The Latest Across the Plains

Timely Reminders

- Use at least two methods of fly control.
- Deworm cows and bulls with an injectable or drench dewormer.
- Semen test bulls and make sure they have an adequate ration including mineral.
- Review your heat synchronization program and time-line.
- Put up shades.
- Make sure that waterers have enough space, recharge rate, and are cleaned weekly.
- Review your implant program with us.
- Review rations with current feed costs.
- Optaflexx® is profitable to feed to conventional feedlot cattle the last 28 days prior to slaughter.
- Keep pens scraped.
- Implant suckling calves going to pasture.

Silage for Beef Cattle Conference

GPLC's own Jason Warner will be presenting at the Silage for Beef Cattle Conference on June 14th at the Eastern Nebraska Research and Extension Center near Mead, NE. Be sure if you are not able to attend the event to check out the live-stream to hear Jason discuss the value of silage in backgrounding rations.
For more information on the conference go to: http://newsroom.unl.edu/announce/beef/7865/45902

Unused Feed

"Striving for success without hard work is like trying to harvest where you haven't planted" - David Bly

Save Money $$$ Test Your Feeds

Tests are relatively inexpensive, usually costing less than $18, for the information derived. Contact our office to set up an appointment to have us pull feed samples if we have not done so yet.

We want to hear from you…

We are planning to go electronic with our next newsletter. If you would like to continue to receive a paper copy, please contact us through our website www.GPLC-Inc.com, call the office at 402-781-9378, or talk to your GPLC consultant.

Calendar of Events

- **June 1 - 10** Beef Empire Days, Garden City, Kansas
- **June 6 - 7** Nebraska Cattlemen Midyear Meeting, Grand Island, NE
- **June 8 - 10** Missouri Cattlemen's All Breeds Junior Show, Sedalia, MO
- **June 14** Silage For Beef Cattle Conference, Ithaca, NE
- **June 14 - 15** Illinois Beef Association Summer Conference, Galena, IL
- **June 17** Father's Day
- **June 18 - 20** Colorado Cattlemen's Association Convention, Loveland, CO
- **June 20 - 23** Beef Improvement Federation Symposium, Loveland, CO
- **July 9-10** MN State Cattlemen's Tour, Windom, MN
- **July 20 - 21** Oklahoma Cattlemen's Association Annual Convention and Trade Show, Norman, OK
- **August 1 - 4** Cattle Industry Summer Business Meeting, Denver, CO
- **August 6 - 8** Texas A&M Beef Cattle Short Course, College Station, TX
- **August 9 - 19** Iowa State Fair, Des Moines, IA
- **August 9 - 19** Missouri State Fair, Sedalia, MO
- **August 24 - September 3** Nebraska State Fair, Grand Island, NE

Digital Dermatitis

By Jordan Burhoop, M.S.

Maintaining hoof health in beef and dairy herds requires active management and is a key to maximizing profitability. Not only does hoof health play an important part in an operation's profitability, but lameness is also an animal welfare concern. One cause of lameness is digital dermatitis, also known as hairy heel warts. It has been reported that approximately 75% or more dairy operations had at least one case of digital dermatitis in heifers and cows. Incidence of digital dermatitis in beef cattle is considerably lower than in dairy cattle and information and research is limited in the beef sector. Cattle that are subjected to manure slurry for extended periods are thought to be at the highest risk of contracting digital dermatitis, but cattle in dry conditions can also contract the disease due to tissue damage of the foot.

Digital dermatitis is a highly infectious disease causing a raw area, or ulcer, to develop on the heels. The disease can also be described as a raw, bright-red or black circular erosion of the skin above the heel bulbs, with edges forming a white margin that surrounds sores or is next to thick, wart-like growths. Digital dermatitis is highly contagious and will quickly spread through the herd if proper control measures are not taken. In approximately 85% of digital dermatitis cases, the rear feet are infected; however, ulcers can be found on the front feet as well. Digital dermatitis is caused by *Treponema* spp., which is a bacterium that is found in the rumen, gastrointestinal tract, manure slurry, or trailers that have transported infected animals. The bacteria enter the deep layers of the epidermis through cracks in skin cells due to chemical trauma, physical trauma, or via hair follicles.

Primary clinical signs that will be observed from an animal infected with digital dermatitis can be easily confused with foot rot or many other diseases that affect hoof health, so closer examination is needed for differentiation. Signs of digital dermatitis that are easily noticeable are an altered gait, lameness, reluctance to bear weight on the affected limb, and in extreme cases, reluctance to move. If the animal is not treated when primary clinical signs are present, the disease may progress and could eventually lead to weight loss, loss of fertility, or decreased milk yield. A study conducted by Hernandez et al. (2001) measured a 29% reduction in conception rates when dairy cows were infected with digital dermatitis. Dopfer et al. (1997) described the disease as being split up into various M stages based on type of lesion present.

Treatment of digital dermatitis is very labor intensive and can be difficult to do depending on facility and labor availability. Treatment in a dairy herd is much easier than in a beef herd, especially a feedlot setting. Dairy cows can be treated when they come into the milking parlor to be milked; however, in a feedlot, individual affected cattle will need to be brought to a chute and then transferred to a dry pen while healing takes place. The best form of treatment of acute lesions is with a topical antibiotic powder, such as oxytetracycline, and then applying a wrap with a gauze pad and waterproof bandage. This process usually needs to be repeated multiple times for proper healing to take place. Once healing has started, the lesion no longer needs to be covered and the topical antibiotic can be sprayed on to the affected area.

Another form of treatment that can also be used as a preventative measure for digital dermatitis is a footbath. A footbath is used to stop chronic or subclinical digital dermatitis from going into the active form. If an infectious outbreak occurs, it is recommended to use the footbath for three to four consecutive days. Footbaths need to be located in an area that is regularly traveled by cattle to make the process as efficient as possible. It needs to be a minimum of four inches deep to ensure adequate coverage of the foot and needs to be wide enough to not affect animal flow. The footbath should be 10 to 12 feet long to get three dunks of each foot for adequate exposure to treatment solutions. A solid sidewall will help with cattle flow through the footbath and will lead to increased retention of treatment solution. After walking through the footbath, cattle should have a clean, dry area to enter to ensure the most effective treatment. The treatment solution should be changed after 150 to 200 head have passed through the footbath, but the number of head may change based on foot hygiene, type of disinfectant used, the chemical concentration of the solution, and total footbath volume. There are many different solutions to mix with water that can be used in the footbath. Formalin can be used to make a 2-5% solution; however, formalin is not effective at temperatures below 45° F. Copper sulfate can also be used in a 2-5% solution and the addition of an acidifier to reduce the pH to 4 may help control infectious lesions. Another option is mixing zinc sulfate to make a 2-5% solution. Pen wide treatment, especially of feedlot cattle housed in barns, is not difficult when a footbath is used. It is recommended to footbath cattle off the truck when they arrive, followed by footbath treatment every 30 to 45 days while on feed to limit the impact of digital dermatitis.

Since treatment in beef cattle herds is difficult, it is important to have proper prevention strategies in place so the need for treatment is kept to a minimum. Aspects of the diet can be manipulated in order to optimize the animal's immune response to digital dermatitis, improve the integrity of the skin, and increase the resilience of the foot. One way that this can be achieved is through organic trace mineral supplementation. Trace minerals take approximately 60 days to affect hoof and foot quality, so trace mineral supplementation needs to begin on day one of feeding. Zinc is required for maintenance of skin integrity, stabilization of membranes, and activation of the cell-mediated immune system. The NRC recommended level of zinc in the diet is 30.0 mg/kg. Iodine affects the local inflammatory response and helps with destroying foreign pathogens. The NRC recommended level of iodine in the diet is 0.50 mg/kg. Gomez et al. (2014) fed a premix to Holstein steers that contained higher than recommended levels of organic trace minerals and iodine. The experimental premix contained approximately 1.6 times more zinc and 2.9 times more iodine compared to the control premix. The authors reported that there was a trend ($P = 0.11$) for a reduction in the total digital dermatitis infection rate and the average size of lesion when the experimental premix was fed to Holstein steers. A commercial feedlot trial was conducted by Kulow et al. (2017) to compare prevalence and effects of digital dermatitis in beef steers provided a diet supplemented with a combination of inorganic and organic trace mineral sources (OTM diet) compared to a diet provided with similar levels of trace minerals solely from inorganic sources (CON diet). In the initial 60 days of feeding, which was considered the adaptation phase, cattle in the OTM group had a higher incidence of lesions compared to the CON group (54.03% vs 26.72%, respectively); however, for the rest of the feeding period, the probability of observing a case of digital dermatitis was significantly higher ($P < 0.05$) for the CON group compared to the OTM group. The authors also reported that growth performance, final live weight, and hot carcass weight were negatively impacted when steers were observed with active lesions ($P < 0.04$). This study displayed how digital dermatitis can progress in a feedlot when no preventative measures are used and the negative impact that the disease can have on production parameters.

Clearly it is important to be aware of the possible impacts that a disease such as digital dermatitis may have on the profitability of an operation. Proper management of the disease is required and a control program should be put in place to avoid negative effects associated with it. Please consult your GPLC consultant to discuss further recommendations for feeding programs or for other management considerations.

Utilizing Baleage

By Robert Jones, M.S. and Luke Miller, M.S.

With hay season in full swing, many producers are busy in the field putting up hay. Due to the expense and time invested into putting up a hay crop, it is important to keep in mind steps to maximize forage quality. The humid and wet conditions in the midwest and lower plains regions can create difficulty in harvesting hay that is dry and of good quality.

Baleage, also known as haylage, is essentially baled silage. Baleage is a forage that is 40 to 60% dry matter wrapped in plastic, either individually or inline, and fermented to preserve the nutrients. Forage quality is highest at the time of cutting and forage quality is **NOT** significantly improved due to ensiling. Wrapping reduces the time needed for hay curing and risk of weather damage to the forage, which allows producers to harvest forage at a more ideal stage of maturity. If put up properly, high moisture forages tend to be more palatable resulting in less waste at feeding. Furthermore, wrapped bales result in minimal waste (5-10%) compared to dry net wrapped bales that are stored outside (20%). It takes only 4" of weatherization on the outside of a 4' x 5' bale to account for 25% loss. Wrapping dry bales can also be an effective tool to reduce loss. The same white plastic wrap that is used for high moisture forage can be used for dry but be sure the hay is fully cured and ideally 17% moisture or less. Because it's not ideal to store dry hay in an airtight environment, cut slits in the plastic between bales, about 2 feet apart across the top at every 5-6 bales. Slits can also be placed at the bottom to allow for any water that may enter the top to run out. For more information on storing dry hay refer to the 2014 July/ August newsletter which can be found at https://www.gplc-inc.com/#!/resources/newsletters.

Forage fermentation is a 6 to 8 week process and is important for preserving the nutritive value of high-moisture forages that are ensiled. The process starts with respiration where carbohydrates and proteins are degraded by the dying plant. Initial fermentation is driven by aerobic fermentation lowering the pH of the forage. This drop in pH is essential to kill unwanted bacteria and to jump start anaerobic fermentation. Anaerobic fermentation occurs in the absence of oxygen and allows lactic acid bacteria to thrive. Increasing lactic acid bacteria causes a reduction in pH due to lactic acid presence. The objective of ensiling is to get the forage to an anaerobic state as quickly as possible.

Several factors influence the fermentation process. Plants containing large concentrations of buffers such as phosphates, sulfates, nitrates, chlorides and tannins are harder to ensile, as a significant drop in pH is needed for proper anaerobic fermentation. This is why legumes tend to be more difficult to ensile than grass haylage. Baleage is not typically chopped into small particles as haylage or silage would be; therefore, the ensiling process can take longer and be less complete due to trapped oxygen within the bale and a slower release of soluble carbohydrates from longer stems. Ensiling can lower nitrates approximately 50% if proper fermentation occurs. In drought stress situations, utilizing baleage is a strategy to be considered. Even though ensiling lowers nitrate concentrations, it is still important to test forages before feeding as nitrates can still be at toxic levels.

In drier baleage (> 60% DM) it is important to ensure that the bales are ensiled air tight, which may require more wraps of plastic, to reduce air permeation and spoilage. Heat damage can occur whenever baleage is baled and wrapped too dry. Heat damage results in proteins being denatured and loss of soluble carbohydrates. There are other factors that can contribute to heat damage, such as low bale density and air infiltration. The main drawback when dealing with wet baleage is that if baled too dry there is risk for significant mold problems and heat damage. Our recommendation would be to error on the side of being too wet than too dry when baling. On the other hand, it is still important to have a wilting period as baleage that is too wet (< 40% DM) poses the risk for clostridial fermentation, which produces butyric and acetic acid as well as ammonia which can cause problems at feedout. However, most issues will arise when the forage is baled and wrapped too dry.

There are several management strategies that need to be considered when harvesting baleage. Forage needs to be mowed into wide swaths to minimize starch and sugar breakdown by unwanted respiration in the field. Bale size is important to be mindful of, making sure your equipment and wrapper are capable of handling the size and weight of the bales. For example, 900 lbs of dry weight baled at 85% DM would weigh 1059 lbs, whereas that same 900 lbs of dry weight baled as baleage at 50% DM would weigh 1800 lbs. Having a baler that not only can handle the weight of the wet forage but also has the ability to make a tight bale is important, as proper bale density is needed to ensure an anaerobic environment. Slowing ground speeds and increasing PTO speeds can also help increase the density of bales. Net wrap is the preferred choice for baleage, as there is a smoother bale surface with less risk for sharp stems to tear the plastic; however, de-oiled sisal or plastic twine is an option. Make sure that bales that are individually wrapped are moved and stacked within 12 hours following wrapping and are not disturbed until fermentation is complete (6-8 weeks). Doing so could expose the bales to oxygen and disrupt the fermentation process. Do not wrap bales that have an excess amount of dew or moisture on them. Bales should be wrapped with at least 6 layers of 1 mil plastic with 50% overlap between layers. A study conducted at the University of Wisconsin concluded that wrapping bales with at least 6 layers of 1 mil plastic had lower internal temperatures than bales wrapped with 5 or less (Undersander, 1988). Increase layers of plastic if there is an increase in forage DM, maturity, or if the forage contains sharp stems. Bales should be wrapped within 12 hours of baling. Face inline wrapped bale rows north to south to minimize UV damage to plastic. Bales need to be stored in a well-drained area and checked periodically for tears or rodent damage to the plastic wrap. With these considerations in mind, only wrap hay that you can feed in a year's time.

Another item to keep in mind when dealing with baleage is feed-out options. Grinding baleage with a commercial tub grinder can get rather expensive due to the time and fuel it takes to grind the high moisture forage. Feeding baleage in a hay ring is an option, however waste can become an issue as well as inefficient if feeding in a feedlot pen. Alternative options to consider would be to grind the forage with a vertical mixer or bale with a baler that has a pre-cutter system.

Baleage can be costly to store with custom rates at $6-12 per bale; however, depending on your region and ability to harvest dry hay effectively, baleage can be a feasible method to store forages due to reductions in feeding and storage losses. Baleage starts to become even more economical when harvesting high quality forages such as alfalfa, winter annuals, or legume/grass hay mixes. The University of Georgia reported in a 2014 analysis that implementing a baleage system would take a herd size of approximately 50 cows to breakeven if hay equipment was already owned and custom operators were hired to wrap the bales (Lacy, 2014). If wrapping the baleage yourself, the cost of plastic is approximately $0.30 per wrap and it is important to not buy more wrap than you need for a season. The LSU AgCenter conducted an analysis in 2013 that concluded if producers were going to purchase all the equipment themselves, their herd size needed to be > 150 head to breakeven. If you would like to know more on the topic feel free to contact your GPLC consultant to discuss other options on preserving hay quality.

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The Great Plains News Feed

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