



Calf Care Workers Training Planned



A workshop on Calf Care for dairy workers will be held June 9, 2005 at two locations in eastern Wisconsin. Thursday morning from 10 am to 12 noon dairy workers can attend Hanke Farms Inc. on Willow Road, Plymouth and in the afternoon from 1:30 pm to 3:30 pm at Neighborhood Dairy on Van Asten Road east of Freedom. Julia Reyes, calf manager from Hanke Farms, will translate these programs into Spanish. Bilingual calf workers are encouraged to attend along with other calf raising professionals.

Dairy workers will receive training from Pat Hoffman, UW-Extension Dairy Herd Management Specialist. Hoffman will discuss modern calf raising techniques and current research studies that can be applied in calf rearing. Following the presentation local veterinarians Chris Booth in Plymouth and Jack Hansen

in Freedom will lead demonstrations and hands-on activities including:

1. Colostrum Management
2. Esophageal Tube Feeding
3. Ear Tagging
4. Naval dipping
5. Ear Punching for BVD testing
6. Tail Docking
7. Dehorning
8. Sub Q and IV re-hydration techniques
9. Identifying Sick Calves

There is no fee to attend these sessions, but attendance will be limited to 30 per session to give participants an opportunity to participate in the demonstrations and hands on activities.

For more information or pre-register for the Plymouth location contact Tina Kohlman at 920-467-5740, tina.kohlman@ces.uwex.edu, and for the Freedom site contact Zen Miller at 920-832-5119, zen.miller@ces.uwex.edu.

Scissor Cutting Project Cancelled

Due to the significant winterkill suffered in the alfalfa crop this year, UW-Extension with input from local agronomy professionals has elected to cancel the scissor cutting project in Kewaunee County this year and focus efforts on education related to use of emergency forage at a Forage Update scheduled for June 21, 2005.

Producers with remaining alfalfa stands are encouraged to use the Predictive Equations for Alfalfa Quality (PEAQ) method to predict the forage quality of standing alfalfa. It was developed by Agronomists at the University of Wisconsin - Madison under the direction of Dr. Ken Albrecht. The two equations predict ADF and NDF when the height of the tallest stem is measured and the maturity stage of the most advanced plant is determined. The equations have been validated not only in Wisconsin but also in numerous other environments from California to New York. Be-

cause regression equations are difficult and somewhat time consuming to deal with in a production field situation, tables have been developed using computer spreadsheet programs that help make for rapid in-field estimates of NDF or Relative Feed Value (RFV). Additionally, several seed companies have developed "PEAQ Sticks" that can easily be used to determine plant height and forage quality.

Recently, the original "5 maturity stage" system used with PEAQ has been simplified to a "3 maturity stage" system without a loss of precision. Many state and county extension staff are using PEAQ to predict the optimum harvest time for alfalfa. This has proved especially useful for first-cutting. For more information on using PEAQ visit the following website: <http://www.uwex.edu/ces/crops/peaqdir.htm> or contact the Kewaunee County UW-Extension office at 920-388-7141.

Training Increases Parlor Throughput

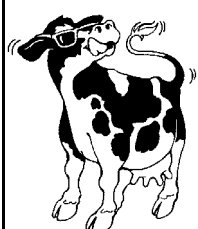
Producers often try to increase parlor throughput by reducing pre-milking procedures. Our research shows us that the combination of complete milking procedures, frequent milking technician training, and use of written milking protocols can improve parlor throughput and reduce cases of clinical mastitis when compared to herds with incomplete routines, no or limited training, and no written milking protocols.

Data obtained from Wisconsin freestall operations enrolled in the Milk Money program (n = 101) indicate that the largest influences on the number of cows milked per hour per operator (cows/hr/operator) are training frequency and the presence of a written milking routine (Table).

According to these herds, frequent training of milking technicians resulted in the fastest milking speeds

and the lowest monthly rate of clinical mastitis. The use of a complete milking routine (defined as a routine that included forestripping, predipping, drying before unit attachment and post-dipping) also resulted in faster parlor performance.

The combination of a complete milking routine and frequent training resulted in the most efficient parlor throughput. Cows were milked at a rate of 52 cows/hr/operator when a complete milking routine and frequent training were used. In contrast, only 38 and 35 cows/hr/operator were achieved for herds that used an incomplete milking routine and frequent training, or incomplete routine without training, respectively. This data reinforces the importance of using a complete milking routine and taking the time to train milkers about the importance of that routine.



Agriculture is Wisconsin's largest industry at an estimated \$51.5 billion. Within it, dairying is the largest segment. In fact, the dairy industry's impact represents \$20.6 billion in Wisconsin's economy – larger than both manufacturing and tourism.

America's DAIRYLAND

Don't Miss Breakfast on the Farm June 12



The Kewaunee County Breakfast on the Farm will be held on Sunday, June 12 from 9 am to 1 pm at Papham Dairy Farm, Inc. located at N1685 Woodside Road south of Kewaunee. Papham Dairy Farm is owned and operated by Greg and Tammy Papham.

The all-you-can-eat dairy brunch menu includes a ham & cheese omelets, fresh rolls & butter, cheese samples, strawberry sundaes, bagels & cream cheese, yogurt samples, cottage cheese, deep-fried cheese curds, mozzarella sticks and milk. Entertainment

throughout the day will include performances by the Luxemburg-Casco Community Band and child entertainer Randy Peterson. In addition, horse drawn-wagon rides, toy tractor races, petting zoo and free pictures for kids will be available.

Admission is \$5 for adults, \$3 for children ages 6-12, and kids age 5 and under are free. The breakfast on the farm is sponsored by Kewaunee County Dairy Promotion Committee, Inc.

Directions to Papham Dairy Farm, Inc: From Kewaunee, take Highway 42 south 4 miles, turn west and go 1 mile on Old Settlers Road. The farm is located at the intersection of Old Settlers and Woodside Road.

4 State Dairy Conference Planned



Dairy agribusiness professionals from Wisconsin, Illinois, Iowa and Minnesota are invited to attend the Four-State Dairy Nutrition and Management Conference June 15 and 16 at the Grand River Center in Dubuque, Iowa. This seminar, sponsored by Extension services in the four states, with support from many agricultural businesses, will offer current information on a variety of issues related to dairy cattle nutrition and management.

The conference will begin with a technical symposium on the morning of June 15. This will cover topics such as trace minerals, reproduction, and lameness prevention. Speakers for this pre-conference symposium include university and industry experts. Dr. Dan

Weary, a featured speaker from the University of British Columbia, will present "The art and science of improving cow comfort" during the afternoon session.

Thursday's program features a plenary session on silage management and feed ingredient variation. Small group sessions will allow participants to choose from several offerings.

The registration fee is \$150 per person. This fee covers meals, breaks and proceedings. For a copy of the program brochure and registration and lodging information, contact the Kewaunee County UW-Extension Office at 920-388-7141 or download the brochure at <http://www.wisc.edu/dysci/uwex/brochures/brochures/20054StateDairyNutritionManagement-Brochure.pdf>

Forage Management Update on June 21

The Door and Kewaunee County Extension Offices would like to invite you to attend an educational day dealing with this challenging forage year. This year's Forage Management Update, scheduled at the Rio Creek Feed Mill on Tues., June 21 from 10:30 am to 2 pm promises to be a "can't miss" event. The significant winterkill in alfalfa this season has forced producers to change crop plans and management strategies related to forage production. Please join us as we discuss agronomic issues related to forage production this year in Door and Kewaunee Counties. Lunch and refreshments will be available.

There is no charge to attend this meeting but please RSVP your attendance to the Kewaunee Co. UW-

Extension Office at 920-388-7141 by June 17.

This program is sponsored by the Door and Kewaunee County UW-Extension offices with support from Cooperative Services-Denmark, Cornette Farm Supply, Dairyland Seed, Frank's Feed Mill, Kewaunee County Dairy Promotion, M&I Bank, Rio Creek Feed Mill and Stangel Enterprises. For more information contact Jennifer Keuning, Kewaunee County UW-Extension at 388-7138 or Mark Feuerstein, Door County UW-Extension at 920-746-2263. The Rio Creek Feed Mill is located at N7295 Feed Mill Lane Algoma (just off Highway 54 between Algoma and Casco).



Agenda

- 10:30 Planting and Cutting Management of Emergency Forages
Mark Feuerstein - Door County UW-Extension Agriculture Agent
- 11:00 Crop Management Considerations for Italian Rye Grass
Ron Prodell - Rio Creek Feed Mill
- 11:30 Feeding Peas & Oats, Italian Rye Grass and Sorghum-Sudan to the Dairy Herd
Dr. Randy Shaver - UW-Extension Dairy Nutrition Specialist
- 12:00 Lunch
- 12:30 Using By-Product Feeds to Cope with Short Forage Supplies
Dr. Randy Shaver - UW-Extension Dairy Nutrition Specialist
- 1:00 Managing Fertility, Weeds and Insects in New Alfalfa Seedings
Mark Stangel - Stangel Enterprises
- 1:30 Fall Seeding of Alfalfa into Emergency Forage Stubble
Kevin Naze - Dairyland Seed



Misdiagnosis of Milk Sample Cultures

The infection status of mammary quarters is determined by microbiological culture of milk samples and interpretation of the culture results. As in all biological data, diagnosing intramammary infection is subject to error. Culture of milk samples generally results in one of three events: 1) no bacterial growth; 2) growth of a pure culture; or 3) growth of multiple colony types. Any of the three outcomes may not represent the true infection status of the quarter. Therefore, strict adherence to sampling technique and proper storage and handling of milk samples are absolutely essential. In addition, diagnosis of intramammary infection status based on multiple samples is more reliable than diagnosis based on a single sample.

False-positive Samples

False-positive samples [F(+)] result when a pathogen is isolated in pure culture but the quarter is truly not infected. Such samples occur as a result of contamination at some point during sample collection and/or processing. When intramammary infection status is based on culture of a single sample, F(+) samples get interpreted as an infected quarter.

A frequent assumption is that the recovery of the contagious pathogens *Staphylococcus aureus* or *Streptococcus agalactiae* from a single milk sample is evidence of intramammary infection. However, F(+) samples can occur with all pathogens including *S. aureus* and *S. agalactiae*, and the frequency of F(+) samples will increase as the number of truly infected quarters in a herd increases. False-positive samples associated with the environmental pathogens likely will increase as environmental contamination increases.

False-negative Samples

False-negative samples [F(-)] result when no microbial growth is detected following microbiological culture but the quarter is truly infected. Reasons for such samples include: 1) the colony-forming units of the organism in the milk are below the detection limit of the assay; 2) special media or growth conditions are required; 3) inhibitors in the milk sample, such as antibiotics, have interfered with the growth of the pathogen; or 4) the sample was mishandled during storage, resulting in death of the pathogen. False-negative samples are more likely to

occur with coliform and *S. aureus* infections than infections caused by *S. agalactiae*.

Attempts to reduce the number of F(-) samples by using enrichment techniques or a period of preliminary incubation should be avoided. Plating larger volumes of milk (0.1 ml per half-plate) will help reduce the number of F(-) samples but may increase the number of contaminated samples if sampling technique is poor. Clinical quarters are generally assumed to be infected. A common finding is that 20-30% of samples from clinical quarters will result in no microbial growth. Clinical signs may be present but the pathogen has been eliminated by the cow's immune system.

Contaminated Samples

When a quarter milk sample results in the culture of three or more dissimilar colony types, the milk sample is most likely contaminated and the sample should be recorded as such. All mastitis pathogens present in milk samples can be a result of contamination, including *S. aureus* and *S. agalactiae*.

Two degrees of contamination are generally recognized. The first is "low level" contamination in which dissimilar colonies are present. These may be the only colonies on the streak or they may be present in the streak of an otherwise pure culture of a pathogen. The "low level" contamination should be recorded together with the pathogen.

The second type of contamination is "gross contamination". Three or more colony types are present on the milk streak, often in relatively heavy growth. Such samples should be declared contaminated and no attempt should be made to identify potential pathogens within the mix of microbial growth. When gross contamination is observed, the quarter should be resampled.

Common contamination sources include dirty teat ends, milk touching fingers before entering the tube, nonsterile tubes or inoculating needles, streaking milk samples on contaminated media, excess alcohol on teats or hands, contaminated cotton swab container, and the container lid not sealed tightly resulting in alcohol evaporation from cotton swabs.

Source: *Udder Topics*, June 1999

Teat Lesions Can Lead to Milking Problems

Teat lesions can be caused by a variety of events, including trauma, chemical injury, environmental conditions, insects and the milking machine.

Traumatic lesions of the teat are most commonly the result of the cow stepping on her teats or wire cuts. They are a troublesome problem for the veterinarian as well as the dairy producer.

Histologically, the teat wall contains an abundance of elastic connective tissue which provides for expansion and contraction of the teat as it fills and evacuates milk in the lactating cow. The near constant movement associated with these physical dynamics of the teat combined with milking preparation procedures, and milk collection complicate the normal healing process.

The producer's challenge is in getting cows with teat lesions milked. Because these lesions are generally

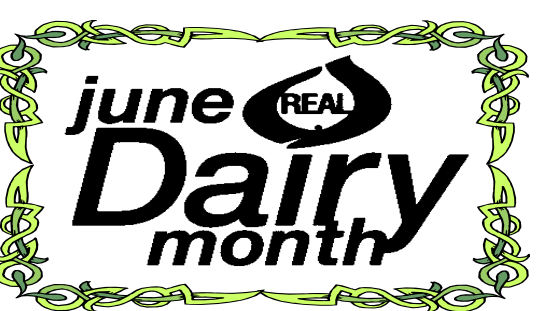
painful and cows resist preparation and milking procedures, they are difficult if not hazardous to milk.

A further complication is mastitis. Teat lesions are readily colonized by bacteria and thus serve as an important reservoir of infection. Udder preparation cloths, hands of the milker and milking machine components facilitate the transfer of infectious organisms between quarters of the same cow and can be responsible for cow to cow transmission as well. Emphasis on milking hygiene procedures becomes crucial for controlling new infections whenever teat lesions are present.

Depending on severity and the period of time prior to discovery, teat lacerations may be repaired surgically. Fresh superficial lacerations of the teat skin (within 12 hours of occurrence) in which the vascular supply has not been significantly damaged have the best prognosis. These are generally amena-

ble to surgical closure. If, on the other hand, such lesions go unnoticed for a couple of days and become heavily contaminated, cleansing in mild disinfectant solution and removal of the skin flap tissue are likely the best therapeutic approach.

Teat lacerations which extend into the teat cistern are of greater concern and generally carry a more guarded prognosis. The exposed edges of the cistern lining must be sutured using a suture pattern that will turn the edges inward creating an impervious seal. If this is not achieved healing cannot occur and draining fistulas develop. The teat wall muscle layers and the skin may be closed separately or individually. Most advise intramammary and/or systemic therapy for 4 to 5 days as a precaution against the development of mastitis. A protective bandage allowing access to the teat end for milking is recom-



mended. Milk should be retrieved from the gland through the use of teat cannulas.

Pastured cattle have a lower incidence of teat trauma than confined cattle. Housing factors of primary importance are associated with the amount of space available to the cow for resting and rising. Further, individual cow characteristics and conformation increase the potential for teat trauma in some cows.

Source: *Udder Topics*, June 1999

Diagnose Problems With Bulk Tank Cultures



Bulk tank milk analysis is an important tool for troubleshooting high bacteria counts in farm milk. These tests and interpretation methods provide an indication of whether high bacterial counts are due to mastitis, pre-milking hygiene, equipment cleaning and sanitation, or incubation of bacteria in the milk handling system during milking. This is invaluable information to the dairy producer and processor. The recommended tests include:

Standard Plate Count (SPC):

The Standard Plate Count is the number of colony forming units in one ml of milk when incubated for 48 hours at 32° C (90° F). The SPC should be less than 5,000 if cow and equipment sanitation is good and cooling is adequate. A SPC of less than 1,000 indicates excellence in all of these areas. Most industry standards require a SPC of less than 50,000.

High bacteria counts may result from *Streptococcus agalactiae* mastitis infection in the herd. If the SCC and SPC are both high, a thorough bulk tank culture should be performed to determine the type of mastitis organisms present in the milk. This information is useful to manage mastitis in the herd. Other types of bacteria represent contamination from the environment. These organisms are transported during milking from the skin of the udder into the milk and onto milk handling equipment. These bacteria multiply during the milking process and may continue to multiply between milkings if they are not removed or killed.

Lab Pasteurized Count

(LPC): The Lab Pasteurized Count is

the number of bacteria per ml of milk which survive laboratory pasteurization at 62.8° C (143° F) for 30 minutes. This procedure kills the usual mastitis-causing bacteria leaving only those organisms from the environment which can survive elevated temperatures. These types of organisms will grow and multiply in the milk handling equipment if cleaning and sanitation procedures are inadequate. The LPC should be below 100 to 200 if equipment cleaning and sanitation are good. A LPC below 10 indicates excellent equipment hygiene.

Coliform (Coli): The major source of coliform bacteria in bulk tank milk is transportation on the udders of cows from the environment. The Coli count thus provides an indication of both the effectiveness of cow preparation procedures during milking and the cleanliness of the cows' environment. Coliform counts between 100 and 1,000 are generally an indication of poor milking hygiene. Coliforms will also incubate in residual films left on milk contact surfaces. Coliform counts in excess of 1,000 suggest incubation in milk handling equipment. A Coli count less than 100 per ml of milk is considered acceptable for raw milk for pasteurization. In states where raw milk may be sold to consumers, Coliform count must be less than 10/ml. Coli counts less than 10 indicate excellence in both pre-milking hygiene and equipment sanitation.

Another test which indicates the cleanliness of cows when they are being milked is the sediment in the bulk tank milk. A sediment level less than 1.50 mg per gallon is considered acceptable.

Source: *Udder Topics*, February 1997

Evaluating Milking Systems: When and Why

According to the recently-revised NMC publication "Procedures for Evaluating Vacuum Levels and Airflow in Milking Systems" (published 2004), a complete system evaluation should be performed for any new installation, as part of a scheduled maintenance program, after major modifications to the system, or if milking time tests indicate a potential problem.

After a complete evaluation has been performed and specific performance data recorded, subsequent spot checks of selected measurements (e.g. operating vacuum, effective reserve) can be compared to these benchmark data as an indication of a change of

status of the milking machine.

There may be many reasons to suggest changes to a milking system, including:

- Improved milking performance (speed or completeness of milking).
- Improved mastitis control and milk quality.
- Decreased power or energy consumption.
- Decreased wear on pump components.
- Improved cleaning performance.
- Improved aesthetic or cosmetic appeal.

Source: *Udder Topics*, March 2004