Colorado State University

HIGH PLAINS INTERMOUNTAIN CENTER
FOR AGRICULTURAL HEALTH & SAFETY

2016 Annual Report
(September 15, 2015 – September 14, 2016)

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Integrating safety and health practices into the day-to-day operations of running a business can be a challenge. Managing health and safety is more than just abiding by a checklist of OSHA regulations; it entails creating a culture of safety in the organization that is reinforced from both management and line workers. Management systems focus on the policies and processes of the organization that affect behavior. A management system can transform a work culture into one that excels in occupational health and safety.

A new five-year HICAHS project by Dr. David Douphrate, to be launched in fall 2016, will develop occupational health and safety management systems within dairy farms. As Douphrate explains, six safety management practices have shown to predict safety performance: 1) owner or manager commitment, 2) safety training, 3) workers’ involvement, 4) safety communication/feedback, 5) safety rules and procedures, 6) and safety promotion.

Front-line supervisors of dairy workers will be taught to identify critical safety behaviors among dairy workers and provide feedback on performance. Front-line supervisors are the link between workers and owners, and are key to implementation of organizational policies. These supervisors will also be taught leadership techniques to inspire and motivate employees while receiving guidance and mentorship from dairy owners. Through this combined bottom-up and top-down approach, a culture of safety will be integrated into all levels of the dairy organization.
HICAHS Administrative Core

HICAHS engaged in strategic planning this past year in preparation for submission of a five-year grant renewal application to the National Institute for Occupational Safety and Health (NIOSH). Four new research projects were proposed, along with the HICAHS Pilot Program, Outreach Program, and Administrative Core. HICAHS Director Stephen Reynolds, in collaboration with consultate Bod McKnight, created a new vision statement for HICAHS, “To be the preeminent scientific authority, resource, and site for innovative strategies that improve the health and safety of agricultural and forestry workers and their families in the high plains intermountain region and beyond.”

Health and Safety Outreach: Progressive Dairyman, FReSH, YouTube

HICAHS engages in outreach by sharing health and safety knowledge and research finding at conferences, sharing resources, and developing partnerships that advance health and safety. Many of our resources are now provided online to improve dissemination and accessibility.

Student Emma St. Aubin, employed by Outreach Director Lorann Stallones, produced seven newsletter editions since last summer. The distribution list includes 213 recipients with an average open rate of 26% of the recipients.

- Do YOU have a plan for your pets when disaster strikes? (May 2016)
- SAY What? New Ag Resources! (March 2016)
- HICAHS Collaborations Provide Avenues for Partnership (February 2016)
- A FReSH Look at Ag Research (December 2015)
- Do you know how to handle pesticides this winter? (November 2015)
- Make Your Tractor Safer With ROPS! (October 2015)
Do you know ATV safety rules in your state? (September 2015)

In collaboration with the Farm and Ranch eXtension Safety and Health (FReSH) Community of Practice, Ms. St. Aubi prepared three blogs for the FReSH website. The Farm and Ranch eXtension Safety and Health (FReSH) Community of Practice website had a steady increase of visitors from just over 4,000 in the first year to over 7,000 visits by the end of the second year with an overall number of over 15,000 visits.

Website takes ‘FReSH’ look at agricultural safety and health

- Safety Training for Youth working in Agriculture: tractor and farm machinery certification offered
- SAY What? A New Source of Agriculture Safety Information for Youth

David Douphrate, in collaboration with HICAHS staff, continues to write a monthly column on health and safety issues in the Progressive Dairyman, one of the leading publications on the dairy industry. There have been over 1,000 views of these articles since 2014, which can be found at www.progressivedairy.com, or on the HICAHS website at www.hicahs.colostate.edu/progressive-dairyman.html.

Allison Cassidy continues to be actively involved in the ECO Group, a collaborative group comprised of evaluators, coordinators, and outreach personnel from all 10 U.S. Agricultural Safety and Health Centers nationwide. In collaboration with Jennifer Watson from the Southeast Center for Agricultural Health and Injury Prevention, she has created a social media kit for the 2015 National Farm Safety and Health Week and 2016 National Ag Day. The social media kits contained suggested Twitter and Facebook messages for promoting agricultural health and safety. Many of the links directed to the U.S. Agricultural Safety and Health YouTube channel, resulting in large spikes in viewership (3-5 times average). Results were presented at the 2016 International Society for Agricultural Safety and Health Conference.
In addition, Ms. Cassidy was invited by Jac Nickoloff, Department Head for Environmental and Radiological Health Sciences at Colorado State University, to lead strategic planning for department communications. The newly-formed communications team will be developing a newsletter and intranet to help facilitate communications within the department.

**Computer-based ROPS design program**

As reported in previous annual reports, engineer Paul Ayers at the University of Tennessee, has completed the design and testing of a Computer-based ROPS Design Program (CRDP). In the event of a tractor roll-over, a roll-over protective structure (ROPS) protects the driver from getting crushed underneath the weight of the tractor. The CRDP underwent additional simulated stress testing this year in a process called Finite Element Analysis (FEA). FEA using more appropriate element size and resolution was shown to predict the ROPS performance deflections within 20 percent. This information was shared in a conference call with ROPS manufacturers at John Deere, AGCO and CNH. The CRDP was also modified to include the option for designing foldable ROPS. Foldable ROPS are used in orchards where low-hanging branches can prevent other tractors from moving through the orchard.

*Is the program complete? When will the program be released? To whom will you release it to?*

**HICAHS Dairy Industry Activities**
Antimicrobial Assessment

The HICAHS study titled “Exploring Shed Antimicrobial Exposures within High Plains Livestock Operations” aims to explore whether and how medicines used in agriculture persist in fecal material shed by farm animals. Paul Gunderson (Dakota Precision Agriculture Center – North Dakota) and Sanjay Shukla (Marshfield Clinic Research Foundation – Wisconsin) are testing samples of fresh manure, manure from on-farm storage facilities, and field soil for the presence of antimicrobial metabolites. The researchers are developing an understanding of which antimicrobial and bacterial exposures agricultural workers may experience as a result of performing tasks that involve handling of manure. This project’s ultimate aim is to (1) provide agricultural producers with information about veterinary medicine persistence within their agricultural environments and their effect on microbiomes which can modulate the immune system of farm animals and their handlers, and (2) identify methods to prevent agricultural worksite exposures or lessen exposure to mutational products that may introduce workers to resistant organisms.

To date, fourteen farms from New York State to North Dakota have participated in the study. This project benefits from substantial cooperation provided by owners/managers of agricultural enterprises. While visiting these farms project staff have [provided recommendations to farm owners on workplace safety and health.]

Drs. Gunderson and Shukla next to a MiSeq instrument used for microbiome sequencing. Analyzing the manure samples is complex and time consuming, requiring experimental reagents from Europe.
Health and Safety Training for Dairies

Dr. David Douphrape has been providing OSHA compliance training to dairy producers nationwide since 2009. A recent rash of dairy fatalities in Idaho has raised concern among dairy producers.

Dave Douphrate has been asked to assist in Washington and Idaho with occupational health and safety concerns.

In Washington State: Robert Hagevoort and Dave will be the lead organizers for the Washington State Dairy Federation Conference in November. Dave will be speaking to WA State Labor and Industry (state OSHA) compliance officers on dairy safety issues next week.

In Idaho: Robert and Dave will be speaking to Idaho Dairy Producer Organization on dairy safety issues, followed by 2 days of OSHA 10 training. Idaho will have an ag focused (emphasis on dairy) LEP announced this summer. The Idaho OSHA Area Director emailed Dave asking for help, and offering his help with any of our efforts.

Both WA and ID dairy associations have requested training help.

Dave Douphrate gave a presentation to WA State Labor and Industry (state OSHA) compliance officers on large-herd dairy production practices and associated safety hazards. The presentation went very well and he had the opportunity to familiarize the OSHA Compliance officers on the realities of the working environment for dairy farm employees. Several compliance officers indicated they had never been on a dairy farm.

The United Farmworkers of America also had representatives at the meeting. The recent spike in dairy fatalities has drawn scrutiny from labor organizations.

As described at the last meeting, Dave Douphrate and Robert Hagevoort have been invited to speak to other labor and dairy groups in Washington and Idaho. They are lead organizers for the Washington State Dairy Federation Conference in November.

According to the USDA, the number of dairies with at least 2,000 milk cows doubled between 2000 and 2006. A challenge to dairy producers, who are seeking to ensure safe working environments and to comply with state or federal occupational safety and health regulations, is the increased employee numbers. HICAHS has been providing training since 2009 to dairy producers concerned about OSHA compliance. This year we continued to provide OSHA 10-Hour training to dairy owners, managers, and workers in New Mexico, Colorado and Kansas.

Additionally, Dr. Douphrate has begun delivering safety training to dairy workers using innovative and interactive mobile-learning technologies. The funding for this project is provided by a Susan Harwood grant. Safety training using mobile devices (iPads) enables an efficient mechanism to deliver safety training content to dairy workers without disruption of farming activities. To date, project personnel
have delivered safety training content to 357 dairy workers representing 12 dairy farms. Year two of the project involves the delivery of training content to over 650 dairy workers representing farms in five states.

**Worker Health, Safety and Performance in Milking Parlors**

The HICAHS project "Exposure Assessment and Intervention Analysis in Large-Herd Dairy Parlors" is addressing the health and safety of large-herd dairy workers through assessment and comparison of physical workloads (motion, posture, muscle forces), and their effect on worker performance. In partnership with dairy equipment manufacturers and dairy producers, researchers are evaluating targeted parlor design and milking tools for their effectiveness at reducing physical loads and enhancing worker performance.

The results will be used to determine an optimum parlor milking pit height and develop recommendations for dairy producers to address parlor design, milking tools and worker performance and productivity.

This innovative and novel work is the first to quantify and compare full-shift and task-specific physical exposures in large-herd parlors in the United States. This is being accomplished using direct measurement technology and clinically-relevant exposure metrics. This will also be the first study to use direct-measure motion capture technology in the challenging work environments of milking parlors. The potential impact of this project is significant due to an industry shift toward larger-herd dairy operations and associated challenges of working in these high-volume milking facilities. With the goal of higher volume milk production at lower costs, dairies will continue to grow in size and capacity. As the trend toward larger herd sizes continues, the need for research efforts which simultaneously address worker health and safety as well as worker performance is magnified.

**Improving our understanding of bioaerosols and respiratory health**

HICAHS Director Stephen Reynolds has devoted his career to understanding respiratory disease. In the current project, “Bioaerosol Exposures and Models of Human Response in Dairies,” his team has
addressed scientific gaps in bioaerosol exposure assessments and their effects on human health. Anytime particulate matter is breathed in it has the potential to cause irritant rhinitis. If the particulate matter is of biological origin (bioaerosol) it can also cause allergic rhinitis and adverse lung effects such as asthma.

While the introduction of large modern dairies has reduced the scale of work-related lung disease, recent studies of have found that respiratory disease remains an important problem for dairy workers, contributing to lost time and high turnover. Exposure to high levels of organic dusts generated during milking, moving cows, feeding and other tasks has been associated with increased inflammation and decreased lung function linked to chronic obstructive pulmonary disease (COPD) and asthma-like diseases, especially among new workers who have not been exposed to cows. Our recent work found that co-exposure to pesticides, smoking, and genetic factors play a key role in explaining why some workers are more susceptible. Interestingly, studies of communities near dairies have found that exposures of children to low levels of bioaerosols can help prevent certain types of asthma later in life. The age at which one is exposed and the level of exposure are important.

Much research into the cause of respiratory disease in agriculture has focused on the role of endotoxins – a chemical component of Gram-negative bacteria. We have previously shown that Gram-positive bacteria also play an important role in causing inflammation in human lung cells. This project is the first to evaluate the large range of particles generated on dairies and their relationship to lung disease.

Analysis of air samples collected in milking parlors shows that the majority of aerosolized particles are large in size (see Figure 6). Larger particles (greater than 10 microns in size) tend to deposit in the upper airway such as the nose and throat. Smaller particles (less than 10 microns in size) deposit deep into the lungs and can even be absorbed into the bloodstream (see Figure 5). To put these sizes into perspective, a human hair is 50-150 microns in width.

The dairy farm air samples tested positive for markers of gram-negative and gram-positive bacteria. Since the inflammation-causing Gram-negative and Gram-positive bacteria are present across all size fractions (shown in Figure 6), there is potential for inflammatory responses in both the upper and lower respiratory system. Using a new exposure system to simulate the lung we have shown that both large and small particles from these dairies stimulate immune responses in human nasal and lung cells. We are currently completing studies of dairy workers for comparison and validation of this system.

An additional innovative analysis using high-throughput DNA sequencing shows that there is a relatively high abundance of Corynebacterium, Pseudomonas, and Ruminococcaceae, which is associated with mammalian gut environment. These findings are expected due to the dairy cows present. Interestingly, we have identified S24-7, un-culturable bacteria that may play an important role in certain types of liver injury. The discovery of S24-7 would not have been possible a decade ago before the revolutionizing technology of high-throughput DNA sequencing. This new technology has
expanded the scope of discovery in bioaerosol assessments, and may become an essential tool for occupational hygienists.

Although the relationship between lung disease and organic dust is complicated, including co-exposures, genetic and other factors, new tools such as DNA sequencing will help us to determine exactly which types of bacteria are linked to inflammatory cell response and determine ways to remediate these bacteria in agricultural environments. We have recently launched a new project working with the dairy industry to identify and evaluate potential cost-effective interventions to further reduce exposure to bioaerosols on dairies.

**Enhancing safety training on dairies**

HICAHS is developing a dairy safety training program designed with regard to the cultural traits of the Spanish speaking dairy worker population on U.S. dairy farms. This year Dr. Noa Roman-Muñiz, lead investigator on the project, interviewed 61 Colorado dairy employees to validate themes that should be addressed in the creation of effective training interventions. (See box below.)

Given the lack of basic knowledge about zoonotic diseases and the limited communication between workers and health care providers, a training program aimed at increasing awareness and promoting best preventive practices is being developed.

This bilingual training program’s key messages are that (1) Protecting ourselves from zoonotic diseases is easy to do, and (2) By protecting ourselves, we are protecting our families, co-workers and the animals that we work with.

The effectiveness of this training program in increasing awareness among dairy workers will be assessed with pre and post training surveys.
Community-Initiated Grants Program:  
2015 Highlights

The Development of  
"Dairy Tool Box Talks"  
Community Partner: South Dakota State University Dairy Extension

This program provided dairy farm workers with a basic understanding of the modern operations of a dairy including basic animal care, safe animal handling practices, cow comfort, and personal safety practices needed for working on the farm. A “One-Health” model that emphasized both cow and worker health was implemented.

Dairy Tool Box Talks were conducted at three South Dakota dairy farms from June 22 through August 31, 2015. Each dairy was provided weekly sessions (nine sessions total) lasting 30 minutes each. The sessions were scheduled according to employee work shifts.

This program included the following topics:

1. Basic cow knowledge  
2. Cow housing  
3. Animal health: cow signals, zoonotic disorders  
4. Mastitis and somatic cell count  
5. Milking routine  
6. Safe hands-on cow handling  
7. Cultural differences within the workplace  
8. Animal welfare and risks of animal organization  
9. Dairy’s success-team interactions  
10. Final session: assessment and certificate  

Seventy-five people representing primarily milking parlor workers participated. At the end of the program, the investigators conducted an evaluation with participants and feedback sessions with owners, managers and herdsmen of the dairies involved.

The employees indicated it was an informative program with dynamic sessions, as well as a desire in continuing the learning process with topics not covered such as farm management, A.I. and maternity.

Comments from the owners, managers and herdsmen were that the program was a good learning experience and that some changes in employee behavior were noticed with cow moving (more patience and consistency), working relations were improved, and employees exhibited more awareness on hygiene issues.

ATV Training  
Community Partner: Montana State University Extension
Significant progress has been made in the number of people trained in ATV safety. Montana Agricultural Extension agents have trained over 100 agricultural producers using the ATV Safety Institute’s (ASI) 5-hour hand-on Rider Course training program. HICAHS has supported the ASI certification for 11 Agricultural Extension Agents. This past summer MT Agricultural Extension Agent Ken Nelson held two ATV safety-training sessions on the Fort Belknap Indian Reservation for nearly 40 Native Americans. The Native Americans use ATVs for work activities and recreation. Another ATV project has led to the development of an online interactive ATV safety training soon to be offered through the Mountain & Plains Education and Research Center (MAP ERC). This collaborative project will be accessible to the millions of ATV users across the U.S. with a focus in agricultural operations.

**Chainsaw Safety Videos**

*Community Partner: Montana State University Forestry Extension*

- Video 1-Personal Safety with Chainsaw Use
- Video 2-How to Fell and Buck a Tree Safely

Two chainsaw safety videos were developed and produced for small landowners that cut and sell timber to sawmills. Each video (15 minutes in length) was filmed on-site in the forests of Montana using professional loggers to demonstrate safe chainsaw practices for felling and cutting of trees. Feedback from the target audience (loggers), OSHA consultants, and two Certified Safety Professionals was collected and incorporated into the videos.

**Safety Messages for Large Logging Contractors**

*Community Partner: Montana Logging Association (MLA)*

This community-initiated project primarily focused on developing and installing safety signage with the Montana Logging Association. The Montana Logging Association (MLA) consists of 400 businesses and 1,300 member workers that harvest lumber to meet the nation’s commercial manufacturing and construction needs. Loggers face unusually high risk for work-related injury and death. The BLS reports that loggers experience the highest fatal work injury rate among all civilian occupations at at 110/100,000 full-time equivalent workers.7

The first set of signage consisted of medical evacuation signs for ensuring that helicopter landing sites are predetermined and easily identified. The signs were distributed to MLA member contractors for use on logging sites; they will be reused and relocated when logging contractors move job locations. These signs supplement the OSHA-required evacuation plans for each logging job.

The second set of signage were used to alert logging workers to situations involving and requiring attention related to lock out/tag out, use of personal protective equipment, and pinch points. The signs have magnetic backings so that they can be easily attached to field equipment when needed.

The magnetic signs will be given to logging contractors so that employees and/or people approaching
equipment in the field can have an onsite safety reminder of the hazards related to each piece of logging equipment.

Additionally, the MLA used funds from this program to purchase two noise dosimeters to assess operators’ noise exposure to feller bunchers, skidders, processor/delimiters, log loaders, log trucks, dozers, excavators, graders, and line machines. The dosimeters are used by the MLA “safety rangers” to demonstrate to logging companies the need for hearing protection for noise that exceeds OSHA permissible levels.

**Pilot Program**

HICAHS awarded four new pilot proposals during the 2016 fiscal year. These proposals address a broad array of relevant agricultural health and safety topics: farm injury surveillance, bioaerosols, zoonotic diseases, and determinants of health.

Postdoctoral fellow Kimberly Anderson from the Department of Engineering at Colorado State University was awarded $24,000 for her pilot, “The application of a novel sensor for spatially and temporally resolved monitoring.” The project will evaluate the use of a novel, online bioaerosol monitor, the Wideband Integrated Bioaerosol Sensor (WIBS), against a conventional filter-based measurement technique. The WIBS has been used by atmospheric scientists to measure particulates but has not been evaluated for use in occupational bioaerosol exposure environments. The WIBS can measure temporal and spatial data, which is an improvement over filter-based methods. Dr. Anderson has collaborated with HICAHS researchers Drs. Reynolds and Schaeffer over the past several years and her study may provide HICAHS researchers with another tool for bioaerosol analysis.

Veterinarian Jairo Palomares Velosa, a PhD student in the Department of Clinical Sciences at Colorado State University, was awarded $24,000 for his pilot, “Socio-ecological model for exposure to zoonotic diseases among dairy farm workers.” A survey will be administered to dairy workers to measure the social and ecological barriers to the prevention of zoonotic diseases. There are a number of zoonotic pathogens that can cause gastrointestinal illness if preventive measures are not undertaken, such as handwashing. Social and ecological issues, such as workers’ attitudes, beliefs, access to knowledge, etc. affect whether the worker changes his or her behavior to prevent zoonotic disease transmission. These factors will be measured and correlated to the presence of three zoonotic pathogens (Salmonella spp., Campylobacter jejuni, and Cryptosporidium parvum) on the clothes, shoes, and gloves of the worker.

Anita Peña, an economist and Associate Professor at Colorado State University, will be analyzing data from the Agricultural Workers Survey (NAWS) in her pilot study titled, “Occupational Health and Safety of U.S. Farmworkers in the High Plains and Beyond.” The project was awarded $16,000 to evaluate the (1) determinants of reported health conditions and exposures to health risk and (2) economic effects on individual productivity and earnings outcomes in the population of U.S. farmworkers both nationally and in the High Plains area specifically.
Travis Sondgerath, a Ph.D. student in the Department of Environmental Health and Radiological Sciences at Colorado State University, was awarded $10,000 for his proposal titled, “A Feasibility Study of Enrolling Colorado, Wyoming, and New Mexico Farm-Families in a Prospective Farm Injury Cohort.” A paper-based survey will be mailed to 200 family farms in Colorado, Wyoming, and New Mexico to collect descriptive information such as farm type, demographic and health information of the person completing the survey, frequency of farm activities (e.g. operating a tractor), among others. This information will be used to inform sample size and power calculations that would be necessary in future grant proposals for the formation of a cohort of farm families.

The results from a 2014 pilot study by veterinarian Craig McConnel were published in the Journal of Food Protection in a paper titled, “Antimicrobial resistance profiles in Escherichia coli O157 isolates from Northern Colorado Dairies.” Analysis of seventy-five Escherichia coli O157 isolates from three Colorado dairies showed a low prevalence (8%) of antimicrobial resistance.

**Evaluation Program**

**HICAHS Needs Assessment**

The HICAHS Evaluation Team completed a needs assessment of the occupational safety and health needs in agriculture and forestry production. Around 85 national and regional agricultural stakeholders were surveyed. In a collaborative partnership with FutureCow, a $25 gift card was sent to dairy farmers who completed the needs assessment survey.

The overall results of the needs assessment have provided HICAHS Center personnel with an understanding of current agricultural concerns. It was encouraging that the level of concern related to occupational health and safety appears to be increasing compared to previous needs assessments. Top agricultural injury concerns were machinery-related accidents, youth injuries and ATV accidents. Respiratory problems and pesticide exposures were the top two occupational disease issues. The increased use of technology, increased size of operations, changing demographics and increased regulation were changes identified by the survey respondents.

The recommendations included the development of training and education materials/procedures, continued research, and to work collaboratively with agricultural stakeholders to solve health and safety issues. Results were presented at the 7th International Symposium: The Safety & Health in Agricultural & Rural Populations: Global Perspective (SHARP).

**Community Capacity Building for Disaster Planning for Pets & Service Animals**

In collaboration with the Colorado State University School of Veterinary Medicine and Cooperative Extension, we have been working on a USDA-funded project to create a plan for taking care of pets and service animals during a disaster. We have been awarded a third year of funding to develop a video of Extension personnel implementing the newly-developed “Pet and Service Animal Annex” to their emergency plan. Key informant interviews and process evaluations among participating Extension
personnel have been administered, along with an evaluation of the video among emergency/disaster experts and Extension personnel. A manual with webinars will be shared with Extension Services Nationwide via the Extension Disaster Education Network (EDEN, eden.lsu.edu).

New text: The Community Animal Disaster Planning Toolkit aka “Pet Aid Project” has been completed. This is a project that Louise Quijano and Vicky Buchan have been working on with Ragan Adams from CSU Extension and other collaborators. The toolkit includes step-by-step instructions for building a community response plan for pets in the case of an emergency. A series of webinars and a video accompany the kit. View the kit here: http://extension.colostate.edu/disaster-websites/community-animal-disaster-planning-toolkit/

Immigration Policy Comparison

One of the concerns that has been expressed a number of times by HICAHS Dairy Advisory Board members has been the difficulty of obtaining a sufficient labor force to maintain production capacity. Through meetings with the International Dairy Consortium (IDRC) we have learned that this problem is shared in dairy industries around the world, leading to employment of immigrants to fulfill labor needs. This concern led Drs. Buchan and Quijano to conduct an analysis of immigration procedures and benefits in ten IDRC member countries: Australia, Canada, Denmark, Finland, Germany, Italy, New Zealand, Norway, Sweden and the United States.

The immigration policies of the ten countries were analyzed using a social justice framework to analyze immigrants’ access to social benefits (e.g. wage, housing, health care, and transportation services). The results varied widely between the countries.

A key finding is that despite significant regulatory reform, there is still an undocumented population in many countries. The undocumented population can face discrimination and reduced access to social benefits from their adopted countries.

ECO Group

The ECO group (described on page 4), which holds a conference call every other month, has been a useful way to learn from and collaborate with the other Ag Centers. HICAHS Evaluation and Outreach staff are active participants in the ECO group. The group has shared evaluation approaches, developed promotional materials, and worked together to publicize resources. This year the ECO group created a logo to represent the coalition of all ten NIOSH-funded U.S. Agricultural Safety and Health Centers. Although individual Centers have developed logos (HICAHS has its own logo), this is the first time that
there has been a logo to represent the entire group.

Front Cover Image Credit: Fotolia

References


The reports contents are solely the responsibility of the High Plains Intermountain Center for Agricultural Health and Safety and do not necessarily represent the views of the National Institute for Occupational Safety and Health. Report date: October 16, 2015.
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