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Proper footbath management has long-term environmental implications



Adaptation is commonplace on the farm. The weather changes, we adapt by changing our attire and adjusting. Sooner or later a new season will arrive, and we'll need to adapt again. In some cases, adaptation becomes a permanent change. One change farmers have implemented on their operations is managing digital dermatitis (DD), or hairy heel warts.

Thirty years ago, DD was uncommon on US dairies. But as farms grew bigger and smaller herds combined to form larger herds, DD began to spread rapidly around the country. Adapting to DD became a permanent management change.

Incurable but manageable

Digital dermatitis is incurable, but it can be managed. Footbaths are an important tool utilized to prevent animal lameness, limit the spread of DD, and maintain hoof health on dairy farms.

According to a 2015 survey of 45 eastern Wisconsin dairy farms, 75 percent of the farms utilized footbaths to promote hoof health and animal productivity, and longevity. The same project, which was conducted by eastern Wisconsin Extension Agriculture Educators, determined copper sulfate was the most used footbath disinfectant in the region, due to both its relatively low cost per animal treated and effectiveness in reducing the incidence and severity of hoof lesions.

More than 65 percent of the 45 surveyed farms utilized copper sulfate in their footbaths, with 33 percent of farms using a footbath four to seven times a week, and 27 percent using a 12 to 30 percent copper sulfate solution.

While copper sulfate is a low-cost effective solution to manage DD, what happens to it after disposal? Most farmers dump spent solution, which is then washed into the manure storage. Atypical footbath holds 40 to 50 gallons of solution and should be changed after 150 to 300 cows walk through it.

Take, for example, a 250-cow herd that would use one fill of solution per treatment. Using the UW-Madison School of Veterinary Medicine's recommended practice of treating cows four times per week, that equals 1,000 gallons of waste copper sulfate per week. This scenario adds 52,000 gallons of copper sulfate solution to the manure storage per year. Copper sulfate concentration varies per farm, but typically it is two to five percent.

After the contents of manure storage are applied to fields, it provides nutrients to plants. As copper is utilized in small amounts by plants and is not readily leached from the soil, it can accumulate within the soil profile, particularly with regular, long-term applications of dairy manure containing copper footbath materials.

Such applications can significantly increase copper to toxic levels in plants and soil. According to Texas A&M University, the toxic levels raise several concerns for dairy farmers:

1. Excess soil levels may reduce crop yields.
2. Forages grown in excessive copper level soils may be toxic to livestock.
3. Recycling (applying manure from cattle who ate excessive copper-rich feedstuffs) back to the field escalates copper loads in soil and forages.
4. Improper footbath management may not comply with nutrient management plans or environmental permits.

Substantial research has not been conducted on the impact excessive copper has on livestock. However, secondary issues are beginning to present in dairy cattle that could be tied to copper sulfate footbath solution being applied to forage crop fields. An extensive review of Wisconsin Veterinary Diagnostic Laboratory (WVDL) accessions along with the results of slaughterhouse surveys indicate that copper is accumulating in the livers of Wisconsin Holsteins of all ages.

More research needs to be completed to understand the impact copper sulfate footbath management has on the health of livestock, soil, and forages. Footbaths should be managed according to recommendations to manage DD, but also reduce the negative impact it has on virtually every part of dairy herd management. It's not just a problem that gets washed down the drain, it is a long-term management practice.

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Kewaunee, Door & Brown Counties
Corn Silage Whole-Plant
Moisture Testing

Photo courtesy of Seriv Kenyon, UW Wisconsin CALS Flickr

The Kewaunee, Door & Brown County UW-Madison Extension Offices are offering an opportunity to have standing corn intended for corn silage tested for moisture



Wednesday, September 14

Door County Co-Op
 6460 State Hwy 54/57
 3:00-5:00 PM

***Drop-off only**

Thursday, September 15

Rio Creek Feed Mill
 715 Frontier Road
*** LUXEMBURG SITE ***
 9:00 am – 12:00 pm
***On-site testing**

- Limit of 2 samples per farm, free of charge. Additional samples will be charged \$15 per sample.
- 4-5 stalks, cut at normal chopping height, should be gathered, bundled and tagged with farm name, address, and phone number.
- Planting date, relative maturity, and hybrid must be included for each sample.
- Samples delivered the day before will not be tested.
- Nitrate testing is available for an additional \$11 per sample.



This educational effort is sponsored by
 University of Wisconsin-Madison Extension
 Kewaunee, Door, and Brown Counties and:

Rio Creek Feed Mill
 Door County Cooperative
 DEKALB/Clark Riemer Seed

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Learn About New and Emerging Crops With Extension's The Cutting Edge Podcast

New episodes of The Cutting Edge: A Podcast in Search of New Crops for Wisconsin are now available. This podcast is produced by the UW-Madison Division of Extension Emerging Crops Team.



The podcast aims to provide growers with research-based information on new and emerging crops in Wisconsin. Each episode of The Cutting Edge focuses on a single crop by interviewing researchers, growers, and movers and shakers behind each crop. Jason Fischbach, one of the co-hosts of The Cutting Edge, says: "The goal of the podcast is two-fold. First, we want to give growers in-depth knowledge and information about emerging and alternative crops to help growers decide whether to pursue the opportunity. Second, we want to provide growers and stakeholders an inside look at what it takes to develop new crops and markets for these crops".

The newest episode, Hazelnut Breeding, featuring Dr. Julie Dawson, Associate Professor at UW-Madison, and Dr. Scott Brainard, Research Associate at UW-Madison and Tree Crop Breeder at Savanna Institute, was released on July 6th. There are currently 27 episodes available with more added each month.

More information about The Cutting Edge podcast can be found at: <https://cropsandsoils.extension.wisc.edu/programs/the-cutting-edge-podcast/>. Subscribe through Google Podcasts or Apple Podcasts by searching for The Cutting Edge.

The Cutting Edge is a product of the University of Wisconsin-Madison Division of Extension and produced by Jason Fischbach, Emerging Crops Outreach Specialist; Jerry Clark, Agricultural Educator Chippewa County; Carl Duley, Agriculture Educator Buffalo County; and Steffen Mirsky, Emerging Crops Outreach Specialist.



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Keeping Pre-weaned Dairy Calves Healthy and Growing in Cold Weather

The most critical and most expensive period of calf growth in raising dairy calves is the pre-weaning period. During this period calves are highly susceptible to cold stress with a lower critical temperature of 50°F for newborn calves and 32°F for older calves. Cold stress can result in calves turning to stored body fat to generate body heat, essentially losing weight. In addition, calves experiencing cold stress will have compromised immune systems making them more susceptible to disease.

Three main areas to focus on for winter calf care include:

- Overall nutrition and feeding requirements.
- Management.
- Calf environment.

Nutrition and Feeding

- Feed more milk or milk replacer daily if using individual bottle or pail feedings in one of three ways: 1) add a feeding or a third meal, 2) increase the volume fed by 1/3 or 3) increase the total solids fed. Producers should work with a nutritionist to make sure they are not exceeding 15% total solids in the milk replacer.
- Traditional calf milk replacer should contain a minimum of (air dry basis) 20% protein, (22 to 24% protein if it contains non-milk proteins such as soy protein or fish meal) and at least 15% fat. Fat sources in milk replacers such as milk fat, tallow, choice white grease or lard are preferred over vegetable oils, which are poorly utilized by calves. Replacers containing 15 to 20% fat are preferred, especially for calves housed in colder environments. Milk replacers containing all milk products generally are better than those containing vegetable proteins, vegetable oil, or fish proteins. If milk replacers containing non-milk protein sources are going to be fed, it is recommended not to start before 3 weeks of age. After the third week, calves should be able to better digest formulations with non-milk protein sources. Calves also can be fed mastitis/antibiotic milk if it appears wholesome and if it is not from a cow with staphylococcal and/or coliform mastitis. If calves are going to be fed discard milk, pasteurization of the milk is recommended. Milk should be fed at a minimum of 101.5°F or body temperature.
- If you are following an accelerated program you will be using a milk replacer with an increased protein content (26-28%) and a decreased fat content (15-20%).
- Addition of a commercial fat supplement to increase the energy content in your milk or milk replacer may be utilized, however, it is recommended to use products that are made to mix specifically with liquids.
- Studies now recommend that small breed calves consume 1.3 lbs. of Dry Matter (DM) with 0.3 lbs. of fat and large breed calves consume 2.0 lbs. of DM and 0.5 lbs. of fat per day in addition to calf starter and fresh water.
- Offer fresh clean water daily and during extremely cold weather it may be necessary to do so several times a day due to freezing conditions. It should be warmed to body temperature prior to feeding during cold periods. Consumption should be at the rate of 1 gallon/day for the first month and 2/gallons per day for the second month prior to weaning.
- In addition, to milk or milk replacer, give calves free access to a calf starter grain mixture a few days after birth. Calf starter should contain a minimum of 18% protein and be palatable to encourage the calf to begin eating at an early age. Additionally, there are now calf starters on the market with 22% protein content available for accelerated growth. Overfeeding total protein in the diet may lead to scouring or loose stools. Physical form of the starter is also important; coarse and/or pelleted are better than finely ground starters. By two weeks of age the calf should be eating approximately one-half pound of starter. Top quality hay should also be offered starting around weaning time. The Calves are typically weaned between 6 to 8 weeks of age but they should not be weaned unless they are consuming a minimum of 2.0 lbs. of calf starter and drinking water for at least three consecutive days.
- Utilization of electrolytes may be necessary if calves become dehydrated when ill.



Courtesy: Tracey Erickson, SDSU Extension

Management

Calf management takes dedication and extra time, especially during cold weather. Extra labor or time will be needed for increased feedings, additional bedding, and cleaning. Calf coats requires extra time for utilization and laundering, during cold weather to help provide extra protection. Weaning calves during extreme cold conditions provides added stress to the animal and consideration should be given to delaying weaning until temperatures are less extreme.

Environment

Whether you are using individual pens, hutches, or group housing for calves there are some key principles to remember regarding young calf housing.

- Newborn calves have limited body fat reserves and a minimal hair coat. When moving newborn calves first make sure they are dry. Keep them warm by either transporting them in a trailer or covered device with clean bedding. If a wheel barrow or open bucket is used for transport putting a clean calf blanket on will with clean bedding underneath will help maintain body heat.
- Deep, dry bedding is essential. Straw is preferred, especially during the colder winter months as it allows calves to nestle down into the straw to maintain body heat better. Make sure the bedding is dry by kneeling or placing your knees on the straw for 20 seconds, if they become wet you either need to change the bedding or add more.
- Adequate ventilation that provides fresh clean air, while keeping humidity down, without allowing for drafts is essential for calf barns. Draft prevention is key to keeping calves from catching respiratory diseases.
- Calf blankets may be utilized during cold weather to help provide extra protection, however it is critical to clean the blankets between each use to minimize disease spread.
- Sanitation of bottles and equipment is key to minimize diseases being spread between calves.

In summary, taking the time to properly manage dairy calves during cold weather is critical to keeping young calves healthy and growing at adequate levels.

Originally written by Tracey Erickson, former SDSU Extension Dairy Field Specialist.

<https://extension.sdstate.edu/keeping-pre-weaned-dairy-calves-healthy-and-growing-cold-weather>

Center For Dairy Research: DBIA Grant Program

Dairy Business Builder: Next Round September 2022

This grant program, formerly known as the small grant program, is targeted at small-to-medium size farmers or processors. Projects should be aimed at diversifying on-farm activity, creating value-added products, enhancing dairy by-products or export programs. Awards of up to \$100,000 in reimbursable grants will be made.

Upcoming Application Timeline:

Webinar hosted in September 2022

Application materials available September 19, 2022

Applications due November 10, 2022 (5PM CT)

Applicants notified by December 15, 2022



Visit <https://www.cdr.wisc.edu/dbia-grant-program-1> for more information including the Dairy Business Builder Grant “Helpful Hints” webinar.

The Dairy Business Innovation Alliance (DBIA) distributes grants to dairy based farms and processors in Illinois, Iowa, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, South Dakota and Wisconsin.