

Colorado Dairy News

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Incorporating Worker Safety into Worker Education

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The agricultural industry remains one of the most dangerous industries for laborers in the United States. Agriculture currently ranks only second to mining in the incidence of fatal injury to workers, and the incidence of non-fatal injury in agriculture ranks third behind construction and manufacturing. Within the agricultural industry, injury and death result primarily from machinery use, with livestock incidents ranking second; however, in some regions, livestock are the primary sources of worker injury. Young age, minority status, and, in livestock production, work involving dairy cattle have been associated with a significantly increased risk of injury. Within the dairy industry, most injuries occur during milking cows or when treating cows for lameness. In a New York study, laborers sustained most injuries from being kicked, pushed, or fallen upon by dairy cows.

Currently, the labor force in US agriculture is comprised mainly of young men, most of whom are foreign – born and speak Spanish as a primary language. Many of these farm workers do not have a farm background and use the agriculture sector as entry-level, often temporary employment. Familiarity with animal handling is highly variable within this group of workers. Thus, owing to the frequent lack of animal husbandry experience in the workforce, employee turnover, the language barrier that often exists between producers and workers, and the inherent risks associated with working closely with cattle, the dairy workforce in the Western US is composed of a population of individuals at considerable risk of injury.

Dairy producers are increasingly aware of the costs of impaired worker health on the costs of operation, as well as health problems contributing to the impermanence of the workforce on dairy operations. Many Colorado dairy producers have identified worker training as their most pressing need from university extension and outreach programs. Specifically, many producers have requested development and implementation of worker training programs that integrate technical skills and worker safety.

Current and Future ILM Worker Education Programs

Livestock worker training is one of the primary missions of the Integrated Livestock Management (ILM) Program. The livestock worker training tools currently offered by the ILM Program include generation and distribution of standard operating procedure guidelines for necropsy techniques, diagnostic sample collection for common diseases, dairy parlor personnel (milker) workshops and calving manage-

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Colorado State University and U.S. Department of Agriculture cooperating. Cooperative Extension programs are available to all without discrimination.

CSU-ILM Survey on Worker Safety: Will you help?

Dr. Noa Roman-Muniz is currently heading up a worker safety training study that will enable the ILM team to accurately assess and remedy design flaws in current safety training, as well as incorporate identification and avoidance of the most relevant injury hazards into worker education programs.

Dr. Roman-Muniz and others will soon be contacting Colorado dairy producers by email, telephone, and surface mail and asking for **voluntary participation** by the dairy owner and up to 6 workers per dairy. The survey process is purely by interview and absolute anonymity and confidentiality will be maintained for the dairy operation, participating producers, and participating workers. The interview process will take place on the dairy during appropriate break time(s) and will be brief, lasting approximately 10-15 minutes per worker or owner/manager. The questionnaires and interview scripts (how the interview is presented to the workers) will be made available by email or surface mail, should interested producers wish to evaluate the study prior to giving consent to conduct interviews on his or her dairy. If interested in participating, please call Dr. Frank Garry at (970) 491-0371.

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Important Dates:
Mark Your Calendar

June 1, 2003: Dairy Youth Extravaganza, Island Grove Park, Greeley, CO. Contact Keith Maxey, Weld County Extension Office, 970/356-4000 X4475.

June 23-27, 2003: American Dairy Science Association Meeting, Phoenix, AZ. Contact William Wailes, Animal Sciences Department CSU, 970/491-5390.

August 21-24, 2003: Colorado State Fair Dairy Show. Contact the CSF, (970) 491-1442.



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A Message From Your Extension Dairy Specialist.....

Mad-Cow Disease discovered in Canada. Canadian officials announced Tuesday the 20th of May that a cow in Alberta has a confirmed case of Mad-Cow Disease. The 8-year-old cow was slaughtered on January 31, 2003, because of suspected pneumonia. U.S. Agriculture Secretary Ann Veneman, after speaking with Canadian officials, immediately put up an import barrier to help prevent the disease from spreading into the United States. Unfortunately, this is not a great way to close the border with Canada, but may be the break the dairy industry needs to stop the import of producing dairy cattle into this country. Cow numbers have to come down and this will really help the U.S. dairy industry have better control of the national inventory. This will be great news to add to the much-anticipated decline of cow numbers seen in April.

USDA sets \$450 K cap for EQUIP. The USDA has announced it will set a cap of \$450,000 per contract for the Environmental Quality Incentives Program. USDA will provide \$587 million in cost-share funding and assistance this fiscal year. At the end, this will allow the agency a greater ability to ration the funds and help more dairy farmers. If you have any questions, please contact your NRCS office. At the time of your call, your NRCS office will conduct multiple reviews of the requests for the aid. The revised rules should be published later this week at <http://www.nrcs.usda.gov>. If your dairy farm is in need of updating and correct sizing of your waste management system, move on this quickly.

William R. Wailes, Colorado Extension Dairy Specialist

Commodity Price Quotes

By-Product Feeds	Price/Ton Spot Loads	Price/Ton Summer/OND 2003
ADM High Fat Pellet	\$155.00	\$155.00/\$155.00
Bakery Waste	\$104.00	NQ
Corn Gluten Feed	\$88.00	\$88.00/\$90.00
Corn Hominy	\$102.00	/\$105.00
Flaked Corn	\$114.00	/\$119.00
Whole Corn	\$99.00	/\$104.00
Whole Cottonseed	\$215.00	/\$165.00
Distillers Grains	\$115.00	\$110.0/\$110.00
Pork - Meat & Bone Meal	\$215.00	NQ
Tallow	\$0.19 /lb.	NQ
SBM - 48%	\$207.00	/\$185.00
Wheat Middlings	\$78.00	\$90.00/\$88.00
Soybean Hulls	\$85.00	\$85.00/\$85.00
Canola Meal	\$149.00	/\$142.00

These price quotes are delivery at Greeley, Co

Managing Heat Stress in Dairy Cows

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Kevin McSweeney, DVM,
Integrated Livestock Management
Colorado State University

Summer is approaching fast and it's that time of the year when producers must deal with heat stress in their herds. Heat stress not only decreases milk production, but also affects reproductive performance. Pregnancy rates can decrease as much as 30% during the summer months due to heat stress. Apparently a rise in uterine temperature affects the development of the early embryo. Often these embryos die within the first few days of the pregnancy. Therefore, producers must have management plan in place in order to optimize reproduction during summer months.

Factors That Contribute to Heat Stress

Heat stress occurs when the cow can no longer effectively maintain her body temperature due to excessive heat load. There are a number of factors that determine if a cow is going to experience heat stress. The obvious is environmental temperature. As temperature increases, the cow's body temperature will also increase. The cow will begin to sweat and pant as means to dissipate heat through evaporation. However, even during moderate temperatures (75-80° F), cows can become stressed. This is due to relative humidity. As the amount of moisture in the air increases, it becomes more and more difficult for the cow to dissipate heat through evaporation. Environmental physiologists have developed a temperature humidity index as a guide to measure heat stress in livestock, which combines the effects of both environmental temperature and humidity into one value (Figure 1).

Fig 1. Temperature Humidity Index (THI)¹ for dairy cows. Modified from Dr. Frank Wiersma (1990), Department of Agricultural Engineering, University of Arizona, Tucson.

DEG	RELATIVE HUMIDITY																						
	F	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
75																72	72	73	73	74	74	75	75
80								72	72	73	73	74	74	75	76	76	77	78	78	79	79	80	80
85			72	72	73	74	75	75	76	77	78	78	79	80	81	81	81	82	83	84	84	85	85
90	72	73	74	75	76	77	78	79	79	80	81	82	83	84	85	86	86	87	88	89	90	91	91
95	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	96
100	77	78	79	80	82	83	84	85	86	87	88	89	90	91	92	93	94	95	97	98	99	99	99
105	79	80	82	83	84	86	87	88	89	91	92	93	95	96	97								
110	81	83	84	86	87	89	90	91	93	94	96	97											
115	84	85	87	88	90	91	93	95	96	87													
120	88	88	89	91	93	94	96	98															

¹ THI=(Dry-Bulb Temp. C) + (0.36 dew point Temp. C) + 41.2

They have classified heat stress into three categories: Mild stress is 72-79° F, Medium stress is 80-89° F, and Severe stress is 90+° F. As can be seen in Figure 1, even in Colorado where relative humidity is low, cows can become stressed when environmental temperatures are greater than 80° F. Other factors that contribute to heat stress include both solar radiation and air movement. Clear sunny days with little air movement can greatly add to heat stress. Clearly, heat stress can be a problem in Colorado. Therefore, producers must be aware of the clinical signs of heat stress and how to minimize it.

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WDPA News: Checkoff Dollars Helps Producers Talk the Talk

Most dairy producers are plagued by the same tough questions, regardless of where they live. Questions can come from neighbors, teachers, community leaders, planning and zoning boards, city councils and local media, just to name a few. Western Dairyfarmers' Promotion Association is helping producers through a series of communication training seminars designed to enable dairy farmers to talk with community members on the importance of dairy and how producers are responsible stewards of their animals and the land. Topics covered include those often fraught with controversy such as rBST and antibiotic use, water usage, runoff and ground water contamination, odor, price supports and animal welfare. An example of the interchange on antibiotic residues

Tough question: How can I be sure antibiotics given to cows don't get into the milk I drink?

Good Answer: If the milk isn't perfect, it's pitched. Every load of milk from every dairy farm in the United States is tested for potentially harmful residues of animal health products. In the extremely rare instance that a load of milk fails the test, the entire load is discarded—never to reach the consumer.

Answer Strategy: Milk has a reputation of being a pure, healthy, nutritious product, and we want to do everything we can to reassure consumers that the milk they buy is safe. When you get any questions about animal health products in milk or the safety of milk coming off the farm, do two things: 1) make a strong, positive statement about the purity of milk, and 2) educate the public about how dairy products are tested.

The next seminar is scheduled in Grand Junction, June 11, with two more planned for 2003. If you would like more information about the seminars, please contact Stephanie Smith at 800-274-6455.

(Worker Safety, continued from page 1)

ment schools. Training modules in development for the 2004 include foot care and lameness diagnosis, sick cow evaluation, and heat detection / reproductive management.

In these training modules, we aim to provide a background of the relevant fundamental anatomic and physiologic features of the cow as well as a step-by-step, hands-on training process that covers the proper technical skills. The participation of the producer and herd veterinarian is critical to help ILM personnel to tailor these training sessions to fit the unique needs of each participating dairy. The sessions are conducted in both English and Spanish. Worker safety comprises a significant objective of these educational programs, with the ultimate goal being to train dairy workers to perform their assigned tasks in a more skillful, effective, efficient, and safe manner.

Emphasis on safe methods of performing the tasks we demonstrate and safe application of the skills that we teach would be of obvious benefit to both the worker (reduced injury and fewer work days lost to injury) as well as to the producer (reduced worker compensation and reduced worker turnover). Thus, as young, untrained workers gain entry-level employment in the Colorado dairy industry, a combined livestock production education and safety education initiative would enable them to 1) increase their value to prospective employers, 2) enter dairy employment with greater general knowledge of livestock health and production, possibly limiting employee turnover due to poor performance, and 3) perform high-risk tasks such as milking, moving cows and bulls, and drug administration with greater efficiency, skill, and personal safety, thereby reducing injury claims.

What are the current needs of the industry?

Worker safety training on Colorado dairies appears to vary tremendously in scope and formality. In order to develop the best strategy for incorporation of worker safety into existing and future worker training programs, ILM team members must first clarify the most critical needs for safety education. In light of the findings of previous dairy worker injury studies, safe milking and animal handling techniques would appear to be important components of a training program for entry-level dairy workers. Rather than construct a program on perceived needs, however, the ILM team would like to perform a survey on Colorado dairies to determine the following critical benchmarks:

- 1) the livestock experience of these workers,
- 2) the nature of training procedures currently in place,
- 3) the type of workplace injuries and illnesses commonly encountered, and
- 4) a critique from the workers and management of the strengths and deficiencies of current training methods.

Dr. Noa Roman-Muniz is currently heading up this worker safety training study as the focal point of her Master's project on adult education in the dairy workforce. She plans to conduct person-to-person interviews of producers and dairy workers during the summer and fall of this year. This study will enable the ILM team to accurately assess and remedy design flaws in current safety training, as well as incorporate identification and avoidance of the most relevant injury hazards into worker education programs. We hope that you will consider helping us conduct this survey during the summer and fall of this year. If you have questions about the study or wish to participate, please contact Dr Frank Garry, the ILM Coordinator, at (970) 491-0371 or via email at fgarry@colostate.edu.

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Clinical Signs of Heat Stress

1. Increased body temperature > 102.5°F (Normal is 101.5°F)
2. Increased respiration rates > 80 breaths per minute (Normal is 30 breaths per minute)
3. Decreased feed intake
4. Decreased milk production
5. Decreased activity

Producers detecting any of the above clinical signs should consider implementing the following management practices to reduce the effects of heat stress.

Management Strategies to Prevent Heat Stress

1. Provide cool clean water – As temperature increases water consumption will increase by 30 to 40%. Check water supply daily and clean waters on a regular basis to prevent bacterial growth. Avoid pond water as it poses a risk to cattle health during summer months due to increase bacterial growth.
2. Provide adequate shade – If possible, provide portable shade to prevent condensation and manure build-up.
3. Add fat to the ration to maintain adequate dry matter intake – Cows will consume less feed during periods of heat stress. Decreased dry matter intake will result in poor milk yield and reproduction. To maintain dry matter intake during the summer months, increase the proportion fat in the ration. However, fat should not exceed 7% of the total ration on a dry matter basis. Avoid using excessive amounts of vegetable oils.
4. Provide sprinklers and fans – Sprinkling cows with water is an excellent way to increase evaporation. However, it is critical that fans be in place. Sprinkling without fans will only increase humidity and confound the problem.

In Colorado cows will experience periods of mild to medium heat stress throughout the summer, which affects both milk yield and reproductive performance. Producers should implement the above strategies into their management to help reduce heat stress. Cows that are comfortable will be more productive.