Spartan Dairy Newsletter

Summer 2026 Vol. 6 No. 2

Life at the new dairy farm

An interview with Jerry Kehr, DVM

We saw the trend, we loved it, we waited until it was basically over... Any guesses who these young scientists are?

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Life and science at the new facility with Dr. Kehr

Farm staff teach student employees to milk the cows. Veterinary students practice exams. Undergraduates learn animal care, handling, reproduction, and farm management. Graduate students conduct research for their theses or dissertations. All these groups care for the cows- but who is ultimately responsible for animal health? This interview with Dr. Jerry Kehr, campus veterinarian, describes his role and responsibilities at the new MSU Dairy Cattle Teaching and Research Center.

I like to ask people for a fact about themselves- what is something people should know about you?

Having grown up with a variety of animals, I enjoy having a few around even now. I have a few sheep that I keep around as a hobby flock to raise a few lambs every year. I find satisfaction in taking care of my own animals.

Why did you choose large animal practice as a veterinarian?

After graduating from veterinary school, I practiced in a mixed animal practice in western New York for 1 ½ years. I soon gravitated toward the large animal side of the practice. I always thought that would be my career path because I have fond memories of a veterinarian visiting our small farm when I was younger and then shadowing them on farm calls as I became more interested. I think working outside and the relationships built with the farm owners and workers suited my lifestyle better.

What does a typical day look like for you?

I have a more typical work week than a typical day since I have a variety of responsibilities. Generally, I do routine work at the campus farms on Monday and Friday mornings. Although always available for emergencies between visits, the farm managers and staff know my routine and will have cases to check banked on those days. For things that arise between farm visits, I will often talk with or text farm staff that may only need advice about an animal.

I also do rounds at our biomedical facilities that house livestock species. These are generally done on the days that I ordinarily don't visit the livestock farms as an extra precaution for biosecurity. Finally, I spend office time reviewing the protocols for MSU owned animals used for research and teaching to make sure they are keeping the health and well-being at the forefront. This also includes consulting with those investigators using the various animals.

Dr. Jerry Kehr is the campus livestock veterinarian at Michigan State University.

How has your job changed since moving to the new dairy cattle teaching and research center?

The biggest change is simply related to a larger population of animals being housed in the new dairy. The issues that affect cattle have not changed much, but with more animals, there will certainly be (numerically but not incidence wise) more health events in some areas. However, with the more modern facility, there is a much greater emphasis on the comfort of the cattle, and this has helped tremendously to reduce stressors from heat and injury. Along with that, we also now have a larger hospital and treatment area set aside for cows that have special needs so they are in an area where extra attention may be given.

The electronic health monitoring system has also expanded after moving to the new farm. This allows me along with the farm herdspersons to "examine" each animal every day from afar. Of course, this doesn't

A day at the dairy

take the place of visual inspection, but it allows much more information to be gathered as well to help identify animals in need of closer examination. Finally, because cows are almost entirely housed in a modern free stall arrangement, we can manage them easily using self-catching headlocks when needed. This allows them to be relatively briefly restrained in small groups and then released with the ability to eat, roam or lie down as they choose.

Obviously with the larger barn, the cows are spread out over a much larger footprint. Just like all the farm staff, it means I walk many more steps during the day when I am on farm.

Dr. Jerry Kehr prescribes medication when needed to maintain animal health. Photo credit: Trina VanAtta

What challenges do you face in managing herd health at the MSU dairy?

At the time the animals were moved into the new barns, MSU also purchased another herd of cattle to bring on board as well. I, along with a team of experts in a variety of fields, worked to successfully merge these two herds of cattle using the best practices to reduce risk and make the transition as smooth as possible to maintain animal well-being. Commingling animals with different history, past exposure and health profiles does mean some new challenges with pathogens we had not dealt with before in our closed herd.

What does it mean to coordinate clinical care for the dairy farm?

I coordinate the care, and fortunately there is a large team of people in a variety of roles that work together to ensure that the animals are taken care of in the best way possible. Like any successful operation, it wouldn't happen without dedicated people all around.

I work with the farm managers and staff to develop and regularly review standardized veterinary care guidelines that can be used for specific health conditions seen in the cows and calves. When standard treatments are ineffective or there are concerns about a particular case, I provide alternatives or revise the standard treatments as necessary. I also spend time reviewing the health records, consulting with the team leaders and assisting with training any employees when necessary.

I am the "point person" responsible for animal care but certainly need a team of other professionals to pull it all together. I have never practiced alone in my 30 years of private practice for this very reason.

What is your favorite thing about being a veterinarian?

I really enjoy working with large animals and the people that care for them. The people that I have the privilege to work with have been outstanding. People take great pride in providing care for their livestock and it really is a lifestyle. Helping producers make good decisions to achieve optimal animal health and remain in profitable business is very satisfying. The opportunity as the Farm's veterinarian here at MSU also allows me to see how research and teaching is bringing on a new generation of skilled professionals.

What advice do you have for students interested in the dairy industry?

For undergraduates, if you have had little or minimal exposure to livestock, don't be dissuaded from pursuing a career in agriculture. Explore all the options available in modern agriculture and familiarize yourself with what makes progressive animal farms function at a high level.

For those in veterinary school, remember that some very good large animal veterinarians and industry professionals have come from a non-rural background. It's ok to take some calculated risks especially early in your career. Challenges and problems will arise just like they do in any part of life. Take those as opportunities and move forward. Veterinary practice is a lifelong opportunity to learn but you have to be willing to get out of the boat if you want to walk on the water.

Dairy Spotlight

Camila Moreira Pinto and Kylie Slavik

Camila Moreira Pinto
Research Assistant

Camila Moreira Pinto joined Dr. Angel Abeulo's lab in the College of Veterinary Medicine in March as the lab manager. Originally from Brazil, Camila holds a bachelor's degree in biomedicine, a graduate certificate in biotechnology and bioprocess, and a master's degree in biotechnology from São Paulo State University.

Her passion for molecular biology began during her undergraduate years, when she conducted her first research project using real-time PCR to evaluate gene expression in the bovine oviduct; an early connection between her scientific interests and the field of cattle health.

Before joining MSU, Camila spent nine years working for a genomics company in Brazil. She developed extensive expertise in molecular biology, sequencing technologies, and laboratory management. Her combined experiences across both private and academic settings have equipped her with a strong technical foundation and the organizational skills to support the Abuelo Lab's research on oxidative stress, immune function, and vaccine responses in periparturient dairy cattle and neonatal calves.

Camila is excited to expand her expertise into the new challenges of immunology. She looks forward to supporting the well-established research program at the Abuelo Lab; work that ultimately aims to improve calf health, reduce antimicrobial use, and enhance profitability on dairy farms.

Kylie Slavik
Operations Coordinator

Kylie Slavik graduated from Hope College in 2022 with a bachelor's degree in business. She grew up on a dairy, beef, and crop farm, but never envisioned herself working in the agricultural industry. However, during her time in college she discovered just how dynamic and rewarding the agricultural industry could be.

Prior to joining MSU, she worked for about three years at a print and sign shop, where she developed a strong skill set and discovered a passion for hands-on, detail-oriented work. Over time, Kylie realized she was ready for a new challenge—one that would allow her to reconnect with agriculture and contribute to an industry she had grown to respect and value.

Kylie joined MSU in February 2025 as an Office Assistant supporting the Campus Livestock Centers and ANR Research and Extension Centers within AgBioResearch. In this role, she assisted farm managers across multiple research centers by managing deposits, processing travel reimbursements, pulling monthly ledger reports, and handling internal financial billings and purchase orders. She also supported HR-related tasks, including hiring and on boarding students and temporary employees, processing I-9 forms, and reviewing and submitting bi-weekly payroll.

As she took on additional responsibilities, Kylie began supporting the dairy farm more directly, particularly in developing and organizing employee schedules during their transition to a new facility with expanded operations. She was eager to step in and contribute, and as a result, AgBioResearch created a dedicated on-site position at the dairy farm to manage these responsibilities more effectively.

News and Updates

Dairy industry celebration and recognition banquet

On April 21st 2026 the second Michigan Dairy Industry Celebration and Recognition Banquet took place at Eagle Eye Golf and Banquet Center. The event hosted over 185 attendees including MSU faculty and students, dairy producers, industry leaders, and parents. Representatives from 24 dairy organizations also financially supported and attended the event. Those recognized included the 2026 Michigan Dairy Farm of the Year, Michigan Dairy Memorial Scholarship Foundation Award Recipients and Honorees, MSU Dairy Judging and Dairy Challenge Teams, and MSU Dairy Club and MSU Dairy Education Program Awardees.

Banquet attendees also raised $7,391 to contribute to the Joe Domecq Education Endowment. This endowment was established in 2023 to recognize Dr. Domecq's service to the dairy industry. This fund will support an expanded teaching capacity to meet projected enrollment growth in the dairy science programs at MSU.

The celebration was organized and coordinated by MSU dairy teaching faculty and students. The MSU Animal Science Department looks forward to continued growth of this event in 2027. More information on the upcoming event will be shared on the MSU Dairy Education and MSU Dairy Extension social media platforms. If you or your organization are interested in sponsoring the upcoming spring 2027 celebration, please contact Joe Domecq (domecqjo@msu.edu).

Key award highlights:

2026 Michigan Dairy Farmer of the Year:	Okkema Family, De Grins Oer Dairy, Blanchard, MI
MDMSF Honorees:	Larry Chapin and Kevin Dill
MSU Dairy Education Awards:	Sadie Brearley (Distinguished Leadership), Chloe Steiner (Academic Achievement), Bryce Ritter (Outstanding Ag Tech Student), Caden Johnson and Elena Tanin (Outstanding First Year Students)
MSU Dairy Club Awards:	Sadie Brearley (Outstanding 4 Year Member), Joey Arens (Outstanding Ag Tech Member), Chloe Lawrason (Outstanding First Year Member)
Dairy Judging Teams:	2025 Collegiate: Maretta Finley, Chloe Steiner, Olivia Black, Laken DuRussel 2025 Ag-Tech: Abby Thelen 2025 4-H: Katie Karboske, Bryce Ritter, Joey Arens, Hailey Mesbergen
MSU Dairy Challenge Teams:	2026 National: Sadie Brearley, Bette Eggink, Callie Loew, Eli Swyers 2026 Aggregate: James Link

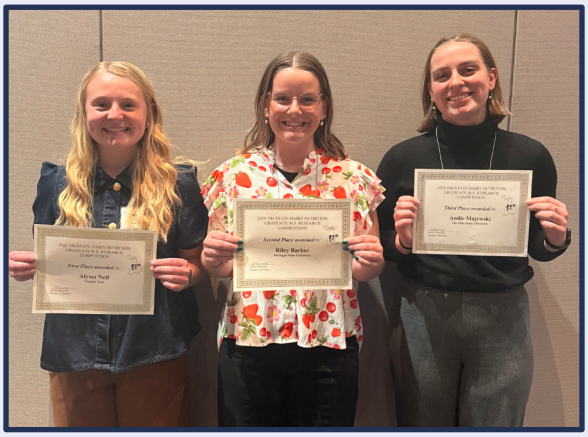
News and Updates

Winter and spring dairy science events

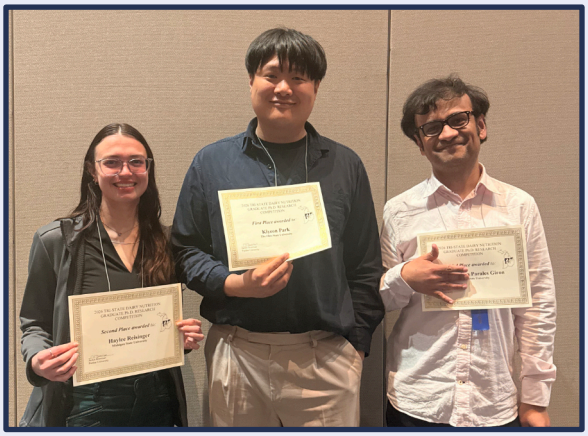
Joe Domecq celebrated 30 years leading the MSU Collegiate Dairy Judging Team. He was recognized for this accomplishment at the 2026 Dairy Banquet in April.

Students participated in the Northeast Regional Dairy Challenge contest in Wooster, Ohio last year.

Dairy Judging students traveled to the Fort Worth Stock Show Dairy Judging Contest in January. The team placed second overall, second in Jersey, third in Brown Swiss, sixth in reasons, and sixth in Holstein.



Master's student Riley Barber (center) won second place at the Tri-State Dairy Nutrition Conference student competition. She is pictured with Alyssa Neff (left, first place) and Andie Majewski (right, third place).

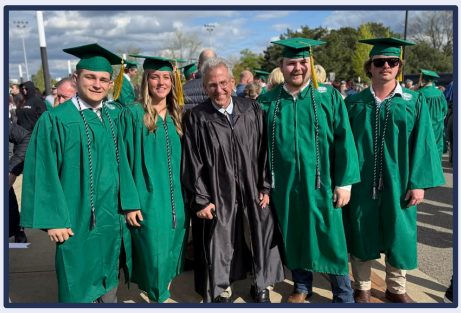


Haylee Reisinger (left) won second place in the Ph.D student division at Tri-State, and Jair Parales-Giron (right) won third place. They are pictured with Kiyeon Park of Ohio State University, first place.

Dairy Education Programs
Michigan State University

Follow Michigan State Dairy Education on Facebook to see more student photos!

Sadie Brearley, Bette Eggink, Callie Loew, and Eli Swyers competed in the National Dairy Challenge Contest as the MSU national team in Sioux Falls. James Link completed on the aggregate team and Isabella Stoutenburg participated in the academy experience.



James Link, Sadie Brearley, Elijah Swyers, JD Rejman, Chloe Endrezl, and Isabella Stoutenburg (not pictured) earned bachelor's degrees in Animal Science with a dairy concentration (above).

News and Updates

Haylee Reisinger

Fats that fight: Omega-3s in dairy cows

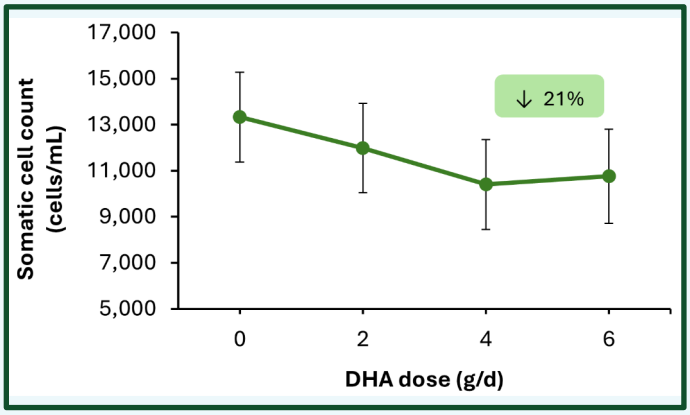
From grocery aisles to supplement stores, omega-3 fatty acids are everywhere. Their potential benefits may extend beyond people - even to dairy cows. Recent MSU research explored whether immune function in dairy cows can be improved by using omega-3s.

In addition to providing energy and other essential nutrients, various feedstuffs and feed additives contain bioactive components that alter animal physiology. While the term "bioactive" describes many compounds, fatty acids (FA) are familiar bioactives in the dairy nutrition space. The common FA supplemented in a dairy cow's diet are palmitic, stearic, and oleic; however, less is understood about the omega-3 fatty acids such as alpha-linolenic (ALA), eicosapentaenoic (EPA), and docosahexaenoic acids (DHA). In other species, these omega-3 FA are known for their anti-inflammatory effects in the body.

Cows in intensive dairy systems may be deficient in omega-3 FA compared to grazing cattle. Fresh grasses contain substantial amounts of ALA; however, most dairy cows do not have access to these fresh forages and may be deficient in omega-3 FA. Due to limited DHA in traditional dairy cow diets and its potential impact on cow health, a collaborative team studied how DHA directly affects production and the immune response in lactating dairy cows. To test these effects directly, we had to bypass the rumen, since rumen microbes rapidly convert these FA to saturated forms without the same potential to benefit health. While this approach is not practical in a commercial farm setting, the outcomes of this research may provide insight for development of new feed products that can deliver omega-3s past the rumen.

After abomasally infusing cows with varying doses of DHA, we collected blood samples to assess immune signaling and the immune cell response to a laboratory bacterial stimulation. We found that DHA increased the proportion of neutrophils (a type of white blood cell) that internalize *Escherichia coli*. Neutrophils are one of the first immune cells to respond to infections and eliminate pathogens by phagocytosis, which is the process of internalizing and killing the pathogen. These results suggest that DHA may enhance neutrophil function, although the response may be dependent on the type of bacterial challenge.

While DHA enhanced *E. coli* uptake (a sign of increased immune function), DHA also increased anti-inflammatory signaling molecules. These results suggest that DHA can promote resolution of inflammation without interfering with the neutrophil's capability to eliminate harmful pathogens. Additionally, milk production was not affected by DHA infusion. In fact, DHA decreased somatic cell count, even when all cows were within a healthy somatic cell count range. This finding also supports the immunomodulatory potential of DHA.



Somatic cell count decreased in cows receiving doses of DHA.

While DHA had positive effects on the immune system, effectively feeding DHA to the cow is difficult for two main reasons. First, the sources highly abundant in DHA are algal and fish oils, therefore requiring additional processing. Additionally, DHA is highly susceptible to alterations by rumen microbes, which requires effective encapsulation. Calcium salts of EPA and DHA are commercially available; however, these products do not fully protect DHA in the rumen. Nevertheless, these findings warrant further research on practical ways to support the immune resilience of our hard-working dairy cows.

By Haylee Reisinger
Animal Science graduate student

Management Tips

Pedro Trindade

Can generative AI detect pain in calves?

What if your smartphone could help you tell if a calf is in pain just by taking a photo? With AI tools like Claude, ChatGPT, or Gemini, that future is closer than you might expect.

Dairy calves express pain through subtle changes in their facial expressions. Specific muscle movements and tensions around the eyes, ears, nostrils, mouth, and muzzle have been systematically described as Facial Action Units (FAUs) and are associated with acute pain by researchers. Previous studies have shown that a trained human can score pain-related FAUs from a single photograph to identify and estimate pain intensity in beef and dairy cattle. Our team is developing a specific grimace pain scale for dairy calves. While this is an important advance, manual annotation is time-consuming and requires specialized training.

With the goal of providing a more accessible approach for real-time use on dairy farms, we asked a practical question: can available Generative AI tools perform pain assessments comparable to those of trained humans using only minimal training?

To address this question, six female calves were recorded with high resolution video cameras at eye level for 30 minutes at one time before and five times after hot-iron disbudding. 250 still images were extracted from this video footage. To prevent bias, image order was randomized, ear-tag IDs were masked, and the horn area was blurred so the evaluator could not tell if a calf had been disbudded.

Our team developed a three-page reference guide containing text definitions and example images of 16 pain-related FAUs. This material served as guidance for a trained human evaluator who scored each image twice within a two-week interval. The same guide was also used as the "minimal training" prompt provided to Claude (Sonnet 4.5, Max plan, Anthropic) to score the 250 calf images.

Cohen's kappa coefficient (κ) was used to measure reliability:

- very good (0.81–1.00)
- good (0.61–0.80)
- moderate (0.41–0.60)
- reasonable (0.21–0.40)
- poor (< 0.20)

Humans were both consistent between the two rating periods and also very good at detecting sleeping, tongue cleaning nose, tongue outside mouth, ears backwards, and ears in different directions. However, humans were only moderate at identifying tension above eyes and reasonable at detecting totally closed eyes.

A dairy calf after disbudding.
Photo credit: Pedro Trindade

Next, we compared the reliability between human and Claude FAU detection to determine for which traits Claude was consistent with the judgments from the human evaluator. We found that there was good reliability for sleeping and moderate reliability for drooping ear, tension above eyes, and tongue cleaning nose. However, there was only reasonable reliability for partially open eyes, ears in different directions, and lip tension, and poor reliability for dilated nostril and ear backwards.

Now, we need your help! To build a larger database of calf images across breeds, ages, and photo conditions, we need clear images of a calf's head taken before or after disbudding. We plan to publish and share our reference guide used in training the human and AI evaluators. Contact Dr. Trindade at trindad4@msu.edu if you would like to contribute.

By Pedro Trindade
Assistant Professor

Management tips

José Ferronatto

Anti-inflammatories and antimicrobial resistance

A perennial challenge in the dairy industry is reducing the spread of antibiotic-resistant bacteria while still protecting cow health and milk quality. Antibiotics are an important tool for preventing and treating mastitis, especially at dry off, when it is cost effective to treat subclinical mastitis and to help prevent udder infections during the early dry period. These treatments have greatly improved animal health and milk quality on dairy farms. However, scientists and consumers are becoming increasingly concerned about antimicrobial resistance and the possibility that resistant bacteria may spread through manure into the farm environment.

Our team is investigating whether inflammation that naturally occurs around calving may play a role in increasing the shedding of resistant bacteria. Around the time cows give birth, their bodies go through major metabolic and immune changes, often leading to increased inflammation. In human medicine, studies have shown that inflammation can disrupt the gut microbiome and encourage the growth of antibiotic-resistant bacteria. We want to determine if the same process may also occur in dairy cows.

What will we study?

We are evaluating whether treating cows with oral anti-inflammatory therapy after calving can help reduce inflammation and decrease the shedding of resistant Gram-negative bacteria and antimicrobial resistance genes in manure.

The idea is simple: if inflammation contributes to microbial imbalance in the gut, reducing that inflammation may help maintain a healthier and more stable microbiome.

Throughout the study, we will collect blood, manure, and milk samples before dry-off, during the dry period, around calving, and after calving. These samples will help us evaluate:

- Levels of antibiotic-resistant bacteria in manure of both cows that got antibiotics at dry off and cows that were not treated
- Presence of antimicrobial resistance genes
- Changes in the gut microbiome
- Inflammatory biomarkers
- Mammary gland health and intramammary infections

Using advanced microbiome sequencing and molecular analyses, our team will characterize bacterial communities and track how resistance genes change over time.

What will we learn?

If successful, this work could provide dairy producers with a practical new strategy to help reduce environmental contamination with resistant bacteria while continuing to treat and prevent mastitis at dry off. The study may also improve understanding of how inflammation, antibiotic use, and the gut microbiome interact during one of the most critical periods in a dairy cow's life.

Ultimately, the project supports broader efforts to improve animal health, strengthen antimicrobial stewardship, enhance food safety, and promote sustainable dairy production.

By José Ferronatto
Postdoctoral research associate

After calving, a cow's body goes through major metabolic and immune changes. Photo credit: José Ferronatto

Management tips

Faith Cullens-Nobis

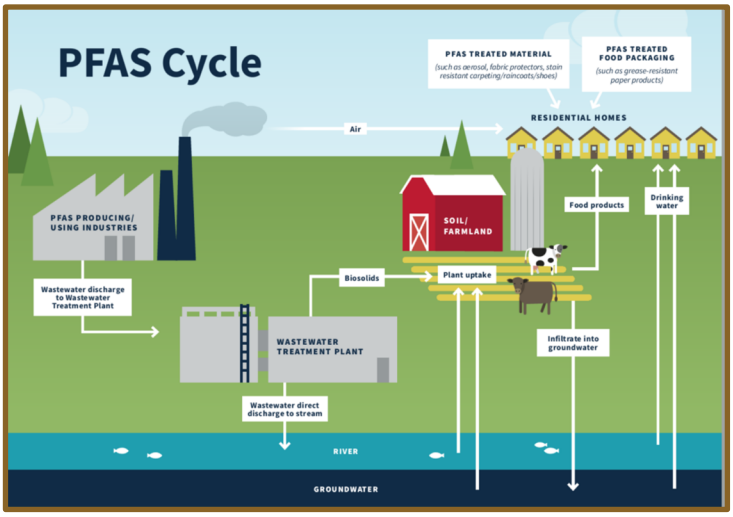
PFAS in agriculture

Per- and polyfluoroalkyl substances, otherwise known as PFAS or "forever chemicals," are a large class of manmade chemicals that are commonly used for their water, oil and stain resistant properties. These chemicals can be found in a wide range of products like firefighting foam, cosmetics, food packaging, non-stick cookware, carpeting, textiles, and more.

PFAS are still in use today and don't break down significantly in the environment, but they can move, particularly through the water cycle. Some PFAS can build up in our bodies, which can lead to health risks. Therefore, breathing, drinking or eating food contaminated with PFAS is a concern.

How do PFAS get onto farmland?

PFAS have entered farmland through several different pathways including land application of materials containing high levels of PFAS, such as biosolids, paper sludge, and tannery waste. Other pathways include irrigating with contaminated water and potentially though the application of pesticides, herbicides, septage, and precipitation, although more research is needed to understand the extent of soil contamination resulting from these pathways. Since 2021, Michigan has implemented a PFAS interim strategy to limit the land application of biosolids with high levels of PFAS.



PFAS enters the environment and accumulates in different areas, including water, soil, and air. Image credit: Michigan Department of Environment, Great Lakes, and Energy.

What can be done about PFAS contamination?

PFAS in water can be filtered out but is probably not feasible for medium to large scale farms due to high volume and flow rates. A more realistic option is to find a clean water source, possibly by putting in a new well utilizing a different aquifer.

While there are not yet practical options for removing or destroying PFAS from the soil, there are management strategies available to help deal with PFAS contaminated land. For example, some plants, such as grasses, readily uptake PFAS while others do not. Corn grain has repeatedly shown very little PFAS accumulation, however, the leaves do accumulate PFAS. If you have some contaminated fields, it would be better to grow corn grain on the land with higher levels of contamination and use the less contaminated land for harvesting corn silage, haylage or grazing animals.

Because the nature of PFAS could lead to uptake and bioaccumulation in plants and animals, even low levels of PFAS in the soils or water could result in elevated concentrations within crops and animals. PFAS may build up over time in animal tissues and could be present in their meat, milk, and eggs. Animals that are grazing grass on contaminated land are of particular concern because of increased soil ingestion when grazing and a relatively high transfer factor of PFAS from soil to the leaves of grass species.

More information

MSU Extension is here to help producers impacted by PFAS contamination and can have confidential conversations on determining risk and strategies to mitigate PFAS contamination, and sample agricultural water and soils at no cost to the farm. Visit our website at https://www.canr.msu.edu/pfas.

By Faith Cullens-Nobis
Extension Educator, Center for PFAS Research

Research drill down

Dairy farm labor shortages, adaptation strategies,

How do labor shortages affect dairy operations? Which policy solutions do producers believe will most effectively solve the problem?

A team of researchers at Michigan State University conducted a survey about dairy labor shortages, adaptation strategies, and support for various labor policies. They were interested in learning how farm labor shortages affected the adoption of key production and labor management practices. This article describes their findings and includes an interview with Anna Hooks, a graduate student who worked on this project. All quotes are hers.

Why are there labor shortages?

Labor shortages are increasingly prevalent in the agricultural sector. Dairy farms face a unique challenge because production requires a year-round workforce, yet most current American visa programs are primarily designed for producers with seasonal employment needs.

"There is an ongoing agricultural labor shortage across all sectors, including crops and other livestock industries. Something that livestock industries struggle with that doesn't affect crop or seasonal industries as much is the consistent need for year-round labor. Solutions like the H-2A visa program are typically only for seasonal or temporary work," said Hooks.

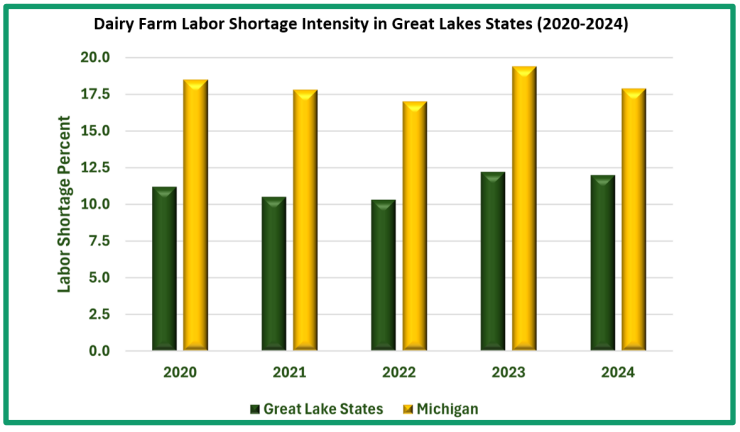


Figure 1. *While the exact percentage has fluctuated between 2020 and 2024, Michigan has had a labor shortage between 16% and 19% in this four year span. In contrast, the Great Lakes states have a lower labor shortage, about 10% to 12% during the same time period.*

Factors linked to a declining American farm labor supply include:

- Demographic changes in rural Mexico
- Increased educational attainment among rural Mexicans
- Rising non-farm job opportunities
- Limited legal immigration pathways

What programs are currently available?

The H-2A Temporary Agricultural Workers program, better known as H-2A, is the largest source of temporary or seasonal farm workers. Workers may come from many countries, but most are Mexican.

In practice, the average H-2A contract is only about six months. Workers can receive extensions to stay in the United States and work for longer, but the legal and regulatory issues can be challenging for both the workers and their employers.

While employers of all sizes use the H-2A program, over two thirds of H-2A requests are for fewer than ten workers, according to 2023 data from the American Farm Bureau. Twenty-nine percent of requests are for contracts between ten and 99 workers. Only about 4 percent of contracts are for over 100 workers.

Employers are financially responsible for program application fees and visas, and must provide a standardized wage, housing, and transportation. Due to the complex rules and record keeping requirements, some smaller employers use farm labor contractors who manage the administrative burden of the program for an additional cost.

"Cows don't turn off for the winter," said Hooks. "While the H-2A program fills a real need in the agricultural workforce, the current program is less effective for dairy farms."

How do dairy farms respond?

Research drill down

and preferences for workforce policy options

Our survey data reveal that dairy farms experiencing a labor shortage adjust their operations in several ways, with some adaptation strategies focusing on attracting workers while others involve reducing the need for labor.

An adaptation strategy is a deliberate adjustment within an economic system, such as a farm business, to reduce losses or take advantage of opportunities.

The research shows that dairy farms facing a labor shortage are 30 percentage points more likely to reduce milk production and 21 percentage points more likely to increase wages. Labor shortages are also associated with a 6-percentage point increase in the adoption of labor-saving technologies, although the high cost of automation may limit technology adoption for smaller farms.

Response 1. Attracting workers

"For the average Michigan dairy producer, farm labor represents both a large expense and a source of stress," said Hooks. We found that some farmers increased wages to retain current workers and attract new ones."

"In this study, we did not measure the effectiveness of the adaptation strategy, just whether a farm used it. However, national trends show that increasing agricultural wages does not automatically correlate with a increased supply of labor."

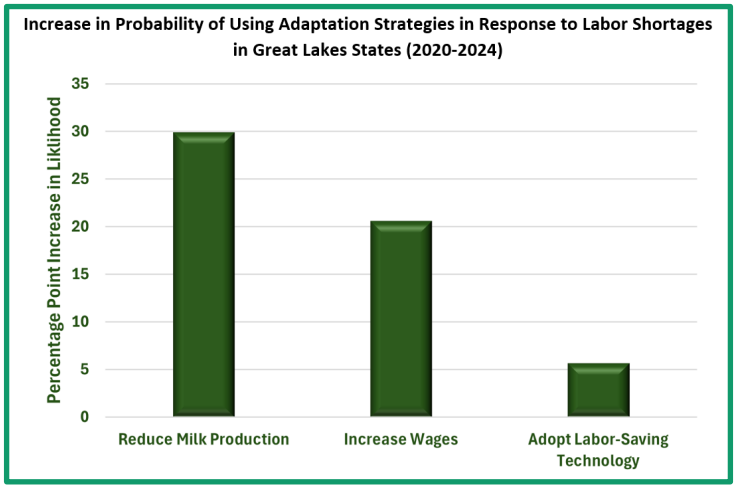


Figure 2. *When dairy farms face labor shortages, they are more likely to consider one of three adaptation strategies. Dairies are 30% more likely to reduce milk production, 21% more likely to increase wages, and 6% more likely to adopt labor saving technology.*

"The issue here is that the wages farmers must pay to attract a domestic workforce are much higher than farmers can afford while remaining profitable." While dairy farming has certainly benefited from technological advances in the past few decades, many tasks on a dairy farm are physically demanding, repetitive, and must be performed at set intervals even during inclement weather.

Response 2. Reducing the need for labor

"Some farmers reported adopting new technology to reduce their reliance on labor. This could be smaller changes such as automatic equipment washers or automatic manure scraper systems. Or it could be larger systems such as an automatic milking system (AMS). In general, the technological adaptions in the dairy industry that meaningfully reduce labor needs are very expensive."

For example, an automated milking system reduces labor associated with milking by up to 75%, according to some estimates. It also requires a large initial investment which is typically more feasible for larger farms. The cost of larger scale automations includes more than just the cost of the technology.

"It often requires major infrastructure changes on the farm. Farms may need to construct a new building with modern electrical and plumbing systems before new technology can be added."

Finally, return on economic investment often takes several years to realize. Depending on farm size, milk yield, and labor costs, it can take between four and seven years to see positive cash flow after AMS implementation.

Response 3. Reducing milk production

"In the dairy industry we see a trend towards consolidation. Smaller farms have shut down or consolidated. So while the average number of cows in Michigan has stayed about the same, they are owned by fewer, larger farms."

Research drill down

"During our study, we had several farms report a herd size of zero cows. This means that around the time we administered the survey, a farm sold their cows and was no longer producing milk."

Policy priorities for dairy farmers

When asked to rank potential policy reforms, dairy farmers clearly prioritized policies that expand access to legally authorized workers. Expanding the H-2A visa program to allow for year-round employment needs was the most preferred option among farmers, followed by policies that create legal status pathways for currently undocumented farm workers. Policies such as funding to provide housing for workers, training new employees, and promoting workforce development received substantially less support.

Implications for the dairy industry

The findings suggest that labor shortages are already shaping farm management decisions across the dairy sector. Some farms are investing in automation or raising wages, while others are reducing production. Over time, persistent labor constraints could influence farm structure and milk supply.

While farms are adapting, producers consistently report that farm labor policy reforms providing access to legally authorized employees remain the most important long-term solution for stabilizing the dairy workforce.

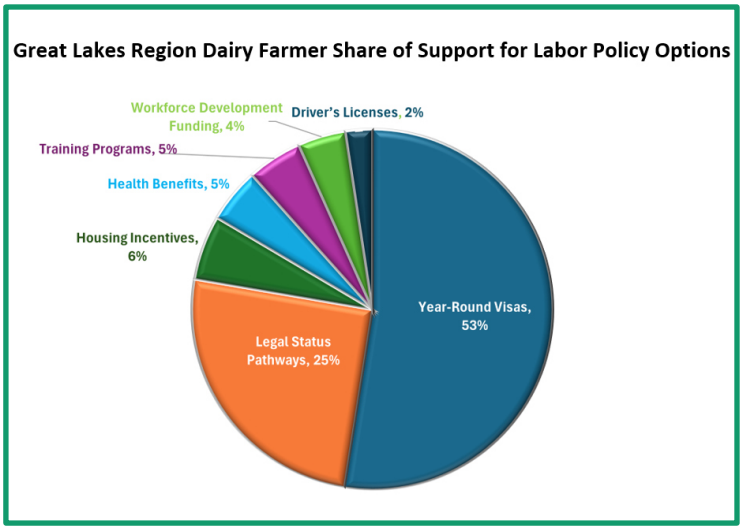


Figure 3. *Dairy farmers supported some labor policy options more than others. 53% of survey respondents supported a year-round visa for agricultural workers, while only 2% supported driver's licenses for farm employees as a viable labor policy option.*

Conclusions

Labor shortages continue to create uncertainty for dairy producers. Evidence from our Great Lakes region survey shows that producers strongly support policies that expand access to legally authorized workers, particularly reforms that would allow year-round use of agricultural visas like the H-2A. Addressing these workforce challenges will be critical for maintaining the productivity and competitiveness of the US dairy industry.

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Dealing with labor shortages on your farm? MSU Extension can help:

- **Managing farm stress:** teletherapy program, stress management resources, and more at canr.msu.edu/managing_farm_stress
- **Farm management:** business decision tools, webinars, TelFarm accounting records analysis canr.msu.edu/farmmanagement
- **Agricultural labor:** immigration information, legal compliance, budget worksheets canr.msu.edu/tag/agricultural-labor
- **Farm expansion decision tool:** uses a Monte Carlo simulation to predict economic outcomes of four dairy expansion strategies based on current costs, income, and assets canr.msu.edu/dairymetabolismgroup/decision-tools

Michigan dairy recognition

Shining a light on industry leaders

Kevin and Dana Sue Kirk support dairy endowment

When the Kirk family learned about the Joe Domecq Dairy Education Endowment, they knew it was a great fit for their family. The new endowment supports teaching capacity, curriculum innovation, and empowers hands-on student experiences.

After graduating from the MSU dairy science program, Dana Sue worked in agriculture finance with GreenStone Farm Credit Services while Kevin worked for Michigan Farm Bureau and MDARD. "Our livelihoods were built around dairy," said Dana Sue. "When the opportunity came to support an endowment that strengthens teaching and education, it felt like the right fit."

"This is an opportunity to teach more young people, so they are ready to support the industry as it continues to grow and evolve," said Kevin.

Photo credit: CANR communications. Article: Alex Dardas

Kevin Dill honored by MDMSF

Growing up on a livestock farm in Missouri, dairy science was a natural fit for Kevin Dill. After completing a bachelors and masters degree, he began working as the coordinator of the Ag Tech Dairy program at Michigan State University.

After obtaining a PhD from MSU, he worked as a dairy technical consultant for Purina Mills. In 2025 he retired from Purina as the director of technical innovation. During his career, he was active in the ADSA, ARPAS, and the Tri-State Dairy Nutrition Conference

For his significant contributions in both academia and the dairy industry, the Department of Animal Science and the dairy community are pleased to name him an Honoree of the Michigan Dairy and Memorial Scholarship Foundation.

Photo Credit: Purina Mills

Larry Chapin honored by MDMSF

Larry began his career in 1976 in the Animal Reproduction Laboratory at MSU. During his long career, he supported many Animal Science Department faculty, including Drs. H. Allen Tucker, George Smith, and Miriam Weber.

As the MSU Farms liaison, he helped keep the MSU Dairy Farm compliant with current animal regulations. He received the MSU Distinguished Staff Award in recognition of his many accomplishments.

Larry was very active in the 4-H dairy community and volunteered with the Ingham County 4-H Therapeutic Riding Program and 4-H Dairy Camps. For his professional and volunteer contributions, the MDMSF is pleased to recognize him as an honoree.

Photo credit: Larry Chapin

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Mark your calendar

- **Field crops virtual breakfast series, Online**
  Thursdays at 7AM through September
- **All Things BLV Conference, East Lansing**
  July 14th to 17th
- **Dairy Education Academy, East Lansing**
  October 3rd and 4th
- **MSU Dairy Industry Tailgate, East Lansing**
  October 17th
- **Emergency Response to Accidents Involving Livestock, East Lansing**
  Captive bolt training: October 26th
  Rollover accident training: October 27th
- **MI Dairy Industry Banquet, East Lansing**
  April 21st, 2027

View a complete events listing at canr.msu.edu/dairy/events

Want to connect with your local dairy extension educator? Find them here: