Spartan Dairy

Newsletter

Winter 2023 Vol.3 No.1

Wilson Centennial Farms Named 2023 MSU Dairy Farm of the Year

L to R Nancy and Brent Wilson

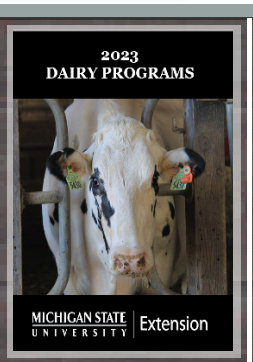

Table of Contents

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Dairy Farm of the Year

Wilson Centennial Farms

THE MICHIGAN STATE UNIVERSITY (MSU) DEPARTMENT OF ANIMAL SCIENCE RECENTLY NAMED BRENT AND NANCY WILSON OF WILSON CENTENNIAL FARMS IN CARSON CITY AS ITS 2023 DAIRY FARM OF THE YEAR.

Since 1958, MSU has awarded the Dairy Farm of the Year Award to farmers who exhibit outstanding management of their dairy farm business and leadership in the Michigan dairy industry or their community.

"Brent and Nancy Wilson's commitment to excellence is demonstrated by the consistent outstanding achievements in production and milk quality of the herd at Wilson Centennial Farms," said Cathy Ernst, Ph.D., chair of the MSU Department of Animal Science. "They are at the cutting edge in applying new technologies and using novel management strategies. We especially value the relationship they have with MSU including participation in on-farm research trials and their willingness to host students at their farm. We are excited to recognize Brent and Nancy Wilson as the 2023 Dairy Farm of the Year."

Established in 1851, Wilson Centennial Farms is a seventh-generation family farm outside of Carson City, Mich. The farm is a partnership between Brent and Nancy, and their two sons, Tyler and Ben. They milk approximately 1,000 Holstein cows on approximately 5,000 acres in Montcalm and Gratiot counties. They currently have a rolling herd average of 32,780 pounds per lactation, with 1,394 pounds of fat and 1,105 pounds of protein. In 2020, they averaged over 97 pounds of milk per cow per day.

An MSU alumnus, Brent earned a bachelor's degree in dairy science and a master's degree in adult and continuing education. He served as the MSU Extension agricultural agent for Gratiot County from 1970 to 1990, when he decided to farm full-time. Today, Brent is responsible for overall herd health and milk quality at Wilson Centennial Farms. He has maintained a close relationship with numerous faculty members in the MSU Department of Animal Science, hosts MSU student interns and classes, and remains at the forefront of novel management strategies and technologies by participating in research trials. Additionally, Brent was a district board member for the Michigan Milk Producers Association (MMPA) and served on the boards of directors for Isabella Bank, GreenStone Farm Credit Services, Montcalm County Farm Bureau, Gratiot County Development and as board chair of the Sparrow Carson Hospital. He is also active in the Men's Group at the United Methodist Church in Carson City.

Nancy was born and raised in Alma, Michigan, and earned a teaching degree in special education from Central Michigan University (CMU). She taught in both public and Christian schools before she decided to be

Dairy Farm of the Year

Wilson Centennial Farms

a stay-at-home mom. She soon stepped into the role of farm financial manager and dairy herd record keeper. Additionally, she teaches Sunday School, facilitates a Women's Bible Study group, runs an afterschool youth program once a week and volunteers for the local Youth for Christ program.

Tyler is a dual MSU graduate with a bachelor's degree in agribusiness management and a certificate in dairy management from the Institute of Agricultural Technology. With prior work experience as a dairy nutritionist, he now handles the farm's nutrition program and feeding for high-component milk. Ben has a business management degree from Colorado Christian and oversees the cropping enterprise where they grow corn, alfalfa, soybeans, wheat and sugar beets. They also employ two main herd managers as well as other employees to help milk cows and perform various day-to-day tasks on the farm.

The farm has grown gradually to gain efficiency and stay viable in the dairy industry long-term. To mitigate the challenges of today's dairy economy, they have diversified crops and now have a successful sugar beet operation. Each year they add 30 to 50 cows and plant more corn and hay to accommodate increased cow numbers. They built a new heifer barn to reduce overcrowding thus improving heifer health and growth, and plan to construct a new rotary parlor to improve milking efficiency.

"We were impressed with their creative approaches to strengthen the business for the next generations and address problems as they arise," said Miriam Weber Nielsen, Ph.D., chairperson of the Dairy Farm of the Year selection committee at MSU. "They lead by example with excellent farm management and through service in their local community and in the dairy industry. We are pleased to recognize Brent and Nancy for their commitment to sustainability in all areas."

Brent understands the importance of components and milk quality, which is evident in the numerous awards they have received. Wilson Centennial Farms has been awarded the National Platinum Milk Quality Award by the National Mastitis Council (NMC) for each of the past six years. The farm has been featured in Hoard's Dairyman, Michigan Farmer, Michigan Farm News, and MSU Extension publications, including MSU Extension's Virtual Coffee Break episode, Achieving Excellence in Milk Quality with Phil Durst, senior MSU Extension educator.

> **"THEY LEAD BY EXAMPLE WITH EXCELLENT FARM MANAGEMENT AND THROUGH SERVICE IN THEIR LOCAL COMMUNITY AND IN THE DAIRY INDUSTRY. WE ARE PLEASED TO RECOGNIZE BRENT AND NANCY FOR THEIR COMMITMENT TO SUSTAINABILITY IN ALL AREAS"**

In 2020, the farm was number six overall in CentralStar Cooperative, Inc.'s annual list of Top Dollar Value Herds (combining milk production with combined fat and protein) and topped the list in herds with 1,000 or more cows. They are consistently in the top 10 of CentralStar's monthly report of top Energy-Corrected Milk (ECM) herds and were number one in July 2021. These placings are out of approximately 1,400 herds enrolled in Dairy Herd Information (DHI) services at CentralStar from Wisconsin, Michigan and regions of Indiana and Ohio.

The farm regularly utilizes DHI to help keep production records and identify cows with high somatic cell count (SCC), an indication of a mastitis infection which can cause a decrease in milk yield and affect milk composition.

"To own and manage a 1,000-cow dairy with a goal of less than 75,000 SCC, and consistently achieve it, is amazing to me…Brent walks the barns twice a day with his stethoscope and thermometer, focusing closely on the fresh pen, looking for any signs of frailty or sickness," wrote the nominator. "I have worked with Brent for almost 10 years since he volunteered to participate in a Johne's Disease research trial. He is the reason that I became passionate about helping improve profitability for dairy producers and has been an inspiration to me."

Wilson Centennial Farms regularly participates in research trials with both CentralStar and MSU and frequently hosts MSU student interns. Currently, the farm collaborates with CentralStar in researching bovine leukemia virus (BLV) or leukosis. Together, they have developed a diagnostic testing strategy for the herd, identifying areas to improve management and ways to reduce the risk of transmission of this bloodborne disease. In addition, the farm is participating in a $500,000 USDA-funded grant to follow BLV infection dynamics starting in neonatal calves out of BLV-infected dams, with graduate students taking weekly blood samples at the farm.

The award will be presented Feb. 3 at the Dairy Industry Recognition Banquet during the Great Lakes Regional Dairy Conference Feb. 2-3 at the Soaring Eagle Casino and Resort in Mt. Pleasant.

Dairy Spotlight

Dr. Miriam Weber Nielsen and Dr. Joe Domecq

Dr. Miriam Weber Nielsen: Associate Professor Department of Animal Science

I grew up in Michigan, on a family dairy farm in Tuscola County. After doing a middle school science fair project on growth implants with help from our herd veterinarian, I became intrigued with the science side of dairy cows. I enrolled in Animal Science at MSU, where for several years I assisted with lactation research in the laboratory of Dr. Allen Tucker. That experience solidified my interest in dairy research and provided my first teaching opportunity in his mammary physiology course. Along the way, I developed a passion for travel and completed a summer internship in animal nutrition at the former Technical University in Berlin prior to starting graduate school. Coaching dairy cattle judging teams during my MS and PhD degrees at Virginia Tech reinforced my interest in dairy management and teaching. After completing doctoral research at the Danish Institute of Agricultural Sciences, I rejoined the Department of Animal Science at MSU, this time as a faculty member focusing on teaching and research in dairy management.

I enjoy nurturing growth of students through experiential learning opportunities including undergraduate research, internships, the Dairy Challenge and hands-on activities in anatomy and physiology or dairy management courses. Early life management of calves and its impact on their future performance remains a favorite research interest. I've been fortunate to serve the dairy industry on the boards of the Michigan Dairy Memorial and Scholarship Foundation and the North American Intercollegiate Dairy Challenge. Outside of MSU, I enjoy spending time with my 3 teenage children and leading a local 4-H club.

Dr. Joe Domecq: Academic Specialist Department of Animal Science

I was involved in a serious automobile accident during my first year of college at Cal Poly. I spent a year in the hospital, and it took almost 5 years before I could walk with a cane. As I recovered from my injuries, I realized that I still wanted to work with cows and be involved in agriculture, but I had to find a different way to be involved. I slowly accepted that my future was going to depend on my ability to use my head as my physical abilities were considerably reduced. I also realized that I had learned a great deal about people, communication, and most of all, patience.

I eventually returned to Cal Poly and became much more engaged in my studies. I then graduated from Virginia Tech with a M.S. degree before coming to MSU for a Ph.D. Many opportunities became available during my graduate studies at MSU, and over time I realized I was doing exactly what I wanted to do and never left.

During my time at MSU, I have advised students in the Ag Tech Dairy program, and, more recently, the 4-year Animal Science Dairy Concentration program. I have taught many courses in dairy production and coached the Dairy Judging and Dairy Challenge teams. It is hard to believe that I have been at MSU for almost 33 years. Had you told me in 1990 that I would spend my career working with students and dairy cows, I would have never believed it.

Would you like to help build a foundation for the future of the MSU dairy education and judging programs? Here are two ways to help:

- The Michigan Dairy Memorial & Scholarship Foundation is seeking to raise $50,000 to establish an endowment to recognize Dr. Domecq's lifelong service to the dairy industry. The endowment will provide financial support to students participating in dairy judging and the dairy management programs. To contribute, call 517-884-1000 or visit http://givingto.msu.edu/gift/?sid=9436.

- The traditional MSU Dairy Judging Team prime rib fundraiser in back for 2023! You can help support team travel by purchasing 5 – 20 lb boneless roasts, prepared by the MSU Meat Lab. Use the QR code to order or email msudairystudents@gmail.com with any questions.

News & Updates

All things dairy at MSU

MICHIGAN STATE UNIVERSITY DAIRY CATTLE JUDGING TEAM - YEAR IN REVIEW

From left, Rachael Bosse, Adalee Thelen, Mikayla Bowen, Drew Neyer, Kelsey Pasch, Jessie Nash, and Katie Wilson at the Western National Spring Show in Utah. Photo courtesy of Mikayla Bowen.

The MSU Dairy Cattle Judging program had a busy 2022, participating in four contests. The season opened in the spring with the Western National Spring Show, followed by the All-American Dairy Invitational, World Dairy Expo, and the North American International Livestock Exposition in the fall. MSU was proud to be represented by MSU students Rachael Bosse (Dorr), Mikayla Bowen (Addison), Jessie Nash (Elsie), Drew Neyer (Mt. Pleasant), Kelsey Pasch (Beal City), Adalee Thelen (St. Johns), and Katie Wilson (Blanchard). The team was coached by Dr. Joe Domecq, Sarah Black, Sarah Michalek, and Kirby Krogstad.

All team members competed at the Western National Spring Show in Richmond, Utah where they placed 3rd overall, 3rd in reason, and 3rd in placings. Bowen, Nash, Pasch, and Wilson represented MSU at the 54th annual All-American Dairy Invitational Youth Dairy Judging Contest in Harrisburg, Pa. and the 101st annual National Intercollegiate Dairy Cattle Judging Contest at World Dairy Expo in Madison, Wis. Bowen, Nash, and Wilson competed at the 49th annual North American International Livestock Exposition (NAILE) Invitational Senior College Dairy Cattle Judging Contest in Louisville, Ky.

Three second year MSU Institute of Agricultural Technology (IAT) students, all in the Dairy Management program, competed in the 32nd Post-Secondary International Dairy Cattle Judging Contest at World Dairy Expo in Madison, Wis. and the 49th annual North American International Livestock Exposition (NAILE) Invitational Two-Year Junior College Dairy Judging Contest in Louisville, Ky. The team was coached Dr. Joe Domecq, Sarah Black, Sarah Michalek, and Kirby Krogstad.

The three sophomores competing on the team were: Juanita Bulloch (Hartland), Collin Galbraith (Stanton), and Tyler Klopfenstein (Galien).

Both senior and junior college teams received numerous team and individuals awards throughout the 2022 judging season.

From left, 2022 IAT dairy judging team members – Coach Sarah Black, Collin Galbraith, Tyler Klopfenstein, Juanita Bulloch, and Coach Dr. Joe Domecq. Photo courtesy of Agri-Graphics.

News & Updates

All things dairy at MSU

MICHIGAN 4-H TEAM EARNS TRIP TO EUROPE AT WORLD DAIRY EXPO

After a summer of practice and hard work, the Michigan 4-H team came out in force at the 2022 National 4-H Dairy Cattle Judging Contest held in conjunction with World Dairy Expo in Madison, Wisc. The team placed 1st in Brown Swiss, 2nd in Ayrshire, and 6th in Guernsey, Holstein, and Jersey classes. Overall, the team placed 2nd among a field of 20 teams, 2nd in placings, and 3rd in oral reasons. By placing in the top three teams, the youth earned an invitation to a two-week dairy education program in Scotland, Northern Ireland, Ireland, and England in June 2023. The last time a Michigan 4-H team earned this educational opportunity was 2014. Eight teams in the last 22 years have placed in the top three during the contest at World Dairy Expo.

Looking back on the team's success, coach Dr. Joe Domecq said "I'm very proud of the work this team put in over the last few months. For some, Dairy Days was their first competitive judging experience. They grew a lot, listened and improved at every practice, and were a great group of young people to work with."

Michigan 4-H dairy cattle judging members at World Dairy Expo. From left: Coach Sarah Black, Laken DuRussel, Grace Brown, Irie Moussiaux, Brianna Hill, and Coach Dr. Joe Domecq. Photo courtesy of Agri-Graphics.

MSU STUDENT JESSIE NASH WINS THE ALL-AMERICAN AND WORLD DAIRY EXPO COLLEGIATE JUDGING CONTESTS

Jessie Nash received the Gene Meyer Award for placing 1st Overall individually at World Dairy Expo. Photo courtesy of Agri-Graphics.

Jessie Nash has been connected to the dairy industry from a young age, working on her family farm and as a member of the Clinton County 4-H Dairy Program. She was very involved in county, state, and national 4-H dairy events, with judging as one of the programs she has been involved in for over a decade. Jessie became a Spartan, starting in the Institute of Agricultural Technology (IAT) Dairy Management Certificate Program and later transferring into the Agribusiness Management Degree. As her time at MSU came to an end, she had one final season of dairy judging to make her mark. Years of practice, dedication, and hard work were rewarded with individually winning two collegiate judging contests this fall. Jessie brought home her biggest blue ribbons from the All-American Dairy Invitational in Harrisburg, Pa. and World Dairy Expo in Madison, Wisc.

Reflecting on this past season and her years of cattle judging representing Michigan 4-H and MSU, she said: "I'm not quite sure I can find the words that would quantify the gratitude I have for this program and that we are here at MSU. This journey has been simply life changing, from all the trips taken to the memories created, I wouldn't trade it for a thing."

Dairy Education Programs
Michigan State University

MSU Dairy Education Academy

- Explore the practical, hands on learning opportunities offered to dairy students at MSU
- Learn about dairy degree programs, courses, and potential career opportunities
- Meet and network with MSU Dairy Education Program professors and students
- All expenses are paid and parents are welcome to join their child during the academy

Tentative Schedule of Events

Held at Michigan State University

Friday, March 17

6:30pm	Registration
7:00pm	Dairy Education Programs *Dr. Joe Domecq, Dairy Education Coordinator and Advisor*
8:00pm	Q & A with MSU Dairy Students
9:00pm	Close and Depart to Hotel

**Hotel reservations for all participants will be made by the dairy education program*

Saturday, March 18

8:00am	Breakfast at Hotel
9:00am	Dr. Barry Bradford *Clint Meadows Endowed Chair in Dairy Management and Nutrition*
9:30am	Dr. Richard Pursley *Dairy Reproduction*
10:00am	Practical Dairy Knowledge You Will Learn at MSU *Dr. Roger Thomson and Don Martell*
10:30am	Michigan Dairy Memorial Scholarships, Undergraduate Research, and Internship Opportunities *Dr. Miriam Weber-Nielsen*
11:00am	Dairy Challenge Presentation
11:30am	Lunch
12:00pm	Dairy Farm Visit

Joe Domecq
Coordinator/Advisor of Dairy Education
Department of Animal Science
517-353-7855
domecqjo@msu.edu

APPLY TODAY!

Space is limited. All high school students encouraged to apply.
Priority given to high school juniors and seniors.

Applications will close **February 5th, 2023.** Decisions will be made and communicated in mid February.

News & Updates

All things dairy at MSU

ANIMAL SCIENCE CAREER QUEST

4-H Animal Science Career Quest is back February 18-19, 2023! This event, taking place on campus in East Lansing, gives youth an opportunity to explore the many career options that are available within the fields of animal science and veterinary medicine, as well as the MSU programs that will help get them there. Saturday will be focused on Animal Science species, disciplines, and career exploration. Sunday will focus on areas of emphasis and specialties in veterinary medicine. The program is open to youth ages 12-19 (as of January 1, 2023) and 4-H volunteers.

Registration is $30 for one day or $50 for both days. Complete schedule and registration details available at: https://www.canr.msu.edu/events/animal-science-career-quest.

Contact Autumn Converse (conver20@msu.edu) or Melissa Elischer (elischer@msu.edu) with questions or for more information.






MICHIGAN 4-H DAIRY CONFERENCE

The Michigan 4-H Dairy Conference returns March 3-5, 2023 to the Ralph A. MacMullen Conference Center in Roscommon. This conference is for 4-H youth (ages 12-19 as of January 1, 2023) and 4-H volunteers engaged in the dairy cattle project who want to take a deeper dive into the topic of dairy cattle nutrition. MSU and MSU Extension faculty, MSU students, 4-H youth, and industry partners, will lead hands-on educational sessions for participants. Sessions topics may include career exploration, anatomy and physiology, diet formulation, cattle health, a local farm tour, and much more!

Registration is $130 for the weekend. Complete schedule and registration details available at https://www.canr.msu.edu/events/2023-michigan-4-h-dairy-conference.

Contact Melissa Elischer (elischer@msu.edu) with questions or for more information.



News & Updates

All things dairy at MSU

MSU PROFESSOR A 'PIONEER' IN DAIRY CATTLE FERTILITY MANAGEMENT

For more than a quarter century, Michigan State University professor J. Richard Pursley has been at the forefront of world-renowned research and dairy cattle fertility management programs that have played a pivotal role in bolstering Michigan to the sixth-largest dairy producer in the country.

Effective fertility synchronization and fertility management programs, like those developed by Pursley and his collaborators, have sustained and enhanced the productivity of Michigan farms and farms around the country. These programs increase dairy profitability by approximately $135,000 a year on a 1,000-cow dairy farm, Pursley said.

Fertility management programs are designed to increase the likelihood that cows become pregnant during first artificial insemination (AI). This allows farms to:

- House fewer animals while maintaining high production rates.
- Maintain high fertility rates among the herd.
- Reduce health issues after calving.
- Maintain greater average milk production from their herds.

OVSYNCH FERTILITY PROTOCOL

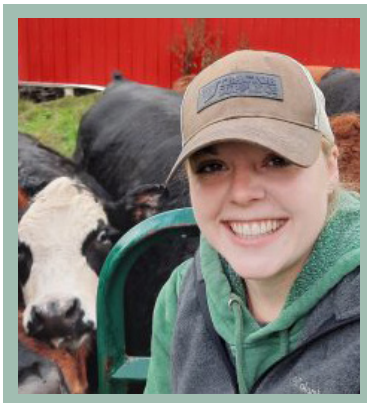
Pursley's research program began with a simple question: How can dairy farmers better monitor and control cows to enhance first insemination fertility rates?Previously, farmers spent time and resources monitoring herds for cows showing signs of heat, allowing many variables to impact the success of insemination. Pursley, along with collaborator Milo C. Wiltbank, published a series of findings on what they would call the Ovsynch Protocol.Ovsynch enabled AI to be performed at specific times allowing farmers and veterinarians to synchronize programs. Ovsynch is now the basis for premier AI management tools and has been adapted to the changing needs of producers.

REDUCING PREGNANCY LOSS IN COWS

More recently, Pursley's research has focused on reducing pregnancy loss in cows. "Once dairy cows have a calf, fertility drops 50%," Pursley said. "We want to understand where and why these losses occur and what methods can be implemented to prevent future loss. If we can solve that problem, it would be as big of an efficiency increase for dairy farms as the fertility programs." Through a USDA Agriculture and Food Research Initiative (AFRI) grant, Pursley's research team discovered a specific protein that increases in pregnant cows at approximately 21-22 days following AI. The release of this protein correlates with the time of conception. This discovery provides a roadmap and potential tool for Pursley to develop methods to prevent pregnancy losses.

View full article here

MSU VETERINARY STUDENTS AWARDED MERCK ANIMAL HEALTH SCHOLARSHIP



SARA HOSKINS

"After veterinary school, I'm looking forward to providing a beneficial service to farmers. I am excited to work with them to provide high-quality feed and care for their livestock, [while] emphasizing overall herd health as well, to ensure that we are providing consumers with the best product possible."

ARPITA NAYAK

"I would love to work on projects that support underserved communities, where the health of livestock is inextricably linked with the health and success of the surrounding community. I would love to be a veterinarian that is a liaison between community members and industry partners."

2023
DAIRY PROGRAMS

MICHIGAN STATE UNIVERSITY | Extension

2022 MSU Extension Dairy Programs

Michigan State University (MSU) Extension Dairy Team:
Educators and Specialists with a commitment to enhance the competitive advantage of Michigan dairy producers and Michigan's dairy industry

The MSU Extension Dairy Team fulfills this mission in a variety of ways.

- Educational programs are held throughout the state focusing on issues identified by the industry
- Research and demonstrations are conducted directly with dairy producers
- Farm visits reinforce and help to apply research-based information and concepts to your unique farm operation
- Educational resources and event information are shared through our website https://www.canr.msu.edu/dairy/, news releases and emails

Call us if you need help with problem-solving, evaluating alternatives, planning for the future, or learning another perspective on your operation. Please don't hesitate to call!

You can find any MSU Extension employee at:
https://www.canr.msu.edu/dairy/experts

PROGRAMS

VIRTUAL COFFEE BREAK WITH THE MSU DAIRY TEAM PODCAST
Overview: Listen to podcast episodes covering a wide variety of dairy related topics from your phone or smart speaker. New episodes will be released in Spring and Fall. The podcast is available on Spotify, the Apple podcast app, and the most popular platforms.
More information: contact Martin Mangual at 616-994-4581 or email carrasq1@msu.edu.

FACEFARMLIVE! PROGRAM
Overview: The goal of this program is to provide information on farm issues or important procedure improvements to improve dairy operations. The information will often be shared live through social media groups. Videos will also be posted in two dairy groups, including "Young Progressive Dairy Group of West Central Michigan" and the "Thumb Dairy Group".
Details: For information about how to access and register with the group contact Martin Mangual at 616-994-4581 or email carrasq1@msu.edu.

THUMB DAIRY GROUP
Overview: Thumb Dairy Group is for dairy farmers that are interested in growing their knowledge base and learning from their peers. This group will help dairy farmers learn more about various aspects of dairy herd management as well as business management.
Dates and Locations: In-person 5-7 times a year all year round located on some farms and other locations in the thumb area.
Details: Contact Marianne Buza at 440-785-2919 or mbuza@msu.edu

THUMB DAIRY ODYSSEY
Overview: Thumb Dairy Odyssey will be interactive dairy science learning experiences for youth. These participants will learn about various aspects of the dairy industry including animal nutrition, veterinary science, reproduction, farm technology, showmanship, and judging.
Dates and Locations: 2 in-person events per summer.
Details: Contact Marianne Buza at 440-785-2919 or mbuza@msu.edu.

4-H ANIMAL SCIENCE CAREER QUEST
Overview: Join this workshop held on MSU's campus to learn more about being a Spartan, careers in animal science, and tour animal science facilities. Open to youth ages 12-19 as of January 1, 2023.
Contact person: Melissa Elischer(elischer@msu.edu) and Autumn Converse (conver20@msu.edu)
Location: Anthony Hall and South Campus Animal Farms; MSU campus in East Lansing
Date: February 18-19, 2023
Registration: Melissa Elischer (elischer@msu.edu) and Autumn Converse (conver20@msu.edu); https://www.canr.msu.edu/events/animal-science-career-quest
Cost: $30 for one day; $50 for both days

MICHIGAN 4-H DAIRY CONFERENCE
Overview: This weekend workshop will focus on all things dairy cattle nutrition. MSU and MSU Extension faculty, industry partners, and MSU students will lead educational sessions throughout the weekend. Join MSU Extension Gold Volunteers and 4-H youth (ages 12-19 as of January 1, 2023) from across Michigan for a weekend of learning, leadership, and fun!
Contact person: Melissa Elischer(elischer@msu.edu)
Location: Ralph A. MacMullen Conference Center, Roscommon, Michigan
Date: March 3-5, 2023
Registration: Melissa Elischer (elischer@msu.edu); https://www.canr.msu.edu/events/2023-michigan-4-h-dairy-conference
Cost: $130/person

4-H EXPLORATION DAYS
Overview: This MSU pre-college program welcomes youth ages 12-19 to explore their future, try new things, and experience college life! During this three-day event, youth will gain confidence and independence through hands-on learning and make friends for a lifetime.
Contact person: Michelle Neff, 4h.expodays@msu.edu
Location: MSU Campus, East Lansing
Date: June 21-23, 2023
Registration: https://www.canr.msu.edu/4_h_exploration_days/
Cost: $220

MICHIGAN 4-H YOUTH DAIRY DAYS
Overview: A week for youth around Michigan to showcase their dairy knowledge and skills, earn awards and scholarships, and vie for a place on national teams representing Michigan in dairy cattle judging, management skills, and quiz bowl.
Contact person: Melissa Elischer (elischer@msu.edu)
Location: Pavilion at MSU; East Lansing
Date: July 17-21, 2023
Registration: Melissa Elischer (elischer@msu.edu)
Cost: $10/head of cattle entered in the youth show or showmanship; no cost for youth to participate in educational events

NATIONAL 4-H DAIRY CONFERENCE
Overview: A youth leadership conference for 4-H youth to learn about the global dairy industry, visit historical sites in the greater Madison area, and visit World Dairy Expo! The event is open for 4-H youth ages 15-18 (as of January 1, 2023); spaces are limited!
Contact person: Melissa Elischer (elischer@msu.edu)
Location: Madison, Wisconsin
Date: September 30-Ocotber 5, 2023
Registration: Melissa Elischer (elischer@msu.edu/517-432-4306)
Cost: $650

BREAKFAST ON THE FARM
Overview: These consumer education events provide an on-farm opportunity to learn about modern agriculture. Visitors will learn firsthand how farmers care for animals, protect the environment and produce safe and nutritious food.
Dates and Locations: June – October with specific dates and locations to be determined in early 2023.
Registration: More information is available at www.breakfastonthefarm.com or you may contact Ashley Decker at 586-469-7616 / kuschela@msu.edu or Mary Dunckel at 989-354-9875 or dunckelm@msu.edu

2023 MICHIGAN MANURE MANAGEMENT SUMMIT

Overview: The Summit is an annual educational event that provides updates on the science and best practices of manure management. The program is specifically designed for anyone who hauls and applies manure.

Date and Location: January 31, 2023, 10:00AM – 4:00PM, AgroLiquid Conference Center, 3055 M-21, St Johns, MI 48879

Contact persons: Charles Gould at 616-834-2812 or gouldm@msu.edu or Tess Van Gorder at 517-323-6711 or tvangor@michfb.com

Cost: The group registration rate is $25/person for groups of three or more. Single registrations are $50.00 per person. Registration information can be found at https://events.anr.msu.edu/2023ManureMgtSummit/.

WHAT EVERY MICHIGAN CITIZEN SHOULD KNOW ABOUT SOLAR PROJECTS

Overview: Utility scale solar projects require a large land base that often includes cropland. Many communities are grappling with the decision to allow utility scale solar projects to be built on this land. This presentation examines the pluses and minuses of solar projects using a non-biased, research-based approach.

Date and Location: March 7, 2023, 2:00PM - 3:00PM virtual via Zoom

Contact person: Charles Gould at 616-834-2812 or gouldm@msu.edu

Cost: There is no cost to attend this webinar, but you do have to register for the session. Registration information can be found at https://www.canr.msu.edu/events/miagideas.

OFF-GRID SOLAR POWER PRODUCTION ON FARMS

Overview: This program is for farmers who want information about installing a solar project to produce electricity for farm use. Topics do not include selling electricity to the grid.

Date and Location: February 22, 2023, 9-4PM, Ottawa County Fillmore Complex Main Conference Room, 12220 Fillmore Street, West Olive, MI 49460

Contact person: Charles Gould at 616-834-2812 or gouldm@msu.edu

Cost: There is no cost to attend this program due to the sponsorship of Agathon Solar & Energy Storage (Coopersville, MI), but you do need to register for the meeting. Registration information can be found at https://events.anr.msu.edu/OffgridFarmPowerProd/.

THE MICHIGAN MANURE HAULER CERTIFICATION PROGRAM VALUE PROPOSITION

Overview: This presentation will explain what the certification program is and why farmers will want to hire manure applicators who are certified through the Michigan Manure Hauler Certification Program.

Date and Location: March 2, 2023, 6:00PM – 7:00PM virtual via Zoom

Contact person: Charles Gould at 616-834-2812 or gouldm@msu.edu

Cost: There is no cost to attend this webinar, but you do have to register for the session. Registration information can be found at https://www.canr.msu.edu/events/miagideas.

GRAZING SHEEP AND CATTLE IN SOLAR PROJECTS

Overview: Learn more about the principals of solar grazing and managed grazing from a solar developer and sheep producer perspective in this informative presentation on dual-use solar projects. Some information presented will pertain to grazing cattle.
Date and Location: March 6, 2023, 2:00PM – 3:00PM virtual via Zoom
Contact person: Charles Gould at 616-834-2812 or gouldm@msu.edu
Cost: There is no cost to attend this webinar, but you do have to register for the session. Registration information can be found at https://www.canr.msu.edu/events/miagideas**.**

2023 FARM BILL PROGRAM AND CROP INSURANCE DECISION- WHAT FITS YOUR FARM?

Overview: Experts from MSU Extension will provide you with the best information to help you evaluate your risk and make decisions regarding PLC, ARC sign up with the FSA and new crop insurance options. At these meetings producers will: •Hear highlights from the 2023 decisions and how those decisions played out across the state •Learn the latest in policy and impacts of programs •Learn about the current and new crop insurance options •Work through case examples using the MSUE Farm Bill Calculator to help make better decisions on ARC versus PLC •Discuss specific program details with experts
Dates and Locations: January 17, 2023 - 11 a.m. - 12:30 p.m. or February 21, 2023 - 6:30 p.m. - 8 p.m. Online via Zoom
Registration: https://events.anr.msu.edu/farmbill23/
Cost: Free

BEEF QUALITY ASSURANCE

Overview: Every beef and dairy producer is obligated to utilize judgement and management which leads to a safe and positive eating experience for beef consumers. Beef Quality Assurance (BQA) is a voluntary program, promoted through the Beef Checkoff since 1982, to educate about accepted management skills and scientific knowledge to prevent beef product defects. The program's goal is to ensure that all cattle are healthy, wholesome; managed to meet USDA, FDA, and EPA standards; produced with environmentally-sound production practices; and handled within acceptable animal welfare guidelines. Some major regional packer/processors are now requiring BQA certification of their fed cattle suppliers. Join the nearly 4,000 Michigan producers who are BQA certified.
More information on BQA training and certification options may be found at: https://www.canr.msu.edu/courses/beef-quality-assurance

MI STRONGER FARM

We know farming can be tough. That's why we're committed to helping. Whether you or a farmer you work with needs support, Michigan State University Extension can help. ALL SERVICES ARE FREE
• Teletherapy • Educational Presentations • Farm Financial Analysis • Business Management Strategies • Other Farm Stress Resources • Free Online Courses • Mental Health First Aid
For more information, visit: extension.msu.edu/legacygrants or contact Remington Rice at riceremi@msu.edu

Employee On-Farm Trainings

Trainings are offered upon request on dates and times of the day that accommodate the farms' schedules. The content of each training can be customized to reflect the farm's specific protocols.
All trainings are available in English and Spanish.
To request an on-farm employee training, please contact your MSU Extension dairy educator.

ON-FARM STOCKMANSHIP
These on-farm training sessions will cover general stockmanship and animal handling. This training meets the requirements of the National Dairy FARM program.

DOWN COW MANAGEMENT TRAINING
Farm staff will learn about the care of down cows and why these cases should be considered emergencies.

CALF CARE TRAINING
Dairy farm employees, managers, and owners will learn, hands-on, the basics of calf care, along with new management practices and research to grow calves to their full potential.

DEHORNING WITH PAIN MITIGATION TRAINING
This hands-on training will cover the use of a hot iron dehorner and caustic paste, and the proper medication administration techniques for pain management in calves.

MATERNITY TRAINING
This training will cover critical points around calving, including the care of the cow and newborn, colostrum management, and calving difficulties.

FEEDER TRAINING
This on-farm training session will cover basic cow nutrition and ingredient management, sampling and dry matter testing, basic feeder safety, and an overview & evaluation of feeding protocols. The program can be focused on managers or employees determined by case.

HANDS-ON EUTHANASIA TRAINING
Using portable models and a captive bolt stunner, this on-farm training teaches placement and protocols for proper euthanasia.

Employee On-Farm Evaluations

These evaluations are available upon request.
To request an on-farm evaluation, please contact your MSU Extension dairy educator.

FEEDING PROGRAM EVALUATIONS
With this assessment, the farm will have a thorough evaluation of the feeding program. The evaluation focuses on 6 core areas: efficiency, mixing, production, shrink, hygiene, and safety. A detailed report of findings and recommendations for improvement is provided for farms. Focus areas also include pushup routine, mixing procedure, and equipment evaluation, among others. The feeder's training and consulting program often follow up on this assessment.

PARLOR PERFORMANCE EVALUATIONS
Evaluations combine the use of digital vacuum recorders (VaDia) and other metrics to analyze milking protocols and parlor efficiency and provide recommendations to address issues such as bimodal milking and poor milk quality. Data can also be used to tailor milker-training programs for the participating farms.

HEAT STRESS ASSESSMENT
This assessment will thoroughly evaluate the farm heat stress abatement strategies. The evaluations include wind speed mapping, barn temperature, THI measurement, and other indicators of heat stress. In addition, a detailed report of findings and recommendations for improvement will be provided to the farm.

EXTENSION DAIRY ADVISORY TEAM:

The MSU Extension Dairy Advisory Team is a group of progressive dairy producers and professionals selected to provide input on needs in the industry and feedback on MSU Extension activities. It is also a great opportunity to network with and learn from peers and MSU personnel. Members serve two-year terms and meet regularly by phone and in person twice per year.

2022 - 2023 MEMBERS:

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Keegan DeZeeuw
Samanta Fensterseifer
Jim Good
Jack Jeppesen
Bill Martin
Joe Packard
Brian Preston
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Richard Pursley	Reproduction	517-281-7289	pursleyr@msu.edu

News & Updates

All things dairy at MSU

MANURE AS AN ADDITIONAL REVENUE STREAM FOR DAIRY FARMS

The Tri-State Dairy Nutrition Conference is a non-profit organization that hosts an annual nutrition conference organized collaboratively by personnel at The Ohio State University, Michigan State University, and Purdue University, and the allied dairy industry.

On November 8th, 2022, the Tri-State Dairy Nutrition Conference teamed up with Fair Oaks Farms in Fair Oaks, IN to host a field program that focused on the benefits of manure management to provide additional revenue for dairy farms. Approximately 70 dairy industry members in the tri-state area learned about anaerobic digestion and novel approaches to using manure as fertilizer.

The one-day event included presentations from three industry leaders - Dr. Dana Kirk, Mr. Glen Arnold, and Dr. Wei Liao. Additionally, participants were given a tour of BioTown Ag, a farming operation that is using proven technology to mitigate environmental impact of livestock operations. They are profitably converting manure and other organics into energy and useful co-products.

BIOENERGY AND ANAEROBIC DIGESTION, DR. DANA KIRK
Depatment of Biosystems and Agricultural Engineering, MSU

BIOGAS ELECTRICAL VEHICLE CHARGING, DR. WEI LIAO
Department of Biosystems & Agricultural Engineering, MSU

CAPTURING THE VALUE OF MANURE THROUGH IN-CROP APPLICATION, MR. GLEN ARNOLD
Field Specialist, Manure Nutrient Management Systems, OSU

Management Tips

MSU Dairy Extension Team

Mike Metzger

Food animal producers will require a veterinary prescription to access over-the-counter antibiotics

Antibiotics are used widely to fight bacterial infections in humans and animals. However, if the bacteria develop a resistance to that antibiotic, the drug becomes less effective in fighting the infections. For this reason, over the counter (OTC) antibiotics will only be available to producers from a veterinarian or with a prescription from a veterinarian.

To ensure continued effective use in humans and animals the US Food and Drug Administration Center for Veterinary Medicine has developed a 5-year Veterinary Stewardship Plan designed to slow the emergence of antimicrobial resistance that can arise from the misuse of antibiotics in animals while ensuring safe and effective use of medically important antibiotics in animals and humans. Many antibiotics are medically important to both human and animal health. The intent of this legislation is to ensure that these drugs are used under veterinary supervision, reducing the chance for development of antimicrobial resistance to these drugs in both humans and animals.

In 2017, FDA placed in-feed and water-soluble medications use under veterinarian supervision through Veterinary Feed Directive. The next steps in this transition will move OTC products to veterinary oversight. As of June 11, 2023, all medically important antibiotics in dosage forms such as injectable, intramammary and boluses, approved for use in animals — both food-producing and companion — will no longer be available over the counter.

By Mike Metzger

View full article here

2022 Michigan corn hybrids compared

The Michigan State University Department of Plant, Soil and Microbial Sciences conducts the Michigan Corn Performance Trials each year in cooperation with MSU AgBioResearch, the Ohio State University, seed corn companies and farmers to determine yield and quality performance for corn hybrids throughout the state of Michigan.

How to Use This Bulletin

Tables list hybrids alphabetically and contain yield results for each location along with trial averages within each zone. Complete one-year yield results are listed in tables for each trial within each zone, where data is available. Two-year yield results can be found on our website listed below. One- year single-site results are less reliable than multiple year and multiple location averages, therefore one-year single- site results should be interpreted with more caution. Confidence in corn performance data increases as the number of years and the number of testing locations increase. Results for corn grain and corn silage trials are also listed on our website: https://www.canr.msu.edu/varietytrials

Results are the average of four replications grown in close proximity to one another. Two or more plots of the same hybrid in the same field may produce somewhat different results because of uncontrolled variability in the soil and other environmental factors. Replication and randomization of entries are two methods employed to reduce this variability. Because these methods do not eliminate all variability, the magnitude of difference necessary for statistical significance has been calculated for yield, moisture content, and test weight.

By Maninder Singh and Micalah Blohm

View full article here

Management Tips

MSU Dairy Extension Team

Victor Malacco

Harvesting and storing colostrum: Tips for success

Collect it early – within 6 hours.

- Cows should be milked within 6 hours after calving.
- The concentration of immunoglobulins is highest immediately after calving and decreases over time because of the dilution by the milk produced after calving.

Cleanliness is key!

- Make sure that cows' teats are clean by pre-dipping and drying before starting milking.
- Ensure milking equipment is clean before collection. If possible, designate buckets for colostrum harvesting only. Always keep the buckets covered tightly, both before and after collecting colostrum.

Check quality immediately – Goal BRIX ≥ 21!

- Colostrum should be tested for quality with a refractometer before pasteurization, further processing, or storage. Predicting colostrum quality based on visual characteristics such as color or consistency is impossible.
- The refractometer measures the percentage of solids on the solution and indirectly immunoglobulins. Aim for colostrum with Brix values equal to or higher than 21.
  - Use colostrum with lower Brix values for second colostrum feeding.

By Victor Malacco

View full article here

MSU researcher says anaerobic digesters are 'the wave of the future'

MSU AgBioResearch Engineer Dana Kirk grew up working on his family's dairy farm "running around scooping manure," while simultaneously developing a curiosity for the symbiotic relationship farming has with the environment.

"The issues our work aims to address have always been near and dear to me as someone raised on a family dairy farm. I am also an avid outdoorsman and outdoor swimmer," said Kirk, associate professor in the MSU Department of Biosystems and Agricultural Engineering. "It's important we continue to develop and enhance agricultural practices that maintain a good relationship with the environment. To do that we are seeking methods to better utilize all of our resources, and find ways to reinvest in those resources."

Kirk understands large-scale digesters are not viable waste-management solutions for most of Michigan's dairy operations. Many financial, regulatory, training and logistical barriers prevent some small and medium-sized farms from adopting any of the various digester technologies that currently exist. ADREC partners with state and national commodity and regulatory groups to meet these issues head-on with the goal of easing the burden of transitioning to digester systems.

In an effort to provide dairy producers around the U.S. with resources necessary to adopt effective waste-to-energy systems on their own farms, Kirk worked with Dairy Management, Inc. to develop a resource guide on digester technology options available commercially that provides comparative information to better guide farms on optimal systems for their individual needs.

By Justin Whitmore

View full article here

Management Tips

MSU Dairy Extension Team

Sarah Fronczak

Interpreting manure analysis results

Applying the appropriate amount of manure requires correct interpretation of manure test results. Moisture and nutrient levels on the test results need to match crop nutrient needs. Under-application of manure will not meet crop needs and over application may allow excess nutrients to escape into ground or surface water. This article discusses how to interpret manure sample test results.

Manure test results

Basic manure sample test results include moisture, total nitrogen (N), ammonium N, organic N, phosphorus as P2O5 and potassium as K2O. Micronutrients and additional information can also be requested for analysis. For liquid manure, nutrients are often reported in pounds per 1,000 gallons of manure. Solid manure nutrients are reported in pounds per ton of manure. If the manure is not reported in a useable unit, the lab can often convert the report to the desired reporting unit. The exception is moisture, which is only able to be reported as a percentage.

Keeping nitrogen available

Nitrogen is divided into two parts: organic and ammonium. Each reacts differently in the soil once manure is applied. When manure is applied in September through June, only one-third of the organic nitrogen, expressed as organic N, is available. The remaining amount of organic N must be broken down before becoming available, which usually occurs over a three-year period.

By Sarah Fronczak and Amanda Douridas

View full article here

How will PFAS impact the Michigan cattle industry?

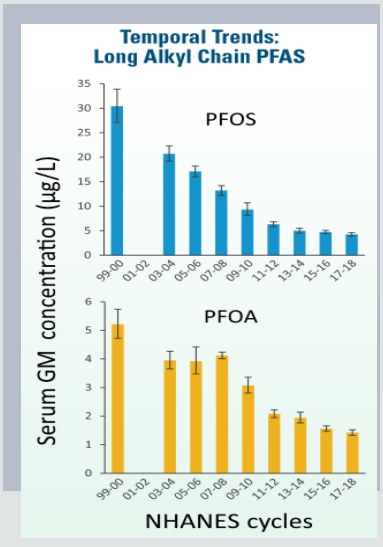
What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of human-made chemicals that were designed to repel oil and water, for temperature resistance and friction reduction for a plethora of consumer and industrial products. Some examples of these products include coatings for various textiles, paper products and cookware, along with use in firefighting foams and insecticides. Chemicals in the PFAS family were created in the 1940s and may now include between 5,000 to 10,000 different chemical structures. Two of the most commonly recognized and concerning PFAS are perfluorooctanoate (PFOA) and perfluorooctane sulfonate (PFOS), which were voluntarily phased out of production starting in the early 2000s.

PFAS in Michigan

An interactive map of PFAS sites in the state of Michigan shows that it is the leading state in recognized PFAS contamination sites as shown in this interactive map of the United States. This may be influenced by the amount of PFAS testing that has occurred in those locations to monitor and gain a better understanding of PFAS contamination within the state. To combat the ongoing concerns with PFAS contamination, the Michigan PFAS Action Response Team (MPART) was created with members from seven agencies (Michigan Department of Environment, Great Lakes, and Energy (EGLE); Michigan Department of Health and Human Services (MDHHS); Michigan Department of Agriculture and Rural Development (MDARD); Michigan Department of Natural Resources; Michigan Department of Transportation; Michigan Department of Licensing and Regulatory Affairs; and Michigan Department of Military and Veterans Affairs). The Michigan State University Center for PFAS Research has been established to quantify and communicate PFAS risks, and mitigate their impacts on human health, agriculture and natural resources in a collaborative effort with MPART.

By Jared Jaborek and Jeannine Schweihofer



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Research Drill Down

Harkirat Kaur, Maninder Singh, Peyton Phillips and Martin Chilvers

Fungal infections of corn and management strategies

Both corn grain and silage corn are important components of dairy rations, often providing more than half the diet dry matter content. Infections by various fungi in corn cause ear rots (Fig. 1 - 2) and stalk rots, leading to lost yield, lodging, and rapid plant dry-down. Furthermore, many fungal infections eventually lead to accumulation of mycotoxins (toxic secondary metabolites) in the plant biomass. In this article, we'll explore these challenges and consider best practices to minimize the risks to dairy farms.

Figure 1. White and pink ear molds caused by the fungus *Fusarium graminearum* (also known as *Gibberella zeae*) and related fungi can produce mycotoxins such as deoxynivalenol (DON), zearalenone (ZON) and fumonisins.

Figure 2. Blue molds caused by Penicillium spp (produce Ochratoxins).

Figure 3. Western bean cutworm larvae on a corn ear.

Are mycotoxins a problem for Michigan farms?

Mycotoxins result in metabolic disruptions in livestock that eat contaminated feed, hence putting their lives and productivity at risk. Some toxins, especially deoxynivalenol (DON or vomitoxin), zearalenone (ZON), and fumonisins cause feed refusal, leading to loss in milk production, hormonal imbalance, reduced reproductive performance and in some cases the death of animals. Mycotoxins can have serious economic consequences on farms if present in sufficient concentrations. Moreover, mycotoxins rarely occur in isolation and often co-occur and their impacts on the health of livestock may be synergistic. This makes it difficult to determine safe levels (thresholds) for individual mycotoxins.

A mycotoxin survey conducted for both grain (small plots) and silage corn (grower fields) in Michigan between 2017-18 and 2019-21, respectively, showed the presence of mycotoxins in the state. *All the silage and grain samples tested positive for at least one mycotoxin and most of them tested positive for more than one mycotoxin* (Table 1). The concentration and frequency of mycotoxins were observed to be dependent on regional weather conditions around silking in corn. In 2020, since the growing season was drier and rainfall was more sporadic compared to 2019 and 2021, lower frequency and concentration of mycotoxins was observed. The most frequently occurring mycotoxins that were present in significantly higher concentrations were DON, ZON, and fumonisins (Table 1). Moniliformin, ennaitins, and beavericin were a few frequently occurring toxins, but their concentration was less than 0.5 ppm.

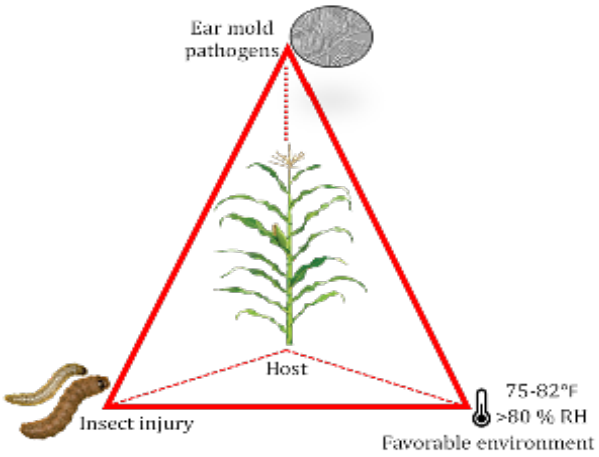

Figure 4. Epidemiological triad for ear mold development in corn.

What conditions favor mycotoxin accumulation?
Cool and wet weather (high relative humidity) conditions around silking of corn tends to be favorable for growth of ear and stalk rot fungi and may cause high mycotoxin accumulation (Fig. 4). Feeding by birds, animals, and ear-damaging insects such as western bean cutworm (WBC, Fig. 3) and European corn borer can provide easy entry for the fungus and intensify infections. Increased infestation of these insects and the failure of Cry1F (a type of Bt protein) against WBC have aggravated ear injuries and aided infections.

What can growers do to avoid mycotoxins?
Mycotoxins, once accumulated in the plant biomass, are almost impossible to break down. Therefore, in-field management strategies are key to alleviating the mycotoxin issue. Management in silage becomes a little tricky because the whole plant is harvested, and mycotoxins can be attributed to both ear and stalk rot infections. Also, properly storing silage and maintaining fermented conditions is critical to prevent deterioration of already contaminated silage.

Pre-planting decisions:

Hybrid selection is a crucial decision, based mostly on the yield potential, herbicide tolerance, relative maturity, and disease resistant ratings of hybrids provided by seed companies. However, insect protection traits are also worth taking into consideration. Hybrids with Bt proteins (such as Vip3A) can provide protection against insect injury; by preventing ear-feeding insect injury, these traits can in turn reduce the severity of ear rot infections, as shown by our research (Fig. 5). This can ultimately decrease concentrations of mycotoxins in hybrids with innate insect protection.

Toxin	2019	2020	2021
DON[1] (detectable)	100	100	100
DON >1 ppm (threshold)	50	12	60
ZON[2] (detectable)	100	35	100
ZON >0.4 ppm (threshold)	26	0	0
Fumonisins (detectable)	95	96	100
Fumonisins >2 ppm (threshold)	5	16	0
Presence of >1 mycotoxins	100	100	100
Presence of >10 mycotoxins	100	92	96

Table 1. Percentages of samples (n=122) with toxins at detectable and threshold levels for dairy cattle
[1] Deoxynivalenol, [2] zearalenone

Planting date: Adjust planting date such that the silking stage (most susceptible stage) does not coincide with highly favorable conditions for fungal infection and mycotoxin production (generally moderate to high temperature and high relative humidity). Also, the ideal planting date results in pollination and kernel development when insect activity (both WBC and European corn borer) is low and under conditions less favorable for fungal infection and mycotoxin development. Our silage corn research trials in Ingham County showed that earlier planting (late April to early May) usually results in a lower insect infestation, lower risk of fungal infections, and reduced mycotoxin accumulation than for later plantings.

Planting density: Our research in silage corn shows that increasing seeding rate increased lepidopteran insect feeding injury, which - if accompanied by favorable environmental conditions - can result in abundant ear rot and eventually mycotoxins. Therefore, not pushing the planting densities beyond optimum limits is crucial because excessive plant densities can stress plants and increase their susceptibility. Further, denser plantings may create denser crop canopies, which hold moisture and create a more favorable environment for fungal infection.

In-season management:

Fungicides: Using triazole-based fungicides with active ingredients such as prothioconazole and tebuconazole can prevent ear rot infections and eventually mycotoxin

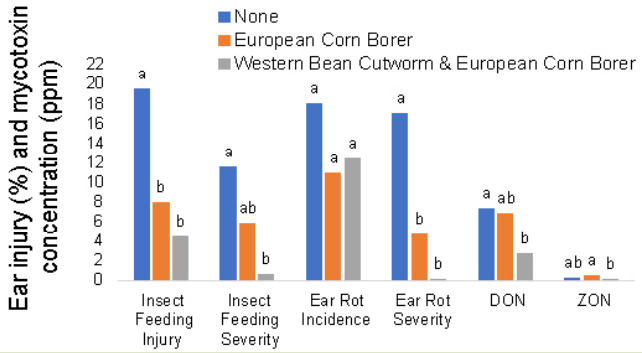

Figure 5. Mean percent of ear injury for hybrid insect protection trait. DON, Deoxynivalenol; ZON, Zearalenone. Values with same letter for a variable are not different (P < 0.10). *Ingham 2019*

Quality parameter (% of DM unless noted)	"Less affected"	"Severely affected"
Moisture (% as-fed)	52.4	19.0
Crude protein	8.2	7.5
ADF (cellulose & lignin)	14.5	23.2
aNDF (cellulose, lignin, hemicellulose)	27.6	38.4
Lignin	1.99	3.37
NDF Digestibility (30hr, % NDF)	58.1	50.9
Ethanol-soluble carbohydrate	4.2	1.7
Starch	49.8	42.8
TDN	76.5	71.2
Net energy for lactation (Mcal/lb)	0.79	0.73

Table 2: Silage quality analyses of samples collected from within a field of a dual-purpose hybrid from a less tar spot affected part of the field and a severely affected part of the field. *Montcalm County, 2018*

accumulation. However, the efficacy of fungicides is dependent on the time of application and declines as the time interval between silking and application date increases. Moreover, fungicide efficacy is also dependent on the primary driver for disease in the field. For instance, if ear rot infections had been intensified due to insect injury, fungicides may not provide a successful control strategy and might not be profitable.

Harvest timing: Scouting fields around mid-dent (for silage) and physiological maturity (for grain) to determine the severity of mold issues is critical in determining the time of harvest. If 10 or more plants in 100 have more than 10% of kernels infected with mold, or are lodged, the field should be scheduled for the earliest possible harvest. For grain harvest, it should then be dried to 12-13% as quickly as possible. For silage corn, consider harvesting as soon as the field is less than 70% moisture in case high mold problems are reported.

Post-harvest management:
Storage and ensiling: Ensure dry storage conditions and eliminate factors enhancing mold growth. For silage corn, maintaining an adequate packaging density is crucial to exclude oxygen in silos. Low silage pH and anaerobic conditions during ensiling should be maintained to inhibit the growth of toxigenic fungi and reduce production of mycotoxins in silage corn. To prevent mold growth and mycotoxin accumulation at feed-out, additives that enhance aerobic stability should be used along with maintaining a straight, well-packed silo face.

Managing contaminated feed: Since denaturing mycotoxins is almost impossible in feed, consider diluting affected feed with clean feed to minimize toxin intake in the diet. Additionally, mycotoxin binders such as silica-based inorganic compounds, activated carbon, humic acid, micronized dietary fibers and other polymers like the resin cholestyramine can help to minimize mycotoxin impacts on animals.

Managing Tar Spot in Silage Corn

Tar spot - caused by the fungal pathogen *Phyllachora maydis* - was first observed in the U.S. in 2015 and then Michigan in 2016. Since its arrival, tar spot has caused significant yield loss of corn and is an emerging threat to farmers throughout the Midwest, particularly in wet years such as 2018 and 2021.

Apart from some planting delays due to moisture, the 2022 growing season brought relatively dry conditions across most of the state. The lack of frequent rainfall and low humidity throughout most of the season resulted in reduced frequency and duration of leaf wetness events. Leaf wetness is crucial for most pathogens, as spores typically require free moisture for plant infection. As conditions were relatively dry after planting, tar spot was slow to develop. We therefore seemed to escape most of the early disease development which can set the stage for explosions of the disease during flowering and ear development.

For comparison, at our primary trial location near Decatur, MI we detected tar spot on July 7 in 2021, with a subsequent rapid increase of tar spot disease severity. In 2022, tar spot was not detected until August 12 and there was little subsequent disease development. Statewide, although there were some reports of tar spot in mid-July, there were not sufficient leaf moisture events for the disease to develop into a significant threat. Likewise, many counties still didn't have confirmed tar spot even by the middle of August. National tar spot monitoring efforts by county have documented the continued expansion of tar spot out of the Great Lakes region. This data can be viewed at https://corn.ipmpipe.org/tarspot/.

Figure 6. Tar spot stromata on a corn leaf.

What are the impacts of tar spot on silage quality?
During the 2018 tar spot epidemic that affected West-Central Michigan, we collected two silage corn samples from within an irrigated field of a dual-purpose hybrid. Samples were collected from part of the field that was "less affected" by tar spot and from part of the field that was "severely affected" with lodging from tar spot disease. The silage was dramatically impacted by tar spot, with low moisture and quality scores where tar spot was severe (Table 2).

It's important to be "on the ball" during tar spot epidemics, as rapid dry down of corn in the field can result in low moisture levels, resulting in poor silage fermentation and potentially spontaneous combustion. Unfortunately, the tar spot disease can develop quickly under the right environmental conditions, so it is important to be aware of disease development. As we documented, tar spot can also reduce silage quality parameters, reducing sugars and energy content and increasing the ratio of non-digestible components, however to date there have been no mycotoxins recorded from the tar spot fungus.

Management options to control tar spot
The tar spot pathogen survives on corn residue through the winter, so unfortunately it is here to stay. Crop rotation and tillage appears to play a very limited role in tar spot management. We would assume that corn-on-corn fields would be at increased risk as the tar spot fungus can survive on residue; however, as the pathogen can spread over significant distances, even fields with a good crop rotation program are at risk. There are numerous instances of severe tar spot developing in fields that haven't been planted to corn for many years, and little to no tar spot in corn-following-corn.

The far more significant element to disease development is the presence of leaf wetness events and hybrid susceptibility. Tar spot management should start with *selection of hybrids* that have good tolerance to the disease. Be sure to speak to your seed dealer about the latest information they have on hybrid responses. It's a good idea to also spread risk by using multiple hybrids on farm to avoid placing all "eggs in the same basket". If your fields are irrigated, be sure that your pivot is calibrated and *avoid unnecessary leaf wetting events.*

For management during the season, it's important to scout fields for tar spot presence and to stay tuned for updates about the disease in your area. Tar spot infections can be detected by the development of raised black structures (stroma) on the leaf surface (Fig. 6). Stroma can be confused with insect frass (feces); however, insect frass will rub off the leaf surface, whereas the tar spot stroma will be imbedded in the leaf tissue. Disease risk can also be monitored with the Tarspotter® app which uses location and weather data to determine if conditions are conducive for tar spot disease development. Of course, we can have instances where disease risk is high for a period, but then may also drop if conditions turn dry, so considering crop growth stage and weather projections are important when making fungicide decisions.

For management of tar spot in grain corn we have seen that a single fungicide timing at around silking (R1) through to milk (R3) tends to be optimal for tar spot management in most years. Through support from the Michigan Alliance for Animal Agriculture and Project GREEEN we are conducting i) fungicide product comparisons, ii) fungicide timing trials, iii) hybrid screening, including both brown midrib and dual-purpose varieties and iv) chop timing trials to provide more informed tar spot management recommendations. Stay tuned for updates!

Meet the Authors

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Michigan Dairy Recognition

Shining a light on industry leaders

Rupprechts Named 2022 Outstanding Young Dairy Cooperator Runners- Up

Nearly every college graduate has one story about a wild night or an unforgettable memory that forever changed the trajectory of their life. The memories are typically set in scenes of college parties and dorms – not in dairy sale barns like it is in the case for Drew and Beth Rupprecht, the 2022 MMPA Outstanding Young Dairy Cooperator (OYDC) Runners-Up.

"I went to Michigan State University and I joined Dairy Club, because I didn't know anything about cows, and that's where I met Drew," Beth recalled. "I went with him to a couple shows and then I bought my own heifer that I kept at his family's place. It's like getting a dog together, only bigger, and it's not that easy to move it."

To view the full article, visit: mimilk.com

Q&A with Scott Corrin

Scott Corrin, Director of Operations and Business Development for the Mideast Area with Dairy Farmers of America, answers questions about the state of dairies today and tomorrow.

How can research better assist producers moving forward?

When it comes to research in the dairy industry, it is important to continue to engage dairy producers to focus on issues that will have the biggest impact. The heart of dairy farming is taking care of their cows and the land that they manage. Research is important to help address some of the dairy industry's concerns in the long term, but in today's world, it sometimes needs to be nimble enough to provide incremental improvements in the short run, too.

View full article here

L to R Emmy Shuurmans, Jared Sanderson, and Monika Dziuba

MSU Vet Students Awarded Scholarships at Bovine Practitioners Conference

Monika Dziuba, Jared Sanderson, and Emmy Schuurmans, each veterinary students in the Class of 2023 at the MSU College of Veterinary Medicine, were awarded scholarships at the 2022 conference of the American Association of Bovine Practitioners (AABP).

"These awards represent our students' potential to become outstanding veterinarians in the future, and the College is very proud of their hard work," says Dr. Ángel Abuelo, associate professor of Cattle Health and Wellbeing in Large Animal Clinical Sciences. "The scholarships will help our students gain more experiences and knowledge to better serve their patients in the future, and we're grateful to the supporters who made the awards possible."

To view the full article, visit: cvm.msu.edu

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Mark your calendar

Use the QR code below to receive occasional text message updates from the MSU Dairy Extension team:

- **Western Dairy Management Conference**
  Feb. 28 - March 2
  Reno, Nevada
- **MI 4-H Dairy Conference**
  March 3-5
  Roscommon, MI
- **MSU Dairy Education Academy**
  March 17-18
  East Lansing, MI
- **Tri-State Dairy Nutrition Conference**
  April 10-12
  Fort Wayne, Indiana