

Colorado Dairy News

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Practical Monitoring of Clinical Mastitis Treatment Programs

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How many cows with clinical mastitis in your herd need to be re-treated? How many clinical mastitis episodes are caused by coliforms (Gram negative bacteria)? How many cows have multiple mastitis episodes in the same quarter? On average how many days do they spend in sick pen? How many mastitis episodes result in a dried-off quarter? If you don't know the answers to these questions, you don't really know if your mastitis treatment program is effective.

In the dairy industry today it has become increasingly important that we "ask the cows" how our management is doing by monitoring herd health and production data. Mastitis treatment efficacy is a classic example. In many instances whatever was in the last intramammary tube that was infused gets credit for the "cure". Perhaps you have a treatment protocol in place, but are relying on the herds person's or sickpen crew member's perception of "how well" a particular treatment is working. This information can be misleading. Often the more recent, more severe, "treatment failures" remain prominent in their mind and they have no clear picture of treatment efficacy. Developing rational treatment protocols, adhering to them and setting up a method for accurate and complete on farm data capture and recording eliminates these biases. Having these elements in place greatly increases your ability to more objectively monitor the success of clinical mastitis treatment programs and make informed, economically sound decisions.

The need for treatment of clinical mastitis is to some degree an indication of failure of our Udder Health Management Program (UHMP) to minimize exposure to mastitis pathogens and optimize resistance of the cows. A complete UHMP should include: routine bulk tank milk culturing and bulk tank SCC monitoring, routine mastitis pathogen profiling or individual clinical mastitis milk culturing, maintaining cow and bedding cleanliness, excellent milking parlor procedures and complete data recording. Such a plan allows for development of rational, standardized treatment protocols to deal with clinical mastitis when it does occur and monitor the success of the program. Examples used are from Dairy COMP 305™ (Valley Agricultural Software, Tulare, CA), however, the concepts apply broadly.

Data Capture and Recording

Many times clinical mastitis records contain insufficient data or the data is there but requires hours of tedious manipulation and clean-up to evaluate treatment efficacy. (Please continue on page 3, under Monitoring)

Post Milking Teat Sanitation:

Leo Timms
Iowa State University

The discussion of whether "To Dip or Not to Dip" becomes more heated when the weather gets cold. The influx of new products and the suggestion of different strategies have created uncertainties about the best practices. Due to the many variables present in real life situations, no single answer concerning post milking sanitation is adequate for all circumstances. I would like to make the following suggestions.

Use the same good germicide and skin conditioning dip you've been using throughout the year. The effectiveness of the germicide at your dairy is very important and not all products contain the same germicide. Most days, it's not cold enough to freeze the drop on the teat end. When there are cold wind chills and/or direct exposure post milking, dab or wick the drop off with a cloth towel. Do not dry the whole teat as this action removes the dip /skin conditioners from teat. Do not add extra conditioners to the dip because the formulation will become altered.

What about barrier dips? I do not recommend barrier dips in very cold weather and direct wind chill exposure (Please continue on pg 4, under Teat)

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Important Dates:

Mark Your Calendar

March 25, 2004: Colorado Nutrition Roundtable - 1 pm at the Ramada Inn 3836 East Mulberry Street, Fort Collins, CO (Highway 14 & I 25) Registration required. Contact Nancy Weiss at (970) 491-7604.

April 1-2, 2004: Personnel Management Seminar for Agricultural Professionals. ARDEC Facility 4482 East Co. Rd. #56 Fort Collins, CO. Contact Dr. Craig Peel or Patricia Altenburg at (970) 491-1610.

May 11, 2004: John's Meeting for Colorado Dairy Producers and Veterinarians. University Holiday Inn in Fort Collins, CO. Contact William Wailes @ (970) 491-5390.



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

The Colorado Dairy Industry Facts for 2003 are as follows:

1. There are 162 dairy farms in Colorado
2. Estimated employee payroll and benefits for Colorado is \$30.9 million
3. Colorado is the 16th largest dairy state in the U.S.
4. Colorado is the 3rd in production per cow in the U.S. – 21,770 lbs/cow
5. Colorado ranks 23rd in the U.S. in number of dairy cows – 100,000
6. Milk produced per capita in Colorado is 428 lbs
7. Milk equivalent consumed in the U.S. per capita is 568 lbs.
8. Milk produced per capita in California is 999 lbs.
9. Weld County is the 22nd largest dairy county in the U.S.

Milk Market Situation:

On Saint Patrick's Day cheddar block cheese price reached an all-time high of \$1.975 per lb. surpassing the previous record set in August 1999 by 25 cents. Needless to say, the trading pits were extremely active and traded over 50,000 contracts. Were you one of those contracting?

Please continue to watch the trading of milk contracts. The puts are fairly high in the close months which is interpreted as a risky price, but the benefits can be impressive. Don't wait too long before contracting.

With total cow numbers below 9 million for the first time in the history of the industry, heifer replacements will remain high and hopefully milk price will also.

Best wishes,

William R. Wailes, Colorado Extension Dairy Specialist

Commodity Price Quotes

By-Product Feeds	Price/Ton Spot Loads	Summer	Price/Ton OND¹/Clock²
Hominy	\$120.00	\$118.00	\$118.00 ¹
Corn Gluten Feed	\$117.00	\$112.00	\$115.00 ²
Bakery	\$112.00	NQ	N ¹
WCS	\$212.00	\$217.00	\$185.00 ¹
Blood Meal	\$660.00	NQ	N ¹
Tallow	\$0.21/lb	NQ	N ¹
CSM	\$235.00	\$240.00	N ¹
SBM - 48%	\$300.00	\$315.00	\$242 ²
CG	\$420.00	NQ	NQ
DDG	\$148.00	\$145.00	NQ
Flakes	\$133.00	\$136.00	NQ
Corn	\$118.00	\$121.00	NQ
Canola	\$208.00	\$210.00	\$175.00 ²
Pork - Meat & Bone Meal	\$335.0	NQ	NQ
Wheat Middlings	\$105.00	\$100.00	\$110.00 Oct- March

These price quotes are delivery at Greeley, Co

(Monitoring, continued from page 1)

The first and most important step in practical monitoring of your clinical mastitis treatment program is to determine what data need to be collected. Data collection is guided by the questions you want to ask, examples of which are listed in Table One.

Table One: Questions for which the data set should provide answers.

1. What is the monthly incidence of clinical mastitis?
2. What is the cause of clinical mastitis?
3. What intramammary (IMM) antibiotics are used to treat clinical mastitis?
4. How many clinical mastitis episodes require re-treatment?
5. How many cows have more than one mastitis episode in the current lactation?
6. How many cows have recurrent clinical mastitis episodes (multiple clinical mastitis episodes in the same quarter > 14 days apart)?
7. How long are cows with clinical mastitis in sick pen?
8. How many cows have a quarter dried, die or are culled due to clinical mastitis?

To answer these questions it is very important to develop a data capture method that is easy and convenient for the sick pen crew or herdsman to use. Sick cow treatment cards allow for easy recording of daily treatment details such as dosage, route and duration. Subsequently, data pertinent to the monitoring program can be transferred to the herd management software or written herd summary worksheet.

Data entry protocols should ensure that data is recorded accurately, consistently and reliably. Consider the following suggestions regarding data collection protocols.

As a general rule anything that happens to all animals at set times does not need to be recorded in herd management software. Examples include routine vaccinations and giving magnets. Furthermore, unless you are interested in monitoring outcomes of such treatments, supportive care (fluids, anti-inflammatories, etc) need not be recorded in events remarks. They should be available on individual cow treatment cards if needed.

Clinical mastitis health event remarks should include: Quarter(s), antibiotic treatment and culture result. Those using DC305 know that the remark is limited to only 8 characters. This is done intentionally so events can be more easily sorted by remark. The duration and frequency of antibiotic treatment need not be entered in the remark if a defined protocol is being followed. Example: MAST LF AM GN allows for easy sorting of cows with clinical mastitis by treatment (AM=amoxicillin) and or culture result (GN=Gram negative).

Avoid redundancy of health event data. A cow should only have ONE MAST event per clinical mastitis episode. Many producers using herd management software enter multiple health events for a single clinical episode. For example a cow is identified with clinical mastitis and a MAST event is entered in her record. She fails to cure following initial treatment, a new treatment is started and she receives another MAST event. Thus one cow with a single clinical mastitis episode would have 2 MAST events recorded resulting in inaccurate monthly tallies and health event lists provided by the software. If treatment is changed or the cow flares up in

(Please continue on page 4, under Monitoring)

A Word from WDPA: Your checkoff dollars at work

Dairy helps kids fight fat: A study presented at the 2004 American Heart Association Annual Meeting found that youngsters who skip milk and other dairy products to avoid calories may be increasing their risk of becoming overweight. Lynn Moore, associate professor of medicine at Boston University School of Medicine, found that just two servings of dairy foods a day are linked to a substantial reduction in adolescent fatness. This finding comes on the heels of several recent reports showing a link between adequate dairy intake and weight loss. "Animal studies suggest that calcium may play a role in fat metabolism," Moore said. "A diet low in calcium may increase the levels of certain hormones that in turn promote the storage of energy in fat cells. Low calcium intake may lead not only to increases in weight and blood pressure, but also to a reduction in bone density in the growing child." The American Heart Association recommends a diet moderate in dietary fat with high intakes of fruits, vegetables and dairy products.

Colorado School Children Are Drinking More Milk: Colorado children are chugging more milk due to the introduction of contemporary 10-ounce plastic milk bottles in school cafeterias. Jefferson County secondary students drank 29 percent more milk, the equivalent of 34,700 glasses, than the previous year. The kids can choose between the new 10-ounce containers or traditional 8-ounce cartons. Students at Denver's Hill Middle School gulped down 19 percent more milk during the first two weeks the 10-ounce bottles were available. Aurora's South Middle School replaced 8-ounce paper cartons with milk in 10-ounce plastic bottles. Most recently, Clear Creek County Schools switched to 10-ounce plastic bottles on all middle and high schools. Western Dairy Council is working with other school districts to place plastic containers in all Colorado schools.

(Monitoring, continued from page 3)

the same quarter within 14 days the cow should receive a different event that can easily be tallied as an indication of treatment failure (ex. A separate REMAST event with a remark that includes quarter and treatment and culture result). Another problem arises if a cow receives a MAST event for every day she is treated in sick pen. This information should be available on the sick cow treatment cards.

To ensure that data collection can be evaluated in order to answer your questions, be sure to include the following information in your data set.

1. *Hospital pen days*. This parameter is often the best way to evaluate days to clinical cure which is not typically recorded on farm. It is important to realize this parameter includes antibiotic withdrawal time and is typically an overestimation of days to clinical cure. This can be calculated manually from pen MOVE events on either side of a MAST event or using a separate hospital pen (HOSP) event.

2. *Cow with a dry quarter*. For all cows in which it is elected to kill a quarter an event (3TEAT) should be recorded with a remark indicating the quarter that was killed (LR), the method (NL-Nolvasan, BD-Betadine, AMP-Amputate) and the culture result. Recording this event will allow easy tallying of cows requiring quarter killing monthly and annually. If it is elected to kill a quarter when a cow presents for a new mastitis episode (usually due to repeated episodes) a MAST event should be recorded with a remark indicating quarter, method and culture result (Ex. MAST RH NL GN). If it is elected to kill a quarter after initial treatment has failed a REMAST event should be recorded the same way (Ex. REMAST RH NL GN). In both these situations a 3TEAT event should be recorded as well.

3. *Death and culling due to mastitis*. When death (DIED) and culling (SOLD) events are recorded it is important to include the reason in the remark in such a way that they can easily be sorted. Include the event code in the SOLD or DIED remark (Ex. SOLD 38 NCOB, where 38 is the event code for mastitis and NCOB is Northern Colorado Beef).

4. *Individual cow somatic cell count (SCC)* if available. Many larger herds have limited (quarterly) or no individual cow SCC data. Evaluating SCC before and after a clinical mastitis episode can be used to evaluate resolution of intramammary infection.

Data Evaluation

Once excellent data capture and recording has been established, it is possible to evaluate the data in order to monitor the effectiveness of clinical mastitis treatment programs. Data are typically evaluated monthly and the results recorded to allow for longitudinal evaluation (changes with time). Many herd management software programs will provide monthly and annual tallies of some of the parameters of interest. Efficiency of reporting is greatly enhanced by having many parameters calculated automatically; however, it is often necessary to download lists of data to a file that can be opened into a spreadsheet. This allows for compilation of data, sorting and calculations.

Establishing a herd baseline for the parameters to be monitored is critical to the evaluation of the impact of clinical mastitis treatment protocols. Furthermore, realistic goals should be established based on the economic constraints of obtaining those goals. If you or your veterinarian would like more information or help establishing practical clinical mastitis treatment monitoring email Dr. John Wenz at jrwenz@colostate.edu.

(Teat, continued from page 1)

situations post milking because of the long time (up to 20 or more minutes) to dry; thus, increasing risks for teat end problems.

What about the winter formulation dips, high emollients dips and/or powder dips? They are designed to use only during cold weather and in high-risk situations where teats will freeze or dehydrate quickly. Although they may cost 2-3 times that of your regular dip, the potential returns may support the increased initial investment. High emollient dips contain more than 50% skin conditioners. They minimize initial freezing risk post milking due to slow evaporation and they have shown some benefit in controlled studies. The dip should contain a proven germicide because the teats may stay wetter and oily longer. Powder based dips keep teats dry because there is no liquid. New formulations have germicide and skin conditioners.

What about salves? Salves result in greasy hands, greasy teats, and greasy equipment. This sticky mess can trap ongoing infections and attract dirt that will adhere to the teat. Research shows minimal or no effect (some detrimental) when compared to more fluid salves. If you decide to use, use sparingly and only on the teat end.

What about quitting dipping and doing nothing else? Please don't! Teats are still wet after milking, teat skin conditioners are milked off and the teats are at an increased risk of dehydration and cracking.

It's a sure thing that teat end problems will occur in the cold or changing weather. Develop the protocol and use the product that best suits your situation while continuing management strategies that minimize direct wind exposure post milking, keep dry stalls clean to prevent chilling and organism growth, and follow proper milking procedures that minimize other teat stressors.