

Colorado State University

HIGH PLAINS INTERMOUNTAIN CENTER
FOR AGRICULTURAL HEALTH & SAFETY



2015 Annual Report

(September 15, 2014 – September 14, 2015)

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The development of antimicrobial-resistant bacteria (AMR) has become a hot topic in the news, with much of the blame put on agricultural production practices. In truth, the emergence and transmission of AMR is part of a complex system involving people, wild and farm animals, crops, and the environment. According to the American Veterinary Medical Association, “The connection between specific antimicrobial uses in food animals with foodborne or other human disease remains unclear. Based on studies to date, the risk to people of becoming infected with resistant organisms by consuming animal products (meat, milk, eggs) is extremely low.”¹

HICAHS Vision:
“A Healthy and Safe
Workforce for U.S.
Agriculture, Forestry,
and Fishing.”

Understanding AMR and its pathways requires input from a multidisciplinary team, an approach that is often called a “One Health” approach. HICAHS has worked to strategically create a “One Health” network of academic, government, and industry partners that can potentially address AMR in dairy and beef production through innovative research and high impact interventions.

A gaping hole in the research is the role that agricultural workers may play in AMR emergence and transmission. Livestock workers might play a role in AMR emergence and transmission between communities and farms through animal handling practices, management of wastewater, bioaerosol generation, and manipulation of drainage or distribution equipment. They may also contribute to transmission by carrying AMR organisms between home and the farm. Addressing work flow and occupational procedures offer rich opportunities to prevent and mitigate AMR impacts on livestock, the environment and people. HICAHS is researching this problem by improving sampling methods to detect antimicrobial resistant bacteria in the farm environment (p. 3), funding AMR research through its pilot program (p. 14), and identifying AMR bacteria that inhabit livestock feces (p. 6).

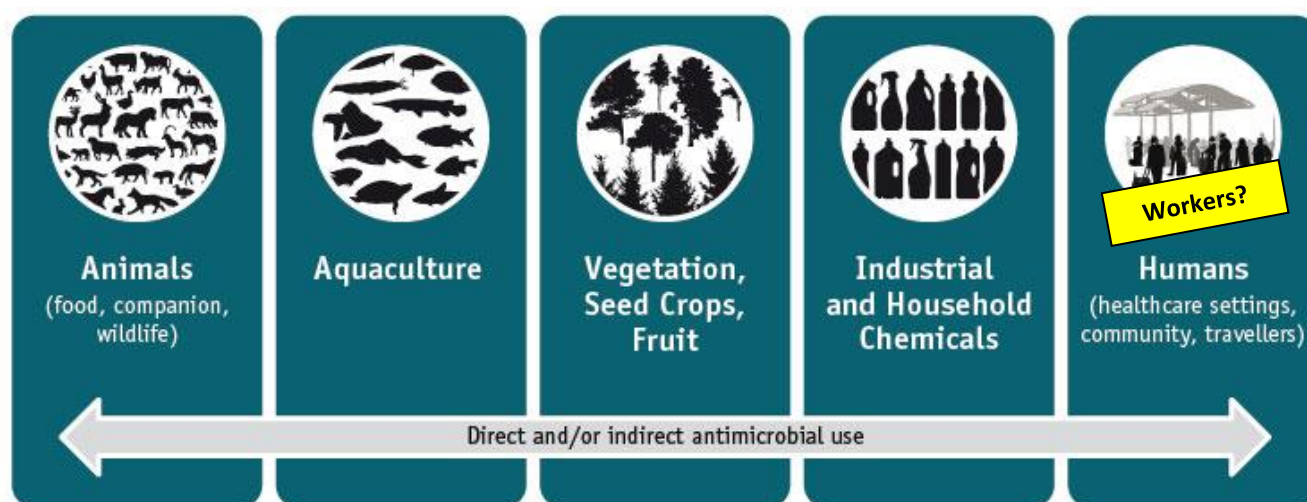


Figure 1. Sectors of society that affect the development of antimicrobial resistance.

Image Source: Modified from “The Chief Public Health Officer’s Report on the State of Public Health in Canada, 2013.”

<http://www.phac-aspc.gc.ca/cphorsphc-respcacsp/2013/resistance-eng.php>

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HICAHS Administrative Core

Around 130 researchers, students, academics, and agriculturists gathered at Colorado State University on April 15, 2015 for the **6th Annual Public Health Symposium: Emerging Issues in Antimicrobial Resistance** to discuss the implications of antimicrobial resistance on animals, humans, and the environment. The symposium was co-hosted by the Colorado School of Public Health, the School of Global Environmental Sustainability at Colorado State University, and the High Plains Intermountain Center for Agricultural Health and Safety. A **Microbial Sequencing Workshop** was

held in conjunction with the symposium, where leaders in the field shared their expertise on *Next Generation Sequencing*, a method for microbial community analysis. Through sequencing technology antimicrobial resistant genes can be identified without the need for traditional culture methods.

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.

This past year we developed our first email newsletter and distributed it to over 240 people, highlighting work on the emergence and transmission of antimicrobial resistance.

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.

Evaluation and outreach staff have been 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. The *ECO Awareness Team* promoted National Farm Safety Week from September 21-27, 2015 and National Ag Day, March 18, 2015. The *U.S. Agricultural Safety and Health Centers* YouTube videos have been promoted during each of these events, leading to spikes in video views 3-5 times average. These events have demonstrated the importance of marketing and promotion for increasing video views.

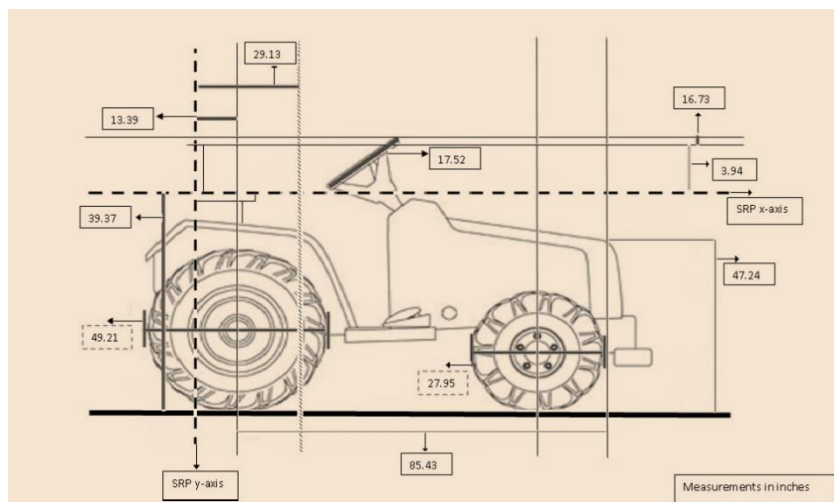


Figure 2. A smartphone app was developed that allows the user to input the tractor dimensions shown above.

Computer-based ROPS design program

A roll-over protective structure (ROPS) is an important component of any tractor. Designed to protect a driver wearing a seatbelt in the event of a rollover, ROPS need to be designed to withstand the weight of the tractor without collapsing.

Although all tractors manufactured in the United States after 1986 are built with a ROPS, many older tractor models are still in use and do not have a ROPS. Additionally, foreign tractors imported into the U.S. often do not meet standards of the Occupational Safety and Health Administration (OSHA), which could make a farmer liable if an employee

is injured due to lack of an OSHA-approved ROPS. Any farmer purchasing a tractor for employee use should verify that the ROPS construction meets OSHA standards. Even farms with less than ten employees – which are typically exempt from OSHA inspections and recordkeeping requirements – could be held liable for not having an OSHA-approved ROPS on its tractors.

Dr. Paul Ayers, the lead engineer on the project, has completed the design and testing of a Computer-based ROPS Design Program (CRDP) that will quickly develop a customized ROPS design based on tractor weight and dimensions. The ROPS that have been constructed from these drawings and

specifications have met the energy and load requirements of SAE J2194, an OSHA-approved standard for ROPS design.

Small modifications were made to the program this year based on user feedback, such as improving the definition of the corner bracket orientation to ensure proper ROPS assembly and increasing the bolt length slightly so that 100% of the fastener nut contacts the threads. Additionally, a tablet app was developed that integrates with the Computer-Based ROPS Design Program (CRDP). The app displays photos of the tractor components to be measured and allows the user to input these dimensions directly into the app.



Have a question about agricultural health and safety?
Ask an expert at
www.extension.org/farm_safety_and_health



Figure 3. From Left to Right: Robert Hagevoort, New Mexico State University Dairy Extension Specialist, poses with HICAHS Researchers David Douphrate and Steve Reynolds

Image Credit: Allison Cassidy

A computer-simulated ROPS **test program** was created this year as a companion to the CRDP. Computer simulations allow an evaluation of how the ROPS will perform, before undergoing the time and expense of construction. The computer simulation tests whether there is sufficient clearance around the driver during a rollover (Clearance Zone Modeling) and also tests the performance of the ROPS under stress (Finite Element modeling of ROPS static test performance). Comparisons of the computer simulation to test facility results show that the simulation is accurate. The computer simulation

predicted the strain, energy, and load capabilities that were later measured in the ROPS at the test facility.

Although physical testing of a ROPS is still required to meet U.S. standards, other international organizations may allow computer simulated tests in lieu of physical testing. The Organisation for Economic Co-operation and Development (OECD), an organization that promulgates codes for harmonized procedures between countries, is considering computer-simulated testing of ROPS.

Demand for ROPS is expected to greatly increase

over the next few years as the *National ROPS Rebate Program* grows. Based on the successful *New York State ROPS Rebate Program*, the national program will provide rebates to retrofit non-ROPS tractors². In light of the fact that tractor rollovers are a leading cause of farm fatalities, installing a ROPS is a simple solution that can save lives.

HICAHS Dairy Industry Activities

Occupational health and safety management for dairies

HICAHS is evaluating the potential for occupational health and safety management systems (OHSMS) to reduce dairy workforce injuries and illnesses. Utilizing a national OSHA consultation database, HICAHS researchers are analyzing the relationships between OHSMS components and dairy workforce injury rates. Management leadership and employee-assisted training appear to be a couple of the OHSMS areas with a strong potential for reducing injuries on dairies. HICAHS is also reaching out to dairy

producers and workers to assess the needs and attitudes of the dairy industry toward OHSMS-related interventions.

Antimicrobial Assessment

The HICAHS study titled “Exploring Shed Antimicrobial Exposures within High Plains Livestock Operations” is now in its second year. Data collection has begun after a delay of 15 months due to outbreaks of porcine epidemic diarrhea virus (PEDv) among swine operations, and bird flu among poultry growers throughout the Midwest. Because of understandable biosecurity concern among livestock producers, these outbreaks brought this study to an initial halt.

The study aims to identify and quantify several types of specific bacteria that inhabit livestock and poultry feces, on-farm manure storage structures, and soil that has been amended with manure applications. The overall objective is to characterize all three agricultural biomes as well as mirror the gut biome of livestock and poultry, and thereby begin to develop an understanding of

specific bacterial exposures agricultural workers may experience as a result of performing tasks that involve handling of manure.

Across the world, the largest source of nutrient material for soil is livestock manure. Rich in nitrogen, phosphorus and potassium, as well as micronutrients, one tablespoon of manure harbors more than a trillion bacteria that provide the nutritional anchor for growing crops and rangeland pasture. This manure may also contain veterinary pharmaceuticals or substances that may amend bacteria within soil.

This study follows work that occurred in Europe and Ohio which resulted in documentation of presence of antimicrobials that are used to treat both human and agricultural livestock. Our study has begun to extract samples from within Midwestern livestock operations; this activity will constitute the link to those recent studies, and provide the segway into high plains dairy and poultry livestock operations that will be sampled in the coming

months. Toward the end of 2016, initial results should emerge that may guide the formation of specific worksite biosecurity recommendations for both agricultural workers and their livestock enterprises.

Health and Safety Training for Dairies

According to the USDA, the number of dairies with at least 2,000 milk cows doubled between 2000 and 2006.³ 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



Figure 4. From Left to Right: Bethany Modjeski, Center for Dairy Farm Safety, Robert Hagevoort, NMSU Extension, and David Douphrate , HICAHS, review notes before a training on occupational health and safety needs in the dairy industry (River Falls, WI, Sept. 28, 2015)

Image Credit: Allison Cassidy

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 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 susceptible⁴. 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

Particulate Matter (PM) Deposition in the Respiratory Tract

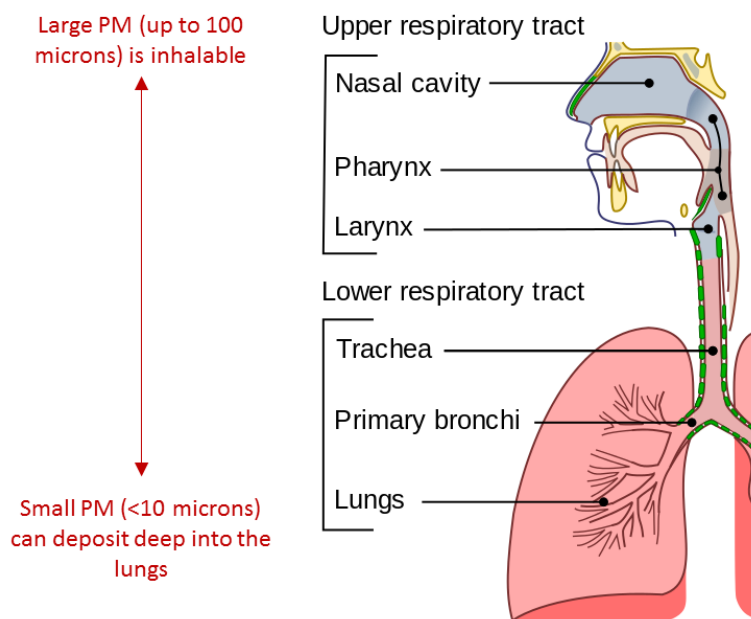


Figure 5. The smaller the particulate matter is, the further it can deposit in the respiratory system.

Image Source: Modified from an image from cancer.gov

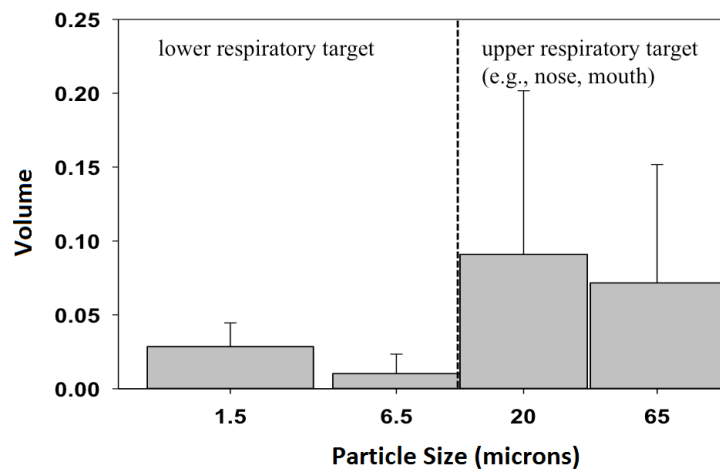


Figure 6. Size distribution of particulate matter collected from dairy farm air samples.

play an important role in causing inflammation in human lung cells⁵. 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.⁶ 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, unculturable 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.

Themes from Interviewing Spanish-Speaking Dairy Workers:

- Diversity in background and past experiences of workers
- Knowledge gaps in animal handling, animal behavior and the potential sharing of infectious diseases between humans and cattle (zoonotic diseases)
- Pressures encountered at work
- Inconsistency of training interventions
- Resistance to using personal protective equipment
- Discrimination encountered at the farm
- Perceptions of health and safety risks in different areas of the dairy operation
- The impression that work related injuries are unavoidable
- The key role that middle managers play in training new workers and maintaining worker motivation

The guided interviews also reveal limited and unrewarding communication with family physicians in terms of potential risks associated with work at a livestock facility.

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 received eight pilot proposals during the 2015 fiscal year. Proposals received represented four of the six states in the region as well as a broad array of relevant agricultural health and safety topics: ergonomics, industrial hygiene, vulnerable populations, surveillance, infectious disease / one health, and economic evaluation.

Associate Professor Mark Guiberson, Division of

Communication Disorders at the University of Wyoming, was awarded for his pilot project, “Digital Graphic Novella: Hearing Health for Spanish-speaking Agricultural Workers.”

This innovative project is designed to test the use of a digital graphic novella developed to educate Spanish-speaking agricultural workers about noise-induced hearing loss. This type of hearing loss is common among agricultural workers due to their close proximity to noise produced by heavy farm equipment. However, many U.S.-based agricultural workers who speak Spanish as their first language have

basic to early literacy skills, and therefore may have less access to health care information.

Dr. Guiberson and his team are relying on recent evidence that digital technology is being utilized to obtain health information, particularly among Latino populations. This study is therefore designed to determine levels of knowledge of noise-induced hearing loss as well as attitudes toward wearing hearing protection devices (e.g., ear plugs) among 30-40 Spanish-speaking agricultural workers in Wyoming and Colorado before and after viewing the digital graphic novella.

Preliminary results indicate that the use of the digital graphic novella increased Spanish-speaking agricultural workers’ knowledge and positive attitudes about the use of hearing protectors. Dr. Guiberson, an experienced investigator who is new to the field of agricultural health and safety, plans to apply for additional funding to expand this research among a larger sample of Spanish-speaking agricultural



Figure 7. An image from Dr. Mark Guiberson’s Digital Graphic Novella. The novella will explain how to choose proper hearing protection, among other learning objectives.

Image Credit: Mark Guiberson’s Digital Graphic Novella

Testimonial from a HICAHS Pilot Grant Recipient

“There is no doubt that without HICAHS’ funding we would have been limited in terms of our research endeavors [in antimicrobial research]... we would not have been able to pursue information regarding *E. Coli* O157 shedding in pre-weaned calves. We also would have had to forego much of the antimicrobial sensitivity testing...However, the larger impact has to do with the collaborative environment that HICAHS fosters. The benefits of bringing together like-minded researchers in the area of agricultural health and safety are enormous and ongoing. A center such as HICAHS nurtures collegiality and ultimately provides the foundation for building dynamic projects around researchers who represent a broad range of disciplines. That is the power of HICAHS and it is something that is difficult to access through other institutional channels.”

*Craig McConnel, DVM, PhD
Dairy Population Health
Management
Colorado State University*

workers across the High Plains region.

The results of a pilot study by Dr. Louise Quijano on “Dairy Worker Stress: Mental and Physical Health Implications” were presented at the *7th International Symposium: The Safety & Health in Agricultural & Rural Populations: Global Perspective (SHARP)*.⁸

Through interviews with Spanish-speaking dairy workers we learned that (a) social support from family members and (b) stable employment create resiliency to mental and physical stressors in the working environment.

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).*⁹

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).

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.

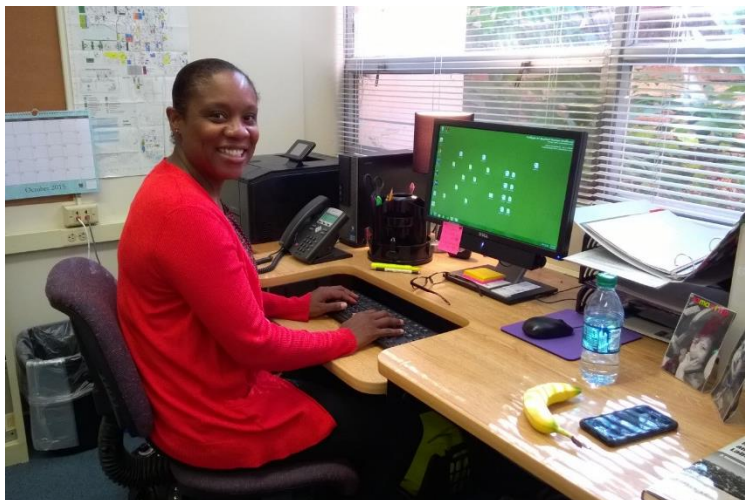


Figure 8. Cortney Worrell, PhD Student in the School of Social Work, enters data for the HICAHS Evaluation Program.

ECO Group

The *ECO group* (described on page 3), 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 H-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.



For the first time in its 20+ year history, the NIOSH-sponsored Ag Centers have created a logo to represent the national group.

Front Cover Image Credit: Fotolia

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The reports contents are solely the responsible 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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