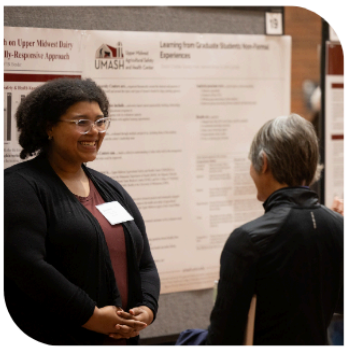
The Upper Midwest Agricultural Safety and Health (UMASH) Center

Summary Annual Report

2023-2024



NIOSH Center for Agricultural Safety and Health
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Section I: Center Overview

Introduction

For 13 years, UMASH has been committed to supporting producers, agricultural workers, and farm families through research, funding innovative community or pilot projects, and community engagement and outreach. This annual report highlights the second year of the 2022-2027 grant cycle, showcasing progress across various sectors of the Center. Our work and projects cover a range of agricultural safety and health issues, including farmer mental health, training for rural firefighters and emergency medical personnel, airborne viruses and bacteria in animal agriculture, and the swine worker microbiome. Our teams have been busy building connections, exploring innovative tools, working to prevent farm injuries and risks, developing resources, and hosting events—all aimed at enhancing safety and health for those who need it most. Over the past year, **UMASH was mentioned in the media 55 times** and delivered **over 40 presentations to an audience of 3,700 farmers, producers, researchers, community organizations, and health practitioners.** In addition, the UMASH Wellness Pavilion at Minnesota Farmfest attracted over **4,400 visitors.** UMASH co-hosted the Susan Goodwin Gerberich Symposium to discuss the occupational health and safety impacts of the cannabis industry with keynote speaker NIOSH Director Dr. John Howard and facilitated conversations around health and safety in the swine industry. This spring, UMASH researchers and staff gathered together for a UMASH Center-wide meeting with guest Paul Assen, CEO of the MN Safety Council and UMASH Advisory Board member, to share updates on ongoing projects and strengthen collaborations to advance agricultural safety and health in the Upper Midwest region. Thank you to all who support us in our mission to achieve our vision: *Healthy and safe people in all agricultural communities.*

About the Center

UMASH is a Center for Agricultural Safety and Health funded by the National Institute for Occupational Safety and Health (NIOSH). The Center is a collaboration of the **University of Minnesota School of Public Health** and **College of Veterinary Medicine**, the **National Farm Medicine Center of the Marshfield Clinic,** the **Migrant Clinicians Network**, and the **Minnesota Department of Health**. UMASH emphasizes One Health in our approach, which engages multiple disciplines to understand the interdependence between animal, human, and environmental health. The Center's current 2022-2027 grant cycle includes four funded, multi-year research projects supporting agricultural worker health and safety:

1. Identifying Individual And Contextual Determinants Underpinning Farmer Help-Seeking Behaviors And Their Role In Shaping Mental Health Outcomes
2. Factors Influencing Transmission Of Airborne Viruses And Bacteria In Animal Agriculture
3. The Influence Of On-Farm Exposures And Biosecurity Practices On The Skin And Nasal Microbiomes Of U.S. Swine Workers
4. Rural Firefighters Delivering Ag Safety And Health (RF-DASH) - Next Steps

The Center's multifaceted approach also includes: outreach initiatives to exchange information with partners and communities, an emerging issues program to explore new opportunities and address evolving challenges in agricultural safety, a pilot projects program fostering innovative solutions, and finally, an evaluation program assessing the Center's performance and outcomes.

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Section II: UMASH Research Projects

Identifying Individual and Contextual Determinants Underpinning Farmer Help-Seeking Behaviors and Their Role in Shaping Mental Health Outcomes

Background

This project will be the first in the U.S. to conduct an in-depth regional assessment of farmers' help-seeking behaviors and their connections to mental health outcomes.

Farmers and ranchers experience greater mental health challenges - like stress, anxiety, depression, and suicide - compared to those in other occupations. Many farmers, policymakers, and health and safety organizations have expressed a critical need to address this concern, especially as agricultural communities continue to face increasing stressors. Still, we know relatively little about how farmers seek help and how effective and accepted mental health interventions are for this population.

This research project: explores what factors influence farmers' decisions to seek help, describes their help-seeking behaviors and mental health challenges, and examines how personal and external factors affect these decisions. It compares and contrasts farmers' help-seeking behaviors and assesses their effectiveness in reducing mental health burdens across a diversity of farmers in the 12-state study region. Finally, the project aims to adapt the Andersen Behavioral Model of Health Services Use to Midwestern farmers. Overall, this project aims to assess farmers' help-seeking behaviors, the factors that shape these, and factors associated with better mental health outcomes.

Project Update

To better understand farmers' mental health support needs, the project team developed case study profiles for six counties across Minnesota, South Dakota, and Wisconsin. Using publicly available data, these profiles outline the social, economic, and health characteristics of the regions. They provide essential context when combined with collected farmer-level data. The team has completed key informant interviews with **64 individuals**, surpassing their target goal. These interviews included a range of invested groups. Data analysis is ongoing, with two manuscripts in progress: one on available support resources and another on farmers' willingness and ability to seek help.

Incorporating advisory board feedback, the team is finalizing their interview guide for farmer recruitment and continues to participate in conferences, networking events, and media interviews, to contribute to national discussions on farmer mental health and share their findings. This year, the research team made significant contributions to both academic and public discussions on farmer mental health through over a dozen engagements. These included conference presentations, peer-reviewed publications, and media interviews across diverse platforms.

Factors Influencing Transmission of Airborne Viruses And Bacteria In Animal Agriculture

Background

Animal agriculture workers can be exposed to viruses and bacteria when animals release them into the air. To effectively assess and manage exposure to viral, bacterial, and other harmful aerosols, we need to know the concentration and size of the particles carrying these infectious agents in the air.

To assess exposures to viral aerosols and manage them effectively, we must know the concentrations and sizes of particles associated with infectious airborne viruses.

This project builds on previous UMASH research, which designed a novel high-flow Cascade Virtual Impactor (CVI) for measuring airborne virus and bacteria particle concentrations and size distributions. This sampler measures viruses and bacteria in swine gestation and farrowing, swine wean-to-finish, poultry, and dairy facilities.

This research also aims to measure various factors that may determine exposure to viruses and bacteria, such as environmental conditions, animal characteristics, housing factors, and ventilation. By relating these factors to measurements of airborne viruses and bacteria, the researchers aim to develop recommendations for **reducing the risk of zoonotic disease transmission** between animals and workers in animal agriculture facilities.

Project Update

The project team has conducted comprehensive assessments at four swine farms, completing three of four planned seasonal visits. During each visit, they collected biological samples (pig nasal swabs, surface swabs, air samples) to test for influenza A virus (IAV), Staphylococcus aureus (SA), and Methicillin-Resistant Staphylococcus aureus (MRSA). The team also evaluated ventilation system performance and measured air quality indicators such as carbon monoxide, carbon dioxide, ammonia, and volatile organic compounds.

Using various air sampling methods (AGI-30 impingers, Non-Viable Andersen Cascade Impactors, and AirPrep Cubs), the team has collected and analyzed 36 sets of samples. Initial results show the presence of IAV, SA, and MRSA in air and surface samples, with variations across farms and seasons. Notably, IAV-laden particles were detected in sizes that could potentially reach deep regions of the human respiratory tract.

The team is analyzing relationships between environmental factors, ventilation efficacy, and pathogen prevalence. Concurrently, they are verifying the performance of the Bioaerosol Cascade Virtual Impactor (BCVI) for future research applications.

Collaboration with swine producers and veterinarians continues, aiming to identify additional study sites. The team presented initial findings at the 50th Leman Swine Conference in September 2024 and maintains synergistic work with another UMASH research team studying swine worker microbiomes.

The Influence of On-Farm Exposures and Biosecurity Practices on the Skin and Nasal Microbiomes of U.S. Swine Workers

Background

The human microbiome plays a vital role in human health and disease, and many factors shape each individual's microbiome. Workplace environments and animal exposures have been shown to influence the microbiomes of workers. For example, people who work with swine have different oral and nasal microbiomes than non-livestock workers. However, it is unclear how these differences occur and whether they are beneficial, harmful, or neutral in the short- and long-term. This project aims to understand how the conditions within swine farms influence the microbiome of swine workers.

The microbiome is the community of microorganisms (e.g., fungi, bacteria, and viruses) that exist in an environment, such as on a specific body part or in a workplace.

Researchers hypothesize that different on-farm microbiomes impact worker microbiomes differently based on the worker's assigned job tasks. The findings of this study will support the further development of evidence-based, targeted interventions to protect and improve the health of swine workers.

Project Update

The project team is beginning to recruit participants and to collect samples. To support this phase, the team collaborated with the University of Minnesota Extension to create sample collection videos in multiple languages. These resources aim to assist participants in self-collection of hands, skin, and nasal swabs.

The team continues to work closely with another UMASH research team that is focused on the "Factors Influencing Transmission of Airborne Viruses and Bacteria in Animal Agriculture" to foster cross-project synergy. Recent activities included visits to grow-and-finish farms to gain insights into farm workflows and bioaerosol sampling in real-world settings.

Additionally, the team has pilot-tested surface sampling methods for personal air sampling and for analyzing the microbiome of particles and dust in swine facilities.

Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH) - Next Steps

Background

Previous research by this team established that farm operators have high levels of esteem and trust in rural firefighters and emergency medical personnel (fire/EMS) as advisors regarding injury prevention. This translational research program, building on the success of previous UMASH projects, aims to improve farm access to capable and trusted health and safety consultants to reduce farm hazards and improve farm safety. The Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH) project is focused on improving dissemination and implementation (D&I) strategies for both the core RF-DASH program and its trainees.

Over 130 firefighters/EMS have been trained as trainers in the program from 12 states and 5 Canadian provinces. They have gone to support approximately 2,500 agricultural safety and health professionals, educators, community members and farmers.

Project Update

In its second year, the RF-DASH team expanded its efforts, hosting Agriculture Rescue Training (ART) in Wisconsin and responding to an increase in training requests. Over 130 individuals from various U.S. states and Canadian provinces have completed RF-DASH training, impacting approximately 2,500 people within their communities. Notable collaborations include a partnership with Utah University to create a 911 flow chart and emergency poster, as well as conducting rescue training for Navajo farmers and first responders near Ship Rock, New Mexico.

The RF-DASH program continues to maintain strong communication with its sites, trainers, and trainees through regular updates and visits. To enhance the project's impact and reach, the team has conducted interviews with fire departments and plans to start focus groups with farmers in Spring 2025.

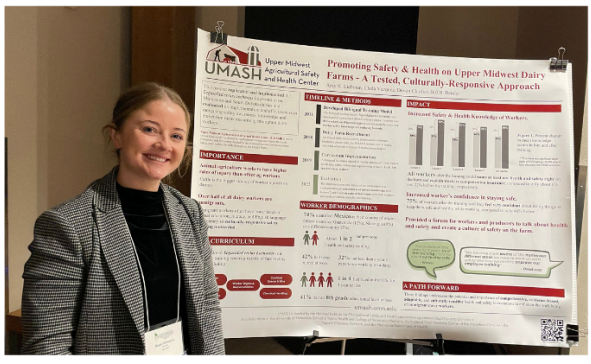
Key accomplishments this year include securing a U.S. trademark, developing Farm MAPPER 2.0 with improved mapping features to improve first responders' ability to navigate emergencies on farms, and advancing the RF-DASH Virtual Training Program with a planned prototype for early 2025. A manuscript on the program's implementation and development is in progress. For more information on RF-DASH's activities see newsletters, conferences, and updates on rfdash.org

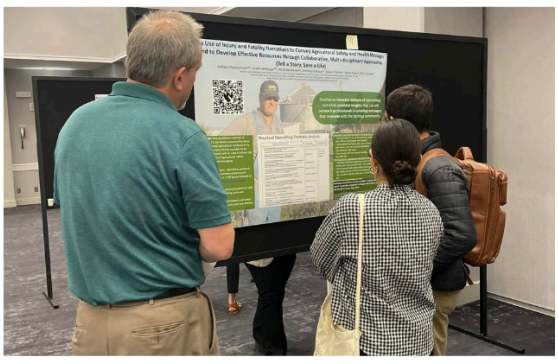
Section III: Other Program & Activity Highlights

Pilot Project Program

UMASH upholds a commitment to improving health and safety in agriculture through innovative solutions and collaboration across disciplines and industries. The Center's Pilot Project program plays a crucial role in this effort, sponsoring innovative projects that advance research, develop prevention strategies, and create practical applications to improve the health and safety of agricultural workers and their families.

Dr. Bruce Alexander, former UMASH Director, UMASH reintroduced a Pilot Project Program to the UMASH Center to encourage collaboration among researchers, professionals, and community members, aiming to advance agricultural health and safety. Early in 2024, invited pre-proposals were solicited, which led to the acceptance of two projects focused on 1) diseases of despair in farm families and 2) pathogenic *E. coli* bacteria affecting workers and rural agricultural communities. In Fall 2024, we released requests for applications to fund additional projects focused on agricultural workers in the Upper Midwest. Also, in response to changes in cannabis regulations across numerous





states, UMASH has partnered with the University of Minnesota Cannabis Research Center in an effort to fund one or more pilot projects that specifically address worker health and safety issues related to cannabis use and production.

Emerging Issues Program

The UMASH Emerging Issues Program aims to identify and respond to emerging or re-emerging issues that may impact the health and well-being of the agricultural workforce and their families. To support these activities, the UMASH network and advisory board are key in identifying emerging issues across the region and providing suggestions to address the topic(s). Read on for highlights of this year's emerging issues, topics, and activities.

Aging on the Farm

Aging can bring on new challenges on the farm. The body changes with age, sometimes causing slower reaction times, mobility challenges, and incremental loss of eyesight and hearing. These physical changes can make working with farm hazards like pesticides, animals, and heavy machinery more dangerous. In response to this issue, UMASH hosted a virtual forum in October 2023 to gather familiar and new partners across diverse fields and expertise, including farmers, experts on aging, agricultural health, and safety professionals, occupational therapists, health practitioners, social workers, veterinarians, and more.

Building on the momentum from this forum, UMASH has funded three community-based projects to continue collaborating on solutions for healthy and safe aging in agriculture.

These projects, which are currently in process, aim to address various aspects of aging on the farm, from preventive health screenings to educational resources and driving safety programs. By supporting these efforts, UMASH aims to create community-based solutions to promote the health and safety of aging farmers in our region.

Exploring Safety and Health Risks of High Tunnel Systems, Livestock, and Manure use on Produce Farms.

Addressing new emerging issues that have arisen from past collaborations, this project expands on a 2021 field day hosted with a local farm, University of Minnesota Extension, and the Minnesota Department of Agriculture. The event focused on best practices in diversified produce production to enhance worker, consumer, animal, and environmental health.


High tunnel also known as "hoop house"

In response the UMASH team in partnership with University of Minnesota Extension developed and distributed a survey to explore the characteristics of how produce farms in the Upper Midwest are using high tunnel systems, also called hoop houses. The survey examines farms' use of high-tunnel systems

specifically looking at animal housing and manure and compost management. Preliminary findings will guide future research, education, and outreach efforts to reduce health and safety risks for both producers and consumers.

Outreach and Engagement

Background

The UMASH outreach team includes staff at the University of Minnesota (UMN) School of Public Health, the National Farm Medicine Center (NFMC) in Marshfield, WI, and the Minnesota Department of Health (MDH). Our collective purpose is to promote agricultural safety and health in our five-state area (Minnesota, Wisconsin, Iowa, North Dakota, and South Dakota).

We achieve this by working closely with the other National Institute for Occupational Safety and Health (NIOSH) funded U.S. Agricultural Health and Safety Centers, agriculture partners, researchers, educators, and organizations through farm shows, meetings, conferences, and other partner and community events. UMASH regularly engages with our partners and audiences through online, email, print, and in-person outreach activities, sharing new resources, research findings, and more. The UMASH website features in-depth information on health and safety topics and highlights UMASH outreach activities.

UMASH Outreach Director and Center Coordinator **Megan Schossow** interacts with visitors at Minnesota Farmfest

Outreach Update

The UMASH outreach team continued to build and leverage partnerships, translate research into practical resources, offer expert insights, and engage directly with agricultural communities to promote the health and safety needs of agricultural workers in our region.

Outreach team members have been interviewed by the media **this year on a number of issues including safe spring planting, H5N1, dairy worker health, grain bin safety, aging on the farm, youth safety, rural childcare, and more.** UMASH cultivates media relationships year-round, including at the August 2024 Ag Media Summit and the November 2023 National Association of Farm Broadcasters which resulted in over **20 media interviews** on timely agricultural safety and health topics. These events have allowed UMASH to extend our reach to audiences of farmers and rural communities through print, radio, podcasts, and television.

UMASH leverages digital venues to grow our reach and engagement with agricultural communities and those serving them. This year, UMASH received approximately **23,000 users on our website with over 45,000 page views**. On social media we reached **40,000 users on Facebook**, **and Twitter** (now X), **7,200 on Instagram and 2,000 on Linked-In**, our newest platform. Our **2,600 email subscribers** regularly provide feedback to our team with suggestions and positive feedback.

The UMASH Website shares in-depth information on health and safety topics and often highlights a person, project, or program promoting occupational safety in agriculture. It also features UMASH activities, especially in-person events and direct collaboration with farmers.

The UMASH YouTube channel has received **17,500 views, 470 hours of watch time, and welcomed over 80 new subscribers** this year.

- UMASH website
- UMASH YouTube
- US Ag Centers YouTube
- UMASH Facebook
- UMASH Twitter (X)
- UMASH Instagram
- UMASH LinkedIn
- Weekly emails
- UMASH Connector (quarterly newsletter)

Featured Outreach Resources

Transforming Farm Safety with Virtual Reality: Immersive Training Tool for Swine Facility Workers.

Swine 360: Online, interactive health safety training for swine workers

Working with sows can present health and safety risks for farmworkers. UMASH partnered with the Ag Health and Safety Alliance to develop an innovative virtual reality training tool to "bring" users to a swine facility for health and safety training. Using 360-degree cameras and virtual reality technology, this tool simulates various swine production environments, including farrowing and gestation barns. It offers an engaging, hands-on learning experience that helps users identify hazards and improve their health and safety knowledge through interactive scenarios and clear, detailed safety information.

Incorporating Farm Safety into Annual Planning

UMASH creates and shares monthly printable and digital Farm Safety Calendars that feature timely themes, valuable resources, and farm safety events and campaigns. These calendars aim to keep farm health and safety on the mind throughout the year by addressing seasonal safety topics and offering practical tools. They help users stay informed and easily incorporate safety practices into their daily routines and annual planning.

Spotlighting ATV/UTV Safety to Prevent Injuries and Risks

In response to traumatic injuries and deaths in the Upper Midwest region involving ATVs and UTVs, UMASH created a spotlight to help folks get "off-road" ready for a safe ride every time with safety strategies, and resources like training courses, videos, posters and more.

Featuring Health Professionals Making a Difference in Farm Injury Surveillance

Farmers and farmworkers have some of the highest rates of severe injury and death on the job, yet our understanding of these injuries is incomplete. Current data often under-reports farm injuries, leaving a gap in understanding the true risks. UMASH has partnered with Dr. Erik Zabel, an epidemiologist with the Minnesota Department of Health, to highlight a tool that enhances tracking of farm-related injuries using hospital data to classify injuries as "possible" or "probable" farm-related, helping to identify patterns and specific hazards.

Farm Stress Portal

In collaboration with the Minnesota Department of Agriculture, UMASH helped contribute material to a portal for requesting farm stress materials (including the Signs and Symptoms of Stress) resources. Annually, over 1,000 Minnesotans in the agricultural industry accessed the resource in either English or Spanish.

UMASH Wellness Pavilion: Minnesota Farmfest

For the sixth year, UMASH hosted the UMASH Wellness Pavilion at Minnesota Farmfest, offering farmers, farmworkers, families, and agricultural professionals valuable resources on safety, health, and injury prevention. The pavilion featured hands-on activities, health screenings, live farm safety and rescue demonstrations, and a new Family Wellness Area to encourage farming communities to be *Living Healthy, Farming Safely*.

At least 4,400 visitors engaged with topics such as grain bin safety, mental health, healthy living,emergency preparedness, and roadway safety, thanks to the involvement of more than 20 national, regional, and local partners. In collaboration with sponsors, exhibit partners, and experts, UMASH presented ag safety and rescue demonstrations about ATV/UTV safety, Emergency Harvest, and Adaptive Equipment. CentraCare, one of Minnesota's largest health systems, also offered free blood pressure screenings in the Wellness Pavilion. UMASH also welcomed the University of Minnesota President, Dr. Rebecca Cunningham, for a visit and tour of the UMASH Pavilion. Dr. Cunningham has a robust history in public health, and especially injury prevention.

A new highlight of the pavilion this year was UMASH's new Family Wellness Area that featured fun, safe family activities, including shade, water, youth farm safety activity books, a lactation room provided by the City of Marshall and a safety zone space presented by the Central States Center, Great Plains Center and Progressive Agriculture Safety Days. The Safety Zone drew nearly 700 attendees to the Pavilion as they engaged in hands-on activities to learn about sun safety, hearing protection, ATV/UTV safety and grain bin safety while earning a sporty bucket hat and backpack.

Together, Wellness Pavilion exhibitors distributed more than 5,200 safety and health resources and giveaways to Farmfest attendees. **Past attendees of the UMASH Wellness Pavilion have shared that information they learned in the Pavilion changed the way they approached risky jobs on the farm.**

Responding to Emerging Zoonotic Influenza Threats Avian Flu and More

Outbreaks of highly pathogenic avian influenza are occurring both in the United States and globally. Recently, H5N1 influenza was detected in U.S. dairy cattle for the first time and in poultry across several states, including the Upper Midwest. Human cases of influenza A (H5) have also been reported among individuals exposed to infected animals.

This evolving situation requires a flexible approach to gather information and develop best practices despite limited data. Key challenges include understanding virus transmission, protecting dairy producers and their workers, and preventing further spread.

In response, UMASH has leveraged partnerships to address the needs of agricultural communities by providing essential resources and training. For example, UMASH collaborated with the Migrant Clinicians Network to create educational materials in English and Spanish, including posters and videos, to guide farmers, farmworkers, and clinicians on preventing the spread of bird flu.

UMASH leadership have served as experts for agricultural organizations, media, and more. UMASH Center Director Dr. Jeff Bender offered expertise on health concerns related to farm animals and the needs of those who care for them, working with state and federal partners, including the Council for State and Territorial Epidemiologists. In addition, Amy Liebman has shared critical emphasis on the health of front-line agricultural workers, by working directly with media, public institutions, and several opportunities with practitioners at the Council of State and Territorial Epidemiologists (CTSE).

UMASH also worked with the Minnesota Department of Health to develop communications on the risks of consuming raw milk and to produce a video, "Guía de Influenza A (H5N1) para Trabajadores de Granjas Lecheras y Avícolas" (Guidance for Dairy Workers on Influenza A [H5N1]), offering dairy workers guidance on avian influenza, including prevention and response actions. Additionally, UMASH researchers and staff have shared their insights in over a dozen interviews with local, state, regional, and national news outlets and media organizations. UMASH also continues to promote an

online avian influenza toolkit with vital resources on biosecurity practices, monitoring livestock health, and managing outbreaks.

In the upcoming year, UMASH, with NIOSH support, aims to support regional dairy workers and producers with a survey for MN and WI dairy producers on perceived risks and support, creating outreach materials with Extension, and assisting with the Seguridad worker training program.

Cannabis and Work

This year, UMASH partnered with the Midwest Center for Occupational Health and Safety (MCOHS) and University of Minnesota School of Public Health to co-host the Susan Goodwin Gerberich Symposium (formerly the National Occupational Research Agenda (NORA) Symposium). The symposium was centered around "Cannabis and Work," and brought together faculty, researchers, staff, students, and professionals in occupational health and safety to discuss the health and safety implications of the emerging cannabis industry. Led by keynote presenter Dr. John Howard, Director of the National Institute for Occupational Safety and Health (NIOSH), these conversations emphasized the need for more research on the opportunities and challenges surrounding cannabis and work.

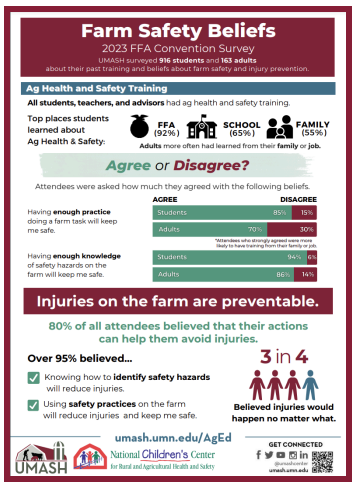
Dr. John Howard, Director of the National Institute for Occupational Safety and Health (NIOSH)

Bridging the Gap Between Medicine and Agriculture

UMASH partnered with the **Mayo Clinic Alix School of Medicine**, and the Zumbro Valley Medical Society to create an innovative agricultural and rural medicine elective course for medical students. Leveraging the expertise of UMASH Medical Advisor and AgriSafe Network Medical Director Dr. Steven Kirkhorn, along with Associate Professor of Medicine and Clinical Director of the UMN Mobile Health Initiative Dr. Jonathan Kirsch, this new initiative aims to equip future physicians with a nuanced understanding of healthcare and medicine in agricultural settings.

Engaging the Next Generation of Agriculture

The UMASH outreach team partnered for the fourth year with Dr. McKay, a faculty member from the Agricultural Education, Communication, and Marketing department at the University of Minnesota, to host a Public Safety Announcement (PSA) contest. As part of a video production course, students



applied their production and communication skills to address crucial topics such as needlestick safety and rural roadway safety.

Additionally, UMASH teamed up with the National Children's Center for Rural and Agricultural Health and Safety to survey Future Farmers of America (FFA)members at their 2023 National Convention, finding that 80% agreed that their actions can help them avoid injuries on the farm. However, **3 out of 4 also believed injuries would happen no matter what**. The summary infographic shares more information.

Telling the Story Project

Telling the Story Project, a collaboration between UMASH, the National Children's Center for Rural and Agricultural Health and Safety, Central States Center for Agricultural Safety and Health (CS-CASH), and the National Farm Medicine Center **turns farmers' first-hand stories about close calls and fatalities into teachable moments.** Since its launch in 2017, the Telling the Story Project website has received over 49,300 visits. The team has produced thirteen stories, including recent ones on grain bin safety and gasoline handling, and developed a social media toolkit to promote these stories, particularly to middle school, high school, and college students. The TTSP team continues to present workshops, posters, and sessions at conferences and submitted a manuscript,"The Use of Injury and Fatality Narratives to Convey Agricultural Safety and Health," which was published by the Journal of Agromedicine in August 2024.

Advancing Health and Safety Across Agricultural Sectors

This year, UMASH made significant strides in improving health and safety across the swine, dairy, and poultry industries through webinars with partner organizations, either responding to emerging issues or building capacity with others. UMASH co-hosted a virtual discussion with Agricultural Safety & Health Council of America (ASHCA) and the National Pork Board on how influenza impacts swine workforce safety, featuring experts from Texas A&M and Ohio State University.

Dr. Jeff Bender led a webinar with AgriSafe Network on preventing needlestick injuries in agriculture. Dr. Bender also presented at the Minnesota Agricultural Coop Safety Directors to highlight the critical importance of a team-based approach to safety in agricultural cooperatives.

In the dairy sector, UMASH collaborated with the National Dairy FARM Program on best practices for dairy animal handling and safety culture on farms and at the Dairy Girl Network's "Include Summit," UMASH outreach members discussed health equity in the dairy industry.

Additionally, UMASH joined the National Children's Center for Rural and Agricultural Health and Safety and Carle Health System to host a national webinar series on youth safety in agriculture.

Evaluation

Background

UMASH focuses on evaluation and strategic planning to ensure thoughtful decision-making, efficient use of resources, and ongoing improvement. The evaluation team regularly supports outreach activities and emerging issue projects, aids in organizational development and strategic planning, and collaborates with partners, including other Ag Centers, on joint evaluation efforts.

Evaluation Graduate Research Assistant Olivia Clark and Sr. Comms Manager and Eval Specialist Cassie Edlund at MN Farmfest

Evaluation Update

This year, the evaluation team implemented the Center-wide monitoring, evaluation, and learning (MEL) system to assess the degree to which UMASH activities are delivered as intended and how effectively they promote the health and safety of agricultural workers and their families. This system is continually refined to facilitate effective knowledge management, collaboration, adaptation, and improvement across the Center.

As the evaluation team has expanded with new members, UMASH continues to learn from both past and present graduate students. This summer the team published an article in the Journal of Evaluation and Program Planning, detailing student's non-formal evaluation experiences in university-based centers.

The evaluation team has also been working to understand the UMASH network and find ways to intentionally expand and deepen partnerships with those involved in or affected by agricultural health and safety in the Upper Midwest. The first phase of this network mapping project involved a demographic analysis of UMASH's primary stakeholder groups using USDA data, along with a landscape analysis of organizations and a review of our UMASH contact lists and web resources to identify organizations not currently within our network. Now moving into the second phase, the team has designed and will soon distribute a survey of current collaborations across the UMASH network to explore opportunities for expansion and new partnerships. Phase 3, scheduled for 2024-2025, will involve focus groups with key UMASH collaborators, including the leadership team and advisory board. These sessions will review the data and develop strategies for expanding partnerships across the five-state region, various commodity groups and sectors, and historically and currently marginalized agricultural communities.

Other Center Activities

Minnesota Farm Safety Working Group

UMASH participates in the Minnesota-based farm safety working group with state agencies, professional farm organizations, Extension, agribusiness, and others. This initiative led the MN State Legislature to fund the Minnesota Rollover Protection System (ROPS) Rebate Program. The group

meets quarterly to address current issues and explore collaboration opportunities. This group's work has been crucial in securing ongoing legislative funding for a safety equipment cost-share program, which funds the cost of roll bars for machinery and safety equipment for grain bins and silos.

U.S. Agricultural Safety and Health Center Collaborations

UMASH collaborates with the other ten NIOSH-funded Ag Centers throughout the year and participates in bi-monthly calls with the Evaluation, Outreach, and Coordinators (ECO) group to discuss, plan, and implement multi-center collaborations on evaluation and outreach initiatives. UMASH has led efforts to provide social media content, and evaluation strategies to support collaborative Ag Center participation in two major national campaigns: Ag Safety Awareness Program (ASAP) Week (March) and National Farm Safety and Health (NFSHW) Week (September).
We continue to collaborate and partner with other US Ag Centers and participate in the ECO group to plan, implement, and assess collective outreach initiatives, including the US Ag Center YouTube,which has over **3,600 subscribers** and features **176 education and training videos (34 from UMASH)** on a wide range of agricultural safety and health topics (many in Spanish and other languages).