Introduction
US dairy production has steadily moved to industrialized operations because of associated economies of scale. These “mega-herd” dairy operations present new occupational health and safety challenges to both dairy owners and workers. There is limited research addressing worker health and safety on these large-herd operations.

Regional Dairy Industry Profile
Roughly 57% of US milk production comes from large-herd (500 head or more) dairy farm operations. Federal Region VIII (CO, UT, ND, SD, WY and MT) has over 135 large-herd operations and produces over 60% of the region’s milk supply. Federal Region VI (TX, NM, OK, LA, and AR) has over 350 large-herd operations and produces over 88% of the region’s milk supply. These large-herd dairy operations employ a predominantly Latino workforce.

Purpose
The High Plains Intermountain Center for Agricultural Health and Safety (HICAHS) partnered with the Southwest Center for Agricultural Health, Injury Prevention, and Education (SWAG) to host the High Plains and Mountain Region Dairy Health and Safety Workshop October 15 - 16, 2009 in Denver, Colorado.

The purpose of the workshop was to bring together dairy extension specialists, dairy owners and managers, dairy manufacturers and support specialists, and health and safety researchers to discuss current dairy health and safety research and outreach initiatives, and identify future research and outreach needs.

Objectives
The objectives of the workshop included the following:

1) to provide an interactive forum to exchange ideas and strategies to effectively address dairy worker health and safety;

2) to identify and prioritize dairy worker health and safety issues;

3) identify process management strategies that address worker health and safety; and

4) to identify future research and outreach priorities.
Attendees
In addition to Center personnel workshop attendees included faculty from a US university and one Swedish university, dairy extension specialists (representing CO, TX, NM, SD, ND, IA, and UT); six dairy owners and managers (representing CO, TX, NM, and SD); one dairy equipment manufacturer, one workers’ compensation provider, and dairy producer organizations (CO, TX, and NM). Refer to Appendix A for complete list of attendees.

Workshop Agenda

Day 1 p.m.
A. Welcome/Introductions/Purpose and Objectives of Workshop
B. Overview of NIOSH Agriculture Centers
   1. High Plains Intermountain Center for Agricultural Health and Safety
   2. Southwest Center for Agricultural Health, Injury Prevention, and Education
C. Current dairy research
   1. Dairy Endotoxin Study
   2. Dairy Parlor Ergonomics/Productivity/Efficiency
   3. Pilot 1-Exposure to Extreme Postures Among Parlor Workers
   4. Pilot 2-Exposure to Muscle Force Among Parlor Workers
   5. Pilot 3-E-Coli Exposure Among Parlor Workers
D. Specific Topic Breakout Group Discussions
   1. Dairy Labor Issues (Appendix B)
   2. Worker Health Issues (Appendix C)
   3. Worker Training (Appendix D)
   4. Process Management (Appendix E)

Day 2 a.m.
A. Summary Reports based upon discussion
B. Presentation related to injury & death in dairy work
C. Discussion related to creating a “Safety Culture.”
   1. Lock-out, tag-out
   2. Potential role of OSHA and small business consultation program

Future Steps
A. Second workshop for project HICAHS and SWAG renewal proposals
B. Solicitation of projects through HICAHS & SWAG Translation and Feasibility Programs
C. Incorporation of dairy health and safety into national Dairy Sustainability Initiative
Appendices
A. Workshop attendees and contact information
B. Dairy Labor Issues Discussion Summary
C. Worker Health Issues Discussion Summary
D. Worker Training Discussion Summary
E. Process Management Discussion Summary
F. Workers’ Compensation Article
G. Australian Information related to lock-out, tag-out
H. Solicitation for Feasibility Project Proposals
I. Solicitation for Translation Project Proposals
## APPENDIX A
### DAIRY WORKSHOP ATTENDEES

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APPENDIX B
LABOR ISSUES DISCUSSION SUMMARY

Two consistent and separate issues: 1) language/cultural issues and, 2) immigration and immigration reform.

1) Language/cultural issues:

Identified problem: Lack of effective communication between management and labor. Lack of cultural awareness and language barriers both play a role in dysfunctional communication.

2) Immigration & immigration reform: root cause of many labor issues discussed.

Context: relationships between workers and families & difficulty with labor coming from Central & South America

Identified problem: Typically individuals thrown into leadership position without developed skills – often, an individual does well & is promoted.

Identified need: Different types of training, esp. leadership training

Identified need: Recruitment & retention training
Worker Health Issues: training management, labor & its implications – causing health problems, related to systems for controlling these issues.

-Consistent themes:

1. Preventive health, wellness, more of a big picture for the health of the worker: measures to ensure a healthy workforce – employees are fit, not spreading infectious diseases amongst each other & with families.

   Identified Need: Resources for developing health programs/wellness

   Identified Issue: Access to vaccinations – tetanus

2. Reproductive health: protecting workforce from sexually transmitted diseases, relationships & how workers treat each other, effects on families and children

   Identified question: How much interrelation exists?

   Identified Lack of Information: How much responsibility do owners have relative to this issue?

3. Worker treatment, perception and respect relative to community

   Identified Issues: Major issues continue to exist regarding fitting in and community acceptance, thus creating problems that impact workers in workplace and the community they live in.

4. Chemical exposures: pesticides, drugs, formaldehyde, self-medication, use of pain relievers, etc.

   Identified Issues: Self-medication: people understanding associated risks, communication management issues, training.

5. Mental and emotional health: looking at owners, operators, and workers as different – having different needs.

   Identified Issue: In general, most of workforce is young and healthy and do not recognize that there are problems (lack of awareness). Generally, this is a healthier workforce.

6. Injuries: occurs primarily with livestock or tractors

   Identified Issue: Owner and worker recognition of issues, problems, risks, and prevention strategies. This issue ties in with ties in with management and training.

7. Sanitation: controlling transmission of infectious diseases among workers and also from workers to livestock, to families, and from livestock to workers.
Identified Needs: good information, good management practices (hand washing), using clean towels, wearing gloves to handle clean towels. Need for attention in training related to prevention.

Identified Issue: Workers not paying attention to what they’re doing when they’re eating or smoking – not washing hands (creating most of the problem).

Identified Issue: Infectious agents and transmission between workforce & livestock
APPENDIX D
WORKER TRAINING DISCUSSION SUMMARY

The issues generated from the 4 groups varied a bit, but they could be consolidated into five key areas or themes. These themes are presented in order of priority as identified by the groups.

1. The need for training – a consensus among all groups was clear here.

2. Need for training materials: also a consensus, but a great variety of topics:
   a. Specific to tasks of production: calving, feeding, reproduction, cow care, milking, fresh cow care, teamwork, sick cow care.
   b. Clustered around “how to train” and the importance of quality.

3. Methods of training and training delivery – some questions raised about approach.
   a. In-house versus outside the dairy trainers: hands on/apprenticeship/coach approach versus:
   b. CDs, DVDs;
   c. Operation specific versus more generic.
   d. One suggestion brought back to the group was related to the use of computer programs such as Illuminate or Adobe with national experts providing the training.

4. “Who” needs the training?
   a. Supervisor/manager – these positions assume prior experience, but it was suggested that to move from line staff to these positions, training to become a supervisor was important.
   b. Workers –
      i. recognize organizational hierarchy workers are in:
      ii. responses that workers have to owners versus managers will often be different.

5. Cultural/ Language Barrier Issues
   a. Need to recognize cultural norms- e.g. who can talk with whom?
   b. Need for language specific training
   c. Need for interpersonal communication skills

6. Several cross-topic discussions emerged from the four groups:
   a. Agreement on need for reinforcement, refreshers or “boosters” in order to avoid returning to old ways.
   b. The issue of incentives was also discussed: various forms were brought up including extra pay, bonuses, and making sure there was time to attend trainings set up.
   c. The “how to” of training:
      i. Reinforce good behavior, not always identifying what the worker is doing wrong.
      ii. The importance of positive feedback to enhance training impact.
APPENDIX E
MANAGEMENT DISCUSSION SUMMARY

Identified Differentiation between Management and Leadership:
Difference between management (ex: putting milk in the tank) & leadership (ex: making sure still in operation & business for long-term)

Identified Necessities for a Successful Dairy
1. Effective communication among employees.
2. Owner engagement and visibility among employees.
3. Positive employee relations.
4. Employee ownership of what they do/specific responsibilities/accountability (holding worker accountable job performance according to established rules & regulations).
5. Motivation (consistent theme) – increased pay is not a motivator.
6. Direct owner/manager involvement motivates employees.

Delegation (consistent theme)
1. Identification of good leaders amongst employees and training.
2. Promotion and rewarding for stellar performance.
3. Lack of delegation leads to owner stress (responsibilities pile up, health is affected as result).

Safety Management: any specific management safety process improvement must be incorporated into overall dairy operation mission and strategy

Identified Need: Process management training would be beneficial (ie. Lean six sigma)
2. Good delegation of management, good training, employee empowerment (give employees ability to make decisions, ownership)

Identified Need: Leadership training for both managers and labor.
3. Any training needs to be process specific that tailors initiatives to specific processes.
4. All training must be dairy specific and customized.

Identified Need: OSHA training specific to a dairy operation and customized to specific operation.