HAVE A PLAN FOR HEAT STRESS

Summer is fast approaching, bringing with it the promise of hot weather and added stress for dairy cows. The symptoms of heat stress are easy to recognize. Rapid, shallow breathing with respiration rates of at least 60 breaths per minute, open mouth panting, extended tongues, and drooling are all indicators of animals experiencing heat stress. Less apparent are the effects this has on the cow internally. A dairy cow undergoing heat stress is in survival mode. Her feed intake can decrease by 35%. Instead of mobilizing fat (which generates more heat), her body chooses to degrade protein. Protein degradation produces urea as a byproduct. Some of this urea can accumulate in the uterus resulting in reduced fertility and the remainder must be removed by the kidneys—a process that requires her to use more energy. On the reproductive side, not only can fertility be reduced by the increased urea, but embryo survival is compromised at body temperatures exceeding 102.2°F, particularly in the first week after insemination. In the end she is not able to meet the energy demands required for maintenance and production; production is sacrificed and embryo survival is greatly reduced. Is it any wonder that production losses of 20 to 30 percent and single-digit pregnancy rates are common during the summer months?

The good news is you can mitigate some of these losses through cow cooling. Providing shade should be priority number one. Solar radiation can raise the temperature-humidity index (THI) by 6 to 9°F. Also, make sure adequate drinking water is available. Provide 3 to 4” per cow of linear tank perimeter. Keep in mind cows will consume 30 percent of their water upon exiting the parlor; make sure adequate space is available for all cows to drink upon exiting the parlor.

Sprinklers and fans are also critical for effectively cooling cows. Research from University of Arizona shows that fans alone are not effective at cooling an already hot cow. This is not to say that fans are not beneficial. Fans can still increase airflow and delay the rise in temperatures in a barn. However, if you really want to cool cows and have a major impact on heat stress, water is critical.

► Sprinklers and fans in the holding pen are a great place to start. The holding pen is the most stressful location on the farm and can be one of the best locations to add sprinklers. However, if sprinklers are added make sure to include fans or you can create a “sauna” effect with water alone.

► Sprinklers over the feedbunk are the next priority.

► Fans over the freestalls and the feedbunk should be next. All fans should be spaced so that at least 5mph wind speeds can be measured underneath the next fan. New recommendations are to turn fans on at 65°F and sprinklers at 68°F. Also, keep in mind fans need to be cleaned. Dirty fans can reduce fan efficiency by 40 percent. For more information on recommended cooling systems contact your local Dairy Extension Agent.

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BULK TANK SOMATIC CELL COUNT—LOWERING THE LIMIT?

For decades, the legal limit for the bulk tank somatic cell count (BTSCC) in the U.S. has been 750,000 cells/mL. Above which, producers cannot ship their milk for sale. However, there has been a movement to lower the legal limit. Most recently, the National Milk Producers Federation proposed to drop the legal limit from 750,000 cells/mL to 400,000 cells/mL. This proposal was rejected by the National Conference on Interstate Milk Shippers (NCIMS). Despite this rejection, the legislation has been introduced to Congress and if enough scrutiny is raised, the lowering of the legal limit may happen in a process outside of NCIMS.

The impetus to lower the legal limit has been prompted by the European Union (EU), which has maintained a
“Producing milk of the highest quality not only benefits the processor and consumer through increased shelf life and improved taste, but also benefits you through long-term profitability.”

For more information on Dairy Extension or to learn about current programs, visit us at VT Dairy — Home of the Dairy Extension Program on the web at: www.vtdairy.dasc.vt.edu.

Charlie Stallings
Dairy Extension Coordinator & Extension Dairy Scientist, Nutrition & Forage Quality

400,000 cell/mL limit for years. EU documentation states that any imported milk product must be produced under these same guidelines. Despite our international trade in previous years, the EU is now adhering tightly to their guidelines and requiring all imported products to meet their standards. Our current limit of 750,000 cells/mL will quickly limit trade, affecting our ability to remain competitive internationally.

With this background, it is my opinion that the national limit for SCC will be lowered in the near future—making this the perfect time to review some BTSCC lowering guidelines. First, culture all cows over 400,000 cells/mL or the top 20% of the herd, whichever results in the least number of cows. This list is easiest to determine if you are enrolled in the DHIA monthly monitoring program. If you are not, this is the time to get enrolled. Once you have these culture results, refer to the Reference Guide for Mastitis-Causing Bacteria to learn the source of the infections specific to your herd. Remove contagious animals from the herd or milk them last, treat those which might be susceptible to antibiotics with the help of your herd veterinarian, monitor those high SCC cows in subsequent months and repeat this process monthly.

Next, culture all cows with clinical mastitis. Again, remove contagious cows from the herd or milk them last, treat those susceptible to antibiotics with the help of your veterinarian, and monitor these cows with subsequent tests. The use of a strip cup in the parlor will help to identify cows with the early signs of mastitis. Milk from these cows and any other suspect cows should not go in the tank. You must also be willing to cull cows who do not cure. They may be a risk to the herd or milked last. Also, it is absolutely essential to prepping all cows properly. Units should be cultured immediately and treated when possible. Cows with a contagious infection should be removed from the herd or milked last. Also, it is absolutely essential to focus on maintaining a clean and dry area for calving as well as for fresh cows. Calving stressful on the immune system, increasing risk for new mastitis infections. Ensuring a clean and dry environment will help reduce this risk.

These recommendations will help producers proactively lower their bulk tank SCC. Producing milk of the highest quality not only benefits the processor and consumer through increased shelf life and improved taste, but also benefits you through long-term profitability.

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