



Great Plains Center for Agricultural Health 2024-5 Annual Report

September 30, 2025

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www.gpcah.org

The Great Plains Center for Agricultural Health is located within the Department of Occupational and Environmental Health at the University of Iowa, College of Public Health, at 145 N Riverside Drive in Iowa City, IA, 52246

2025 GPCAH Annual Report

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SECTION 1: CENTER SUMMARY

The Great Plains Center for Agricultural Health (GPCAH) is a nationally recognized public health resource that conducts research and provides education and outreach to improve the health and safety of farmers throughout nine states in the Midwestern US: **Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin**. The Center was founded in 1990 and continues to bring together multidisciplinary expertise with an established record of developing and implementing programs of research, intervention, translation, education, and outreach to protect agricultural workers and their families. This Center addresses the health and safety needs of agricultural workers in America's most agriculturally intensive region, which has a significant burden of severe agricultural injuries and illnesses compared to other regions and industries.

The research questions being investigated in our Center are formulated to: *reduce the burden of back pain* from a lifetime of tractor use, *reduce injuries from farm vehicles* on roadways, *improve the respiratory health of livestock producers* and the animals they raise, and *prevent traumatic injuries among older farmers* exhibiting cognitive decline. Research is developing innovative technologies needed to close gaps in knowledge (whole-body vibration) and equipment (air quality systems) and develops innovative partnerships to bring new collaborators with unique skills to contribute to agricultural injury reduction. The lessons learned from our research initiatives are translated into outreach materials by being incorporated into national educational curricula, disseminated through partners, and incorporated into multimedia discussions (social media, print media-*Safety Watch*, and *FarmSafe* podcasts) to aid in the dissemination and uptake of these best practices. The Center has established systems to foster communication, identify and build strategic partnerships, and assess the needs of the agricultural community. Our evaluators work within all projects and Cores to maximize our ability to assess the Center's contributions to improved health and safety outcomes for our region's farmers.

OVERALL CENTER GOALS

- Goal 1: Coordinate activities across all Center Cores (Evaluation and Planning, Outreach, Research) to maximize our ability to improve the safety and health among agricultural communities. To maximize the significance, innovation, and impact of Center activities, the Center conducts ongoing feedback, problem solving, and networking opportunities to strengthen efforts of Center investigators and to maximize Center collaboration.
- Goal 2: Conduct basic and applied research targeting critical hazards to protect agricultural workers throughout the region, including vulnerable workers. We have four funded research projects to address the burden of injuries in the region and to address NIOSH priorities. We also coordinate a pilot/feasibility program explicitly oriented to building research capacity across our region, and we coordinate an emerging issues project to address priority issues that emerge over the multiple years of this project.
- Goal 3: Generate, evaluate, and disseminate guidance to speed the adoption of evidence-based best practices to protect farmers/farm workers. New knowledge developed in Goal 2 is translated, evaluated, and disseminated through partners.

RELEVANCE

Agricultural workers experience high rates of occupational injury — including fatal injury — and illness when compared to other employed groups. As the region's most well-established agricultural health and safety resource in the nation's most agriculturally intensive region, the Center is highly relevant to agricultural workers, physicians, public health practitioners, and researchers committed to protecting the health and safety of agricultural workers. We describe the relevance for each project and activity in [Section 3](#) of our annual report.

SECTION 2: KEY PERSONNEL

Center Director:	T. Renée Anthony, PhD Renee-Anthony@uiowa.edu 319-335-4429
Deputy Director:	Nathan Fethke, PhD Nathan-Fethke@uiowa.edu 319-467-4563
Center Coordinator:	Jennifer Patterson, MLitt Jennifer-J-Patterson@uiowa.edu
Evaluation Director:	Kanika Arora, PhD Kanika-Arora@uiowa.edu
Outreach Director:	T. Renée Anthony, PhD Renee-Anthony@uiowa.edu
Outreach and Evaluation Coordinator:	Marsha Cheyney, MPH Marsha-Cheyney@uiowa.edu
Research Project Leaders:	
<i>Pilot/Feasibility Projects:</i>	Nathan Fethke, PhD Nathan-Fethke@uiowa.edu
<i>Advancing Whole-Body Vibration:</i>	Nathan Fethke, PhD Nathan-Fethke@uiowa.edu
<i>Community Roadway Campaign</i>	Cara Hamann, PhD cara-hamann@uiowa.edu Laura Schwab-Reese, PhD (Purdue University) LSchwabR@purdue.edu
<i>Control Technology in Swine Buildings</i>	Matt Nonnenmann, PhD (University of Nebraska) MNonnenmann@unmc.edu Thomas Peters, PhD Thomas-M-Peters@uiowa.edu
<i>Preventing Farm Injuries from ADRD</i>	Kanika Arora, PhD Kanika-Arora@uiowa.edu Julie Bobitt, PhD JBobbitt@uic.edu

SECTION 3: PROGRAM HIGHLIGHTS AND IMPACT

Evaluation and Planning Core

(T.R. Anthony)

The *Evaluation & Planning (E&P) Core* provides strategic leadership to help the Great Plains Center for Agricultural Health achieve its mission – namely, to prevent agricultural injury and illness and to improve safety and health among agricultural communities – by advancing knowledge through scientific research and by preventing agricultural injury and illness through education, outreach, and intervention programs. This *E&P Core* provides structure and programmatic and financial infrastructure needed to meet our aims, specifically to:

- (1) Provide strategic leadership and effective administration,
- (2) Foster communication and collaboration between Center and its many stakeholders,
- (3) Conduct systematic evaluation of all Center activities, and
- (4) Identify, prioritize, and address emerging issues that arise over the upcoming project period.

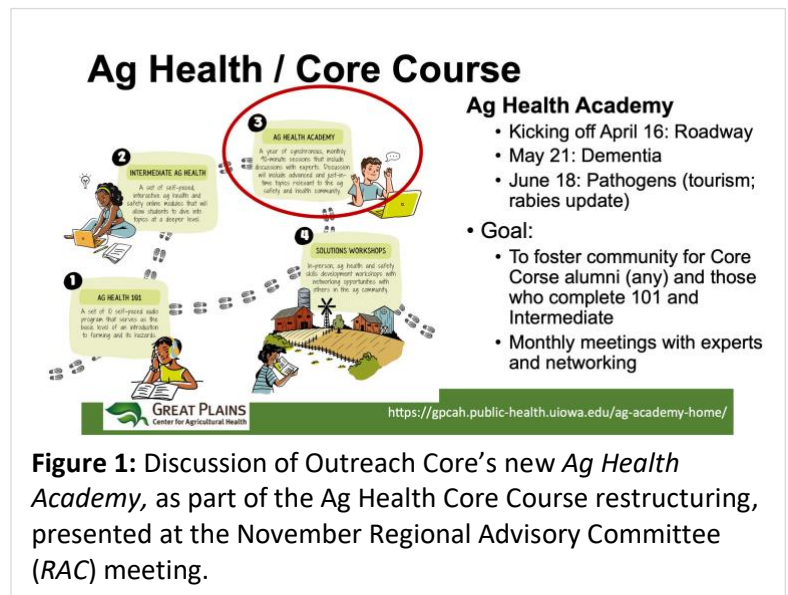
The *E&P Core* facilitates communication with leaders and practitioners in agricultural safety and health by promoting information exchanges at regional and national meetings and with other stakeholder groups to develop new partnerships to make progress toward our common mission of protecting people. To identify hazard priorities, we perform injury surveillance, conduct needs assessments and routinely solicit feedback from stakeholders on emerging trends. To reach farmers more efficiently, the *E&P Core* has developed a regional *farmer/rancher registry* to invite interested farmers to participate in safety and health discussions and research. Our Evaluation Team develops innovative tools to track progress, report and measure outputs, and map all Center contributions to improvements in farmer health and safety in our region's intensive row crop and livestock production operations. This Evaluation Team leads structured reviews of the strategic plan and the communication plan and leads the Center administration evaluation process to provide feedback on the effectiveness of this Core. Below are the key *E&P Core* activities accomplished over the past year.

Coordinate Communication:

Activities and Impact

Advisory Committees: Our [advisory committees](#) continued to provide valuable feedback and new suggestions from across our region, leading to improvements in outreach and educational materials and providing new connections with experts and producers to help us all protect farmers across the region.

Our *Regional Advisory Committee (RAC)* brings together outreach and research experts from the region to share ideas about products developed by the GPCAH and our partners. In November 2024, the RAC reviewed updates to the web pages — particularly the outreach pages such as poster and print material resources and Ag Educator pages — and provided navigation improvement suggestions, which we have



since implemented. Also in the live November meeting, we discussed how *RAC* organizations could use the *Ag Health 101*, *Ag Health Academy*, and other educational programs coordinated by the Outreach Core (Fig. 1). The hands-on activities in this meeting focused on soliciting feedback to guide refinement of new [Ag Educator Posters](#) (Air Quality, Tractors, Confined Space, Fall Prevention, Pesticide Drift, and Respirator Selection). Our March 2025 call focused on the new *Ag Health Academy* structure, *FarmSafe in the Classroom* beta tools, and our upcoming needs assessment survey for extension agents.

Our Year 3 *External Advisory Committee (EAC)* meeting was put on hold due to federal funding concerns, postponed until the project Year 4. Even while awaiting additional certainty in federal funding to support the ongoing activities of the Center, we invited a new member to our EAC, to replace the late Dr. Gunderson. In March 2025, Andrew Hennenfent, DVM, MPH, DACVPM, agreed to join our EAC. He is the new State Public Health Veterinarian at the Iowa Department of Health and Human Services, and he has presented a rabies update for our pathogen discussion in an *Ag Health Academy* session ([June 2025](#)).

Web Updates: With the hiring of a new Center Coordinator (McMichael in early 2024), we substantially reorganized the web to improve navigation through our resources. We kept major navigation headers (e.g., Education, Resources), but we simplified the list of pull-down options to aid in navigation to specific topics. Now the “Resources” tab contains only four sub-topic pages: (1) For Events and Partners, (2) Multimedia Resources, (3) By Topic, and (4) Other Resources). We then provide several ways to navigate within and among these topics to find resources. Figure 2 illustrates the organization and mapping approach to this reorganization, shown on our main [Resources](#) page.

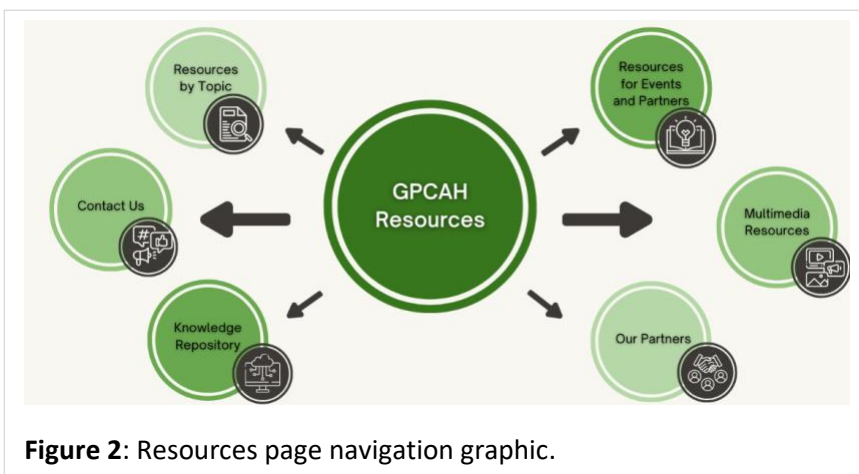


Figure 2: Resources page navigation graphic.

In addition, we converted content on several pages to reflect the design of our top visited page (“[Grain Bin](#)”). We revised two pages to contain more on-page narrative to engage visitors as well as housing links to additional printable/downloadable resources to evaluate whether this structure helps those looking for specific health and safety content. The first was a relatively new [PPE Resources](#) page which had basic content formed in June 2023 (not linked but accessible) that was reworked in June 2024, reviewed by *RAC* in November, and then linked and promoted towards the end of 2024. The PPE Resources page has had 378 visits and is on track to becoming another heavily visited resource page. The second page was an updated [Manure Gas Safety](#) page, also reorganized with on-page narratives, which was refocused also in June 2023. The new narrative lets visitors understand information while on the page and provides links to downloadable / printable content and videos designed to provide more specifics on information on the main Manure Gases Safety narrative page. In this project period, we have seen the Manure Gas Safety page visits rise by 83% compared to last project period (964 vs. 526), indicating the newer style may be more helpful to visitors looking to understand manure gas hazards and prevention best practices.

Feedback from the *RAC* (section above) on the web redesign prompted additional modifications within some of the topic pages to ease visitor navigation and information gathering. Specifically, the new [PPE Resources](#) page was developed to organize information on all of the many categories of PPE that farmers might use. Basic guidance is provided on the page to encourage visitors to interact more with the

information on the page, but we also included links to access downloadable/printable information across head-to-toe categories of PPE. Our RAC members pointed out that the length of this PPE page made it difficult to scroll and find information on PPE of interest to a visitor, so we highlighted section links at the top of the page by making them recognizable “buttons” and added a “return to top” feature to help users quickly jump to the resources they need from wherever they are on the page.

Additional organization of the [Topics](#) page resulted in the development of new content “buttons” with new topics for which we had developed tools to support our formal outreach programs, including *Ag Health 101* and the *FarmSafe Podcast*. As such, this project period we created new pages dedicated to these new resources, including [First Aid](#) and [Heat Illness Prevention](#) — which are now easy to find on the *Resources by Topic* webpage.

Finally, substantial efforts to finalize a new *Knowledge Repository* on our website were made during Year 3. We have beta-tested the system with our RAC (March) and are revising the page to release and promote it during Fall 2025. This required organizing all our resource files, renaming and tagging them with key topic, format, audience, and language to assist those looking to find specific resources that have been generated for specific audiences or types of events.

Social Media Activities and Impact: GPCAH’s *E&P Core* continues to implement the Center’s social media communications strategy by reaching out to audiences. Historically, we focused on Facebook and X/Twitter, but this year we expanded to include more sites, including the Meta Suite (Facebook, Threads, and Instagram), BlueSky, and YouTube. We disseminate safety messages, promote events, and share study findings across multiple platforms. Between Sept. 15, 2024 – Sept. 26, 2025, we made 153 X/Twitter posts (up from 147) and 177 Facebook posts (up from 139). The five posts with the most activity in both X/Twitter and Facebook are highlighted in Table 1, and images of some of these posts are shown in Fig. 3.

Table 1: Top FIVE GPCAH Social Media Posts

X/Twitter	Facebook
World Mental Health Day , 343 impressions and 17 engagements	Canadian Ag Safety Week , 613 impressions, 481 reached, 1 engagement
FarmSafe S4 bundle topic hints teaser , 117 impressions and 5 engagements	Illinois Farm Stress Study , 593 impressions, 347 reached, 12 engagements
FarmSafe S4E18 Promotion , 110 impressions and 5 engagements	Summer Bundle drop: FarmSafe , 577 impressions, 313 reached, 11 engagements
National Rural Health Day , 105 impressions and 14 engagements	Journalist Workshop Announcement , 561 impressions, 355 reached, 7 engagements
Health and Wellness NFSHW24 , 100 impressions and 11 engagements	Pilot Grant Notice (post NIOSH RIF) , 440 impressions, 239 reached, 10 engagements

In the past, our X/Twitter audience had a strong interest in our *scientific* studies and reports. However, as the audience on this platform shifted throughout 2024 and 2025, engagement from this audience declined (Table 2). While we continued to post to the X/Twitter account (153 posts), new ownership and management of the site led us to anticipate lower engagement for our traditional followers. As Table 2 shows, our reach and engagement on X/Twitter dropped, presumably because fewer researchers were

using this platform to engage with ag safety and health. The X/Twitter reach dropped to 4,723 from 12,385, and we lost 53 followers—quite a shift from the previous year’s gain of 86. That decline confirmed that we likely have limited voice in this media platform going forward.

Fortunately, our Facebook followers remained stable (691 Year 3; 689 Year 2). Facebook’s recommended metric is the *engagement rate*, which went down this year= 5.0%, down from 9.4%. Even with a drop in engagement, our Facebook engagement rate remained in the “exceptionally well” category defined by Meta ($\geq 5\%$).

Historically, our most engaging posts tend to be those presenting a media story about severely injured farmers and relevant prevention tips. The number of these posts were down the past two years (one in Yr 2, five in Yr 3), which may result in decreasing engagements over time. We also hypothesize that fewer engagement in social media on non-hot topic items may be a national trend on Facebook. Figure 3 illustrates a top post covering our July *FarmSafe* bundle (the last of the season).

In preparation for anticipated declining engagement on X/Twitter—due to many researchers who followed our scientific studies on Twitter leaving the platform— began developing a presence on alternative platforms. This project period, we launched new content strategies for Instagram and Threads (@gpcah_uiowa) and Bluesky (@gpcah.bsky.social), with active posting beginning in March 2025. While it is too early to assess impact, we began by posting content without pushing links to our partners. We introduced “who we are” graphics to Instagram, relying on many of the *FarmSafe* episode promotions in July 2025. Since then, we have tagged relevant organizations in our top post, which helped extend our reach. Currently, our promotional [graphic on the Rabies Safety FarmSafe](#) episode has had the most (62) views. A formal plan for engagement and evaluation has been developed for Year 4.

Table 2: X/Twitter Performance

Metric	Year 2	Year 3	Change
Posts	147	153	↑ 6
Avg. Engagement per Post	5.6	2.3	↓ 3.3
Reach	12,385	4,723	↓ 7,662
Followers	450	397	
Followers Gained across year	+86	-53	↓139
Engagement Rate*	1.2%	0.6%	↓ 0.6

*Engagement Rate = (Total Engagement number of tweets) / (Number of followers) x 100%

Interpretation of Engagement Rate: *Very High* if $\geq 1.0\%$, *Very Low* if $\leq 0.02\%$

Table 3: Facebook Performance

Metric	Year 2	Year 3	Change
Posts	139	177	↑ 38
Total Engagements	1063	572	↓ 491
Reach	11,257	11,548	flat
Followers	689	691	flat
Engagement Rate*	9.4%	5.0%	↓ 4.4

*Engagement Rate = (Total Engagements) / (Total reach) x 100%

Interpretation of Engagement Rate: *Exceptional* at $\geq 5\%$, *Very Low* at $\leq 0.02\%$

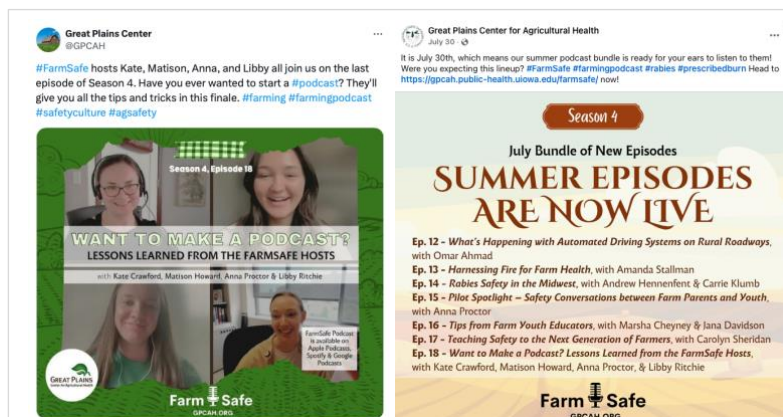


Figure 3: Example top posts from X/Twitter (left) Facebook (right), both related to FarmSafe podcast promotions, identified in Table 1.

Emerging Issues

In previous project periods, Emerging Issues funds were used to support a survey on respirator use and fit testing and, subsequently, to provide train-the-trainer materials and workshops. Our internally developed fit-testing training guides (used in the 2022 MRASH Skills Workshop, available thereafter online) were used to generate the 2024 [Respirator Fit Test Guide for Agricultural Pesticide Handling](#), a joint effort between the Ag Health and Safety Alliance (AgHSA) and the GPCAH (Outreach Core). This has been incorporated into AgHSA pesticide respirator training program and was initially shared with agricultural health and safety advocates at the 2024 ISASH conference. It is being incorporated into regional outreach efforts to train interested parties in how to conduct qualitative fit testing.

To improve the region's capability to provide respirator fit test services, The GPCAH and AgHSA identified partners at Iowa Extension to help identify whether extension specialists were able and willing to help farmers conduct respirator fit testing. Our [2022 surveys](#) of where farmers would seek respirator fit testing identified that *extension* would be a place where many farmers would seek fit testing. In collaboration with AgHSA, we worked with Betsy Danielson, Extension Specialist with the Pesticide Safety Education Program (PSEP) at Iowa State University, to identify extension agents interested in participating. Ms. Danielson attended and completed our skills development workshop in 2022, helped coordinate a 2024 training session, and assisted with recruiting extension specialists for this event. At the very end of the last project period (Sept. 27, 2024), Carolyn Sheridan (AgHSA) and Betsy Danielson (ISU) conducted training for nine extension agents in Iowa (target was 15), with the event shown in Figure 4.



Figure 4: Fit test training, Sept. 2024.

Following the training, attendees were invited to apply for fit test kits (funded by GPCAH) by providing a brief proposal regarding their intention to use the fit testing kits within their counties. Five attendees requested fit testing kits after the training, confirming their intent to conduct respirator fit testing in their county(ies) and agreeing to participate in follow-up survey six months after receiving the kit. Counties with attendees who were trained *and* received qualitative fit testing kits were: Warren, Cerro Gordo, Dubuque, Franklin/Hardin, and Palo Alto. Four kits were for Bitrex and one for Saccharine (Franklin/Hardin Co.).

In June 2025, we sent these participants the six-month follow-up survey to understand how the kits were used and obtain feedback on their self-efficacy of conducting fit testing for communities they served. Only four of these five participants completed the six-months post-kit survey. No one identified any problems with the kit or had any follow up questions regarding their use. Across these four respondents, they had originally planned to test a total of 60 people in the 6-month follow up period. However, only one person ended up using the fit test kit: that person conducted fit testing of FFR/N95s for *three* people: one extension worker, one farmer, and one health care provider.

In assessing their skills and comfort level conducting fit testing at six-months post-kit receipt, everyone was comfortable/somewhat comfortable explaining respirator fit testing needs, conducting the fit test, and walking through the process. One person, however, was “not at all comfortable” helping to select respirator types, so additional information was needed to support this group to help understand respirator selection. Because of persisting concern regarding selection of respirator types, the GPCAH has developed a [fill-in poster](#) to help walk people through the respirator selection process. This poster has been adopted by

partners who conducting outreach using farmer PPE (Fig. 5), and we look forward to evaluating whether using this tool improves self-efficacy in respirator selection.

Of the four trainees who provided feedback after receiving kits, two of them still anticipate using the test kits, either by scheduling appointments or by incorporating fit testing into existing community events. The other two indicated they would not be using the kits because either their role has changed (working with farm youth) or that their organization did not have an interest in providing this service. Recommendations from participants on how to improve services to their community included partnering with local healthcare providers and training additional staff at their county office to build capacity to conduct the testing locally.

This education team (Sheridan, Danielson) had organized another round of training to be delivered in August 2025. Outreach to extension agents across Iowa generated interest from 13 counties to attend another [fit test workshop](#) in Palo Alto county, IA. However, the event was ultimately postponed due to low registration. This process, however, allowed us to understand statewide demand and laid the groundwork for future programming. Ongoing collaboration with PSEP continues to focus on raising awareness of the importance of respirator fit testing and expanding the availability of these workshops across the GPCAH region. Interest is being assessed for project Year 4 of the GPCAH funding cycle.

This [Respirator Fit Test](#) guide led to further collaboration in 2025 between AgHSA, GPCAH, the Nebraska Ag Center (CS-CASH), and Iowa State Extension Pesticide Safety. We collaborated on a publication titled *"Organization of Community-Based Respirator Fit Testing Programs for Agricultural Workers."* The article, accepted by the *Journal of Workplace Health and Safety* on Sept. 17, 2025, applies directly to professional practitioners, emphasizing the importance of respirator fit testing beyond in-person workshop delivery. It highlights the development and impact of community-based programs, underscoring the critical roles of nurses and community partnerships. The publication summarizes the combined experience of a multidisciplinary team that conducted eight workshops over five years, reaching 175 participants across five states. Plans for promoting and disseminating the publication are currently underway for promoting the article once it is published.

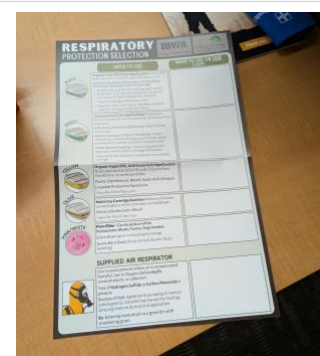


Figure 5: Respirator Selection poster used at Kirkwood GearUp for Ag training, Sept. 2025.

Outreach Core (T.R. Anthony)

The **long-term goal** of our *Outreach Core* is to reduce injury and illness among agricultural workers throughout our region by providing a multi-tiered approach to disseminating health and safety information in a way that maximizes adoption by agricultural workers. Our **objective** is to increase the speed and uptake of agricultural safety and health programs, practices, and policies among intermediary organizations that engage with the agricultural workforce. Our efforts to achieve this relies on (1) expanding our educational programs, (2) translating and disseminating research into effective prevention messages, and (3) creating mechanisms that facilitate communication between the Center, intermediaries, and end users. Our **primary target audiences** are healthcare providers (including those serving migrant and seasonal farmworkers), employers (including supervisors of young agricultural workers), and media communicators who can influence perceptions and behaviors through their portrayal of the agricultural industry. These activities will position the GPCAH as a regional and national resource to reduce injury and illness and promote well-being among workers in the agricultural community.

To achieve this **mission** of the GPCAH, the *Outreach Core* has three main **aims**:

- (1) Build capacity and expertise among practitioners to protect vulnerable workers by expanding the adoption of agricultural safety and health educational materials throughout the region and nationally.
- (2) Translate agricultural safety and health research findings using a multimedia approach to encourage adoption of evidence-based practices among stakeholders and target audiences.
- (3) Build new and nurture existing stakeholder partnerships with intermediary organizations to foster bidirectional communication channels

Below summarizes a few highlights of high impact activities during this third year of our project.

Training

Ag Health 101 provides *introductory* information on both farming and health protective practices. For those new to either farming or health and safety, this program is the best place to start. The course can be accessed by anyone at <https://gpcah.public-health.uiowa.edu/ag-health-101/>. Through Aug. 2025, the public has completed **90 units**, with final quiz results communicated to participants. We have found that many are repeating the quizzes: we have had 131 quizzes completed, with 41 quizzes as repeats. The most frequently re-taken quizzes were for the units on *Falls on Farms* (12 repeated quizzes for the five who completed the unit) and the *Air Quality and Gas Exposures* (19 quizzes for the 12 unique completions). In this first year of the program, five people have completed the full course of 10 units. Only two of these five have applied for CE certification from the University of Iowa Carver College of Medicine.

Intermediate Ag Health is the second tier of self-paced educational components. These interactive modules provide detailed information on 11 topics relevant to farming health and safety, mostly developed through the center's previous project cycle (2016-22). During our recent 2024-25 project period, courses have been completed 490 times, totaling 1581 completed modules during this funding cycle (Sept. 2022-Sept. 2025) and 2966 completed courses since the first module was deployed, starting in the last project period.

Figure 6 tracks the use of these modules over time. The first module was deployed in 2016, and the following are the most widely used courses: *Occupational Lung Diseases* (published 12/17, completed 484 times), *Occupational Skin Disorders* (9/18, 443), and *Physical Agents* (2/16, 392). These modules have been incorporated into *Core Course* curriculum offerings with our partner institutions as asynchronous materials used around the country. Course completion has dropped in the second half of this project period, but several topics held strong, including *Overview*, *Livestock Handling*, *PPE*, *Young Workers*, and *Transportation* modules.

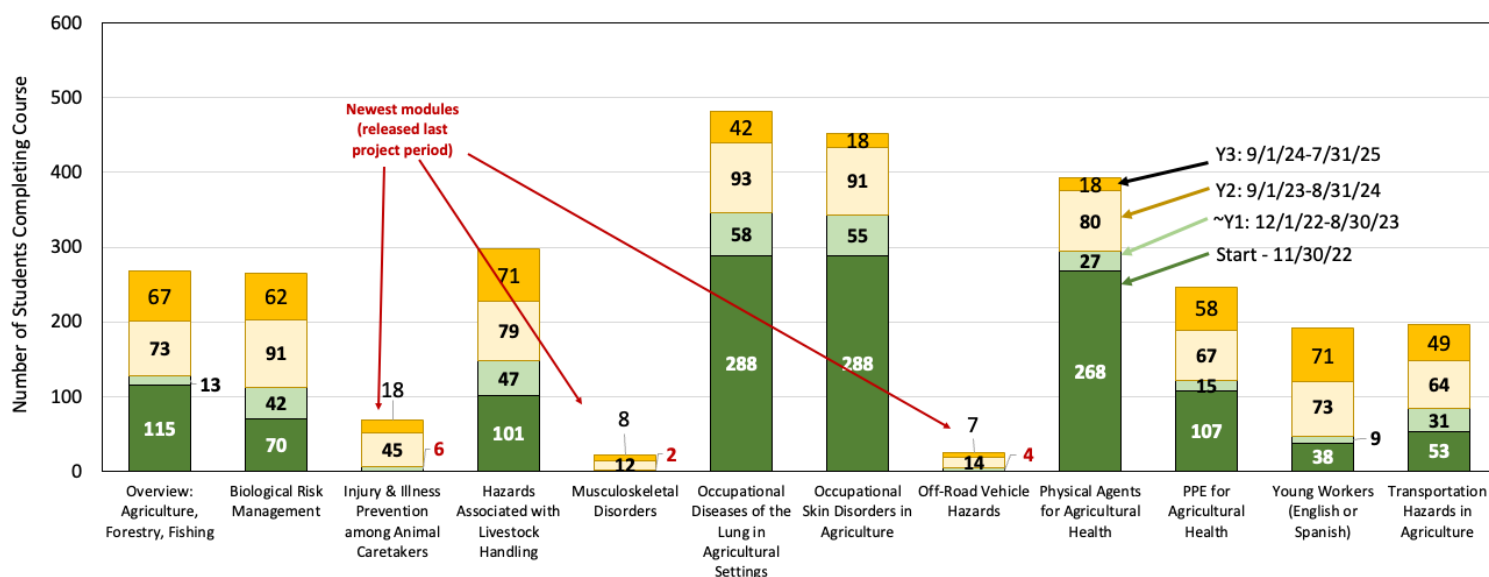


Figure 6: Use of online modules by topic, stacked bars over time. The dark orange sections were from project period 3, specifically Sept. 2024 through July 2025.

Ag Health Academy is the advanced educational training level of our ag curriculum (<https://gpcch.public-health.uiowa.edu/ag-academy-home/>), which was introduced in the middle of this project year. Six individuals were accepted into the Academy for our April 2025 kick-off session, and we opened the first three sessions to a broader audience to build interest in the program. The goal of the *Academy* is to advance the expertise in our community of ag health and safety experts across the region while building a community of experts. The synchronous 90-minute sessions included *Roadway Hazards* (April 16, 2025); *Dementia and Farmers* (May 21, 2025); and *Pathogen Updates* (June 18, 2025). Each of the recordings has had 11-22 views once they were posted on YouTube and are accessible only through our web page, using the above link. We paused our new Academy programming due to national funding uncertainty that arose in April 2025, just as we kicked off this new program sessions. We are reframing the way we compile these courses and anticipate scheduling recordings (asynchronous) for project year 4 to use for synchronous *Academy* sessions in Spring/Summer 2026.

Solutions Workshops is the final leg of this program, providing hands-on skills development courses offered in conjunction with regional meetings and other events. Those who are enrolled in or who have completed the *Ag Health Academy* and who have completed *Ag Health 101* will be directly notified of upcoming solutions workshop events.

Our 2024 *Solutions Workshop* focused on Media Skills, suggested by our Regional Advisory Committee. This session was conducted on November 6, 2024 in Ames, IA, held in conjunction with the [2024 MRASH conference](#). This skills-development workshop was entitled “Working with the Media to Communicate Ag

Health and Safety Messaging” (Nov. 6, 2024, 1:00-3:30 PM, Ames, IA). We gathered five journalists across the region to help researchers and ag safety and health advocates learn how to work with journalists to improve communications with the media. Our panel was led by Cheryl Tevis, emeritus Sr. Risk Management Editor for *Successful Farming*. We compiled a set of questions from conversations that GPCAH investigators and RAC members have had with members of the media to help Tevis coordinate the discussion across the panel.

Feedback from the 32 workshop attendees was exceptional, and we compiled and presented highlights of lessons learned to the NORA Ag Sector Council the following week (Nov. 14, 2024). Those attending the workshop have since interacted with the media, and many have communicated back to the GPCAH and shared that information learned in the session was helpful when preparing and talking to journalists. This effort should increase the comfort of our region’s health and safety advocates, improving the likelihood of sharing important resources with the farming and rural communities they serve. We have also generated a short [video](#) summarizing the lessons learned from this workshop, available on our *Solutions Workshop* [webpage](#).



Figure 7: Panel presenting for our 2024 **Solutions Workshop: Working with Media to Communicate Ag Health & Safety Messaging**. Our panel included, from left to right: Rachel Cramer, Iowa Public Radio/Harvest Public Media; Zoe Martin, Managing Editor for *Iowa Farmer Today*; Cheryl Tevis, emeritus Sr. Risk Management Editor for *Successful Farming*; Lyle Muller, Advisor, Midwest Center for Investigative Reporting; and Jared Strong, Investigative Reporter for Cedar Rapids Gazette.

Translation

The GPCAH Outreach Core translates research findings into multimedia formats to encourage the adoption of evidence-based best practices. Our key contributions to our translation objectives during this project period include the development and distribution of our podcasts, monthly newspaper column, field events, and a new interactive tool for PPE education.

FarmSafe Podcast: This project period, we developed and aired 18 episodes of Season 4 of the *FarmSafe Podcast*, with new episodes dropping from Sept. 2024-July 30, 2025. Libby Ritchie (né Presnall), research assistant and outreach staff for the GPCAH, continued as the host for Season 4. During this season, we provided new content and tested whether bundled episode drops impacted listenership compared to the biweekly single episode drops of our first three seasons. In this new approach, we maintained the same individual episodes structure as Season 3: episodes lead with voices or stories from farmers followed by subject experts discussing hazards, best practices, and practical tips. Each episode ended with Ms. Ritchie’s summary and a specific request for a safe behavior or action for listeners to take that reflect guidance in the episode. All podcasts are available on our [website](#), where the resources mentioned in each episode are posted. Episodes can also be found on all streaming platforms.

Season 4 topics included fire safety, burn first aid, medication risks for falls on the farm, and zoonotic disease prevention for backyard poultry. Several episodes focused on protecting farming families, including discussions about children safety and childcare access, an important concern to our region’s farmers. The final season included discussions from GPCAH investigators about their current research projects. After the initial teaser episode in September 2024, we changed from biweekly drops to coordinating three bundled

drops – Jan. 29, Apr 23, and July 30. Season 4 produced 18 episodes with a total run time of 5 hours 31 minutes. This season’s episodes averaged approximately 18 minutes, the longest average run time, likely attributable to the run time of Season 4 finale, our Host Reunion episode (32 minutes). Topics covered during all four seasons are identified in Figure 8.

Across all 77 episodes (starting with the first on Aug 20, 2021, through Sept. 26, 2025), listeners have downloaded **3708 episodes**. During this project period, listeners visited our back episode library: 73% of downloads this project period were from episodes released in *previous* seasons. Of our **925 episode downloads** this project period’s season, **245** were downloads of our new (18) Season 4 episodes, and 682 from Seasons 1, 2, and 3 indicating continued usefulness of episodes across our content library.

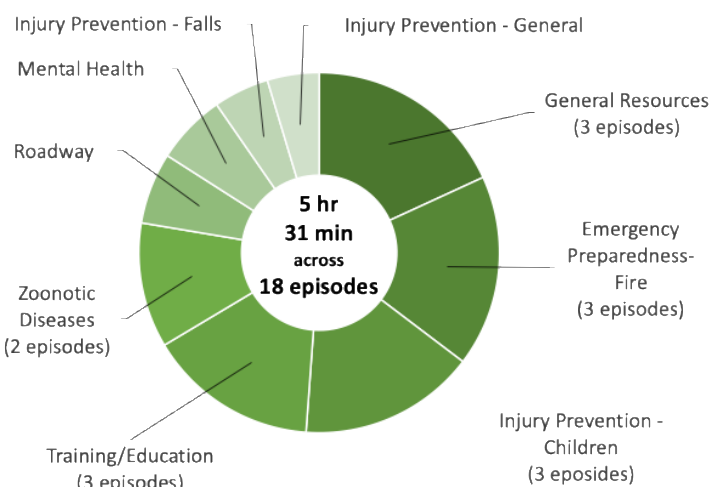
Like the three previous seasons, our season premiere (*Welcome to Season 4!* (S4E1, Sept. 2024) was among the most popular episodes. This episode was prepared to be released with the September 2024 *National Farm Safety and Health Week* (NFSHW), which has historically garnered new *FarmSafe* listeners. During 2024 NFSHW, we also promoted relevant episodes that mapped to the daily NFSHW topic schedule. The download count in Sept. 2024 was higher (163) than our typical months, indicating this may be a useful promotion strategy going forward.

Of the remaining new Season 4 episodes, the most listened-to episodes were: *The Farm-Kid Paradox* (Season 4 Episode 6), *Farm Burn Basics* (S4 E11), and *Burning Issues* (S4 E3).

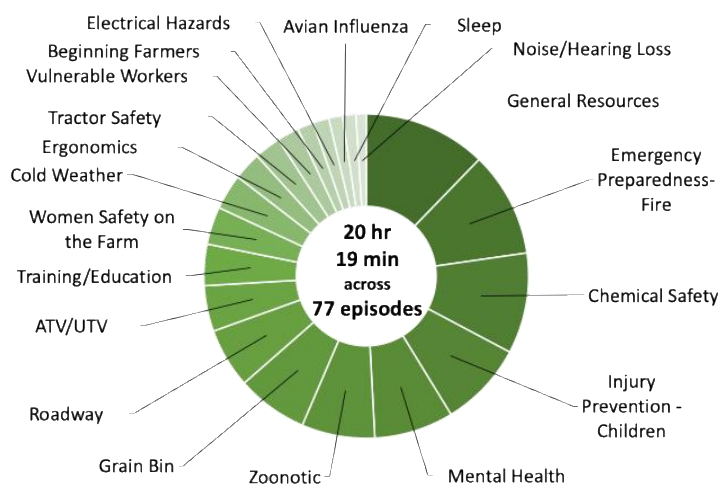
Over all four seasons, the top *FarmSafe* episodes across our library are:

- *Cold Weather Training Tips* (S1 E12) totalling 293 downloads, adding 120 more this past year,
- *Sleep* (S1 E6) totaling 183 episodes (27 more this year),
- *Women in Agriculture and Safety Issues* (S2 E2) with 128 downloads (33 more than the previous year), and
- *Back Pain and Whole-Body Vibration* (S1 E7), with 88 episodes (11 more than previous year).

Our original trailer (S1) has 290 downloads, the most downloaded episode, likely a function of podcasting promotion algorithms beyond our control. After completing Season 3, we identified that very few of our episodes were listened to in its first two weeks of dropping. In Season 4, we dropped episodes in three bundles (Jan., April, July).



(a) Season 4



(b) Seasons 1-4

Figure 8: *FarmSafe* Podcast topics presented in (a) Season 4 and (b) all four seasons.

Our annual download count trended upward this season: our 925 downloads was an increase from the 781 for last year's Season 3. This approached the 1000 downloads in our first season (Aug. 2021-July 2022, counting downloads through Sept. 2022). Thus, the bulk-episode drop approach seems to be as effective as biweekly drops, allowing us to assemble a bundle of related episodes across several months using this new distribution approach.

Safety Watch: Additional *Outreach Core* translational activities included sharing messages in *Iowa/Illinois/Missouri Farmer Today's* [Safety Watch](#) column. This year, topics included ATV Safety (Nov. 2024), winter fall hazards (Jan. 2025), respirator tips (Mar. 2025), biosafety for backyard flocks (May 2025), heat stress (July 2025), cancer risk updates for farmers (Sept. 2025), and alpha gal/lone star ticks (Sept. 2025). We also promoted safety tips to our 1600 newsletter recipients in the [Farm Families Alive and Well Newsletter](#). (List of articles in [Output Summary](#), starting on page 27.)

New and Existing Stakeholder Education

Agricultural Health & Safety Alliance (AgHSA): Our *Outreach Core* subcontracts with the Ag Health and Safety Alliance (AgHSA) to deliver outreach materials to agricultural students across the region. This year, the AgHSA delivered outreach material to 573 young adults across the region, specifically at Iowa State (Ames, IA), Morningside Community College (Sioux City IA), Iowa Lakes Community College (Emmetsburg, IA), Dordt University (Sioux Center, IA), South Dakota State University (Brookings, SD), Nemaha Central & Frankfort High School (Kansas), and Kirkwood Community College (Cedar Rapids, IA). At Kirkwood, the AgHSA and GPCAH co-presented during breakout sessions to a regular audience of 70-80 young adults, highlighting a more in-depth collaboration than at other locations. Beyond the GPCAH region, AgHSA shared information that include our resources with 825 young adults in programs in Mississippi and Arizona, as well as throughout Canada (Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and Nova Scotia), where young adults are involved in agriculture or veterinary work.

Motion graphics, developed by AgHSA with the GPCAH, and several GPCAH infographics and print resources have been incorporated into the AgHSA through both their [Gear Up for Ag Health and Safety™](#) onsite interactive program and their [eLearning online platform](#). These included the following GPCAH materials: Air Quality and Gas Exposures, How Loud is Too Loud?, Skin Cancer and You, Traffic Safety, Whole Body Vibration, and Respiratory Protection Selection (with a specific emphasis on choosing the correct cartridge). Future plans include incorporating additional new GPCAH materials on tractor safety (the new Center of Gravity for Tractors [poster](#)), Fall Risks ([poster](#)), and the overall Cost of Injury ([poster](#)) into the program delivery, and the addition of these materials to AgHSA's [website resources tab](#). The AgHSA team shared lessons learned about their educational program by talking in S4 E17 of the *FarmSafe Podcast*, where Carolyn Sheridan discussed teaching "Gear Up for Ag" and how she supports engagement of next-gen youth through college-aged students in their education program.

The [Respirator Fit Test Guide for Pesticides Handling](#), published with GPCAH funding in 2024 (see *E&P Core*), has been adopted by AgHSA and continues to be widely used in training programs and train-the-trainer workshops. The guide served as the foundation for developing promotional materials for two different respirator fit test workshops: a [1-hour overview session](#) and a [3–4 hour hands-on workshop](#). These workshops are promoted through AgHSA's partners and at conferences, and both are available on the AgHSA programs website. Each workshop directly references the GPCAH [Respirator Fit Test Guide](#). One example of the guide's reach beyond the GPCAH region is a train-the-trainer workshop held in Mississippi in April 2025, which engaged 30 extension and outreach safety professionals.

Carolyn Sheridan, RN, BSN, and Executive Director of AgHSA, also participates as a featured guest each week on the *AI Travis Show*, an agricultural news and information program broadcast on 10 radio stations.

Carolyn Sheridan highlighted GPCAH resources and seasonal safety campaigns. Topics included, but were not limited to pesticides, manure gas, hearing conservation, whole-body vibration, respiratory protection, respirator fit testing, roadway safety, and older farmers. For example, on August 22, 2025, Carolyn included Kanika Arora as her guest on the *AI Travis Show* to discuss her GPCAH project for supporting caregivers of farmers with dementia who still work or live on a farm (watch at <https://bit.ly/AITravis>).

Journalist Workshop: In addition to the 2024 *Solutions Workshop* focusing on developing our ag community's skills in working with the media ("Working with the Media to Communicate Ag Health and Safety Messaging," Nov. 6, 2024, 1:00-3:30 PM, Ames, IA), this project period we developed a *Journalist Workshop* to build capacity for delivering accurate agricultural safety and health messages to the public. The goal of the workshop was to raise awareness about the broad scope and preventability of agricultural injuries and illnesses and to foster a network of communicators and researchers to strengthen the capacity of ag health and safety reporting. The workshop was scheduled for July 2025, but due to the news cycle and media priorities on topics outside of ag safety and health arena, we pivoted from a live [half-day workshop](#) to a set of [online resources](#) for journalists. In doing so, we created a new web page that (1) hosts recent injury surveillance findings, (2) provides a video tutorial to help guide journalists to find and interpret data available on both fatal and non-fatal workplace injuries, (3) explains "terminology" implications when telling stories on health and safety outcomes (accident vs incident; killed vs fatally injured), and (4) outlines summaries of one-page guides that provide key messages we would have shared with live hands-on demonstrations. In addition to the new web materials that provide guidance for common ag questions, we have prepared additional guidance on farmer health to share through panels we were invited to speak at for the Cedar Rapids Gazette's "Iowa Ideas" Event, a two-day forum to sharing resources across the state. Two GPCAH investigators were invited to serve on this panel that focuses on protecting farmer health in their (new) full-day [Agriculture](#) track (Oct. 2, 2025).

MRASH: The annual MRASH conference was held in November (87 attendees from 10 states plus Canada) and was co-sponsored by the GPCAH and I-CASH. Our other regional ag centers also contribute to the event, including CS-CASH (NE Ag Center) and the National Children's Center (Marshfield), alongside contributions from the USDA, AgriSafe, AgHSA, and the Canadian Center for Rural and Agricultural Health (U of Saskatchewan).

The MRASH theme of "Messaging Matters" corresponded to our GPCAH pre-conference workshop, "Working with Media" (see *Solutions Workshop in Training section, above*). The conference provided an opportunity for investigators to present posters (three GPCAH, four by our RAC members, four by other NIOSH AgFF center personnel; Fig. 8) and slots for 16 technical presentations (one GPCAH, two from former Pilot grant awardees, two from RAC members, and three from other NIOSH AgFF center personnel). The keynote presented information on how to amplify communications using generative AI tools, and 97% of those completing evaluations identified useful AI skills to apply to their work.



Figure 8: Poster presentations at 2024 MRASH.

A new interactive "Messaging in Minutes" session had attendees rotate through and engage in four 20-minute conversations on topics to improve ag safety and health communications (e.g., visual accessibility, infographics, dashboard development). Our Outreach Specialist, Marsha Cheyney, presented guidance on

visual accessibility as one of the seven topic options. In 2025, the Outreach Core Skills Workshop team will use the “Messaging in Minutes” format at the upcoming MRASH to provide succinct hands-on demonstrations of bump testing manure gas monitors.

Pilot/Feasibility Projects Program (N. Fethke)

The Pilot/Feasibility Projects Program is a vibrant and vital component of the GPCAH. The Program strengthens the Center's impact on agricultural safety and health (ASH) by operating a competitive funding opportunity using two tracks, one designed to support new academic research and the other to support community-based education/outreach/translation projects.

Academic-Track Awardee Characteristics. A key goal of the Program is to support investigators new to the field of agricultural safety and health.

Community-Track Awardee Characteristics. A key goal of the Program is to support regional organizations in their efforts to develop, implement, evaluate, and deliver evidence-based ASH services (e.g., educational programming for agricultural workers).

Applicants for community-track pilot funding must first submit a brief Project Concept about six weeks in advance of the deadline for full applications. The Center provides feedback and invites discussion with project leaders to strengthen alignment of the project scope of work with the Center's priorities and expectations for evaluation.

Program Highlights

For the 2024-2025 project year, the Program received 14 applications for pilot funding: four community-track and 10 academic-track. The four community-track applications focused on mental health and originated from organizations in Iowa (1), Nebraska (2), and Minnesota (1). Academic-track applicants were affiliated with institutions in Illinois (2), Iowa (4), Michigan (1), Missouri (1), and Kansas (2). Academic-track applications addressed a broad range of high priority regional agricultural safety and health topics, including mental health, youth safety, emergency preparedness, and ergonomics.

The Pilot/Feasibility Projects Program identified three new projects to fund in 2024-2025, all of which were academic projects. A fourth highly scored project from the community track was also funded as relevant for Emerging Issues funding. These funded applications are:

Sangil Lee (Clinical Associate Professor, University of Iowa) is examining farm-related injuries among anticoagulation users in Iowa

Kaisen Lin (Assistant Professor, Michigan State University) is examining emission and transmission of antibiotic-resistant genes from manure spreading/hauling

Anna Proctor (PhD Candidate, University of Iowa) is examining young farm worker safety using interviews with parent-child dyads

Aaron Lehman and Jonathan Lawrence (Iowa Farmers Union, community track) are evaluating the helpfulness of training members to provide peer-to-peer mental health support within their community

Anna Proctor defended her doctoral dissertation in May 2025, which included pilot grant project objective as one aim of her dissertation. She shared her study and findings in a *FarmSafe Podcast* (S4E15) and in the Sept. 2025 issue of our *Farm Families Alive and Well* [31(4):5] newsletter (Fig 9).

"You Don't Want to See Your Kids Fail": The Role of Parents in Teaching Farm Safety to Adolescents

by Anna Proctor, PhD, MS, Department of Occupational and Environmental Health, University of Iowa College of Public Health

Youth remain at elevated risk for injuries and fatalities on farms, particularly on family farms where the boundaries between home and workplace are blurred. While this is an ongoing public health issue, it is especially important in the Midwest, where over half of such incidents occur. Agricultural hazards (e.g., machinery, extreme weather, heavy equipment) can be dangerous to all farm workers, but youth are especially vulnerable due to their smaller stature, reduced strength, and limited maturity. Although farming hazards are well-documented, youth behavior on farms, particularly how they interact with these hazards and the most effective strategies for delivering safety training, remains poorly understood.

To explore this gap, researchers from the University of Iowa (Drs. Anna Proctor, Diane Rohlman, Elizabeth O'Neal, Ebonee Johnson, and Carri Casteel) conducted a qualitative study with 15 parent-youth (adolescent) pairs living and working on family farms in southeastern Iowa.



Figure 9: Snapshot of beginning of Proctor's newsletter story sharing research findings.

To prepare for selecting pilot projects to grant funds for our Project Year 4 (2025-26), we solicited applications in March 2025. However, we recalled the announcements in April 2025 once NIOSH was targeted for elimination and when all NIOSH ag centers were unsure funding would continue. Upon receipt of Year 4 funding award, we have since reissued the request for proposals for the upcoming project year 2025-6, focusing on only research projects due to the limited time (9 mo.) to allow recipients to complete projects during awarded Year 4 timeframe. Applications are due October 10 and award decisions should be made to allow projects to begin starting early December 2025.

Advancing Whole-Body Vibration (WBV) Exposure Control in Agriculture (N. Fethke)

Mechanized row crop production exposes agricultural workers to whole-body vibration (WBV), a key risk factor for back problems. Suspension systems of the seats in agricultural machines can reduce WBV exposures. However, the performance of seat suspension systems varies (i) between-operators under controlled conditions in the laboratory and (ii) within-operator under variable conditions in the field. Both circumstances limit our understanding of how effective seat suspensions are in reducing WBV exposures. This project offers methodological improvements to the assessment of seat suspension system performance under actual production conditions.

Ultimately, our goal is to instrument 40 machines across several farms and then, for each time that each machine is used over a period of many weeks, to measure vibration both at the seat pad and at the base of the seat suspension system. The resulting data will then be used to (i) estimate the magnitude and precision of between-day, between-operator, and within-operator contributions to the variability in seat suspension performance and (ii) empirically address ambiguities in the ISO's standards for measuring and evaluating WBV exposures.

Because of the large number of machines and the multi-week measurement campaign we have planned, using typical ("gold-standard") WBV measuring equipment is cost-prohibitive and logistically infeasible. Therefore, we have developed a low-cost WBV measurement system. Our system includes additional features to help us understand the variability in seat suspension performance, such as machine start-up detection (to enable autonomous data collection in remote locations), GPS (to track machine location and speed), automatic detection of operator presence (to ensure our analyses include only periods when an operator is on the seat), and sensors/algorithms to estimate operator posture (e.g., leaning forward or reclining, which influences seat suspension performance).

Key Achievements in the Past Year

Aim 1. Laboratory-based experiments designed to validate the accuracy of the measuring accelerometers in our prototype system are complete. A manuscript (*Validation of a customized system for whole-body vibration measurement*) describing these results has been revised and resubmitted for publication. We also presented the results for the instrumentation validation aspects of Aim 1 at the 2024 Midwest Rural Agricultural Safety and Health conference.

Laboratory-based experiments designed to validate exposure measurements from our system against the requirements specified in ISO:2361-1 (*"Human response to vibration – Measuring instrumentation"*) are also nearly complete. Twenty-four participants were recruited and seated on an agricultural machine seat mounted to a human-rated motion platform (Fig. 10). For each experiment, both our system (prototype) and "gold-standard" field-capable WBV measuring equipment (reference) were mounted to the platform and to the seat surface, in accordance with ISO:2631-1. The experiment was designed to (i) assess the accuracy of metrics of WBV exposure and seat suspension performance obtained with



Figure 10: Illustration of exposure measurement validation involving human subjects seated on agricultural machine seat mounted to a human-rated motion platform.

our prototype system and (ii) whether the force sensors incorporated into our custom seatpad accelerometer could be used, in addition to detecting a seated operator, to develop a model suitable for predicting operator posture (e.g., leaning forward, reclining). Analyses suggest near perfect agreement between the WBV exposure metrics (from ISO 2631-1) measured with our prototype system and those measured with reference sensors.

Aims 2 and 3. Limited field deployment and pilot testing have been underway since June 2025. During pilot testing, our system was installed in several agricultural machines at three separate farms and tested in a field environment to ensure the system functioned as needed for Aim 2 data collection. Six farms have been recruited to participate in data collection for the duration of the 2025 harvest season (mid/late September through about mid/late October). Aim 3 involves secondary analysis of Aim 2 data and is scheduled to commence in early 2026.

Community Campaign to Reduce Farm-Vehicle Roadway Crashes (C. Hamann, L. Schwab-Reese)

Motor vehicle crashes are a leading cause of injuries and fatalities in the agricultural industry, and drivers of passenger vehicles are most often at fault. This project will use a novel approach to improve rural driver behaviors around farm vehicles on the roadway through a community-level intervention packaged into a toolkit and disseminated through Extension Educators. The long-term goal of this project is to reduce the burden of agricultural injuries from motor vehicle crashes and increase rural roadway safety.

The *long-term goal* of this research is to reduce injuries and fatalities associated with farm-vehicle-involved roadway crashes. The *central objectives* of the proposed study are to develop a “We’re on This Road Together” Toolkit and training module, then evaluate its reach and implementation. Our team has a unique combination of interdisciplinary expertise in agricultural and road traffic injury prevention and development and evaluation of community-based behavioral interventions. To achieve these objectives, we propose two specific aims:

- (1) Translate the “We’re on This Road Together” community-level rural roadway safety campaign to a Toolkit that can be implemented directly by community groups.
- (2) Evaluate the implementation and impact of the “We’re on This Road Together” campaign Toolkit.

Key Achievements in the Past Year

This past year we moved into campaign implementation in Indiana. Eight extension educators in seven counties were recruited to join the project, and a live training session was provided via Zoom in February 2025. In addition to providing a hard copy of the campaign toolkit, all digital materials are also available on a website. Printed campaign materials were mailed to each educator. We included various items in the physical toolkit like stickers, window clings, banners, t-shirts, etc.

All educators were trained to gather pre-campaign surveys from community members to assist with evaluation of the effort. After gathering the pre-surveys, educators started the campaign by sharing materials at community events, conducting media outreach, and other outreach strategies customized to their community. Educators are surveyed directly to gather information about their implementation progress and feedback on the campaign. Our team has been providing technical assistance for community campaigns as needed. We will continue to process and analyze the outcome data for each community including both the project’s reach/impact.

Community Campaign to Reduce Farm-Vehicle Roadway Crashes

by Cara Hamann, MPH, PhD, Core Director for Training and Education, IPRC

The “We’re On This Road Together” Project has launched a campaign for rural roadway safety in Iowa and Indiana communities, empowering extension educators to promote safety in their local communities. The project is led by a collaborative team from the University of Iowa and Purdue University.

In 2024, three extension educators in Iowa pilot tested the campaign after receiving training and technical assistance from the GPCAH team. The toolkit was modified based on feedback from the pilot cohort. In early 2025, eight extension educators from seven counties in Indiana were recruited and received training, campaign materials, and a toolkit for action. These educators are currently sharing materials through local events, outreach to businesses and on social media.

The campaign focuses messaging on three simple strategies to reduce passenger car/farm vehicle collisions:

1. Avoid passing
2. Leave more space
3. Slow down

As part of the project, educators collect surveys from their local community members on roadway safety in their area. This data from hundreds of respondents will be used to analyze the impact of the campaign. Researchers are also evaluating how extension educators respond to the training and campaign materials, and their experiences with implementation.



Figure 11: *Alive and Well* article about the Community Campaign, 31(3):8.

Design and Evaluation of a Control Technology for Dust and Bioaerosol in Swine Buildings

(M. Nonnenmann, T. Peters)

Swine production workers are exposed to dust and bioaerosols (e.g., zoonotic organisms), and there is a need to develop scalable, cost-effective engineering control that includes recirculating ventilation systems that are effective and scalable for use across a range of swine building designs. This project used a participatory approach with swine industry stakeholders to design, optimize, and field-validate a prototype miniaturized recirculating ventilation system. The long-term goal of this project is to optimize a **recirculating ventilation system (RVS)** to control worker exposure dust and bioaerosols in livestock production buildings.

Our *long-term goal* is to develop an RVS to control dust and bioaerosols in livestock production buildings and translate our findings using the National Institute for Occupational Safety and Health (NIOSH) research to practice (r2p) approach. The primary objectives of this project are to demonstrate the effectiveness of a low-cost ($\leq \$1500$), **miniaturized RVS (mRVS)** to control dust and bioaerosols when integrated into swine buildings. We will communicate with stakeholders to identify optimized design and cost parameters, and we build and evaluate the mRVS technology performance in swine production. Our research team integrates a swine industry Stakeholder Advisory Group (SAG) (e.g., swine producers, producer associations, building designers, swine industry educators, veterinarians) involvement with NIOSH investigators experienced with translating research findings. Our team has experience with RVS design, cost and contaminant simulation, field validation, and evaluation. Our rationale is that effectively translating research findings about mRVS effectiveness, costs, and cost-savings into solutions that address specific barriers identified by stakeholders will lead to adoption and concurrently improve worker and animal health in the swine industry. This project consists of three aims:

- (1) Communicate with stakeholders to develop design criteria for the mRVS
- (2) Refine and optimize the mRVS to meet design criteria
- (3) Conduct field validation of the optimized mRVS

Key Achievements in the Past Year

Aim 1: Communicate with stakeholders to develop design criteria for the mRVS

Our goal is to gather producer/building designer/swine industry opinions related to mRVS design characteristics (i.e., materials), production costs and parameters of the experiment (i.e., phase of production) we are planning on conducting in Year 3 (Aim 3: Study 3). We organized one focus group with only two producers in attendance. Our proposed approach was to have six to eight producers in attendance for focus group activities. Therefore, we changed our approach and started to conduct phone interviews to gather opinions. To date, we have conducted 15 interviews with producers, swine industry experts in production and construction. Most interviewees indicated that mRVS use will be beneficial in mitigating pig diseases or reducing hog mortality and labor costs associated with attending sick animals, especially for nursery and sow units. Most wean to finisher producers would adopt the technology if it's mandated by the integrators. Polyvinylchloride plastic, aluminum, wood, or polyester fabrics have been identified as potential construction materials that will not corrode in a hog confinement environment. Interviewees suggested using mRVS filters that are washable and reusable. Installation location(s) should be in a building location with easy access to electrical outlets, (e.g., in the center of the room or near heaters) but out of the way for daily chores. Information about production costs were difficult to gather given most

interviewees did not pay for any costs associated with feed, vet services, nor medication. Nursery and sow units have been identified as the most appropriate phase of production for future testing.

Aim 2: Refine and optimize the mRVS to meet design criteria

The mRVS design was revised based on materials suggested by interviewees. We updated materials to optimize cost. Costs of mRVS materials have increased threefold since the development of the proposal and continue to rise. To date, we have modified the mRVS prototype from the original design as follows: updated the lighting source to increase UVC dose at lower costs, created a UVC lighting harness to support the weight of the lighting, and increased the fan size to allow for decrease in cost and improve efficiency. We fabricated a washable impaction device to remove larger particles ($\sim 10\ \mu\text{m}$ and greater) from the air inlet of the mRVS to improve efficiency and durability in the swine production environment. We assembled multiple mRVS prototypes for the field experiment which occurred winter 2024 – 2025. We are hopeful that outbreaks of emerging disease (e.g., H5N1) will not impact on our data collection. We are developing alternative approaches if outbreaks occur and access to commercial swine production sites is limited.

Aim 3: Conduct field validation of the optimized mRVS

Aim 3, Study 1 occurred in Winter 2023. Study 1 used a one prototype mRVS equipped with MERV13 filtration and ultraviolet light (UVC-254 nm) treatment in an educational swine production facility. The mRVS system was operated in a treatment room (TR) targeting five air changes per hour (ACH) and was compared to a control room (CR), each housing approximately 165 nursery aged piglets. Over the sampling period, concentrations of inhalable and respirable dust, and bioaerosol concentrations were measured in both rooms and upstream/downstream of one mRVS unit. Dust concentrations were not statistically different between rooms, however inhalable dust levels in the TR (mean = $2.70\ \text{mg}/\text{m}^3$) were lower than in the CR (mean = $3.14\ \text{mg}/\text{m}^3$), with a p-value approaching significance ($p = 0.07$).

Bioaerosol measurements were collected using three culture media types and were measured in colony forming units per cubic meter (CFU/ m^3). We observed a statistically significant reduction in airborne concentrations of gram-negative bacteria (i.e., 72%, $p \leq 0.05$) in the TR compared to the CR. Bioaerosol concentrations were lower downstream than upstream of the mRVS, yet these differences were not statistically significant.

Aim 3, Study 2 occurred in February 2025

Like Aim 3, Study 1, we identified a TR and a CR and compared room concentrations of inhalable dust and bioaerosols as well as “upstream” and “downstream” of the mRVS. We installed and operated three mRVS prototypes, targeting 13 ACH in the TR. The TR and CR housed an equal number of pigs (i.e., approximately 60 finishing stage pigs) weighing approximately 250 lbs/pig. The mRVS room dust concentrations were well below OSHA PEL and NIOSH REL. However, we observed no difference in mean dust concentrations across the TR ($1.60\ \text{mg}/\text{m}^3$) and CR ($1.17\ \text{mg}/\text{m}^3$). Bioaerosol measurements were collected using three culture media types and were measured CFU/ m^3 using liquid and direct impaction methods. Across all media and collection methods, results indicated a 48.5% ($p = 0.0064$) reduction in CFU/ m^3 between the CR and the TR. The mRVS treated air reduced bioaerosol concentrations by 24.1% ($p = 0.08$) when comparing “upstream” to “downstream” concentrations. The mRVS may not be an effective approach to remove dust at later stages of swine production, however we did observe nearly a 50% reduction in bioaerosol concentrations across the TR and CR. Controlling bioaerosol concentrations in swine production may have improve both pig and human health.

Farm Safety for Rural Families Coping with Dementia (K. Arora, J. Bobitt)

This project's *long-term goal* is to prevent traumatic injuries among older farmers exhibiting cognitive decline and to improve mental health outcomes among agricultural residents/workers balancing competing demands of work and family caregiving. The primary objective of this study is to test a Stage 1 intervention ("Farm Families Coping with Dementia" or FFCD) that provides structured education to family caregivers of farm workers/residents with suspected or diagnosed dementia. Here are our three project goals:

Goal 1: Finalize Farm Families Coping with Dementia (FFCD) toolkit and implementation protocol and train Cooperative Extension Specialists (ES) to deliver program. Conduct formative research and finalize FFCD toolkit (consisting of educational modules identified to support farm families coping with dementia) and implementation protocol in collaboration with advisory team. Train ES on FFCD delivery.

Goal 2: Evaluate FFCD efficacy in improving family caregiver's dementia knowledge, burden, and self-efficacy, and person-living-with-dementia's (PLWD's) farm safety risk. Conduct a two-arm randomized control trial involving an intervention group and a waitlist-control group. Compare participant data between baseline and 3-month follow-up surveys. Interview a sample of family caregivers to explore participant experience in FFCD.

Goal 3: Evaluate implementation outcomes (feasibility, acceptability, and fidelity). Assess feasibility and acceptability from the perspectives of participants and ES through course evaluations and interviews. Assess fidelity by observing program delivery and completing and analyzing a fidelity checklist.

Key Achievements in the Past Year

In this reporting period (our second year), our team finalized all four modules of the FFCD toolkit, which includes sessions on dementia literacy, safety concerns, improving safety, and caregiver communication in agricultural settings. To enhance the training, we developed a range of audio-visual resources, including interviews with farm families who have firsthand experience with dementia. These personal stories were embedded throughout the sessions to foster relatability and a sense of shared experience. Additionally, in collaboration with *Grow: Johnson County* (a working farm on the Johnson County Historic Poor Farm in Iowa City) and *Easterseals Iowa* (an organization providing worksite and home modification support for senior farmers and their family members), we created original visual content that illustrates real-world safety risks – such as falls and tractor-related injuries – as well as potential solutions to address these problems (Fig. 12). These materials,

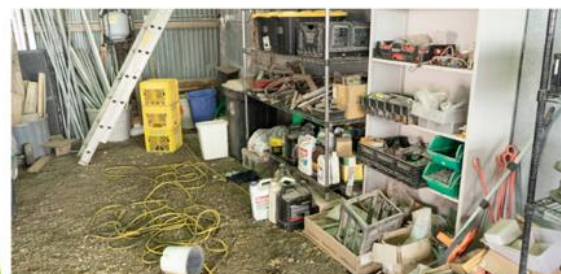


Figure 12: Illustrations used in the training program. Top two are images showing safety concerns using demonstrations at *Grow: Johnson County*. Bottom image is from video clip where Tracy Keninger from *Easterseals Iowa* demonstrates safety solutions.

incorporated as interactive learning tools, make the FFCD training uniquely practical and the first of its kind in the dementia safety resource landscape.

To support implementation, we developed comprehensive training materials for each session, including PowerPoint slides and a facilitator's guide. A pilot test led by a County Extension Educator (CEE) from University of Illinois Extension, involving four CEEs and five caregivers, received high satisfaction ratings (4.8 overall; 4.6 for content). Caregiver stories were noted as particularly impactful and validating. In July 2025, we conducted the full training with 15 recruited participants. Initial feedback indicated increased awareness and behavioral intentions, with participants reporting they gained “many ideas for safety and support,” improved ability to “identify farm safety concerns,” and the importance of “taking time to analyze all steps when risky tools are in use.” They also expressed emotional validation—feeling “not alone”—and noted planned actions such as “sharing diagnosis with others” and “researching available areas of assistance in the community.”

Meanwhile, the project team completed an analysis of dementia and injury outcomes in agricultural settings using national trauma data from 2017–2021. Findings revealed that older adults with both dementia and agricultural injuries had significantly *different* injury mechanisms than those with dementia alone. Moreover, individuals with both conditions were more likely to sustain more severe injuries. A manuscript detailing these results is under peer review and has been accepted for presentation at the 2025 Gerontological Society of America meetings in Boston, MA. Additionally, we engaged in outreach and awareness efforts through Iowa Farmer Today and appearances on radio shows including Iowa Public Radio ([link](#)) and the *AI Travis Show* (<https://bit.ly/AITravis>) to broaden the reach and impact of our work.

Output Summary: October 2024 through September 2025

The table below summarizes the number of outputs over each of our project periods in this cycle. Details on current project year (Year 3) outputs follow.

Table 4: Number of Output Types for each Project Period in this grant funding cycle

OUTPUT TYPE	Year 1 2022-23	Year 2 2023-24	Year 3 2024-25
Publications	11	5	1
Abstracts & Presentations	6	10	10
Lectures, Seminars, & Workshops	20	11	13
Consultations	18	15	17
Grant Funding	1	1	0
Information to Policy Makers	1	1	1
Student Dissertations or Thesis	2	0	1
Press Releases, Media Stories	39	40	35
FarmSafe Podcasts	17	17	18
Total Output Count	115	100	96

Published Manuscripts (Peer-Reviewed)

1. Beseler CL, Swenson AVR, Wanat CA, Pennington W, Cheyney M, Peltier C, Jordan A, Salzwedel, M: [2025] Assessing Engagement, Needs, and Resources to Promote Child and Youth Safety on the Farm and Ranch. *Journal of Agromedicine*, 30(4), 754-764. PMID 40511672, <https://doi.org/10.1080/1059924X.2025.2517844>

Abstracts/Presentations at Scientific Meetings

1. Anthony TR & Cheyney M: [2024] Educational display – Ag Health 101. *Iowa Rural Health Association Annual Meeting*. Des Moines, IA, October 28, 2024.
2. Anthony TR, Tevis C: [2024] Working with the Media to Communicate Ag Health and Safety Messaging. Pre-conference workshop for *Midwest Rural Agricultural Safety and Health (MRASH) Conference*, Ames, IA, Nov 6, 2024.
3. Arora K: [2024] Agricultural Injuries and Dementia. Poster presented at *Midwest Rural Agricultural Health and Safety (MRASH) Conference* Ames, IA, Nov. 7, 2024.
4. Cheyney M: [2024] Messaging in Minutes: Visual Accessibility. Midwest Rural and Agricultural Safety and Health Conference. Ames, IA, Nov 7, 2025.
5. Tasnim R: [2024] We're on This Road Together: Building a Toolkit for Enhancing Rural Roadway Safety around Farm Vehicles. Poster presented at *Midwest Rural Agricultural Safety and Health Conference*, Ames, IA, Nov. 7, 2024.
6. Fethke NB, Thomas G, Ramker A, Rahmatalla S, Dhabhi Y, Presnall E, Wilder D: [2024] Low-cost measurement of whole-body vibration during agricultural machine operation. Oral presentation accepted for *Midwest Rural Agricultural Safety and Health (MRASH) Conference*, Ames IA, Nov. 8, 2024.
7. Davidson J, Duysen E, and Cheyney M: [2024] In the Safety Zone: Sharing new strategies to delivery hands-on safety and health programming aimed at youth and families living in rural and agricultural communities. Oral presentation at Midwest Rural Agricultural Safety and Health (MRASH) Conference, Ames IA, Nov. 8, 2024.

8. Anthony TR: [2024] Working with the Media on Ag S&H, *Nora Sector Council*, Nov. 14, 2024 (12:35-12:55). Oral presentation summarizing the 2.5-hour workshop.
9. Nonnemann M: [2025] Looking Ahead: The Impact of Occupational Exposure and Health on the Human Microbiome. *Yuma Pacific Southwest Section Annual Meeting*. San Diego, CA, January 22-24, 2024.
10. Sheridan C, Gibbs JL, Nonnenmann M, Rohlman D, and Anthony TR: [2025] Development of resources to improve community capacity for respirator fit testing according to Worker Protection Standard. Association of American Pesticide Control Officials (AAPCO) 2025 Conference, Alexandria, VA, Mar 4, 2025.

Lectures, Seminars, or Workshops Delivered in Academic Settings

Courses Taught in Agricultural Safety and Health

None this period

Lectures, Seminars, or Workshops Delivered to the Agricultural Community

1. Nonnenmann, M: [2024] Indoor Air Quality - In Room Air Cleaners. [Webinar]. Nebraska Department of Health and Human Services, Division of Public Health, Healthcare Associated Infections-Antimicrobial Resistance. September 3, 2024. Program. <https://sonvideo.webex.com/sonvideo/j.php?MTID=m74f9389447f771a4cf7c25ca9b7263d9>.
2. Danielson B, Sheridan C: Qualitative Respirator Fit Testing: Methods and Practice: [Sept. 27, 2024] a train-the-trainer program for conducting qualitative respirator fit testing, see <https://gpcah.public-health.uiowa.edu/respiratoryprotection/> <https://gpcah.public-health.uiowa.edu/wp-content/uploads/2024/09/GPCH.ISU-September-27-Respirator-Fit-Test-Workshop.pdf>.
3. Cheyney M & Ritchie L: [2024] Educational display – PPE Selection with the Flat Farmers. *National FFA Convention*. Indianapolis, IN, Oct. 23-25, 2024. Flat Farmers available at <https://gpcah.public-health.uiowa.edu/flat-farmers/>.
4. Cheyney M: [2025]. PPE Selection with the Flat Farmers (emphasis hearing loss and skin cancer prevention). Western Farm Show. Kansas City, MO, Feb 21-23, 2025. Flat Farmers available at <https://gpcah.public-health.uiowa.edu/flat-farmers/>.
5. Cheyney M: [2025] Safety Signs. Presented to 225 Elementary School students about the meaning of the pictograms on warning signs. Grinnell Ag Safety Day, Grinnell, IA, May 27, 2025.
6. Cheyney M: [2025] Sun Safety Jeopardy. Presented to 140 K-12 students about sun safety and skin cancer prevention. NECAS Ag Safety Day, Peosta, IA, June 5, 2025.
7. Cheyney M: [2025] PPE Selection with the Flat Farmers in a PAF Ag Safety Zone. Minnesota Farmfest. Redwood Falls, MN, August 5-7, 2025. Flat Farmers available at <https://gpcah.public-health.uiowa.edu/flat-farmers/>.
8. Arora K, Sheridan C: [2025] Guest on the *AI Travis Show* to discuss GPCH project for supporting caregivers of farmers with dementia who still work or live on a farm (watch at <https://bit.ly/AITravis>) August 22, 2025.
9. Cheyney M and Archer M: [2025] Whole body vibration and hearing protection devices. Presented to 70 Kirkwood Community College students. Gear Up for Ag Safety Day, Cedar Rapids, IA, Sept 18, 2025.

New Agricultural Curriculum

1. Ag Health Academy: Roadway Hazards (J. Davis, C Hamann, O. Ahmand). April 16, 2025. File at <https://gpcah.public-health.uiowa.edu/ag-academy-videos/>.

2. Ag Health Academy: Dementia and Farmers (K. Arora, J Bobitt). May 21, 2025. File at <https://gpcah.public-health.uiowa.edu/ag-academy-videos/>.
3. Ag Health Academy: Pathogen Updates for Agrotourism and Rabies (C. Klumb, A. Hennenfent). June 18, 2025. File available at <https://gpcah.public-health.uiowa.edu/ag-academy-videos/>.
4. *FarmSafe in the Classroom*: Beta version program identifying ways to use the FarmSafe podcast in classroom activities, using four episodes (tractor safety; grain bin safety; overhead powerlines; emergency preparedness), found at: <https://gpcah.public-health.uiowa.edu/outreach-2/farmsafe-in-the-classroom/>.

Consultation or Information Exchange

1. Anthony TR: [2024] Request for information about combine fires and general harvest safety by reporter from WMT/WHO radio. Sept 2024. (E&P)
2. Cheyney M: [2024] Request for information about avian flu spreading to dairy cows and attempts to vaccinate cows from reporter at the Daily Iowan. Sept 5, 2024.
3. Cheyney M: [2024] Request to print Ag Safety & Health posters on skin cancer and tractor safety as ¼-page ad in newspaper from Regional Advertising Director for Hearst Community Media Group. Sept 30, 2024.
4. Anthony TR: [2024] Request for information about ag worker safety and injuries/fatalities on farms by reporter from The Gazette. Oct 2024. (E&P)
5. Cheyney M: [2024] Request to use manure gas monitor resources for exhibit at World Pork Expo. ~ 500 people saw the display. Oct 2024 (Outreach)
6. Fethke N: [2024] UMASH uses whole body vibration materials to create a WBV farm safety checklist and promoted GPCAH resources. Oct 18, 2024.
7. Anthony TR: [2024] Request for information regarding surveillance data for ag injuries/fatalities by reporter from The Gazette. Nov 2024 (E&P)
8. Cheyney M: [2024] Received a request to borrow the Flat Farmers to use in the Stead Family Children's Hospital Safety Store for the week of National Injury Prevention Day. Nov 18-22, 2024.
9. Cheyney M: [2025] Request from Missouri Farm Bureau to share our hearing loss prevention materials at upcoming farm safety community events. Mar 14, 2025.
10. Anthony TR: [2025] Received an email from an insurance agency offering to have one of their loss prevention specialists speak on the FarmSafe podcast. May 6, 2025.
11. Cheyney M: [2025] Report of using Flat Farmers by Iowa State Extension Educator at a school-based ag health and safety event (pre-k - high school). Moline, IA, May 15, 2025.
12. Cheyney M: [2025] Request for a re-sized version of the Flat Farmers (11x17") by two Minnesota State Extension Educators. Aug 7, 2025.
13. Cheyney M: [2025] Request to cobrand the GPCAH roadway safety handout by the Iowa Center for Agricultural Safety and Health (ICASH) for use in upcoming seasonal campaign. Aug 14, 2025. Roadway safety card found at: <https://gpcah.public-health.uiowa.edu/outreach-2/topics-old/rural-roadway-safety/>.
14. Cheyney M: [2025] Request to cobrand GPCAH heat illness prevention for kids card by Central States Center for Agricultural Safety and Health (CS-CASH) for use at Husker Harvest Days. Aug 20, 2025. Heat illness card found at: <https://gpcah.public-health.uiowa.edu/outreach-2/topics-old/heat-illness-prevention/>.

15. Cheyney M: [2025] Request to use Flat Farmers by HICAHS Center for CSU Western Campus' ag skills training program for adults with disabilities. Covered safety basics - working in cold and hot weather. Aug 25, 2025
16. Anthony TR: [2025] Request to use Farm Safety App by email from Michigan Farm Bureau. Sept 10, 2025
17. Anthony TR and Archer M: [2025] Request for follow-up information on lone star tick article in Safety Watch (affected farm family wanting to share information with physician). Sept 16, 2025.

Information Provided to Policy Makers

1. Anthony TR, Fethke N, Nonnenmann M: [2025] Washington DC Hill Visits for Ag Centers. February 2025.

Student Thesis/Dissertation

1. Proctor A: [2025] Conversations about Safety: Protecting Young Farm Workers. PhD Dissertation completed August 2025. (PILOT)

Award Received

1. Arora K: [2025] College of Public Health Associate Professor Advancement Award. Funded by the Roy J. Carver Charitable Trust and the University of Iowa College of Public Health Research Office, Apr 1, 2025.

Media Stories and Press Releases

Media Stories

1. Cink K, Wituk E, and Lin W-C: [2025] Understanding Occupational Fatalities and Injuries in Kansas. Issue Brief, Kansas Health Institute. Apr 28, 2025. Article shares GPCAH resources, see <https://www.khi.org/articles/understanding-occupational-fatalities-and-injuries-in-kansas-data-and-insights/>
2. Fontaine B: [2025] LinkedIn blog post about NIOSH Ag Centers - quotes Renee Anthony. Jun 5, 2025.
3. Sheridan C, Arora K: [2025] Al Travis Show, presenting caregivers of farmers with dementia project highlights Aug 22, 2025, at <https://bit.ly/AlTravis>.
4. Kieffer B, Troutman C, Gehr D, Arora K: [2025] The impact of dementia on farm families (interview with Kanika Arora and Julie Bobitt). River to River, Iowa Public Radio, Sept 10, 2025, at <https://www.iowapublicradio.org/podcast/river-to-river/2025-09-10/the-impact-of-dementia-on-farm-families>, also featured in ASPPH Friday Letter <https://asp-ph.org/news/friday-letter/>.
5. Coulter P: [2025] Study seeks farm families confronting Alzheimer's, dementia. *FarmWeek Now*, Jun 6, 2025, at https://www.farmweeknow.com/general/study-seeks-farm-families-confronting-alzheimers-dementia/article_0c348f63-9a57-4280-be21-5b84c0b8b19a.html.
6. CPH Communications: [2025] Helping farm families manage dementia care. Network News and Notes - June 2025. Article originally published April 22, 2025 at <https://www.public-health.uiowa.edu/news-items/helping-farm-families-manage-dementia-care/>.

Safety Watch News Column in Lee Agrimedia Publications

1. Kuehn T: [2024] Planning ahead key to safe digging projects. *Iowa Farmer Today*. Oct. 21. [LINK](#)
2. Archer M: [2024] Discuss ATV safety with kids early and often. *Iowa Farmer Today*. Nov. 19. [LINK](#)
3. Kuehn T: [2024] 'Silent Killer' poses risks on the farm. *Iowa Farmer Today*. Dec. 17. [LINK](#)
4. Archer M: [2025] Winter brings compounding fall risks. *Iowa Farmer Today*. Jan. 11. [LINK](#)

5. Kuehn T: [2025] Plan ahead to reduce succession stress. *Iowa Farmer Today*. Feb. 9. [LINK](#)
6. Archer M: [2025] Wear the right respirator, the right way. *Iowa Farmer Today*. Mar. 11. [LINK](#)
7. Kuehn T: [2025] Keep your body feeling good to farm at your best. *Iowa Farmer Today*. Apr. 15. [LINK](#)
8. Archer M: [2025] Ongoing biosecurity needed for bird flu. *Iowa Farmer Today*. May 11. [LINK](#)
9. Kuehn T: [2025] Addressing dementia on the farm. *Iowa Farmer Today*. June 23. [LINK](#)
10. Kuehn T.: [2025] Preventing heat stress on the farm this summer. *Iowa Farmer Today*. July 14. [LINK](#)
11. Archer M: [2025] Report shows farming cancer risks. *Iowa Farmer Today*. Sept. 2. [LINK](#)
12. Archer M: [2025] Lone star ticks spread allergen north. *Iowa Farmer Today*. Sept. 15. [LINK](#)

Farm Families Alive & Well Newsletter Articles [LINK](#).

1. Anthony R: [2024] Director's Message. 31(1): 2 [LINK](#)
2. Mohling K: [2024] Ag Health Academy Now Accepting Applications. 31(1): 5 [LINK](#)
3. Archer M: [2024] Think Safety with ATVs. 31(1): 5 [LINK](#)
4. Anthony R: [2024] Journalist Workshop. 31(1): 6 [LINK](#)
5. Archer M: [2024] FarmSafe Podcast Impact Assessment 31(1): 7 [LINK](#)
6. McMichael K: [2025] Call for Pilot Grant Applications. 31(2):4. [LINK](#)
7. Lin K: [2025] 2024 Pilot Grant Recipient. 31(2):4. [LINK](#)
8. Mohling: [2025] Save the Date Ag Health Academy Learning Community. 31(2):5. [LINK](#)
9. Anthony R: [2025] Director's Message 31(3): 2-3. June [LINK](#)
10. Mohling K: [2025] Ag Health Academy Courses 31(3):6 June [LINK](#)
11. McMichael K: [2025] 2024 MRASH Pre-conference Workshop – Lessons Learned. 31(3):7. [LINK](#)
12. Hamann C: [2025] Community Campaign to Reduce Farm-Vehicle Roadway Crashes. 31(3):8. [LINK](#)
13. Archer M: [2025] Protect your flock against the spread of bird flu. 31(3):9. [LINK](#)
14. Ritchie L: [2025] FarmSafe Podcast – Spring Episodes. 31(3):9. [LINK](#)
15. Arora K: [2025] Farm Safety for Rural Families Coping with Dementia. 31(3):10. [LINK](#)
16. Cheyney M: [2025] Great Plains Center Summer 2025 Events. 31(4):4. September [LINK](#)
17. Proctor A: [2025] You Don't Want to See Your Kids Fail: The Role of Parents in Teaching Farm Safety to Adolescents. 31(4):5. September [LINK](#) [PILOT]

FarmSafe Podcasts (all available at [LINK](#))

1. Ritchie L: [2024] *FarmSafe Podcast: Welcome to Season 4!* [Audio podcast episode]. In *FarmSafe*. GPCAH. Sept 16, 2024.
2. Ritchie L: [2024] *FarmSafe Podcast: Farming the Message: Reporting Agricultural Incidents* [Audio podcast episode]. In *FarmSafe*. GPCAH. Jan 29, 2025.
3. Ritchie L: [2024] *FarmSafe Podcast: Burning Issues: Fire Safety on the Farm* [Audio podcast]. In *FarmSafe*. GPCAH. Jan 29, 2025.
4. Ritchie L: [2024] *FarmSafe Podcast: Falls on the Farm: The Medication Connection* [Audio podcast]. In *FarmSafe*. GPCAH. Jan 29, 2025
5. Ritchie L: [2024] *FarmSafe Podcast: The Seeds of Success: Growing Your Farm's Future* [Audio podcast]. In *FarmSafe*. GPCAH. Jan 29, 2025
6. Ritchie L: [2024] *FarmSafe Podcast: The Farm-Kid Paradox* [Audio podcast]. In *FarmSafe*. GPCAH. Jan 29, 2025
7. Ritchie L: [2024] *FarmSafe Podcast: Flock and Flu: Guidelines for Backyard Poultry* [Audio podcast]. In *FarmSafe*. GPCAH. April 23, 2025

8. Ritchie L: [2024] *FarmSafe Podcast: Growing Safely, Part 1: Exploring Child Care Access and Farm Safety* [Audio podcast]. In *FarmSafe*. GPCAH. April 23, 2025
9. Ritchie L: [2024] *FarmSafe Podcast: Growing Safely, Part 2: Balancing Farming and Family*. [Audio podcast]. In *FarmSafe*. GPCAH. April 23, 2025
10. Ritchie L: [2024] *FarmSafe Podcast: Growing Safely, Part 3: Closing the Child Care Access Gap* [Audio podcast]. In *FarmSafe*. GPCAH. April 23, 2025
11. Ritchie L: [2024] *FarmSafe Podcast: Farm Burn Basics: First Aid for the Field* [Audio podcast]. In *FarmSafe*. GPCAH April 23, 2025
12. Ritchie L: [2024] *FarmSafe Podcast: What's Happening with Automated Driving Systems on Rural Roadways* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025
13. Ritchie L: [2024] *FarmSafe Podcast: Harnessing Fire for Farm Health* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025
14. Ritchie L: [2024] *FarmSafe Podcast: Rabies Safety in the Midwest* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025
15. Ritchie L: [2024] *FarmSafe Podcast: Pilot Spotlight – Safety Conversations between Farm Parents and Youth* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025
16. Ritchie L: [2024] *FarmSafe Podcast: Tips from Farm Youth Educators* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025
17. Ritchie L: [2024] *FarmSafe Podcast: Teaching Safety to the Next Generation of Farmers* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025
18. Anthony TR: [2024] *FarmSafe Podcast: Want to Make a Podcast? Lessons Learned from the FarmSafe Hosts* [Audio podcast]. In *FarmSafe*. GPCAH. July 30, 2025