

Wet, muddy conditions can lead to lameness and mastitis in dairy herds

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(PhysOrg.com) -- Continuing autumn rains are producing conditions that can increase lameness and mastitis in dairy herds in South Dakota.

That's according to South Dakota Cooperative Extension Dairy Specialist Alvaro Garcia, who reminded dairy producers that cow deaths due to lameness or injury increased 60 percent between 1996 and 2007, and that the current conditions can lead to production losses, lower fertility, and greater culling rates.

"Lameness continues to be the second highest reason to cull in the U.S., right at 16 percent, according to a 2007 National Animal Health Monitoring System report," Garcia said. "Furthermore, a 1997 report from the Farm Animal Welfare Council considers lameness among the best welfare indicators for [dairy cattle](#)."

Garcia said producers should be aware of muddy conditions, since mud is among the predisposing causes for cattle lameness. "Wetness decreases hoof hardness and increases the incidence of claw lesions, and research by Borderas and others has shown that nearly one-third of the total water absorbed by the hoof was during the first hour of exposure to high moisture conditions," said Garcia. "This results in heavier and softer hooves."

An SDSU publication addresses wet weather and its affects on dairy herds. SDSU Extension Extra 4044, "Wet Weather: Lameness and Mastitis," is available at this link: pubstorage.sdstate.edu/AgBio_P...

[rticles/exex4044.pdf](#) . Or ask for it at your county Extension office.

Garcia said that when veterinarians and dairy producers try to determine the cause of lameness, they look for the presence of infectious agents such as *Fusobacterium necrophorus* and [Bacteroides melaninogenicus](#). "Both of these agents can cause foot rot and digital dermatitis or hairy heel warts," said Garcia. "The warts are most likely caused by spirochetes, and the condition is still one of the leading causes for lameness in the U.S. Nearly 62 percent of lameness cases in bred heifers and 49 percent of lameness cases in cows comes from hairy heel warts." Producers should keep hooves as dry as possible, but Garcia said that can be difficult. It also is not the only problem.

"Finding ways to decrease the incidence of injury and infectious challenge to the hoof can be accomplished by footbaths and hoof trimming," said Garcia. "Footbaths are used to medicate the feet of cattle and aid in preventing lameness. Hoof trimming helps identify hoof disorders and maintain proper hoof health."

Garcia said that when hooves are not trimmed regularly they can grow unevenly, resulting in weight-bearing changes that can damage the underlying tissues. "Regrettably, the use of foot baths is not a common practice in the U.S. with only approximately 39 percent of the dairies using them," Garcia said. "The most common medication added to footbaths is copper sulfate, followed by formaldehyde or formalin, and then oxytetracycline." Copper in footbaths should be added at 2.5 to 5 percent or 62 gallons of water and 26 pounds of copper sulfate, Garcia said, based on 2009 research findings from Desnoyers and others.

"Dairies that use copper sulfate in their footbaths should test soil to check for copper loading," said Garcia. "Another important point is to remind producers that formalin is a solution of roughly 37 percent formaldehyde that can be hazardous to human health, causing irritation

of eyes, nose, and throat, and burn the skin." Producers should use Formalin solution at a rate of 4 percent, such as a solution of 1 gallon of 37 percent formalin and 10 gallons of water.

"The solution in the footbaths should be replaced often and kept free of organic matter since that matter can deactivate the copper in the solution," Garcia said. "In addition, hooves have to be trimmed regularly for weight to be distributed evenly and to avoid high pressure points that damage the underlying tissues."

Garcia said current muddy, windy conditions increase the severity of skin damage, the degree of colonization by *Staphylococcus aureus*, and increase the risk of mastitis. He said research has shown that ointment-treated teats had marginally higher concentrations of *Staph. aureus* than dipped teats. The results suggest that treating teat skin with ointments can actually be more "cosmetic" and may not reduce the incidence of intra-mammary infections.

"Although ointments are good skin conditioners, their use may be warranted before the skin is damaged by cold weather rather than for treatment," Garcia said. The use of post-milking teat disinfectant is the single most effective practice for reducing the incidence of contagious mastitis, Garcia said. Teat dips containing 1 percent iodine and 10 percent glycerin have been demonstrated to reduce the number of new intra-mammary infections caused by *Staph. aureus* by close to 90 percent.

To reduce the colonization of the skin it is important to teat dip and then blot the teats dry before the cows exit the parlor and are exposed to cold drafts. According to the 2007 National Animal Health Monitoring System Dairy study, *S. aureus* is the most prevalent contagious mastitis pathogen in the country, and its prevalence – 43 percent of all dairy farms have reported it – appears to be unrelated to herd size or region.

Due to the contagious nature of this bacterium, using gloves is a very important prophylactic practice. However, Garcia said, while nitrile disposable gloves cost as little as 40 cents per pair, nearly half of the dairies in the U.S. still did not use them.

"The costs per mastitis case are estimated as being close to \$200 per cow, with these additional costs being due to reduced production, discarded milk, costs of replacements, additional labor, treatment, and veterinary expenses," said Garcia. "To make matters worse, in trying to save costs by not purchasing gloves, there's a risk of spreading the infection to other cows." Garcia added that there are additional strategies to consider. Producers should milk cows with Staphylococcal mastitis at the end of the milking shift with a separate milking unit, or group the animals into a separate string of "sick" cows.

Provided by South Dakota State University

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