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Worker Safety Training on Dairies

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Over the last decade, the population of workers of Hispanic descent in the U.S. dairy industry has increased dramatically. The background experience and work-related training of Hispanics in entry-level positions on Colorado dairies is variable. Hispanic dairy workers, a majority of whom are foreign-born and Spanish speaking, may or may not receive training about the tasks they perform or safety measures necessary.

Across the dairy industry, worker training is inconsistent in content, scope, and extent and may lack relevant cultural and linguistic considerations. All these factors, in the context of an industry known for its high rates of fatal and nonfatal work-related injuries, may explain why Colorado dairy producers have consistently identified more efficient worker training as a priority.

Workers and Owners Surveyed

In 2002, the Integrated Livestock Management (ILM) team conducted a study entitled "Worker Safety Training: Current Status and Future Needs of the Colorado Dairy Industry". Its goals were to define the existent training practices on dairies in Colorado; identify factors in the workplace to which producers and workers attribute work-related injuries; and define the safety and task-related training needs of entry-level dairy workers.

Background experience and training varied tremendously among the interviewed workers. A majority of the workers were

Mexican-born, Spanish-speaking and male. The extent of the training reported by workers ranged from no training at all to a combination of verbal and formal instruction, demonstration and written materials. Some workers reported having received safety training along with task-related training, while others reported having received only safety training or task-related training, but not both.

The training reported by the workers frequently differed from that reported by the operator or manager from that same dairy.

The person providing training to the workers was in most cases a co-worker or supervisor, but in rare instances the work-

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ers reporting having an outside individual doing the training.

Both dairy workers and dairy operators were asked their opinions regarding the value of the safety and task-related training practices existent on the dairy. Both groups perceived the task-related training as more valuable than the safety training, agreed that more formal work safety training is necessary to avoid work-related injuries, and expressed an interest in participating in such programs in the future.

To explore the rate of work-related injury and disease on Colorado dairies, workers were asked to list any work-related in-

jury suffered in the 12-month period prior to the survey, the likely cause of the injury, the type of medical attention received, and the number of workdays lost as a result of the injury. Dairy operators were asked the number of work-related injuries, lost workdays experienced by their workers in a previous year, and to rate causes of work-related injuries according to their frequency.

The reported number of injuries and work days lost per worker per year were very similar between the two groups. Nearly half of the workers interviewed suffered at least one work-related injury in the 12 months prior to the survey, and the average number of work days lost after the injury approximated six days. Almost half of the injuries were seen by a health professional.

Injuries reported by the workers ranged from being stepped on or kicked by cows, to fractured bones as a result of machinery falling on a foot. One-fifth of the workers reported experiencing respiratory problems, and one in seven of all workers reported suffering skin problems related to work.

Perception of Injury Causes Differed

Workers and dairy operators had different opinions regarding the underlying cause of work-related injury. According to the workers, most injuries happened as a result of direct contact with animals (cows or bulls) and less frequently due to human error. On the other hand, dairy operators believed that human error constitutes the most common cause for work-related injuries, more common than direct contact with animals or machinery.

(Continued on next page)

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Statistical analysis of the data was then performed to determine the relationship between the type of training received upon arrival at the dairy and the occurrence of injury. Although safety training by itself did not have a protective effect against experiencing a work-related injury, workers who received task-related training were several times less likely to be injured than workers who did not receive task-related training.

Of the workers who received any type of training (safety or task-related), those who received training as a combination of verbal instruction, demonstration, and supervision were least likely to suffer a work-related injury. Also, workers who were taught by a co-worker were less likely to be injured at work than those not taught by a co-worker.

Being taught by a supervisor had no apparent protective effect against being injured.

These observations suggest that task-related training that includes safety practices might improve worker safety on dairies. By including safety issues into task-related training, hazard recognition and avoidance practices could be presented into a context familiar to the learner. By having new concepts presented into the context of everyday job tasks, the learner might be able to retain the new information more effectively.

Coworker Training Most Effective

The fact that workers taught by co-workers were less likely to be injured may suggest that language and cultural mannerisms used by the instructor could enhance

the communication of safety information.

It is evident that the dairy workers of northeastern Colorado would benefit from language- and culture-sensitive training interventions that incorporate safety issues into task-related training. It is also clear that the dairy industry of Colorado is very hazardous; dairy operators are aware of this fact; and producers understand the need for more effective safety training.

The challenge, therefore, falls to educational institutions and veterinarians to develop worker training interventions that fit these criteria. Relevant measures of farm productivity should be measured before and after such training, so the economic value of worker training can be more objectively assessed.

Reproductive Ultrasound Revisited

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Over the last five years the use of ultrasound for routine reproductive management in the dairy industry has made major leaps forward. This progress is a result of improvements in ultrasound technology, interest, and expertise developed by reproduction specialists, and widespread adoption of estrus synchronization programs which benefit from early pregnancy detection.

Improvements in Technology

Ultrasound has been widely adopted in the traditional dairy areas of the Northeast and Midwest U.S., as well as in many European countries. Its adoption in the West has lagged far behind, in part because of equipment limitations.

In the West reproductive exams commonly take place in outdoor lockups, and ultrasound machines were not sufficiently portable or their screens clearly discernable in the sunshine. Several machines are now available that address these problems. The Easi-Scan, manufactured by BCF Technologies of Livingston, Scotland, and the Bantam LM manufactured by E.I. Medical of Loveland, Colo., are portable battery-powered machines that come with video display glasses. The more expensive Sonosite 180 Plus has a 4x6-inch tiltable screen display, color Doppler, a full keyboard and a broadband transducer. All three units have been used very effectively on Colorado dairies.

Diagnostic Confirmation

Traditionally, reproductive specialists develop a certain confidence that their palpation skills can tell everything necessary about the reproductive tract of a cow. However, diagnostic use of ultrasound in the reproductive examination provides definitive information that previously was an educated guess by those doing palpation. The following are illustrative of questions that can be answered using ultrasound.

1. "Is that a luteal or follicular cyst?"

The thickness of the cyst wall can be measured using ultrasound.

2. "Is that a large CL or a cyst?" The appearance of a CL is easily distinguished from a cyst using ultrasound.

3. "Is that a pyometra or a pregnancy?" In the ultrasound image pus is often gray with floating flecks of hyperechoic (white-appearing) debris floating. In contrast, pregnancy fluid is totally anechoic (black), and membranes and/or embryonic tissues are clearly visible.

4. "Is that pregnancy a healthy one?" Ultrasound signs of a pregnancy in trouble include lack of heartbeat (visible as early as 30 days), disruption of membranes and the fetus itself, and appearance of gray flecks in the fluid. When these signs are recorded, the cow can be rechecked in a week or prostaglandin can be given.

5. "Does this cow have twins?" Multiple fetuses are much easier to detect with ultrasound. Theoretically, twin reduction can be performed at 30 days of gestation if the embryos are in different horns.

6. "Is it a heifer or a bull?" At 60 days of gestation an experienced ultrasound operator can accurately determine fetus sex.

7. "Is this cow open 27 days after insemination?" This is by far the most important question, since we have a significant ability to intervene via resynchroni-

zation. Uterine fluid is clearly visible in a 27-day pregnancy, and with a little practice the embryo is easily found.

Decreasing Days Open

Limiting the days a cow is open is the goal of every progressive dairy, and ultrasound can help achieve that goal. Ultrasound must be used to identify the open cow as soon as possible after breeding (27 to 30 days) so that she may be re-inseminated immediately.

Large dairies have always had difficulty performing visual heat detection and have relied on secondary signs of estrus such as the use of tail chalk. Many studies have shown the inaccuracy of this method. Recently Sturman (2000) showed that 19 percent of inseminations were performed on cows not in heat or in the early stages of pregnancy. Insemination of pregnant cows led to 17 percent embryonic loss.

Three Essential Components

It is possible to eliminate the need for estrus detection. A breeding program which eliminates estrus detection has three essential components:

1. First breeding using a systematic timed insemination program (OvSynch or PreSynch) in which ALL cows are bred within a month of the end of the voluntary waiting period.

2. Accurate pregnancy detection at 27 to 33 days after A.I. (using ultrasound).

3. A systematic re-synchronization program for ALL cows found open. By utilizing such a breeding and pregnancy diagnosis program, you can improve overall pregnancy rate and spend less money doing so.

Dr. Ray Nebel of Virginia Tech University implemented a reproductive plan in which all cows were bred per timed protocols and employees ignored all heats. Pregnancy diagnosis was performed with ultrasound around Day 28 and non-pregnant cows were enrolled in a resynchronization program. Dr. Nebel reported a pregnancy rate of over 20 percent with the program, compared to the national pregnancy rate of around 14 percent.

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