



DAIRYINFO

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Taking service to another level!

Reducing Heat Stress in Dairy Cattle...

Heat stress takes a toll on dairy cattle almost every summer, with the impact continuing long after summer heat has past and the weather begins to cool. At temperatures above 22-23°C cows have to use energy in order to cool themselves through heat loss via the skin and respiratory tract. High producing cows are the most sensitive to heat stress because of their high feed intake. Dry matter intake (DMI) starts to drop (8-12%) and milk production losses of 20-30% (which may exceed 4-11 kg/day) occur when temperatures exceed 32°C. It has been found that milk yield peaked at 4 kg more milk/day by cooled rather than non-cooled cows. This equates to more than 907 kg/lactation when cows are cooled! Cows whose dry periods occurred during hot weather also had calves with smaller birth weights and more metabolic problems after calving. They produced 12% less milk in the next lactation, and conception rates were lower due to less activity during estrus, reduced follicular activity, or early embryonic death.

Heat stress can result in sick cows that require prolonged care. It is associated with difficult births, heat exhaustion, fatty liver (fresh cows), mastitis, and adverse reactions to vaccinations, possibly leading to abortion and death. Reduced feed intake, followed by slug feeding when temperatures cool down can also cause acidosis, which is considered a major risk factor for laminitis. As ambient temperatures rise, the respiratory rate increases with panting progressing to open-mouth breathing. Lameness, with sole ulcers and white line disease may also appear several weeks to a few months after heat stress occurs.

Heat-stressed cows will seek out shade, which they often will not leave even to drink or eat, commonly standing rather than lying down and showing an evident increase in body temperature. Water is critical in helping to alleviate heat stress. During times of high heat, water consumption will increase by as much as 50%. Beede (1992) showed that cows consumed about 1 kg water/kg of DMI with temperatures between -17 - 5°C, but reached 3 kg/kg DMI at high temperatures, with high producing cows capable of consuming 189 liters of water/day. In order to encourage water consumption: put waterers in the shade; provide access to water right after milking; provide at least two water locations/group; have a water supply that will provide at least 11-19 liters/minute (cows can consume over 22 liters/hour); maintain a minimum of four inches water depth; provide a minimum of 0.2 sq. meters of surface area/cow at each waterer; keep water tanks clean; monitor water temperature—cows prefer water at 21-30° C. Shade is also critical in helping to relieve heat stress. Any shade-related structure should be oriented with a southeastern exposure of an open sidewall. Be sure to eliminate any wind block within 15 meters of the windward

side of the building. Each cow should be provided with 18 - 24 sq meters of shade and the facility needs to optimize natural ventilation as much as possible. Additionally, any holding area should have open sidewalls and ridge ventilation, and cows should be in the holding area *no more* than one hour per milking. The most common material used for shade is a woven polypropylene fabric, providing at least 80% shade. This material can be used for several years, if kept tight. Make sure cows under shade have adequate feed and water in order to gain the most benefit from shade.

Another consideration in helping to alleviate heat stress is fly control. Flies may cause cows to bunch up or gather in a closely compacted group, contributing to heat stress. The first and most important step in fly control is sanitation, along with eliminating breeding areas on a weekly basis – including manure, wet and spilled feed and silage, rotting hay, manure drains and leaking water cups.

And when it comes to cooling it is important to remember a couple of things: cool the holding pen near the parlor using fans and sprinklers to help reduce (up to -9°C) the ambient temperature. Remember: cooled cows produce more milk than non-cooled cows! This may include providing banks of 0.9 - or 1.2- meter fans about 2.4 meters off the ground and 6-8 ft apart, depending on pen width, and placing sprinklers under the fans to wet the cows every 5-15 minutes. You might also consider putting shower nozzles on an electric eye as cows exit the parlor, encouraging them to eat after milking. Placing waterers in the barn or travel lanes (with adequate space/cow) is also important. When it comes to feed... feed total mixed rations; increase the number of feedings, offering smaller amounts; added buffers or yeast culture; pull unpalatable feeds from the ration and remove old feed; use higher quality, more palatable feedstuffs; feed high quality forages and more digestible feeds; avoid secondary fermentation in the bunk and provide shade for the feed bunk; use mold inhibitors; maintain consistent feeding times and meet minimum fiber levels; and avoid slug feeding. Supplemental fat can also be added to rations to increase energy intake; and avoid overfeeding protein during hot weather because it takes energy to excrete excess nitrogen. Remember that cooler cows make more milk and experience less stress!

(edited from an article by Drs. Jones and Stallings, Dept. of Dairy Science, Virginia Tech)

SUMMER IS COMING!
ARE YOU READY FOR HEAT STRESS?
W-S FEED... *quality & service!*

Interested in discussing topics in this newsletter, or to do a better job feeding and managing your cows? Call us today.

Our goal and commitment is to help you!!

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Celebrate Dairy Month!

Everyone needs to support and encourage our dairy industry, along with all agriculture! At W-S Feed, that's what we do every day, working with you to feed your cows efficiently and effectively. Join us in supporting our dairy industry locally and nationally, and encourage people everywhere to take advantage of the many quality available dairy products, which are among the safest and most nutritious foods you can eat. Our industry helps to feed Canada... and the world! We are proud to serve dairy producers with excellent nutrition, products and services, management insights and information, agronomic support... all the tools needed for maintaining the health, productivity and profitability of dairy animals.

SUPPORT DAIRY TODAY & EVERY DAY!

Thank You... for all your efforts.

HEAT STRESS IS COMING.

Cool, wet weather throughout much of May in many areas has almost tricked us into thinking that the heat and humidity of summer is a long way off. The fact is you need to start preparing now for hot weather and its potential impact on your herd. Heat and humidity adversely affect dry matter intakes. Consequently, production and profitability are also impacted. It is vitally important to maintain quality nutrition during summer months with a diet that is designed to counter the effects of heat stress. One important way to combat heat stress in dairy cows is to ensure they are fed a highly digestible, but rumen-friendly ration. A ration short on energy can only lead the animal toward a decreased ability to manage times of high heat and humidity, which is often evidenced first by a reduction in dry matter intake, along with depressed milk production. We can help you evaluate your ration program(s) to ensure they meet the energy needs of your cows throughout the coming summer months. Additionally, we can offer management suggestions to help alleviate heat and humidity, along with the impact these can have on dairy animals of all ages, offering products that can assist in this process, and helping to counteract the impact of heat stress this summer.

Help your cows "cool off" this summer... with W-S Feed!



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CHECK IT OUT!

