁴	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
Rozeboom, Dale W.	Animal Science
Rubino, Maria	Packaging (School of)
Rudy, Alan P.	Sociology
Rugh, Clayton L.	Crop & Soil Sciences
Runkle, Eric S.	Horticulture
Rust, Steven R.	Animal Science
Ryser, Elliott T.	Animal Science
Ryser, Elliott T.	Food Science & Human Nutrition
Safir, Gene R.	Plant Pathology
Sang, Tao	Plant Biology
Schemske, Douglas W. ³	Horticulture
Schiarnberg, Lawrence R.	Family & Child Ecology
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
Sontag, M. Suzanne	Human Environment & Design
Soranno, Patricia A.	Fisheries & Wildlife

NAME	UNIT
Sordillo, Lorraine M. ⁸	Large Animal Clinical Sciences
Sprague, Christy L.	Crop & Soil Sciences
Staatz, John S.	Agricultural Economics
Steffe, James F.	Biosystems & Agricultural Engineering
Steffe, James F.	Food Science & Human Nutrition
Sternquist, Brenda J.	Human Environment & Design
Strasburg, Gale M.	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	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, 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

NAME	UNIT
Warner, Ryan	Horticulture
Watson, J. Throck	Biochemistry & Molecular Biology
Weatherspoon, Dave D.	Agricultural Economics
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
Witter, Scott G.	Community, Agriculture, Recreation & Resource Studies
Wolf, Christopher A.	Agricultural Economics
Woods, Michael D.	Community, Agriculture, Recreation & Resource Studies
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

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 Matilda Wilson Chair

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

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 10-1-2004.

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

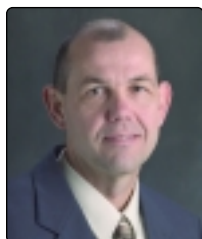
SCIENTISTS	PROJECTS
MAES = Michigan Agricultural Experiment Station	Projects listed are as of 10-1-2004.
MSUE = Michigan State University Extension	*Signifies Multistate Project
Joint = Joint appointment in an MAES-affiliated College or Department	
12 = Professor	
13 = Associate Professor	
14 = Assistant Professor	

MAES agriculture economists Frank Lupi and Richard Horan are investigating the use of economic incentives to prevent the introduction of aquatic nuisance species, such as the zebra mussel, pictured here. Zebra mussels, native to the Caspian Sea region of Asia, have been causing problems in the Great Lakes since the 1980s.



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 Resources & Environmental Economics
Horan, Richard D.	13	0.80	0.00	0.20	Natural Resources & 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
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
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

Agricultural Economics (continued)

FACULTY

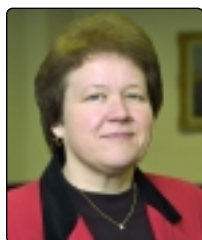
Whipple, Judith M.	13	0.30	0.20	0.50	Food & Agribusiness Management
Wolf, Christopher A.	13	0.50	0.50	0.00	Dairy Farm Management Economics
TOTALS		11.86	4.47	7.67	

PROJECTS

MICL01625	Financial Decision Making and Investment in Agriculture	Hanson, S.
MICL01635	Collective Action in Agriculture, Natural Resources and Rural Development	Schmid, A.
MICL01732	Political Economy of National and International Agricultural Policies and Policy 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 Ag-Biotech 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.
MICL03381	Strategic Management in Agribusiness Using Key Performance Indicators	Lloyd, J.
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.
MICL08309	Rural Household Adjustment Mechanisms and Attitudes Toward Public Investments in Michigan's Upper Peninsula	Loveridge, S.

Animal Science

Phone: 355-8383



Margaret E. Benson,
Acting 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	0.20	0.50	0.30	Ruminant Nutrition/Sheep
Bursian, Steven J.	12	0.85	0.00	0.15	Physiology/Toxicology

Animal Science (continued)

FACULTY

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
Roberson, Kevin D.	13	0.35	0.65	0.00	Poultry Nutrition/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.	14	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		16.97	6.05	9.98	

PROJECTS

MICL01182*	Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation	Doumit, M.
MICL01573	Regulation of Folliculogenesis in Cattle	Ireland, J.
MICL01604	Increasing Efficiency of Protein Production in Dairy Cattle	VandeHaar, M.
MICL01622	Control Mechanisms of Male Reproduction and Sperm Fertilizing Ability	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	The Effects of Specific Nutrients on Nutrient Management, Health and Productivity of Swine	Hill, G.
MICL01800	Investigating Ways to Improve Utilization and Reduce/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.
MICL01818*	Biophysical Models for Poultry Production Systems	Rahn, A.
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.

PROJECTS

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.
MICL01943	Nutritional and Managerial Strategies to Minimize Phosphorus Excretion from Poultry	Roberson, K.
MICL01952	Increasing Efficiency of Milk Production in Dairy Cattle	Weber, M.
MICL01961	Factors That Limit Reproductive Success of Dairy Cattle	Pursley, J.
MICL01974*	Water Quality Issues in Poultry Production and Processing	Roberson, K.
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.
MICL03340	Nutrition and Feeding Management for Michigan Dairy Herds	Bucholtz, H.
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.
MICL06896	Glucosamine's Role in the Regulation of Metalloproteinases in Equine Cartilage	Orth, M.
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.
MICL08261	How Do Glucocorticoids Regulate CD62L Gene Expression in Bovine Neutrophils?	Burton, J.
MICL08262	Intrafollicular Role of A2-Macroglobulin in Regulation of Estradiol Production	Ireland, J.
MICL08263	Neuroendocrine Regulation of the Stress Response in Cattle	Smith, G.
MICL08266	Functional Genomics of Well-Being and Milk Quality in Cattle	Coussens, P.
MICL08268	The Role of Hippocampal Glucocorticoids on Behavioral Responses to Stress in Pigs	Zanella, A.
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.
MICL08328	Envisioning the Opportunity for an Interagency Program on the Use of Agriculturally Important Species as Biomedical Models	Ireland, J.
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.

Pam Fraker, MAES professor of biochemistry and molecular biology, is one of the top scientists in the world in nutritional immunology. "Zinc deficiency accompanies many chronic diseases including AIDS, Crohn's disease, pancreatitis, renal disease and sickle cell anemia," Fraker said, describing what motivates her research.



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
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		5.04	0.00	10.96	

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.
MICL01754	Characterization of the Gap Junction Protein in Health and Disease	Watson, J.
MICL01781	Development of Starch-Based Microcellular Foamed Bioplastics	Schindler, M.
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.
MICL01947	Symbiosis and the Metabolic Enzymes of <i>Rhizobium</i>	Hollingsworth, R.
MICL01973	Manipulation of Vitamin E Production in Plants	Della Penna, D.
MICL01997	The SMN Complex in Spinal Muscular Atrophy	Wang, J.
MICL02037*	Regulation of Photosynthetic Processes	Preiss, J.
MICL07662	Bioprocessing for Utilization of Agricultural Raw Materials	Zeikus, J.

Biochemistry & Molecular Biology (continued)

PROJECTS

MICL07678	Bioprocessing for Utilization of Agricultural Resources	Zeikus, J.
MICL07685	Bioprocessing for Utilization of Agricultural Raw Materials	Zeikus, J.
MICL08253	Function of Glucose-6-Phosphate Dehydrogenase in Developing Oil Seeds	Benning, C.

Biosystems & Agricultural Engineering

Phone: 355-4720



Ajit K. Srivastava,
Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Alocilja, Evangelyn C.	14	0.40	0.00	0.60	Biosensors/Environmental and 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
Dolan, Kirk D.	14	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
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	0.65	0.00	0.35	Chemical Application/Power & Machinery
TOTALS		3.64	1.30	5.06	

PROJECTS

MICL01245*	Improvement of Thermal and Alternative Processes for Foods	Steffe, J.
MICL01581	Postharvest Technology for Quality Control and Enhancing Value From Fruits and Vegetables	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.
MICL01935	Laser Spectroscopy for Analysis of Crystallization Processes	Berglund, K.
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.
MICL07658	Achieving Lethality Performance Standards for Fully-Cooked Meat Products	Marks, B.
MICL08247	Chemiluminescence Detection of Microbial Contaminants on Fresh Produce	Alocilja, E.
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.
MICL08298	Novel High-Value Products from Biomass-Derived Organic Acids	Miller, D.

Chemistry

Phone: 355-9715

PROJECTS

MICL08258	Diamond Microelectrode Arrays: New Materials for the Electrochemical Detection of Aqueous Analytes	Swain, G.
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Community, Agriculture, Recreation & Resource Studies

Phone: 355-5190



Scott G. Witter, Acting Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Beckwith, JoAnn	13	0.50	0.00	0.50	Environmental Planning & Management
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
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
Witter, Scott G.	12	0.20	0.00	0.80	Natural Resources Management
Woods, Michael D.	14	0.40	0.00	0.60	Risk Communication in Agriculture & Natural Resources
TOTALS		5.78	1.60	7.62	

PROJECTS

MICL01536	Comparative Indicators for Rural Development, Environmental Planning and Public Policy Formulation.	Schultink, G.
MICL01763	Influences of Natural Resource Recreation on Land Management	Nelson, C.
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.
MICL01968	Public Acceptance of Plant Biotechnology	Beckwith, 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.
MICL02028	Psychological Aspects of Environmental Behavior	Beckwith, J.
MICL02050	The Impact of Communicating ANR Risks on Stakeholder Participation and Public Policy	Woods, M.

Community, Agriculture, Recreation & Resource Studies (continued)

PROJECTS

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.
MICL02086	Constructing and Evaluating a Knowledge Management System in Resource-Based Recreation Management	Propst, D.
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.
MICL03372	Evaluation of Area of Expertise (AOE) Team Approach to Applied Research and Extension in Michigan	Suvedi, M.
MICL03409	Community-Based, Sustainable Food Systems for Michigan and Beyond: Developing a Coherent Strategy	Hamm, M.
MICL09012	Corps of Engineers Recreation Program: Development of Analytical Tools and Transfer of Knowledge to Outdoor Recreation Managers and Planners	Propst, D.

Composite Materials & Structures Center

Phone: 353-5466

PROJECTS

MICL08264	Biocomposites from Engineered Bio-Fibers and Bio-Plastics	Drzal, L.
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Michigan is the leading producer of a class of small red beans which includes the new MAES-developed Merlot bean. "Local markets value production in the Midwest due to savings in freight," said Jim Kelly, the MAES crop and soil sciences professor behind the new bean.

Crop & Soil Sciences

Phone: 355-0271



Douglas D. Buhler, 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
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

Crop & Soil Sciences (continued)

FACULTY					
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
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 Geneticist
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		14.78	4.65	10.57	

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.
MICL01471*	Chemistry and Bioavailability of Waste Constituents in Soils	Jacobs, L.
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.

Crop & Soil Sciences (continued)

PROJECTS

MICL01957*	Development of Pest Management Strategies for Forage Alfalfa Persistence	Leep, R.
MICL01965	Corn and Soybean Cropping Systems	Thelen, K.
MICL01975	Genetic and Turfgrass Breeding	Bughrara, S.
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.
MICL02093*	Carbon Sequestration and Distribution in Soils of Eroded Landscapes	Mokma, D.
MICL03260	Forage Management Studies in Northern Michigan	Leep, R.
MICL03302	Management of Organic Soils for Crop Production	Warncke, D.
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.
MICL07673	Sustainable Agriculture 2002: Ecologically Based Nutrient Cycling and Systems Integration	Knezek, B.
MICL07674	Improving the Sustainable Production of Specialty Crops	Kelly, J.
MICL07682	Improving the Sustainable Production of Specialty Crops	Kelly, J.
MICL07684	Sustainable Agriculture 2003: Expanding and Refining the Ecosystem Base	Buhler, D.
MICL07693	Improving the Sustainable Production of Specialty Crops	Kelly, J.
MICL08296	Mechanisms and Forces Controlling Pesticide Retention by Soil Clay Minerals	Teppen, B.



Photo courtesy Zachary Huang

MAES entomologist Zachary Huang discovered the pheromone that controls the balance between older forager bees and younger nurse bees in a hive. The results, published in November 2004 in the *Proceedings of the National Academy of Sciences*, help explain long-observed flexibility and adaptability of hives.

Entomology

Phone: 355-4663



Richard W. Merritt,
Acting Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Ayers, George S.	12	0.25	0.00	0.75	IPM/Apiculture & Pollination
Bird, George W.	12	0.22	0.59	0.19	Nematode Community Structure in Relation to Soil Quality/Nematode Management
Bristow, Catherine	13	0.30	0.00	0.70	Ecology of Social Insects
DiFonzo, Christina D.	13	0.20	0.65	0.15	Field Crop Entomology/Pesticide Education Coordinator

Entomology (continued)

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
Güt, Larry	13	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	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.	13	0.20	0.80	0.00	Agrimedecine/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	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
TOTALS		7.25	5.83	7.92	

PROJECTS

MICL01067*	Impact of Climate and Soils on Crop Selection and Management	Gage, S.
MICL01584*	Biologically Based IPM Systems for Management of Plant-Parasitic Nematodes	Bird, G.
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 Stalk-Boring <i>Lepidoptera</i>	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	Mechanisms of Baculovirus Pathogenesis in Insects	Thiem, S.
MICL01741*	Persistence of Heterodera Glycines and Other Regionally Important Nematodes	Bird, G.
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.
MICL01942	Shifts in Ant Communities in Response to Habitat and Management Regime	Bristow, C.
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.

Entomology (continued)

PROJECTS

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.
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.
MICL07677	Safeguarding the Supply of Fruit Crops for Consumers	Güt, L.
MICL07683	Mating Disruption, Monitoring, and Alternative Management of Tree Fruit Pests	Brewer, M.
MICL07694	Mating Disruption, Host Resistance, and Insecticide Management Strategies for Tree Fruit Pests	Brewer, M.
MICL08242	North Central Region Pest Management Center	Olsen, L.
MICL08278	Implementation of an IPM Decision Support System for Plum Curculio in Processed Cherries	Whalon, M.
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.
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 US: 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.

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
Schiamberg, Lawrence R.	12	0.28	0.00	0.72	Human Development/Family
TOTALS		0.53	0.00	1.47	

Family & Child Ecology (continued)

PROJECTS

MICL01841	Identification and Evaluation of Internal and External Assets in the Lives of Children, Adolescents, Their Families and Communities	Keith, J.
MICL01991*	How Do Structured Out-Of-School Experiences Contribute to Positive Youth Development	Keith, J.
MICL02067*	Rural Low-Income Families: Tracking Their Well-Being and Function in an Era of Welfare Reform	Imig, D.

Michigan has more than 20,000 inland lakes larger than 1 acre. MAES fisheries and wildlife scientists Pat Soranno (*left*) and Mary Bremigan use GIS (geographic information systems) data to help state agencies manage the lakes, which are used for fishing, swimming, irrigation and drinking water.



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	0.30	0.50	0.20	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. ⁶	13	0.50	0.20	0.30	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.	14	0.30	0.28	0.42	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		9.02	2.43	6.55	

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.

Fisheries & Wildlife (continued)

PROJECTS

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.
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.
MICL08256	Information Exchange, Citizen Water Monitoring and Agricultural Best Management Practices	Habron, G.
MICL08292	Integrating Ecology and Economics for Managed Forest Landscapes	Liu, J.
MICL10011	Regional Aquaculture Center	Batterson, T.
MICL10012	Regional Aquaculture Center	Batterson, T.
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.

Food Science & Human Nutrition

Phone: 355-8474



Gale M. Strasburg,
Acting 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	0.75	0.10	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.	14	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
Olson, Beth	14	0.24	0.76	0.00	Community Nutrition

Food Science & Human Nutrition (continued)

FACULTY

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
Strasburg, Gale M.	12	0.65	0.00	0.35	Muscle Biochemistry
Uebersax, Mark A.	12	0.60	0.00	0.40	Food Processing
Ustunol, Zeynep	13	0.72	0.00	0.28	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		9.91	2.86	12.23	

PROJECTS

MICL01413	Metabolism and Function of Vitamin A	Zile, M.
MICL01448	Microbial Foodborne Disease	Pestka, J.
MICL01478*	Genetic Improvement of Beans (<i>Phaseolus vulgaris</i> L.) 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.
MICL03363	Institute for Food Laws and Regulations	Hegarty, P.
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.
MICL08239	Function of Vitamin A in Quail Embryogenesis	Zile, M.
MICL08269	Genetic Defect in Pale, Soft, Exudative Turkey Meat	Strasburg, G.
MICL08275	Apple Juice and HACCP: Hazard Surveillance, Training, and Perceptions	Bourquin, L.
MICL08311	Modeling Thermal and Mechanical Effects on Retention of Nutraceuticals in Extruded Foods	Dolan, K.

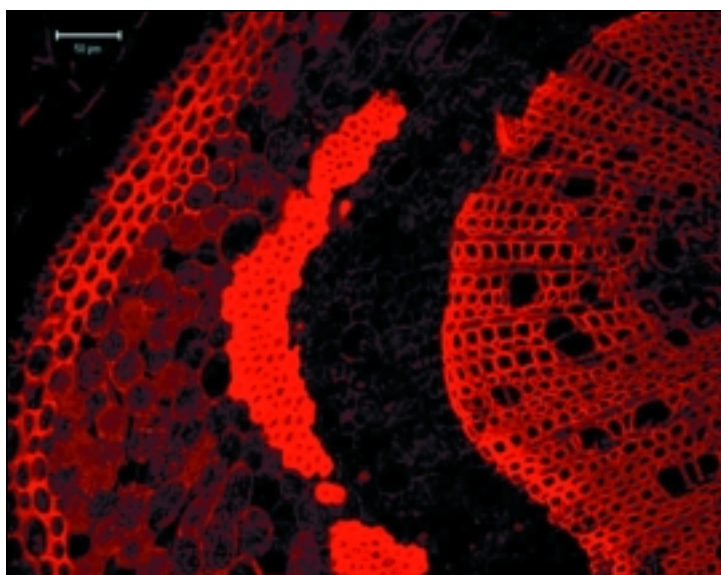


Photo courtesy Kyung-Hwan Han

MAES forestry professor Kyung-Hwan Han was part of an international team that decoded the genome of the poplar tree in 2004. Han also studies how climate change effects might be seen in the gene expression of poplar stem cells — cells that can turn into a variety of tree tissue types. In this cross section of a poplar trunk, the stem cells are located in the narrow, bright red band near the picture's center.

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
Friedman, Steven K.	14	0.35	0.00	0.65	Forest Resource Management/GIS
Han, Kyung-Hwan	13	0.70	0.00	0.30	Genomics
Hart, James B., Jr.	13	0.50	0.00	0.50	Forest Soils
Kamdern, 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.	14	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		8.25	1.35	5.40	

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	Incorporating Risk, Natural Resources Accounting and Hedonic Valuation in Forestry Decisions	Leefers, L.
MICL01871	Mechanisms Underlying Tree Species Distribution Across Soil Resource Gradients	Kobe, R.
MICL01899	Justice in Public Participation and Natural Resource Decision Making	McDonough, M.
MICL01970*	Integrating Biophysical Functions of Riparian Systems with Management Practices and Policies	Walters, 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	Kamdern, D.
MICL02009	Forest Biogeochemistry in a Glaciated Landscape	Rothstein, D.
MICL02022	Integrating Ecology and Economics for Ecosystem Management of Forested Landscapes	Walters, M.

Forestry (continued)

PROJECTS

MICL02027	Market Impacts and Policy Implications of U.S. Trade Restrictions on Imported Softwood Lumber	Yin, R.
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.
MICL07668	Advanced Technology Applications to Eastern Hardwood Utilization	Kamdem, D.
MICL07675	Advanced Technology Applications to Eastern Hardwood Utilization	Kamdem, D.
MICL07687	Advanced Technology Applications to Eastern Hardwood Utilization	Keathley, D.
MICL08295	Seed, Substrate and Resource Limits to Tree Regeneration in Red Pine Plantations	Walters, M.
MICL08300	A New Method for Improving Moisture Resistance and Toughness of Urea-Formaldehyde Adhesive	Matuana, L.
MICL08304	Genomics of Heartwood Formation	Han, K.

Geography

Phone: 355-4649



Richard E. Groop, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Friedman, Steven K.	14	0.25	0.00	0.75	Forest Resource Management
Skole, David L.	12	0.18	0.00	0.82	Land Use & Land Cover Change
TOTALS		0.43	0.00	1.57	

PROJECTS

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

Unshaded areas do not move during the day when a greenhouse and shade curtain are both oriented east-west. Consequently, plants in these high light bands dry out much more quickly than plants that are shaded. MAES horticulture professor Eric Runkle addressed how growers can meet the challenge of keeping these greenhouse crops evenly watered in *Lighting Up Profits*, a 2004 book on greenhouse lighting.



Photo by Royal Heins/MSU

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
Cameron, Arthur C.	12	0.70	0.00	0.30	Plant Physiology/Landscape Horticulture

FACULTY

Cregg, Bert M.	14	0.50	0.50	0.00	Plant Physiology/Woody Ornamentals
Fernandez, Rodney	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/Molecular Biology
Hancock, James F.	12	0.84	0.00	0.16	Small Fruit Breeding/Genetics
Hanson, Eric J.	12	0.35	0.42	0.23	Pomology Small Fruits
Howell, Gordon S.	12	0.80	0.00	0.20	Plant Physiology/Viticulture/Enology
Iezzoni, Amy F.	12	0.80	0.00	0.20	Fruit Breeding/Genetics
Lang, Gregory A.	12	0.75	0.25	0.00	Pomology/Growth & Development
Lang, Nancy Suzanne	13	0.70	0.00	0.30	Plant Physiology/Integrated Crop Management/Turfgrass
Loescher, Wayne H.	12	0.75	0.00	0.25	Plant Physiology/Molecular Biology
Lownds, Norman K.	13	0.25	0.00	0.75	Landscape Horticulture/Stress
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, Eric 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	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		14.68	5.32	8.00	

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.
MICL01607	Physiological Adaptation and Cultural Manipulation of Plant Systems	Schutzki, R.
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 Relationship Between Phototropism and the Positioning of Leaves and Flowers	Poff, K.
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.

Horticulture (continued)

PROJECTS

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.
MICL03218	Achieving Sustainable Grapevine Yields, Maximum Processed Quality, Resistance to Environmental Stress	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.
MICL08288	Cultural and Biological Alternatives to Methyl Bromide Fumigation of Strawberries	Hancock, J.
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.
MICL08335	An Integrated Program to Replace Methyl Bromide Fumigation for Black Root Rot Control in Strawberries	Hancock, J.

Human Environment & Design

Phone: 355-7712



Sally I. Helvenston, Chair

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Pysarchik, Dawn I.	12	0.31	0.00	0.69	Merchandising Management
Sontag, M. Suzanne	12	0.25	0.00	0.75	Apparel Design & Textiles
Sternquist, Brenda J.	12	0.25	0.00	0.75	Merchandising Management
TOTALS		0.81	0.00	2.19	

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.

Kellogg Biological Station

Phone: 269-671-2341

PROJECTS

- MICL08276 Genetic Mechanisms of Adaptation and Integration Among Floral Traits in a Weed
 MICL08317 Enhancing Phosphorus Reduction Strategies in the Kalamazoo River Basin

Conner, J.
 Solomon, D.



Photo by Linda Chadderdon

MAES epidemiologist John B. Kaneene is helping to improve understanding of the causes of false-positive results in the cattle skin tests used to diagnose bovine TB. A 2000 survey of Michigan veterinarians found they charged an average of nearly \$112 per hour. So when false positives require retesting, a farmer's vet bill can quickly climb into the thousands of dollars.

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
Robinson, Norman E. 4	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.
 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 *Campylobacter jejuni* from the Food Chain Mansfield, L.
 MICL02040* Mastitis Resistance to Enhance Dairy Food Safety Erskine, R.
 MICL02082 Epidemiology and Antibiotic Resistance of *Campylobacter* and *Salmonella* Isolates from Food Animals, Milk, and Meat Kaneene, J.

Large Animal Clinical Sciences (continued)

PROJECTS

MICL03355	Perinatal Lamb Mortality and Production Issues Associated with Pasture Lambing Systems in Michigan	Rook, J.
MICL06899	Pathogenesis of Acute Infection with Bovine Viral Diarrhea Virus	Grooms, D.
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.
MICL07692	Bovine Tuberculosis: Epidemiology, Diagnosis, and Pathogenesis	Kaneene, J.
MICL08246	Antibiotic Usage and Risk Factors for Antimicrobial Resistance in Pork Production	Norby, B.
MICL08273	Antimicrobial Resistance in Swine Given 5 In-Feed Antibiotic Regimens	Straw, B.
MICL08286	Mucus Secretion and Clearability in Equine COPD (RAO)	Robinson, N.
MICL08294	Interventions for Controlling Antimicrobial Resistance of <i>Salmonella</i> and <i>Campylobacter</i> in Dairy Cattle	Kaneene, J.
MICL08322	Selenium Supplementation Blocks Angiogenic Switch in Mammary Endothelial Cells in a Thioredoxin Reductase-Dependent Manner	Sylte, M.
MICL08329	12th International Conference on Production Disease in Farm Animals	Herdt, T.

Michigan Agricultural Experiment Station

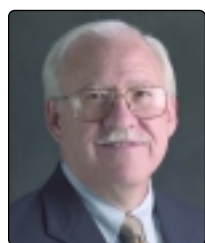
Phone: 355-0123

PROJECTS

MICL03369	Families, Children and Their Communities: Promoting Behavioral and Social Science Approaches	Bokemeier, J.
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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
Champness, Wendy C.	12	0.50	0.00	0.50	Microbial Genetics
Dazzo, Frank B.	12	0.80	0.00	0.20	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
Klug, Michael J.	12	0.25	0.00	0.75	Microbial Ecology
Maes, Roger K.	12	0.03	0.00	0.97	Virology
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
Whittam, Thomas S. ³	12	0.17	0.00	0.83	Nutritional Genomics
TOTALS		4.35	0.00	8.65	

PROJECTS

MICL01314	Beneficial Plant-Microbe Interactions of Agricultural Importance	Dazzo, F.
MICL01557	Molecular Genetic Regulation of Streptomyces Antibiotics	Champness, W.

Microbiology & Molecular Genetics (continued)

PROJECTS

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.
MICL02039*	Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety	Maes, R.
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.
MICL06903	T-Cell Epitope Mapping in Bovine Viral Diarrhea Virus Proteins	Bagdasarian, M.
MICL06904	The Role of Bovine Enteric Calicivirus (BECV) in Calf Diarrhea	Maes, R.
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.



Jerry Dodgson, MAES professor of microbiology and molecular genetics, was part of the international team that sequenced the chicken genome in 2004. The results, published in December in the journal *Nature*, may lead to better treatments or even new vaccines for the flu and other human ailments. Dodgson is pictured here with the bird whose genome was sequenced — a red jungle fowl known by her wing-band number, 256. The bird still lives on the MSU campus.

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.
MICL08287	Risks for Organic Food — Real or Perceived?	Todd, E.

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	Plastics Materials, Food and 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.
MICL02069	Improving the Healthcare System Through the Use of Packaging	Bix, L.

Pathobiology & Diagnostic Investigation

Phone: 432-4680



Willie M. Reed, Chair

FACULTY	RANK	MAES	MSUE	JOINT	INTEREST
Bolin, Carole A.	12	0.22	0.00	0.78	Infectious Diseases of Livestock and 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.



Photo courtesy the Canola Council of Canada

MAES plant biologist John Ohlrogge was part of an MSU team that uncovered a previously unknown metabolic mechanism used by canola to create seed oil. The results, published in December in *Nature*, may help develop new crop varieties with greater oil content. Canola, pictured at left, is grown extensively in the Upper Midwest and Canada.

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	0.55	0.00	0.45	Plant Molecular Virology
Jarosz, Andrew M.	13	0.45	0.00	0.55	Plant Pathology/Pathogen Epidemiology
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 Adaptation
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/Biogeochemistry
TOTALS		3.49	0.00	6.51	

Plant Biology (continued)

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.
MICL08283	Tradeoffs Between Mechanical Strength, Xylem Safety, and Conductive Efficiency	Telewski, F.
MICL08318	Characterizing Plant Coenzyme a Biosynthesis	Tilton, G.

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
Jarosz, Andrew M.	13	0.30	0.00	0.70	Plant Pathology/Pathogen Epidemiology
Kirk, William W.	14	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

MICL01206*	Biological Control of Soil and Residue-Borne Plant Pathogens	Safir, G.
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.

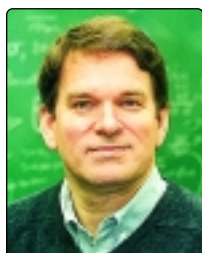
Plant Pathology (continued)

PROJECTS

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.
MICL02059*	Soybean Rust: A New Pest of Soybean Production	Safir, G.
MICL02066*	Biological Improvement, Habitate 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.
MICL07671	Controlling Fire Blight Disease of Apple Trees	Sundin, G.
MICL07672	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.
MICL08251	Genetics of Zearalenone Biosynthesis and Grain Colonization by <i>Gibberella zeae</i>	Trail, F.
MICL08270	Seeking Alternatives to B2 Fungicides and Carbamate Insecticides for Asparagus Production	Hausbeck, M.
MICL08271	The Mechanism of Forcible Discharge of Ascospores in <i>Gibberella zeae</i>	Trail, F.
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.
MICL08321	The Role of Mutagenic DNA Repair in Accelerating Molecular Evolution in <i>Pseudomonas syringae</i>	Sundin, G.
MICL08341	A Partnership Among Eastern U.S. Carrot Stakeholders to Develop and Implement IPM	Hausbeck, M.

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.

Political Science

Phone: 355-6590

PROJECTS

MICL03403 Brownfield Redevelopment in Michigan

Hula, R.

Population Medicine Center

Phone: 353-5941

PROJECTS

MICL07676 Bovine Tuberculosis: Epidemiology, Diagnosis, and Pathogenesis

Kaneene, J.

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.

MAES social work professor John Seita organized the Pathways to Leadership conference on the MSU campus in May. The group of participants from around the country spent the day discussing the issues and challenges facing former foster children. One of Seita's research projects focuses on including child welfare system alumni in leadership and advisory roles in the system.



Social Work (School of)

Phone: 353-8616



Gary R. Anderson,
Director

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Seita, John R.	14	0.25	0.25	0.50	Youth Development
TOTALS		0.25	0.25	0.50	

PROJECTS

MICL02056 A Study of Factors That Impact Transition for Young People Who Age Out of Foster Care

Seita, J.

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
Johnson, Nan E.	12	0.50	0.00	0.50	Demography
Rudy, Alan P.	14	0.30	0.00	0.70	Sociology of Agriculture
TOTALS		1.77	0.00	2.23	

PROJECTS

MICL01874	Social Processes in Disability and Death for Nonmetro Americans	Johnson, N.
MICL01926	The Management of Risk in Agrifood and Natural Resource Systems	Harris, C.
MICL01939	Community Responses to Hazardous Waste Crises: Alternatives to Increase Public Involvement	Aronoff, M.
MICL01950	Regional Agricultures, Landscapes and Ecologies	Rudy, A.
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.

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	131.33	41.31	134.36
1 Elton R. Smith Professor in Food and Agricultural Policy			7 Homer Nowlin Chair of Consumer Responsive Agriculture
2 C.S. Mott Distinguished Professor of Sustainable Agriculture			8 Meadow Brook Chair in Farm Animal Health and Well-Being
3 John A. Hannah Distinguished Professor			9 Rachel Carson Chair in Ecological Sustainability
4 Matilda Wilson Chair			10 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			

Other Faculty Affiliated with MAES

FACULTY

	RANK	MAES	MSUE	JOINT	INTEREST
Adelaja, Adesoji O. ³	12	0.00	0.00	0.00	Land Use
Jiang, Ning	14	0.00	0.00	0.00	Plant Biology/Genetics
Rose, Joan B. ¹⁰	12	0.00	0.00	0.00	Water Research
TOTALS		0.00	0.00	0.00	

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 2004
Vol. 21 No. 2-4
A Global Perspective:
Spatial Decision
Support Systems**

GPS. GIS. SDSS. DEM. Much of what most of us know about spatial decision support systems, these geographic information systems (GIS) that analyze our world, is an alphabet soup of acronyms. We know that global positioning systems

(GPS) are as close as the blue button in our vehicles and allow an adviser to contact us and provide directions if we're lost or help if we've been in an accident. We know that GIS involves satellites and computers and can help rescuers find mountaineers and skiers who are lost or disoriented. But how does it affect you and your day-to-day life, aside from the vehicle assistance?

This technology offers amazing possibilities for analyzing the environment and our effects on it, both good and bad. Water quality, land use, transportation planning, endangered species — all these issues can be studied and evaluated in more detail with the help of GIS.

This issue of *Futures* examines a small portion of the MAES research involving GIS.

Because it is such a valuable tool, many MAES scientists have incorporated GIS technology into their research. Several institutes and centers funded in part by the MAES are located in the Manly Miles Building on the west side of campus. They work collaboratively in interdisciplinary teams to create spatial decision support systems (SDSS) and models that help local, state, federal and international agencies and other interested people make informed and cost-effective decisions on environmental issues and long-term strategic planning.



**Spring 2004
Vol. 22 No. 1
The Water of Life**

Michigan is a state defined, literally, by water. Without the Great Lakes, Michigan's peninsulas would not exist. Nor would much of the state's manufacturing, shipping and tourism offerings. Water is necessary for life — every human needs water to live, as do the plants and

animals that provide us with food and shelter. According to the Michigan Department of Environmental Quality, Michigan has more households — 1.12 million — served by private wells than any other state. Approximately 25,000 domestic wells are drilled per year. Water is a critical factor in human health. Joan Rose, MAES-affiliated water scientist who holds the Homer Nowlin Endowed Chair in Water Research, said that access to safe drinking water is one of the most serious public health crises facing the world.

In 2004, President George W. Bush and Gov. Jennifer Granholm both turned their attention to Michigan's waters. The president announced that he is asking Congress for \$45 million to clean up contaminated lake sediments in the Great Lakes. The request for the 2005 budget is a significant increase from the \$10 million budgeted for 2004 under the Great Lakes Legacy Act.

Gov. Granholm announced a comprehensive water initiative for the Great Lakes, addressing water withdrawal, invasive species, open water disposal, water discharge permits, a revised sanitary code, wetlands protection and federal funding for Great Lakes restoration projects.

"Our waters are more threatened today than perhaps they have ever been," Granholm said. "A thirsty country looks to our resources and sees a source of free, clean, fresh drinking water. Pollution and growth continue to threaten their health. Our critical job providers cry out for water to bottle their products, to cool their furnaces and to clean their new cars and trucks."

The Michigan Agricultural Experiment Station has long supported research on water quality, water use, pollution remediation and watershed management. Water research is the cornerstone of one of five MAES 2004 target research areas: environmental stewardship and natural resource policy and management. In this issue of *Futures*, we introduce you to several new MSU water scientists who are affiliated with the MAES and offer a synopsis of some of the research happening in this important area.



**Summer 2004
Vol. 22 No. 2
Research for
Michigan's Health
and Well-being**

Michigan's children are among the most inactive and sedentary in the nation. There are many other health risks facing children, including poor diets, teenage smoking, unintended pregnancies, infectious diseases and lead poisoning.

Almost two of every three Michiganians are

overweight or obese, and that the number of Michigan citizens with Type 2 diabetes is rising.

There are double-digit annual increases in health insurance premiums — with no end in sight. And more than 70 percent of health care costs are directly attributable to chronic disease, much of which could be prevented through lifestyle behavior changes.

An increasing proportion of the state's general tax revenues must go to pay for Medicaid and other health services in the public sector.

— Kimberlydawn Wisdom, Michigan surgeon general, in the Prescription for a Healthier Michigan report released in May 2004.

Nutrition. Immunity. Obesity. Leadership skills for children in foster care.

These complex issues are extremely important to the health and well-being of Michigan. Because of its name, the Michigan Agricultural Experiment Station (MAES) might not be the first entity you would think of when searching for research on these topics. But the MAES has a keen commitment to strong and healthy families, enhanced rural and urban community development, and profitable Michigan agriculture and natural resource industries. Two of the five MAES target research areas — food and health, and families and community vitality — directly focus on obesity, nutrition and leadership. In this issue of *Futures*, we highlight the work of many of the MAES microbiologists, food scientists, nutritionists, social work researchers and molecular biologists working to tackle these problems from a variety of angles. Studying the issues from all sides will help the MAES provide sound information to policy-makers and Michigan citizens.



**Fall 2004
Vol. 22 No. 3
Enhancing
Profitability in
Agriculture and
Natural Resources**

As one of the state's largest industries, agriculture contributes about \$37 billion annually to Michigan's economy and employs about 500,000 people. Michigan is second only to California in the diverse array of

crops grown and the state is the top producer of 11 commodities.

Tourism, though a smaller industry, adds about \$15 billion each year and employs about 160,000 people. Much of the state's tourism revolves around Michigan's stunning natural resources — the Great Lakes, miles of streams and rivers, and acres of forests, wetlands and other natural areas.

The challenges facing Michigan agriculture and natural resources are increasingly complex and diverse. In this issue of *Futures*, we highlight just a portion of the research the MAES is supporting to enhance the profitability of agriculture and natural resources. This includes basic research in both the plant and animal sciences to improve disease resistance and reduce dependency on chemicals, as well as research to identify and develop value-added opportunities for agriculture and natural resources producers in the state.

MAES Contributors

July 1, 2003 to June 30, 2004

3M Canada Company	Chemical Products Technologies, LLC	ECORISK, Inc.
A.E. Staley Manufacturing Company	Cherry Marketing Institute, Inc.	EDEN Bioscience Corporation
AgraQuest, Inc.	CHIMAC-AGRIPHAR SA	Egerton University
Agriliance, LLC	Clarke Mosquito Control	Eli Lilly & Company
Alliance for the Prudent Use of Antibiotics	Cleary Chemical Corporation	Engelhard Corporation
American Chestnut Foundation	Clorex Company	ENTRIX, Inc.
American Express Company	Codena, Inc.	EZGreen Associates, LLC
American Farmland Trust	Confederated Tribes of the Umatilla Indian Reservation	FarmSaver.com, LLC
American Floral Endowment	Consortium for Plant Biotechnology Research, Inc.	Federal Aviation Administration
Andersons, Inc.	Corn Marketing Program of Michigan	Federal Express
Arvesta Corporation	Cornell University	Fibre Box Association
Ball Horticultural Company	Council for Agricultural Science & Technology	FMC Corporation
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Bayer Corporation	Crop Input Systems, Inc.	Fred C. Gloeckner Foundation, Inc.
Bay-Houston Towing Company	Dakota Gold Research Association	Friends of the Shiawassee National Wildlife Refuge
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Business Builder Services, LLC	DOW Chemical Company	Golden Acre Farms
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CC Pollen Company	Earth University Foundation	Grayson-Jockey Club Research Foundation, Inc.
Celery Research, Inc.	Eastman Chemical Company	Great Lakes Fishery Commission
Cerexagri, Inc.		Great Lakes Fishery Trust

Great Salt Lake Minerals
Corporation

GreenStone Farm Credit Services

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Gustafson, LLC

Hanes Fund

Health Effects Institute

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Henry Mast Greenhouses, Inc.

International Dwarf Fruit
Tree Association

International Food Policy
Research Institute

International Institute of
Tropical Agriculture

Iowa State University

J. Frank Schmidt Family
Charitable Foundation

Kalamazoo Valley Plant
Growers Co-op

Kansas State University

Karolinska Institutet

Kellogg Company

Land O'Lakes, Inc.

Lansmont Corporation

Lehigh Agricultural & Biological
Services, Inc.



MAES professor Mike Hamm holds the C.S. Mott Chair for Sustainable Agriculture. One of his research projects is studying whether people can get food from local sources. "We bring together producers and consumers at the community level to create sustainable agriculture from all standpoints: ecologically, socially and economically," said Hamm.

LESCO, Inc.

LidoChem, Inc.

Luna Innovations Incorporated

M&M Mars

Makhteshim-Agan of North
America, Inc.

MBG Marketing

McLaughlin Gormley King
Company

MeadWestvaco Corporation

Metropolitan Detroit Flower
Growers' Association

MexAmeriCan Trading Corporation

Michigan Apple Committee

Michigan Apple Research
Committee

Michigan Asparagus Advisory
Board

Michigan Asparagus Research, Inc.

Michigan Bean Commission PRAB

Michigan Botanical Foundation

Michigan Carrot Committee

Michigan Cherry Committee

Michigan Crop Improvement
Association, Inc.

Michigan Department of
Agriculture

Michigan Department of
Community Health

Michigan Department of
Environmental Quality

Michigan Department of
Military & Veterans Affairs



MAES horticultural scientist Stan Howell (right) is an internationally renowned wine researcher. He has dedicated his career of more than 30 years to expanding and improving the Michigan wine industry. Here Howell talks to Charles Edson, the owner and winemaker at Bel Lago Vineyards in Cedar, Mich.

Michigan Department of
Natural Resources

Michigan Department of
Transportation

Michigan Economic
Development Corporation

Michigan Fitness Foundation

Michigan Herb Associates

Michigan Nursery & Landscape
Association

Michigan Onion Committee

Michigan Pickle & Pepper
Research Committee

Michigan Potato Industry
Commission

Michigan Sea Grant College
Program

Michigan Soybean Promotion
Committee

Michigan State Horticultural
Society

Michigan State Horticultural
Society Trust

Michigan Sugarbeet Advancement
Program

Michigan Turfgrass Foundation

Michigan Vegetable Council, Inc.

Micro Flo Company

Mid-America Food Processors
Association

Midwest Nut Producers Council

Mink Farmers Research Foundation

Minnesota Department of Natural
Resources

Monell Chemical Senses Center

Monitor Sugar Company

Monsanto Company

Morris Animal Foundation

National Aeronautics & Space
Administration

National Cherry Growers &
Industries Foundation

National Foundation for IPM
Education, Inc.

National Grape Cooperative
Association, Inc.

National Institute of Environmental
Health Services

National Institutes of Health

National Park Service

National Pork Board

National Potato Council

National Potato Promotion Board

National Science Foundation

National Turfgrass Federation, Inc.

National Watermelon
Promotion Board

Nature Conservancy

Naturize BioSciences, Inc.

North American Strawberry
Growers Research Foundation,
Inc.

Novozymes Biologicals, Inc.

Nufarm Americas, Inc.

Nu-Gro Technologies, Inc.

Nutramax Laboratories, Inc.
 N-Viro International Corporation
 Oblon, Spivak, McClelland,
 Maier & Neustadt, P.C.
 Ohio State University
 Oklahoma State University
 Olympic Horticultural Products
 Pacific Biocontrol Corporation
 Patricia & J. Harvey Graves Family
 Foundation
 Pearlstein Family Foundation
 Pennsylvania State University
 People & Land
 Perennial Plant Association
 Pfizer, Inc.
 Phoebe W. Haas Charitable Trust
 Pickle Packers International, Inc.
 Pickle Seed Research Fund
 Post Gardens, Inc.
 Prime Turf, Inc.
 Public Sector Consultants, Inc.
 Purdue University
 Pursell Technologies, Inc.
 Rajzer, Chris
 Rockefeller Foundation
 Rocky Mountain Elk Foundation



The MAES manages 15 research stations around Michigan and supports much of the research conducted by MSU academic departments at MSU's south campus experimental plots in East Lansing. The Montcalm Research Farm in Lakeview focuses on potato and dry bean research.

Rutgers, The State University of New Jersey	Temple-Inland, Inc.
Saginaw County	Texas Department of Agriculture
Scotts Company	Thies Technology, Inc.
Sealed Air Corporation	Tree Research & Education Endowment Fund
Seikagaku Corporation	Tru-Turf Equipment
Sipcam Agro USA, Inc.	Ultra Turf, Inc.
Smith, Adams & Associates, LLC	United Industries Corporation
Southeastern Michigan Beekeepers Association	University of Alabama
Southern Illinois University	University of California
Sphingomonas Partners, LP	University of Florida
Sumitomo Corporation of America	University of Illinois
Summerdale, Inc.	University of Maryland
Symbiosis International	University of Miami
Syngenta Crop Protection, Inc.	University of Michigan



MAES researchers are studying how biology, genetics, environmental factors and psychosocial development interact as causes of the obesity epidemic. According to the Centers for Disease Control and Prevention, Michigan is one of the fattest states in the country. One reason for Michigan's collective girth may be lack of sidewalks and bike lanes for those who want to use something other than a car to get around. A quarter of Michigan residents get no regular exercise.

University of Missouri

University of Nebraska

University of Wisconsin

U.S. Highbush Blueberry Council

U.S. Agency for International
Development

U.S. Department of Agriculture

U.S. Department of Commerce

U.S. Department of Energy

U.S. Department of Health
& Human Services

U.S. Department of the Interior

U.S. Department of Transportation

U.S. Environmental Protection
Agency

U.S. Food & Drug Administration

U.S. Golf Association Foundation,
Inc.

U.S.D.A. Agricultural Research
Service

U.S.D.A. Cooperative State
Research, Education &
Extension Service

U.S.D.A. Economic Research
Service

U.S.D.A. Forest Service

UTZ Quality Foods, Inc.

Valent BioSciences Corporation

Valent U.S.A. Corporation

Washington State University

Washington Tree Fruit Research
Commission

Western Michigan Greenhouse
Association

Western National Parks Association

William Bos Greenhouses & Farm

World Health Organization

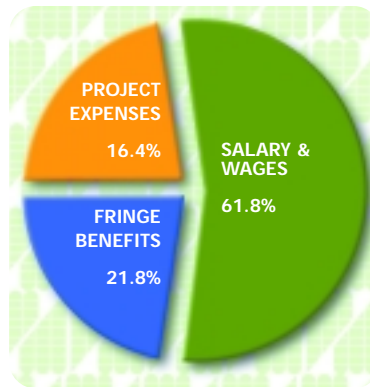
Yale University

Zinpro Corporation

Financial Report

July 1, 2003 to June 30, 2004

DISTRIBUTION OF APPROPRIATED FUNDS



INCOME:

Federal Appropriations	
Hatch	\$ 3,892,726
McIntire-Stennis	\$ 194,307
Hatch RRF	\$ 920,483
Hatch Animal and Disease, Section 1433	\$ 89,322
Total Federal Appropriations	\$ 5,096,838
State Appropriations	\$ 33,163,800
TOTAL APPROPRIATIONS	\$ 38,260,638
Grants — Federal, State and Private*	\$ 40,221,669
TOTAL INCOME	<u>\$78,482,307</u>

EXPENSES:

Salaries	\$ 23,621,900
Fringe Benefits	\$ 8,332,107
Project Expenses	\$ 6,306,631
Grants — Federal, State and Private*	\$ 40,221,669
TOTAL EXPENSES	<u>\$78,482,307</u>

Personnel

(Full-time Equivalents Funded From Appropriated Funds)

Research Staff	
Professors	71.19
Associate Professors	29.66
Assistant Professors	23.37
Research Associates and Specialists	16.77
TOTAL RESEARCH STAFF**	140.99
Support Staff	
Administrative Professionals	76.14
Supervisors	23.32
Clerical	28.20
Technicians	6.99
TOTAL SUPPORT STAFF	134.65

* 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