Managing Pasture to Maximize Dry Cow Benefits

Victoria Couture, Graduate Research Assistant
Gina Pighetti, Associate Professor
Peter Krawczel, Associate Professor
Liz Eckelkamp, Assistant Professor and Extension Dairy Specialist
Department of Animal Science

The majority of dry cows in the US are allowed pasture access for good reason: it is an inexpensive housing and feeding resource[1]. Cows can meet nutritional requirements through grazing, saving producers money on growing and harvesting feedstuffs. Lameness and udder health can also improve when cows are on pasture[2, 3]. However, poorly managed pastures may not meet cattle nutritional requirements and lameness and mastitis incidence can increase. Maximize pasture benefits during the dry period by focusing on pasture management, high traffic areas, water access and the calving area.

Tips for Managing Dry Cow Environment on Pasture

Pasture

- Utilize rotational grazing to maximize pasture as a feed source. By splitting pastures into smaller paddocks and moving cows on a regular basis when forage quantity declines, you have more control over what, where and how much the cow is grazing, allowing you to minimize waste[4].
- Rotational grazing also can prevent worn areas in the pasture that lead to mud and increased bacterial load[5]. A rest period makes for a better feeding and housing area by allowing time for forages to grow over bare spots. It also gives time for manure to break down and for management activities — like replanting — to take place. Measure forage height to determine when it should be grazed. Ideally, a mixed grass/clover pasture should be grazed when it is 10 to 12 inches tall until it is 2.5 to 4 inches tall. See UT Extension publication SP 802 "Forage Mixtures for Dairy Grazing," for more forage ideas.
- Multiple factors can influence stocking density, including pasture quality, amount of supplemented feed, breed or size of cows, and weather conditions. A general rule of thumb is 1.5 to 2 acres per cow for a year of grazing. Work with your local Extension agent to calculate an ideal stocking density for your farm based on how much pasture is available and how many cows you have.

Grazing Lanes and High Traffic Areas

- High bacterial loads exist in high traffic areas where the soil is bare or manure builds up, such as grazing lanes, feed areas, under shade structures or near waterers[6]. Adding surface material to these areas can prevent mud from forming, keep cows clean, and decrease mastitis risk. Geotextile material covered with fine-grade gravel will prevent mud and endure heavy traffic[4]. Concreting feed areas makes it easier to remove manure and spilled feed.
- Build up grazing lanes or feed areas so that water runs off these areas and add ditches or pipes to transport runoff water[4]. Preventing standing water will allow these areas to dry more quickly and minimize splashing of dirty water onto udders.

Figure 1. Muddy grazing lanes contain high bacterial loads and increase risk for mastitis.

Water Access

- If allowing a natural water source as drinking water, limit access to one area with protected banks and test water quality to ensure there are no pollutants in the water[7]. Ball waterers minimize potential for freezing or contamination in a pasture, but open, portable waterers are useful in rotational grazing systems. Provide 3 to 4 inches of waterer space per cow. No matter what type of waterer is in use, ensure it is within 600 to 800 feet of any spot of the pasture, and the water is in it is clean and available 24 hours a day, seven days a week.
- Providing high-quality water is important to promote water intake. Water maximizes cooling mechanisms, feeding behavior, and overall health. Established watering sources can also be beneficial in controlling movement of cows throughout a pasture[8].
- The complications of standing water are present even when that water is contained in a creek, stream or pond. Cows are commonly allowed access to these areas as an affordable watering source, a spot to cool down, or because time and money are unavailable for fencing. However, challenges of streams and ponds accompany these conveniences. This includes increased risk for dangerous mastitis pathogens such as *E. coli* and Pseudomonas spp.[9, 10], transfer of bacteria downstream, erosion of creek banks, and danger of drowning for newborn calves. To offset the cost of protecting these water sources, the Natural Resource Conservation Service offers cost share programs for producers.

The environment of dry cows contributes to considerable illness risks if not managed properly. If a disease is obtained during the dry period, the cost of labor and treatment; potential death or culling; and loss in milk quality, yield and fertility after calving contribute to a significant economic burden. Ensure pasture management for dry cows is maximizing benefits that last into lactation.

For more information, direct requests and questions to your county Extension agent, or contact Liz Eckelkamp at 865-974-8167 or eeckelka@utk.edu.

References

1. USDA, *Dairy 2014, "Dairy Cattle Management Practices in the United States, 2014"*, USDA-APHIS-VS-CEAH-NAHMS, Editor. 2016: Fort Collins, CO.
2. Hernandez-Mendo, O., et al., *Effects of pasture on lameness in dairy cows.* Journal of Dairy Science, 2007. **90**(3): p. 1209-1214.
3. Washburn, S., et al., *Reproduction, mastitis, and body condition of seasonally calved Holstein and Jersey cows in confinement or pasture systems.* Journal of dairy science, 2002. **85**(1): p. 105-111.
4. Undersander, D., et al., *Pastures for Profit: A Guide to Rotational Grazing (A3529)*. 2002, Madison, WI: Cooperative Extension Publish, University of Wisconsin-Extension.
5. Lopez-Benavides, M.G., et al., *Field Observations on the Variation of Streptococcus uberis Populations in a Pasture-Based Dairy Farm.* Journal of Dairy Science, 2007. **90**(12): p. 5558-5566.
6. Oliver, S.P., et al., *Foodborne Pathogens in Milk and the Dairy Farm Environment: Food Safety and Public Health Implications.* Foodborne Pathogens and Disease, 2005. **2**(2): p. 115-129.
7. Burns, R.T., et al., *Selection of Alternative Livestock Watering Systems*. Agricultural Extension Service The University of Tennessee.
8. Green, G., *Design and layout of grazing systems*, N.R.C. Service, Editor., Missouri State University Extension.
9. Swistock, B., *Interpreting drinking water tests for dairy cows*. 2015, PennState Extension.
10. Petersson-Wolfe, C.S. and M. Arnold, *Reference guide for mastitis-causing bacteria*, in *Southeast Quality Milk Initiative*.

INSTITUTE OF AGRICULTURE
THE UNIVERSITY OF TENNESSEE
Real. Life. Solutions.™

W 812 03/19 19-0177 Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.