

Colorado Dairy News

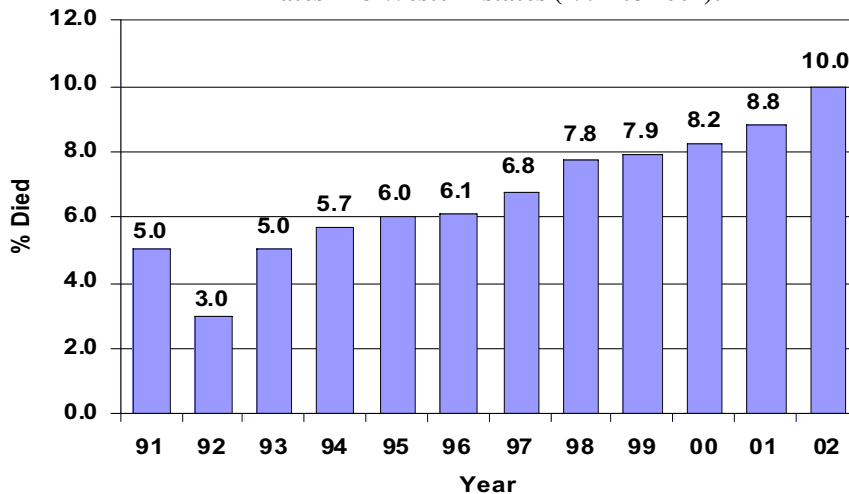
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Current Mortality Rates on U.S. Dairies

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Results from the USDA:APHIS:VS National Animal Health Monitoring System (NAHMS) Dairy 2002 survey reported that approximately 5% of dairy cows die, on-farm, across the country each year. This is a very high death rate compared with that of beef cows or feedlot animals, where annual death rates were estimated at 1 to 1.5%. In the NAHMS survey unknown reasons accounted for the largest percentage (20%) of producer reported dairy cow deaths, followed by calving difficulty problems (17%), mastitis (17%), and lameness or injury (14%).

Figure 1. DHI Provo recorded dairy cattle death rates in 8 Western states (1991 to 2002).



A liability of the NAHMS survey is that it reported data based on the recollection of the dairy producer over the preceding year. Evaluation of Dairy Herd Improvement Association (DHIA) records suggests death rates in the NAHMS studies are likely underestimated. DHIA death rates also rely on producer reporting; however, they are based on monthly herd removal tallies and thus are less susceptible to recall bias and likely provide a more accurate estimate of death loss. DHIA data from the West indicated that the death rate in 1998 was similar (7.8%) to that reported across the rest of the country (Figure 1). However, 2004 DHIA data delineated for 8 Western states indicated that a wide range of death rates by state exists and that Colorado (9.1%) has one of the highest (Figure 2, please see CDN insert). Furthermore, data from the West (Please continue on page 3, under Mortality)

Straw As An Alternative Forage Resource

Mike Hutjens
Extension Dairy Specialist
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Urbana

Could straw be a forage alternative that you could fit in your dairy rations? Straw can bring several “pluses” to the dairy feeding program.

1. Source of long fiber to develop a forage mat in the rumen.
2. Low energy forage source to dilute down energy rich forage and starch (such as corn silage).
3. Low protein forage containing 25 percent soluble and 4 percent total protein.
4. Unique mineral profile containing 1.5 percent potassium, 0.30 percent calcium, and 0.10 percent phosphorous (wheat straw, NRC 2001).
5. “Clean” forage usually with no mold or weeds.

However, straw as a forage is not without drawbacks. Some of the negatives are:

1. High in fiber that can limit dry matter intake. Wheat straw contains 73 percent NDF, 50 percent ADF, and 9 percent lignin (NRC 2001).
2. Energy is low (47 percent TDN or 0.37 Mcal of net energy-lactation).
3. Slow rate of NDF digestibility resulting in a high rumen fill factor.
4. Lack of palatability leading to sorting.

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Important Dates:
Mark Your Calendar

January 24, 2006: Colorado Dairy Nutrition Conference - Greeley, CO.
Contact: Bill Wailes:

January 25, & 26, 2006: Colorado Farm Show – Greeley, CO
Contact: kmaxey@co.seld.co.us

March 15-17, 2006: High Plains Dairy Conference - Albuquerque, New Mexico.
Information: www.highplainsdairy.org or call (520) 626-9382.

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

Hopefully, you will be attending the 17th Annual Colorado Dairy Nutrition Conference and enjoying the great line-up of speakers. If you were unable to attend, try contacting Nancy Weiss at CSU animal science department for a copy of the proceedings. The program line up includes:

Corn Silage by Bill Mahanna; Bunker Density/Round-up Ready Alfalfa by Jeff Hinen; Feed Analysis by Chuck Schwab; Cow Comfort/Colorado Heat Audit by Gerald Poppy; Predictable Gender Selection by Roger Cady; Taking Advantage of the Most Important Group on your Dairy Farm Management Team by John Wenz; Negative and Positive Impacts of High Energy Consumption on Reproduction in Lactating Dairy Cows by Milo Wiltbank.

Another wonderful conference that is worth your management team attending is the **High Plains Dairy Conference** (March 15 – 17, 2006) in Albuquerque, NM. This conference is an offshoot of the Western Dairy Management Conference which will be scheduled during the alternating year of the WDMC. States involved are AZ, CO, KS, NM, and TX. The location of the conference is Hotel Albuquerque at Old Town 800 Rio Grande Blvd. NW Albuquerque, NM 87104 (505)843-6300. Further information is available at www.highplainsdairy.org or by calling (520)626-9382 or (970)491-5390. The seminar topics include Facilities, Heat Stress, Milking Center Efficiency, Mastitis Control/Quality Milk, Managing Dry Lots, Rumen Protein Production, Bunker Density, Round-up Ready Alfalfa, Feedlot Feeding and Milling, Maximizing Bull Calf Value, Systematic Breeding Programs, Improve Fertility in Lactating Dairy Cows, Cow Behavior implications for Housing and Management, Salmonella and Hemorrhagic Bowel Syndrome, Water Resources - Availabilities, Nutrition in Udder Health and Water Quantity and Quality Issues.

Have a Happy and Prosperous New Year!



William R. Wailes,
Colorado Extension Dairy Specialist



**Integrated
Livestock
Management**

Colorado Dairy News

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people interested in the health and
welfare of the Colorado dairy
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Commodity Price Quotes

By-Product Feeds	Price/Ton Spot Market	Price/Ton Future Months
Bakery Waste	\$85.00	NQ
Hominy	\$85.00	\$92.00
Dried Distillers Grains	\$117.00	\$114
Corn Gluten Feed	\$100.00	\$100.00 (Jan. March)
Wheat Midds	\$90.00	NQ
Canola	\$160.00	\$160.00 (March)
Whole Cotton Seed	\$154.00	\$164.00 (Jan. March)
Soy Bean Meal 48%	\$215.00	NQ
Soy Bean Hulls	\$115.00	NQ

These price quotes are for delivery at Greeley, Colorado.

(Mortality, continue from page 1)

showed a profound increase in death rates from 5% in 1991 to 10% in 2002 (Figure 1). During this same time period the culling rate remained fairly steady at approximately 29%. Thus, while the risk factors for death and culling may be similar, the NAHMS and DHIA data indicate that the risk of death is increasing. However, this data provides no indication as to the causes of death which could direct management intervention to reduce herd losses. Furthermore, there is no indication whether deaths occurred naturally or via elected euthanasia, or if they were unexpected or occurred during treatment for a specific illness.

Although producers generally record their assessment of cause of death in on-farm information systems, there are numerous reasons why these data are unreliable or not useful for analyzing the causes of mortality or directing intervention strategies. First, on-farm assessments of disease occurrence and cause of death may not be accurate. Second, most record systems on dairies are focused on reproductive and milk production performance. Health events are either not monitored, are poorly defined, or are not recorded at all. Third, most of the conditions to which deaths are attributed are similar to the reasons listed for an animal being sold. Information is not recorded that allows interpretation of why the outcomes of disease are different (sold vs. died). Though herd removal may be recorded, typically no reason is provided or it contains no useful information.

The term 'herd removal' is used to describe the withdrawal of once productive animals from the herd. Mortalities are a subset of herd removals. Besides being lost due to death, cows may be culled for slaughter or sold for dairy production on another farm. The NAHMS Dairy 2002 survey showed that approximately 25.5% of dairy cows left herds permanently during 2001, and that approximately 6% of these cows were sold to other dairies, while 94% were culled (i.e. sold and not returned to milk production, sent for slaughter). The reasons cows were culled included mastitis and udder problems (27% of culled cows), lameness or injury (16%), other disease (6%), reproductive failure (27%), and poor milk production not related to these other problems (19%), while other miscellaneous reasons accounted for about 5% of culling. Therefore, on average, the overwhelming majority of dairy cows leaving farms are not fit for sale as dairy production animals, and approximately 50% of these cows are leaving because of disease or injury problems, rather than being selectively removed because of suboptimal productivity. The DHIA data from the West support this idea, reporting a stable culling rate but a profound increase in death rate.

The reasons for death have many similar descriptors to the reasons for herd removal. If the ultimate goal is to decipher the causes of death and to decrease mortality rates through management alternatives, specific diagnoses must be obtained.

Previous studies and our preliminary data suggest that there is no single cause of the very high death rates in dairy cows. It does not seem plausible that there is some unseen 'cow killing disease' that explains these death rates across large numbers of farms. Rather, it appears that subsequent culling or death as likely outcomes. The reasons for removal of cows for slaughter are closely related to the causes of death, and most of these are representative of health issues that can be improved.

There are some subclinical metabolic or physiologic problems faced by many cows in modern dairy systems that could predispose to poor outcomes in the face of disease challenges. These include subclinical hypocalcemia, subacute ruminal acidosis, negative energy balance and metabolic disease in early lactation, trace mineral and vitamin deficiency, poor immune responsiveness in the postpartum period, and feed

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5. May be expensive to buy. (over \$80 a ton when corn is \$70 a ton).
6. May be unavailable in your area.

Based on these characteristics, straw could be considered in several different feeding scenarios.

Situation One: With continuous emphasis on forage quality and low fiber corn silage varieties, the level NDF can be limiting. Brown mid-rib corn and over 180 RFV forages could benefit from a small amount of straw. These forages could almost be "too good" in building the ration. One half to one pound of straw can go a long way in these rations.

Situation Two: Your current forages do not provide an adequate amount of long fiber to maintain rumen function due to chopping too short, bagging reducing particle size, or TMR mixers over mixing and cutting forage length. Adding straw can improve rumen pH and fermentation.

Situation Three: Intensive grazing systems can result in forage containing over 28 percent protein (80 percent degradable) and less than 35 percent NDF. This lush forage rapidly clears the rumen resulting in rumen pH below 5.5 using rumenocentesis (rumen taps). New Zealand dairy managers reported feed one kilogram (two pounds) of straw improved manure score and increase milk yield and components.

Situation Four: Close up dry rations should contain less than 1.2 percent while maintaining rumen fill and long forage. If only five pounds of legume-grass forage dry matter can be fed control potassium level, straw can provide some of the long fiber to avoid displaced abomasums and acidosis at calving when feed intake drops. Wisconsin workers suggest that one pound of straw can function similarly to three pound of legume-grass hay. Straw can meet these needs. Close-up cows fed 6 to 10 pounds of straw that has been processed

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quality problems that induce gastrointestinal disturbances or specific toxicoses.

Studies have identified clinically recognizable health problems that increase the risk of death or culling in dairy cows, such as calving difficulty, ketosis/fatty liver disease, coliform mastitis, milk fever, and paratuberculosis. The severity of these diseases in individual animals is highly influential on the outcome. Since most dairy health programs do not monitor or analyze the severity or impact of these diseases, dairies lack the tools needed to associate occurrence with final outcome and may fail to manage the problems appropriately. Differences in outcomes for individual cows may result from failure to apply readily available evaluation and treatment methods appropriate to the specific disease and severity of disease.

An overview of the health challenges faced by dairy cows needs to recognize that changes in the modern dairy industry could lead to systematic problems with animal care. Specifically, dairies have increased in size and focused on business profitability with great emphasis on low cost. The labor force on most dairies is primarily composed of low wage workers without extensive, preexisting dairy cow management skills. The ability of dairy personnel to adequately identify disease in individual animals and respond with prompt individual animal attention is limited by the extent of their experience and training. The overwhelming majority of sick cows on dairies are identified, diagnosed, and treated by farm workers, rather than veterinarians. Poor outcomes could be an issue of poor clinical disease management in addition to any preexisting problem with cow physiology.

Necropsy examination of dead animals to assess and monitor cause of death is rarely performed on dairies. This is in sharp contrast to other intensive livestock management systems, including poultry, swine, and feedlot enterprises, where necropsy monitoring is routine. Most dairy veterinarians focus considerable effort on dairy reproduction, but little time on mortality evaluation. This presents a very significant liability to the dairy industry because efforts to effectively decrease mortality losses are hampered by a lack of monitoring and information that provide accurate assessment of the problem. Dairy workers could be trained to more effectively monitor death losses, and to perform on-farm necropsy examinations in consultation with veterinarians when the veterinarian cannot be present to perform the examination on a freshly dead carcass. Our group has produced an on-line training program for performing field necropsies on our website at <http://www.cvmb.colostate.edu/ilm/outreach/necropsy/notes/INDEX.HTML>

Because of the complex nature of dairy management systems, it is likely that a variety of causes are responsible for high mortality rates, with different rates of occurrence on different operations. To adequately address such a complex problem requires more accurate information about current losses, followed by management alterations that address the underlying problems. This will require changing the nature of information used in dairy management systems. An example of mastitis prevalence can illustrate this point. The specific infectious organism that causes a clinical mastitis episode can have a dramatic impact on outcome, and appropriate preventative or therapeutic measures need to be tailored to the specific cause, e.g. gram negative vs. gram positive, environmental vs. contagious, *Escherichia coli* vs. *Staphylococcus aureus*. Assessments and record systems that track "mastitis" without identifying other specific details do not provide sufficient information to promote effective interventions. Similarly, monitoring death losses with generic terms such as "lameness" or "mastitis" and performing this monitoring on the basis of presumption will not allow correction of management problems that may underlie the death.

(Straw, continued from page 3)

to particles less than two inches can fit these rations.

In summary, feeding straw must be carefully considered and strategically placed. Dairy managers and nutritionist must make the following decisions.

1. The amount of straw must limited due to its negatives characteristics. Typically, less than two pounds of straw are optimal for lactating rations.

2. Processing the straw will be needed (1 to 2 inches in length) to avoid feed sorting. If the cows do not eat the straw and it is needed to balance the ration, more problems could be created than solved.

3. The type of straw is not clear. A top Pennsylvania dairy manager has tried several types, but reports wheat straw worked the best for their farm because of its hollow stem (floats in the rumen) and palatability). Little research is published on this topic.

4. Start by adding one half pound of straw to observe lactating cow response. Monitor for the following good responses:

- a. Manure scores improve (going from loose to firmer manure).
- b. Milk yield or components increase or return to normal.
- c. Dry matter intake remains the same or actually increases.
- d. More cud-chewing activity is observed.

If any of these "cow characteristics" go the wrong way (dry matter intake drops for example), added straw is a liability.

5. Several dairy field nutritionists routinely add 0.5 to 1.5 pounds of straw to all lactating and dry dairy cow rations. They consider straw as an insurance policy to maintain minimal rumen function and health.

*Thanks to the editors of
Hay and Forage Grower for
permission to share this article.*



Colorado State University
Knowledge to Go Places

*****COME HEAR THE LATEST*****

Livestock and Air Quality

February 9, 2006

CSU - ARDEC -- Fort Collins

9:00 am -- 3:00 pm

*****Lunch included --RSVP by Feb. 1 to (970) 378-0500*****

Program Coordinated by:

**Colorado Livestock Association
&
Colorado State University**

CSU-ARDEC is located north of Fort Collins on I-25. Exit at Mountain Vista (Budweiser Plant). Go north 3 miles on the east Frontage Road. ARDEC will be on your right. Turn right on the County Road and go approx. 1/2 mile. Building with classroom is located on the north side of county road.

AGENDA

What's the Problem?

- 9:00-9:45 From Ammonia to PM_{2.5}
Brent Auvermann, Texas A&M University
- 9:45-10:30 Effects of Atmospheric Nitrogen Deposition on Mountain Ecosystems
Don Campbell, U.S. Geological Survey

10:30-10:45 *Break*

Regulatory Update

- 10:45-11:15 State-level Update: Changes to Amendment 14?
Phyllis Woodford, Colorado Dept. of Public Health and Environment
- 11:15-11:30 National Monitoring Study
John Larson, EPA Region VIII

11:30-12:30 *Lunch (Please RSVP so you don't miss out!)*

Research Update

- 12:30-1:00 Influence of Algae Treatment on Lagoon Odors
Steve Reynolds, CSU Environmental Health
- 1:00-1:30 Measuring Dairy Air Emissions
Don Johnson, CSU Animal Sciences
- 1:30-2:00 Continuous Measurement of Airborne Particles and Gases
Jeff Collett, CSU Atmospheric Sciences

2:00-2:15 *Break*

Dialogue

- 2:15-2:45 BMPs to Reduce N Emissions: Nutrition, Engineering, and Agronomy
Jessica Davis, CSU Soil & Crop Sciences
- 2:45-3:00 Identification of Research and Extension Needs

Current Mortality Rates on U.S. Dairies

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Figure 2. DHI Provo recorded dairy cattle death rates by state in 2004

