

November 2016



From Field to Barn

UW-Extension Fond du Lac County

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Requests for reasonable accommodations for disabilities or limitations should be made prior to the date of the program or activity for which it is needed. Please do so as early as possible prior to the program or activity so that proper arrangements can be made.

Introducing Our New Name & New Look

Greetings to all our faithful readers. These are exciting times of change and innovation. To keep abreast of the new changes in Extension and in the Fond du Lac office, we want to introduce a new name to our Agriculture Extension newsletter.

FROM FIELD TO BARN will replace the Dairy Moos & News and the former Bushel & Bales newsletters. Instead of sending individual newsletters, **FROM FIELD TO BARN** will include a combination of news and information pertaining to Crops and Soils as well as Dairy and Livestock.

We hope you will enjoy and find this premier issue of **FROM FIELD TO BARN** useful and informational. We look forward to seeing you at some of the educational programs advertised within these pages. So grab a cup of coffee, set yourself down, and read away. Always feel free to contact either of us if you have any questions.

Thank you for your patronage. We hope you and your family had a Happy Thanksgiving. 

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Choosing the Right Bedding to Reduce Environmental Mastitis



Bacterial exposure at the teat end is a primary source of exposure to potential mastitis pathogens.

Reducing this exposure is an important aspect of controlling environmental mastitis. It is especially important to reduce exposure to Gram negative bacteria (such as coliforms) because these bacteria often result in increased clinical cases of mastitis even if the SCC of the herd is low. Since teats become contaminated with environmental bacteria through contact, choosing the right type of bedding for your herd is critical. Teats may be in direct contact with bedding materials for 12 to 14 hours per day, making bedding a primary reservoir source for environmental pathogens.


When a cow lies down, her udder and teats come into contact with whatever she is lying on. The type of bedding and how that bedding is kept clean are critical issues for control. The ideal bedding for limiting environmental mastitis is a clean inorganic material. If kept clean, sand allows urine to drain away from the cow, and is less likely to have bacteria growing in it than an organic bedding. However, sand can be expensive and it is more difficult to eliminate the feces-spoiled waste, compared with organic forms.

The primary forms of organic beddings used today are sawdust and straw. In addition to straw, other types of plant materials from wastage of crop harvesting have been used and some are still used (such as corn cobs). Organic beddings soak up fluids from urine, but also are good media for bacterial growth. Feces-spoiled sawdust or straw can be a major source of environmental pathogens for causing mastitis. In addition, green sawdust from uncured wood can harbor some types of Klebsiella bacteria, even before it becomes soiled with feces.

Large amounts of bedding have been obtained from mechanical liquid-solid separation of manure on some farms in the West. Yet the Midwestern climate is not as arid and the risk of increased mastitis increases in bedding that contains more moisture. Research data on the use of manure solids as bedding material for dairy cows, milk quality on farms using solids, the

chemical and bacteriological characteristics of solids, and methods of obtaining solids for bedding the Midwest are still underway. Though, it appears that excellent cow preparation at milking time, sanitation of milking equipment, cow hygiene, adequate dry cow housing, very low bedding moisture, and bedding/stall management are critical in maintaining excellent udder health when using recycle manure solids for bedding and making it work. These practices are important when using any type of bedding and even more so with recycled manure solids.

Research-Bedding Types and Milk Quality: Research at UW indicated large WI dairy farms that used inorganic bedding had greater productivity and better milk quality compared with herds using other bedding types.

Fresh and recycled sand and sawdust/wood shavings are the most common types of bedding materials used on large farms, but a small number of the largest herds use recycled manure products. As compared with organic bedding, use of sand bedding has been associated with reduced exposure to bacteria. Recycling bedding on-farm may provide economic opportunities for dairy producers. However, some recycled bedding materials (such as manure and recycled sand) harbor greater number of bacteria. The greater numbers of bacteria have been associated with the increased numbers of bacteria on teats of cows expose to these materials. 

Results of microbial analysis of milk samples obtained from quarters (n=434) with SCC > 200,000 or first cases of clinical mastitis in a study of first lactation heifers (n=109) housed on 4 different beddings.

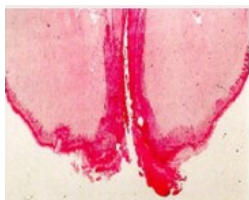
Isolate, n	Bedding				Total	Results, ² %
	New sand	Recycled sand	Deep-bedded manure solids	Shallow-bedded manure solids ¹		
Microbiological results of incident cases of SM ^{3,4,5}	13	17	18	18	66	
CNS	1	6	1	6	14	23.7
Environmental <i>Streptococcus</i> spp.	1	0	0	0	1	1.7
<i>Corynebacterium</i> spp.	0	1	0	0	1	1.7
<i>Staphylococcus aureus</i>	0	0	0	1	1	1.7
Nonsignificant growth	11	8	16	7	42	71.2
No sample	0	1	0	3	4	
Contaminated	0	1	1	1	3	
Microbiological results of recurrent cases of SM ^{6,7}	14	19	19	17	69	
CNS	2	7	3	7	19	29.7
Environmental <i>Streptococcus</i> spp.	1	0	0	0	1	1.6
<i>Staphylococcus aureus</i>	0	0	0	1	1	1.6
Nonsignificant growth	10	12	15	6	43	67.2
Contaminated	1	0	1	3	5	
Microbiological results from incident case of CM ⁸	3	9	5	4	21	
CNS	0	2	0	1	3	18.8
Environmental <i>Streptococcus</i> spp.	0	1	0	0	1	6.3
<i>Staphylococcus aureus</i>	0	0	0	1	1	6.3
<i>Escherichia coli</i>	0	0	3	0	3	18.8
<i>Klebsiella</i> spp.	0	1	0	0	1	6.3
Yeast	0	1	0	0	1	6.3
No or nonsignificant growth	3	1	1	1	6	37.5
Contaminated	—	3	1	1	5	

¹Over foam core mattresses.
²Of usable samples.
³Subclinical mastitis defined as a quarter with SCC >200,000 cells/mL.

Source: *Monthly Mastitis Minute*, November 2016

Teat End Condition Matters

Generally, teat condition is worse in harsh winter weather and chapping of teats tends to make teat-end condition worse as well. A teat end in good condition is important for resisting mastitis. The teat canal is the cow's last line of defense and the primary physical barrier preventing invasion of mastitis pathogens into the udder. Repeated milking of cows results in callous ring formation around the teat orifice just like we get callused hands from manual work. This callus formation, called hyperkeratosis, was first described by Dr. Ralph Farnsworth, University of Minnesota veterinarian, and his graduate student Dr. Bob Sieber more than 25 years ago. Dr. Farnsworth developed a teat-end scoring system that has been modified and is still in use today.



Microscopic view of a very rough teat end (Score 4).

Excessive teat end callus provides a rough surface for bacteria to be trapped or colonize as can be seen in the microscopic picture of a teat end. In addition, the excess callus formation can also change teat canal integrity and teat tissue pliability thus favoring penetration of bacteria into the udder. Studies in the Netherlands

indicate that cows with rough or very rough teat ends are more prone to having high SCC or clinical mastitis.

To benchmark where your herd's teat end condition is prior to winter, or if you are wondering if teat-end condition is a problem on your farm, the first step is to use the [Teat End Condition Score Card](#) to score your herd. Each cow's score should be based on the worst teat score of the four teats. Be sure that you score enough cows for your herd assessment to be valid. For herds less than 100 cows, it may be practical to score the entire herd. For large herds, score a minimum of 80 randomly selected cows or 20% of the herd, whichever is the highest number. 🐄

Although a small amount of teat-end callus (hyperkeratosis) is inevitable and of no concern, if large numbers of cows in your herd (> 20%) have teat-end scores greater than a Score 2, you should try to determine the cause and then develop an action plan.

Source: Jeff Reneau, University of Minnesota Extension Specialist
<http://www.extension.umn.edu/agriculture/dairy/milk-quality-and-mastitis/teat-end-condition-matters/>

Score	Description	Illustration
Score 1 (N)	No Ring. The teat-end is smooth with a small, even orifice. This is a typical status for many teats soon after the start of lactation.	
Score 2 (S)	Smooth or Slightly Rough Ring. A raised ring encircles the teat orifice. The surface of the ring is smooth or it may feel slightly rough but no fragments of old keratin are evident.	
Score 3 (R)	Rough Ring. A raised, roughened ring with isolated fragments of old keratin extending a short distance from the teat orifice.	
Score 4 (VR)	Very Rough Ring. A raised ring with rough fragments of old keratin extending out from the teat orifice. The rim of the ring is rough and may be cracked, often giving the test-end a "flowered" appearance.	
Score 5	Open Lesions or Scabs.	Not pictured.

Factors Impacting Teat End Condition

Cow factors

- Teat-end shape and length (long pointed teats prone to more hyperkaratosis).
- Teat position (malpositioned teats may be prone to more hyperkaratosis).
- Milk production (high production, higher milk flow, longer machine-on time may contribute to more hyperkaratosis).
- Stage of lactation (later lactation, more hyperkaratosis formation).
- Milking speed (slow milking cows, more machine-on time, more hyperkaratosis).
- Parity (older cows, more exposure to milking, more hyperkaratosis).

Machine factors

- Milking and pulsation vacuum (higher vacuum, faster milk flow).
- Machine-on time (longer machine-on time, more hyperkaratosis).
- Liner type (liner movement).

Management factors

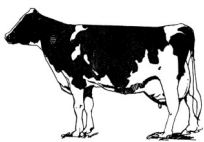
- Milking frequency (2X to 3X increases machine-on time 40%).
- Adequate milk let-down stimulus (cow prep procedure) and prep-lag time (optimal 1-2 minutes).

Generally, longer machine-on time is the main contributor of excessive teat-end hyperkaratosis. Although high milk production is desirable and will require the milking machine to be on the cow longer, organize your milking routine to minimize milking machine-on time. First, provide at least 10 to 20 seconds of teat cleaning and fore-stripping to achieve maximum milk let-down stimulation. Then allow 1 to 2 minutes of prep-lag time before milking machine attachment to assure optimal milk flow rates. Also be sure that your milking equipment is functioning properly and is routinely maintained. Too many farms do not have milking equipment checked before a problem occurs. In addition, during cold winter weather it may be wise to use a cold weather teat dip designed to reduce teat skin drying, which can cause the thick callus to crack, further complicating the problem. 🐮



Source: Jeff Reneau, University of Minnesota Extension Specialist
<http://www.extension.umn.edu/agriculture/dairy/milk-quality-and-mastitis/teat-end-condition-matters/>

Fond du Lac County Holstein Association Herd Builder



Fond du Lac County Holstein Association will once again offer a \$1,000 interest-free loan to any Fond du Lac County 4-H, FFA, or Jr. Holstein member to purchase a registered Holstein calf. When the calf is 24 months old, or has calved, the \$1,000 loan is to be paid back to the Fond du Lac County Holstein Association.

To receive a loan, please complete the application at <http://fyi.uwex.edu/fldairyouth/2014/10/14/fdl-holstein-association-herd-builder-application/> and mail to the Fond du Lac County Holstein Association by December 31st. For more information, please contact board member Joseta Halbur at jhalbur81@gmail.com. 🐮

Fond du Lac County Holstein Association Scholarship

The Fond du Lac County Holstein Association Scholarship in the amount of \$500 will be given out to a student enrolled in a four-year, one or two year short course or ag-related program. All Fond du Lac County Jr Holstein members are encouraged to apply. Students majoring in agriculture degrees are given highest consideration.

Applications are due December 15th and winners are announced at the annual Holstein Banquet in January. For more information, please contact board member Joseta Halbur at jhalbur81@gmail.com. 🐮



Seed Selection Guidelines Have Impact

As this growing season draws to a close and winter slowly descends, it is a good time to start considering seed selections for next year. Following a few guidelines while selecting seed can have a big impact.

Firstly, select seed based on more attributes than simply yield potential. Find the yield potential and crop characteristics you desire and then build upon them. As a pathologist, I strongly encourage using one of the best management tools—purchasing high-quality, certified seed that carries resistance to disease problems common in your fields.

Look for a state certified seed tag attached to seed bags. This tag will state the percent germination, genetic purity, seed quality, and amount of weed or other crop seeds, and debris. Purchasing seed with high germination percentages and genetic purity are best but may increase the price. Lower priced seed may seem like a bargain, but if the seed has less quality (seed integrity) and germination is poor, the seed may not be so economical in the long run, because you will end up needing to plant more.

Seed having a state certified tag is guaranteed to be a particular variety that has met certain minimum quality standards. Besides confirming that all the seeds are the same variety, genetic purity can also refer to the traits the seed carries. With all the traits available for purchase, remember you still have some choice. For example, if you do not have a problem in your area with the insect the trait aims to control, it may be more prudent not to purchase or pay for seed with that trait.

Secondly, purchase seed that carries resistance to diseases that need managing or ones that have been chronic problems in your field. Disease resistance is the most effective and economical management tactic for disease control in agronomic and horticultural crops.

Now is a good time to recall (and record) disease prevalence in your field from this past season and for the past several growing seasons. Select hybrids, varieties, or cultivars with resistance to those diseases, as well as other common diseases and insects.

High levels of resistance or tolerance towards many, but not to all, diseases may be found among commercial corn hybrids, soybean, wheat, and alfalfa varieties, and many vegetable cultivars. For example, many corn hybrids carry resistance to northern corn leaf blight, stalk and ear rots, Goss's wilt, and common rust. Wheat varieties should have resistance to stripe rust and Fusarium head blight. Alfalfa varieties have been bred with resistance to *Aphanomyces* root rot and even to the potato leaf hopper. Pea cultivars are bred with resistance to Fusarium wilt, powdery mildew, *Aphanomyces*, and some viruses. Soybean varieties carry resistance to several races of soybean cyst nematode and *Phytophthora* root rot. Soybean varieties carrying the Rps1k resistance gene seem to be a good choice for many of the *Phytophthora* pathogen races found in Wisconsin, however pathogen races shift and need to be monitored regularly. Ask your seed dealer for or have your agronomist find out the type of resistance that a hybrid, variety, or cultivar carries.

Lastly, once you found the hybrids, varieties, or cultivars that have the resistance you desire, google University of Wisconsin Variety Trials, to find out their yield potential. These trials provide regional analysis on yield for corn, soybean, wheat, and alfalfa. Following these simple guidelines will allow you to combine and personalize the best disease resistance and yield potential for your field.

For more information please contact UW-Extension Crops & Soils Area Agent Dr. Loretta Ortiz-Ribbing at 920-929-3171 or at loretta.ortizribbing@uwex.edu. 🌾

Farm Photos Wanted

If anyone wants to share high resolution images of their farm, either fields or barns, we would be happy to consider them for our newsletter or website. Please send them to our office or to tina.engelhardt@uwex.edu along with your contact information and a description.



Pest Management Updates

NEW- Worker Protection Standards (WPS) – for anyone (including Organic) using a WPS-labeled (i.e. Label has Agricultural Use Requirements section) pesticide product on an agricultural establishment in the production of agricultural plants.

EPA has completed its update of the now obsolete 2005 Worker Protection Standards. The new, *How to Comply with the 2015 Revised Worker Protection Standards For Agricultural Pesticides: What Owners and Employers Need to Know...* can be found online at: www.epa.gov/sites/production/files/2016-09/documents/hcmanual_final.pdf.

Get prepared. The majority of the rule revisions will be effective on January 2, 2017. Please let me know if you need help finding WPS training materials. I hope to hold a training in English this spring.

What are the Major Changes for Farmers and Farmworkers? (Source: www.epa.gov/pesticide-worker-safety/revisions-worker-protection-standard)

The revisions to the Worker Protection Standard cover many different areas. The major revisions include:

- Annual mandatory training to inform farmworkers on the required protections afforded to them. *Currently, training is only once every 5 years.*
- Expanded training includes instructions to reduce take-home exposure from pesticides on work clothing and other safety topics.
- First-time ever minimum age requirement: Children/employees under 18 are prohibited from handling pesticides by WPS rules, except for immediate family.
- Expanded mandatory posting of no-entry signs for the most hazardous pesticides. The signs prohibit entry into pesticide-treated fields until residues decline to a safe level.
- New no-entry application-exclusion zones up to 100 feet surrounding pesticide application equipment will protect workers and others from exposure to pesticide overspray.
- Requirement to provide more than one way for farmworkers and their representatives to gain access to pesticide application information and safety data sheets – centrally-posted, or by requesting records.
- Mandatory record-keeping to improve states' ability

to follow up on pesticide violations and enforce compliance. Records of application-specific pesticide information, as well as farmworker training, must be kept for two years.

- Anti-retaliation provisions are comparable to Department of Labor's (DOL).
- Changes in personal protective equipment will be consistent with DOL's standards for ensuring respirators are effective, including fit test, medical evaluation and training.
- Specific amounts of water to be used for routine washing, emergency eye flushing and other decontamination, including eye wash systems for handlers at pesticide mixing/loading sites.
- Continue the exemption for farm owners and their immediate families with an expanded definition of immediate family.


Spanish Pesticide Applicator Training-- Updated Flyer included. This training will also include Worker Protection Standards Training in Spanish. Note: This training is offered in English and Spanish, but the test is only offered in English.

Pesticide Applicator Training (PAT)- Reminder

Letters have been sent to those of you that need to renew your private pesticide applicator license. Please remember to register.

Fond du Lac County will be hosting two sessions for Pesticide Applicators Training (PAT). Each session will be held 9:30 a.m. to 3:30 p.m. at UW-Fond du Lac room UC-114 with registration beginning at 9:00 a.m. The dates will be: **February 13** **March 2**

The **fee is \$35 per person which does not include lunch.** You may bring your own lunch, eat at the campus cafeteria, or drive to one of the nearby "fast food" restaurants. Fee includes the *General Farming* manual and a bonus copy of the A3646 *Pest Management in WI Field Crops* manual. For more information and to learn about other options, please call the Fond du Lac Extension office at 920-929-3171.

NOTE: If you do not want to conduct annual WPS training, you can send your farm workers to get certified (i.e. as a private applicator) by attending a PAT training and if they pass the exam, they would be certified for 5 years. 

Mark Your Calendars for Up Coming Agricultural Events

December 2016

- 1 Th **Mathias-Lesczynski Water Quality Award 2016 Entry due**
- 2 F **Making Manure Into More Biogas/Anaerobic Digester Tour**, 9 a.m. - 4:40 p.m., UW-Oshkosh, Oshkosh
- 6 Tu **Raising Quality Dairy Calves Calf Management Seminar**, 10 a.m. - 3 p.m., Liberty Hall, Kimberly
- 7 W **Ag Update: Town Hall Meet and Greet for producers in Fond du Lac and Dodge Counties**
7:30 p.m., Auburn Town Hall, W1728 Sunset Dr., Campbellsport
Speakers: Paul Tollard, LWCD Director and County Conservationist - Farm Construction Permitting; Dr. Loretta Ortiz-Ribbing, UW- Extension Crops and Soils Area Agent - Introduction and Conservation; Alison Volk, DATCP Land Management Section Chief - Agricultural Enterprise Zones; and Tina Kohlman, UW-Extension Dairy & Livestock Agent - current issues, Cost: Free
- 8 Th **Intro to SnapPlus Version 16.0**, 10:00 a.m. - 3:00 p.m., UW-Extension Fond du Lac County
- 9 F **Advanced SnapPlus Version 16.0**, 10:00 a.m. - 3:00 p.m., UW-Extension Fond du Lac County
- 9 F **Soil, Water, and Nutrient Management Meetings - (See enclosed flyer)** 9:30 a.m. registration, 10 a.m. - 3:00 p.m. program, UW-Extension Dodge County, Juneau
- 14 W **Dairy Forage Day & Fond du Lac Forage Council Annual Meeting (See enclosed flyer)**, 10:30 a.m. registration, 11:00 a.m. - 2:30 p.m., UW-Extension Fond du Lac County
- 15 Th **Fond du Lac County Holstein Breeders' Association Scholarship Applications due**
- 31 Sa **Fond du Lac County Holstein Breeders' Association "Herd Builder" Applications due to UW-Extension**

January 2017

- 4 W **Agronomy Update Meeting (See enclosed flyer)**, 12 noon, UW-Fond du Lac
- 7 Sa **Fond du Lac County Market Livestock Beef Weigh-in & ID**, 10 a.m. - 12 noon, Fond du Lac County Fairgrounds
- 15 Su **Fond du Lac County Holstein Breeders Association Annual Meeting**, 12 noon, Holiday Inn, Fond du Lac
- 18 W **Walking Strong Hoof Health Meeting**, 1:30 pm - 4:00 pm, UW-Extension Fond du Lac County
- 18 W **WI Area Soybean Conference**, 9:00 a.m. registration, 9:25 a.m. - 2:15 p.m., Holiday Inn, Fond du Lac, Contact Lisa at lisa@wisoybean.org or 608.274.7522 with any questions
- 18 W **Dodge County Nutrient Management Farmer Training (Writing your own plan)**, 1:00 p.m. - 4:00 p.m., UW-Extension Dodge County
- 26 Th **Dodge Fondy Corn Growers Meeting - Tentative**, Time: TBA, Location: TBA, Cost: TBA
- 31 Tu **Pesticide Applicator Safety Training in Spanish (See enclosed flyer)**, 9:00 a.m. - 5:00 p.m., UW-Extension Fond du Lac County

February 2017- Save the Dates - More information to follow

- 1 W **Private Pesticide Applicator Training**, UW-Extension Dodge County, Juneau
- 8 W **Healthy Soil-Healthy Water Workshop** - Juneau, with Ray Archuleta and Justin Morris, Cost: \$10
- 9 Th **Follow-Up at the Farm Shop** - with Ray Archuleta at Condon Farm in Dodge Co.
- 13 M **Private Pesticide Applicator Training**, 9:30 a.m. - 3:30 p.m., UW-Fond du Lac
- 21 Tu **Nutrient Management Farmer Training (Refresher)**, 1:00 to 3:00 p.m., UW-Extension Dodge County Administration Bldg. Juneau, WI preregister at 920-386-3790



Fond du Lac County

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Fond du Lac Co Farm Service Agency Offers Youth Loans

Did you know the Farm Service Agency makes loans to youth to establish and operate agricultural income-producing projects in connection with 4-H clubs, FFA, and other agricultural groups?

Youth loans are a great way to obtain funds for various fair projects. Projects must be planned and operated with the help of the organization advisor, produce sufficient income to repay the loan, and provide the youth with practical business and educational experience. The maximum loan amount is \$5000.

Youth Loan Eligibility Requirements:

- Be a citizen of the United States (which includes Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands) or a legal resident alien
- Be 10 to 20 years of age
- Comply with FSA's general eligibility requirements
- Be unable to get a loan from other sources
- Conduct a modest income-producing project in a supervised program of work as outlined above
- Demonstrate capability of planning, managing and operating the project under guidance and assistance from a project advisor. The project supervisor must recommend the youth loan applicant, along with providing adequate supervision.

Stop by the Fond du Lac County office or contact Ray Falkner at (920) 923-3033 for help preparing and processing the application forms. 



We are on the web! Visit us at <http://fyi.uwex.edu/fdlag>