

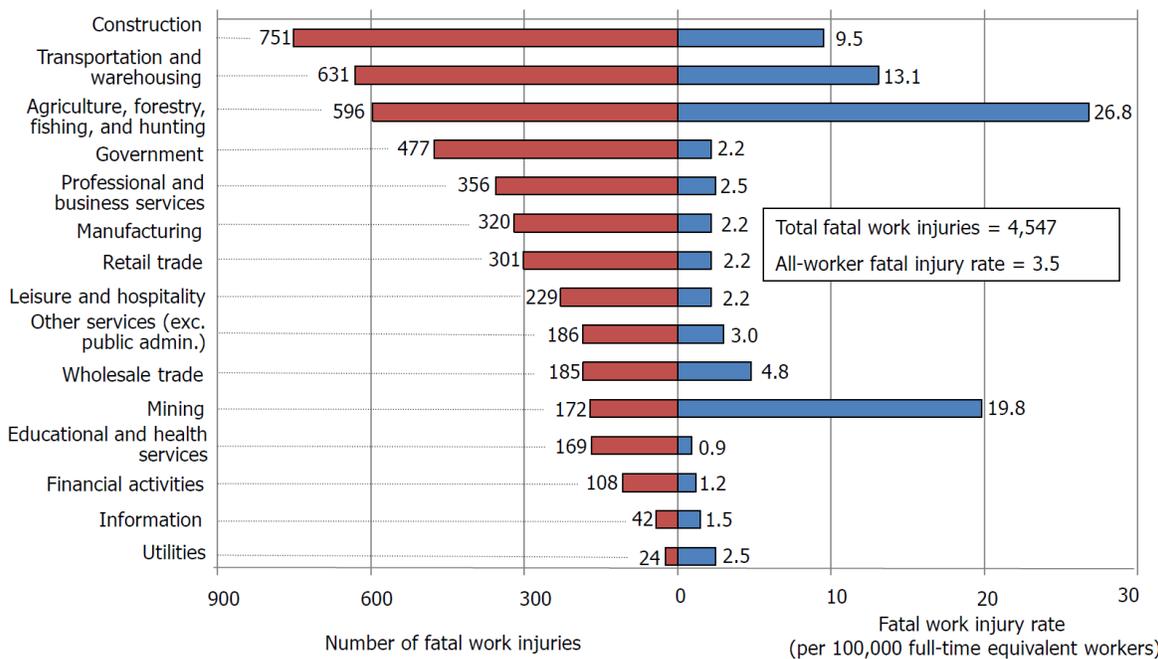
## Development of a Comprehensive Dairy Safety Training Program

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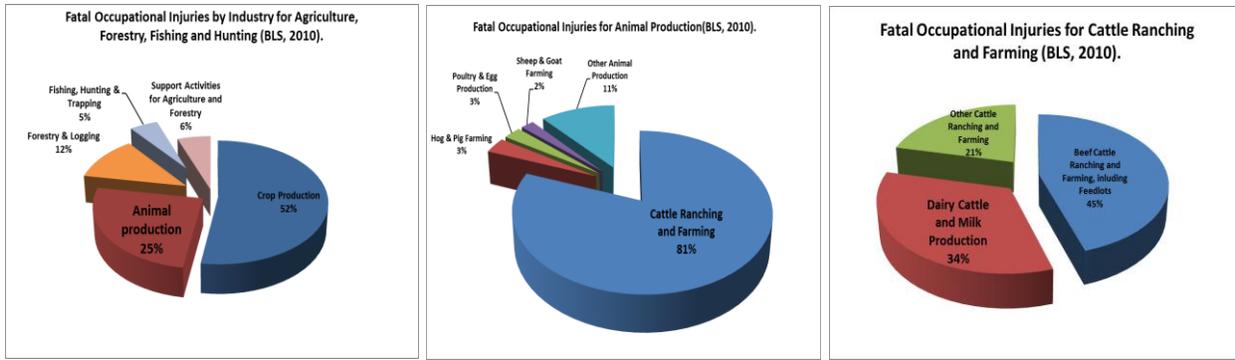
### BACKGROUND

Even though the number of **fatal** occupational injuries in agriculture (2011 U.S. Bureau of Labor Statistics) has been declining at a rate of about 30 % since the early 1990s, and has reached a level of 3.5 fatalities per 100,000 Full Time Equivalents (FTE), the number of deaths in agriculture, forestry, fishing, and hunting is still disproportionately large. The absolute number is not as high as in other occupation groups such as transportation and construction, but the rate per 100,000 employed (26.8) is the highest since there are far fewer people employed in agriculture as compared to other occupation groups (Figure 1).

About 25 % of these fatal injuries in agriculture occur in animal production, of which an extremely large percentage (81%) occurs in Cattle Ranching and Farming as opposed to other animal production related sectors such as hog and poultry farming (Figure 2). A high percentage (63 %) of the fatal work injuries occur among Hispanic or Latino workers, 60 % of which were born outside the United States. Of the foreign-born workers who suffered fatal injuries in the US in 2010, 38 % were born in Mexico, 21 % in Asia, 12 % in Europe, and another 19 % from other countries in Central America. Fatal work injuries involving Hispanic or Latino workers continued to decrease in 2010 after reaching a series high in 2006.



**Figure 1.** Number and rate of fatal occupational injuries by industry sector, 2010 (U.S. Bureau for Labor Statistics, U.S. Department of Labor, 2011).

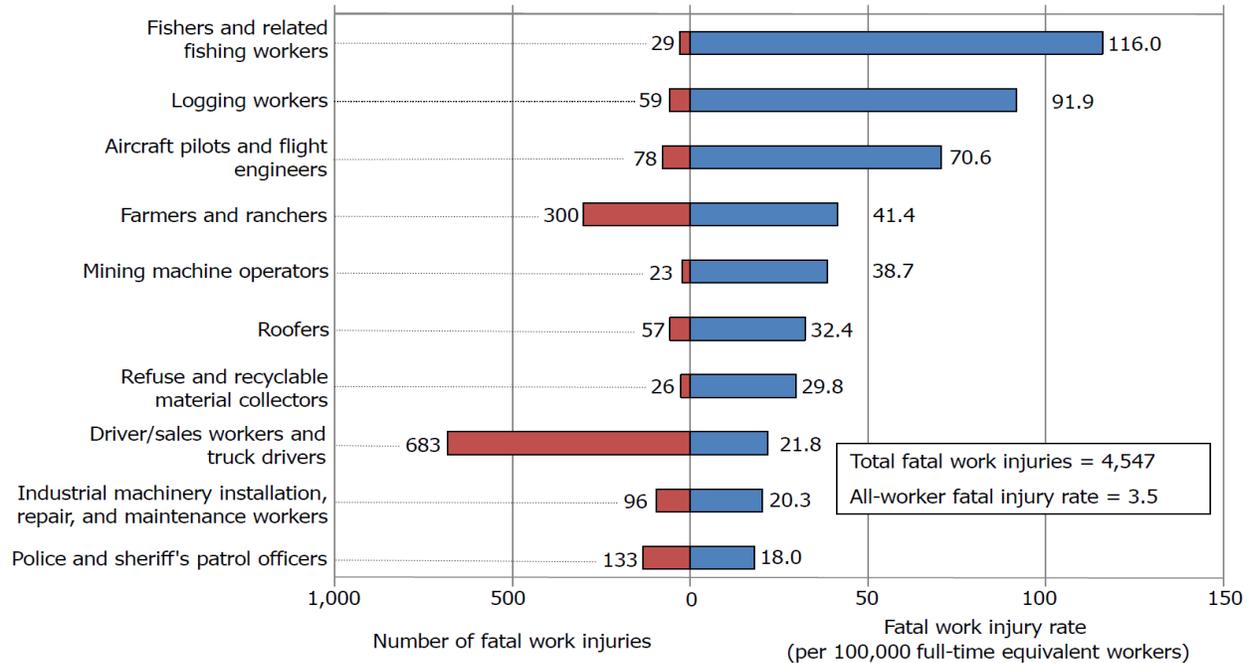


**Figure 2.** Fatal work injury rates for agriculture, animal production, and farming and ranching in 2010 (U.S. Bureau for Labor Statistics, U.S. Department of Labor, 2011).

In terms of **nonfatal** injuries and illnesses, the U.S. Bureau of Labor Statistics reports, that the average across all industry sectors combined was 3.5 injuries and illnesses per 100 employees. The rate per 100 employees in agriculture, forestry, fishing and hunting is 4.5 injuries and illnesses per 100 employees. Rates in crop production and animal production are 4.5 and 4.4 respectively; however this does **not**

include farms with fewer than 11 employees, which may underestimate these numbers substantially.

Over all occupations, farmers and ranchers have the fourth highest fatality rate 41.4 per 100,000 (Figure 3), only trailing fishers, logging workers, and aircraft pilots and flight engineers.



**Figure 3.** Fatal work injury rates for fishers, logging workers, and aircraft pilots and flight engineers in 2010 (U.S. Bureau for Labor Statistics, U.S. Department of Labor, 2011).

One of the most common causes of death and serious injury on farms is related to the use of heavy equipment required to run a dairy farm. A high number of farming fatalities are due to tractor turnovers. Other causes of farm-related fatalities include silage bunker collapse, manure pits, tractor power take-offs (**PTO**), and large animals, such as dairy bulls.

Recent research studies show that the two main causes of workers' injuries (fatal and non-fatal) are incidents with machinery and animals (Mitloehner and Calvo, 2008). Machine-related accidents include tractor rollovers, being run over by tractors, and being entangled in rotating shafts. Animal-related injuries include kicks, bites, and workers being pinned between animals and fixed objects. Other causes of injuries include chemical hazards, confined spaces, manure lagoons, use of power tools, and improper use or lack of personal protective equipment (Mitloehner and Calvo, 2008).

Results from a study (Doupbrate et al., 2006) analyzing 2000-2004 Colorado workers' compensation claim data indicated that Colorado injury rates were higher than nationally reported numbers, especially in sectors that involve interaction with animals or livestock. Injuries related to animals, strains, machinery, and falls or slips were the most frequent among all occupations analyzed. The authors concluded that the development of safety interventions that address the worker-animal interface, fall protection systems, machinery usage, and overexertion prevention strategies were recommended.

In a subsequent study (Doupbrate et al., 2009) it was determined that of the livestock handling injuries among dairy workers, nearly 50 % were associated with milking

parlor tasks. Furthermore, they determined that claims associated with livestock handling represented the highest percentage of high-cost and high-severity injuries of all animal production sectors.

## **PROBLEM STATEMENT**

It can safely be postulated that the steady decline in fatalities in the last two decades is most certainly a result of increased emphasis on job site safety measures and training. However the lack of information regarding agriculture injuries or fatalities has been recognized as an obstacle for effective injury prevention (Zhou and Roseman, 1994). Because of the limited research addressing work injuries associated with livestock handling, little is known about the risk factors that might lead to the development of safety interventions. Data presented by Doupbrate et al. (2009) show that major risk factors on a dairy are tasks in the milking parlor and behind cows.

The increased size of many of the southwestern dairies actually presents a unique opportunity for the development of safety interventions, since daily duties and tasks on the dairy have become highly specific and specialized. In the past, the task of training and supervision of employees typically was that of management (owner, manager). With increasing employee numbers, this task is often delegated to employees with seniority. Formal training, including basic and theoretical study, explaining the rationale or the science behind particular work related activities is not common. Often employees will know *what* to do (the task or activity) but may lack the knowledge of *why*. Insufficient understanding of the task can impact the outcome of the task in many ways: job motivation and hence job performance,

thoroughness, expedience, accuracy, and finally, but not any less important, job safety. The organizational support to implement a successful training program has to be developed, and operational and managerial commitment to such a program is required.

Given the earlier observation that many work related injuries occur with workers from different geographical and cultural origins, it is imperative and appropriate that any safety training program developed be based on understanding of these linguistic and cultural barriers and attitudes towards working with animals and/or equipment.

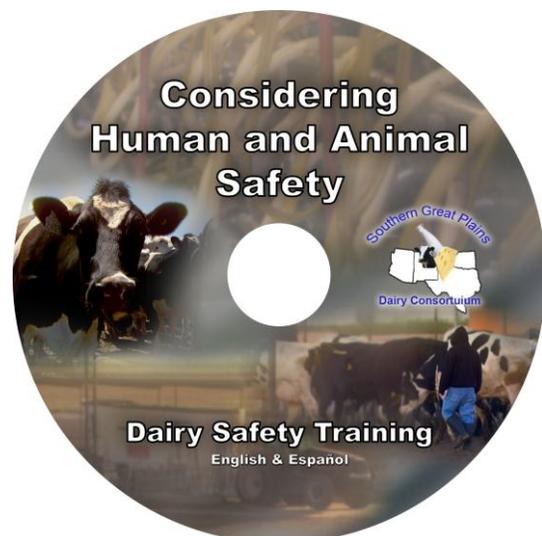
### **OBJECTIVE AND TASK**

The primary objective of this project was to develop a Comprehensive Dairy Safety Training program using video material which would categorically highlight the safety concerns on a typical open lot dairy in the Southwestern US, and visually train the observer on how to avoid the risks and provide an intervention. The overall goal was to empower employees with a better understanding of animals, animal behavior, equipment, and equipment safety, all in order to reduce and better manage the risk factors as identified in earlier research (Doughrate et al., 2009).

### **A COMPREHENSIVE PROGRAM**

This has led to the development of a comprehensive dairy safety training program consisting of a DVD and a manual (in English and Spanish) for on-dairy training purposes entitled Considering Human and

Animal Safety: Dairy Safety Training for Dairy Producers (Figure 4). The format allows supervisors and managers to establish safety protocols for their individual farms. The program is based on the concept that well trained workers have high regard for their own safety, as well as that of others, and the safety and well-being of the animals in their care. The program can be regarded as an essential part of an overall Quality Assurance Program. The program raises awareness of unsafe or potentially harmful working conditions, which with early detection may take minimal correctional action. By presenting guidelines on how to safely handle dairy cows in various common situations on the farm, as well as how to work with heavy equipment in a safe manner, management can train both new and current employees. Emphasis is placed on understanding animal behavior as the basis for safely working with and around animals.



**Figure 4.** For additional information or a copy of the DVD please contact Robert Hagevoort at [dairydoc@nmsu.edu](mailto:dairydoc@nmsu.edu) or 806-786-3421.

The first DVD was developed in 2010 and released in early 2011. Copies were distributed to producers in Oklahoma, Texas, New Mexico, and Arizona. In addition all attendees of the 2011 Western Dairy Management Conference were provided with a copy. To date, in excess of 3000 copies have been distributed to producers and allied industry. The International Refugee Committee (IRC New Roots Program, <http://www.rescue.org/news/photo-essays/new-roots>) has requested permission to translate the DVD into other languages such as Burmese, to incorporate into training of refugees which are to be placed on dairy operations in the U.S. A companion Safety Guide is being developed as a teaching aid for producers and employees who desire to provide additional instruction of the material presented in the DVD. A series of questions are being added to the guide to aid producers in evaluating the employee's understanding of the material presented. Producers can keep copies of these evaluations in their employee files to document training records and efforts. The DVD has two menu options, either English or Spanish, and every area has a recap section which reiterates the key points for the viewer.

Specific areas covered in the Considering Human and Animal Safety DVD are:

- Animal handling in treatment chutes
- ATV safety
- Cattle flight zone
- Cattle point of balance
- Chemical safety
- Eye and ear protection
- Milking barn safety
- Moving cattle safely
- Properly immobilizing cattle
- PTO safety
- Safety around bulls
- Safety around electricity

- Safety around heavy equipment
- Safety around the silage pile
- Safety in the machine room
- Understanding how cattle see
- Waste lagoon safety
- Working with self-locking stanchions

Crucial in the development of the DVD was coverage of specific risk areas on the dairy and highlighting areas of need and care, while at the same time leaving room for producers to utilize their own dairy specific procedures and protocols. It was also imperative that the approach be both from a human and an animal well-being perspective, since safety on the dairy is best served when and where the human caretaker understandingly and humanely interacts with the animal and mistakes in terms of caretaking are minimized and prevented. Illustration and documentation of this aspect of animal production is becoming increasingly important to consumers and retailers at large, and can help to instill an image of a quality dairy product, produced in a safe environment; both from a human as well as from an animal perspective.

While developing the first DVD, it was soon realized that the material covered was extensive, yet of a general nature, and that for specific positions on the dairy more in-depth, and specific safety training was required. With input from producers who had worked with the first DVD, it was decided to develop a second safety training DVD to be added to the Producer Training Package, and which would extensively cover issues pertaining to each one of the major positions on the dairy: the outside cow caretaker, the calf caretaker, the milker, and the feeder. This way a new employee will be able to receive general training on safety issues across the dairy, as well as specific safety training for the position or positions

they hold. Current employees can uniformly be trained or cross-trained for different positions on the dairy, and that training can be standardized without personal interpretation or procedural drift.

Additionally as was mentioned previously, the training can be documented, a benefit for the producer, as well as employee. A menu option will allow selecting the specific position. The 2<sup>nd</sup> Dairy Safety Training DVD is currently in the editing phase, and release of the DVD and the total Producer Safety Training Package is anticipated in the summer/fall of 2012.

### **LITERATURE CITED**

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