



DAIRYINFO

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Reducing Heat Stress in Dairy Cattle...

Heat stress takes a toll on dairy cattle every summer, with the impact continuing long after summer heat has past and the weather begins to cool. Beginning at temperatures around 18-21° C, cows use energy 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 4.5-11 kg/day) occur when temperatures exceed 32° C. It has been found that milk yield peaked at 4 kg more milk/day by cooled versus non-cooled cows. This equates to more than 907 kg/lactation when cows are cooled! Dry cows whose last 3 months of gestation occurred during hot weather also had calves with smaller birth weights and experienced more metabolic problems after calving. They [also] 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 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 cause of laminitis. As ambient temperatures rise, a cow's 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.

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 1.3 kg water/lb 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: (a) put waterers in the shade; (b) provide access to water right after milking; (c) provide at least 2 water locations/ group; (d) have a water supply that will provide at least 11-19 liters/minute (cows can consume 22 liters/hour); (e) maintain a minimum of 7.6 cm water depth; provide a minimum of 60 cm² of surface area/cow at each waterer; (f) keep water tanks clean; (g) monitor water temperature – cows prefer water at 21-30° C.

Shade is also critical in helping to relieve heat stress. Heat-stressed cows will seek out shade, which they often will not leave to drink or eat, commonly standing

rather than lying down and showing an evident increase in body temperature (increased respiratory rates). Shade structures on pasture or dry lots should be oriented north-south. Be sure to eliminate any wind block within 15 m of the windward side of the structure. 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, holding areas should have open sidewalls and ridge ventilation, and cows should be in the holding area no more than one hour/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 to gain the most benefit from shade.

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 heat gain by the cows - cooled cows produce more milk than non-cooled cows! This may include placing banks of 91- or 122- cm fans about 2.4 meters off the ground and 1.8-2.4 meters apart, depending on pen width, and using sprinklers to wet the cows every 5-15 minutes. To augment holding pen heat abatement, you might also consider putting shower nozzles on an electric eye as cows exit the parlor. Placing extra waterers in the barn or travel lanes (with adequate space/cow) is another potentially beneficial consideration.

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



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Plan Ahead – June is Dairy Month**



*Interested in discussing topics in this newsletter, or want to do a better job feeding and managing your cows? Call us!
Our goal is to help you. That's the W-S Feed commitment!*

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SOLUTIONS FOR SUCCESS**

THINKING AHEAD!

In coming months, it will be time to start making hay or haylage (if you haven't already done so). Even though the corn harvest is months away, it is important to consider investing in a quality inoculants or preservatives for your ensiled and baled forages. Using a research-tested inoculant or preservative is an investment that can help maximize the quality of your forages from harvest until feedout.

Get the facts today! Plan ahead for the coming harvest now and in the fall... before it arrives, and maximize your investment. We offer quality products from:

LALLEMAND

WHAT ARE YOUR COWS TELLING YOU?

Cows don't talk. Well, not as we think of talking. But they have many ways of communicating with us, if we know what to look for. It's their way of letting us know if things are going well or if there are concerns needing attention. Sometimes it is a small thing such as a listless look, dull and lackluster eyes, or a rough hair coat. Other concerns may be more obvious, such as lameness, loose manure, loss of weight, etc. The key to understanding cows is to watch them closely. Then try to discover what is going on and how to address the concern(s) for a positive conclusion. Often, problems stem from a nutritionally-related or management-related situation. Are dry matter intakes where they should be? Is the ration properly balanced? Are the cows given sufficient fresh, clean water – and in clean tanks or cups? Do you have cow comfort issues that need to be addressed? Can cows lie down in clean, dry bedding? Do you use a foot bath and is it maintained on a regular basis? With the onset of spring and summer, along with rising temperatures and humidity there may be additional things to "listen" and look for! Consider what your cows are "telling" you every day and work proactively to help avert as many concerns as possible. It can make a difference in their productivity and health, and your profitability.



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CHECK IT OUT!