

# DAIRY-UPDATE

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## Coping with Heat Stress in Dairy Cows

By Nathalie Gentesse, agr. M. Sc.

The rumen's functions and the synthesis of milk are the two main activities responsible for heat production in the cow. Even within temperatures that seem comfortable for us, the cow will begin to suffer from the heat's effects. In fact, the cow's comfort zone stands between 5 and 20 °C, including the humidity index. Let's evaluate the heat production in a unit we know well, a 100 watt light bulb.

For instance, an 80kg man, at rest, generates as much heat equivalent to one 100 watt light bulb. A 725kg Holstein cow, at rest, is producing the heat of 9 light bulbs. Add one light bulb for each 4.5kg of milk produced. A cow producing 45kg of milk is generating heat equivalent to 19 light bulbs. If you have 100 cows in the barn, imagine the amount of heat produced! An efficient ventilation system, even in our temperate areas is absolutely necessary.

### Evacuate the heat

In an environment where the temperature stays between 5 and 20 °C, the cow easily evacuates the heat produced. On the other hand, in temperatures over 20 °C, especially if the ventilation is poor, the cow will use more drastic methods to refresh herself, such as sweating and

panting. She will increase her water intake and her appetite will decrease.

### Consequences

The heat induces some changes in the behaviour of the cow. She will tend to reduce her dry matter intake, to become more selective, and even to choose concentrates instead of forages. The summer is thus a favourable time for the development of acidosis in the rumen. The cow becomes less active and her metabolism slows down, which leads to less rumination and a decrease in digestibility of feeds.

In addition, the sweating and panting are using some extra energy, which will not be available for milk production and maintenance of body condition score. The equivalent of 0.5 to 1kg of corn per day may be used for that purpose.

When cows are suffering from heat, they are also losing some potassium in the sweat and in panting. Added with the loss of potassium in the milk, a deficit may happen rapidly.

### How to adjust the ration to minimize the summer's effects?

1. Many studies confirm that the adjustment of the dietary cation-anion difference (DCAD) to 35-40 meq/100g for early lactation cows increases their intake and milk production.
2. As the cows do not have any reserves in potassium, we have to make certain that the supply is up to 1.8% in the ration.
3. Using sodium bicarbonate at the rate of 0.75 to 1% in the ration contributes to increase the DCAD and at the same time to prevent rumen pH from dropping.
4. Maintain magnesium level around 0.4%.
5. Avoid excess protein in the ration because it generates some heat when it is transformed.
6. It is also the right time for using additives like yeasts and enzymes which increase the digestibility of feeds.

**Control the summer's effects on your cows.**

## Ladies and Gentlemen - Walk your Fields

By Colin Pool

It has been close to a month since many producers have taken off their first cut hay and thoughts of second cut are quickly approaching. I would encourage producers to go for a stroll through their fields to see what is happening. In Southern Ontario, we have seen some warmer weather with rain being quite spotty. If you factor this in, hay crops could be maturing quicker than we think. I know many producers keep a close eye on what their hay crop is doing, but for those who don't I would encourage you to do so and you will see the benefits to your feeding program.

I hear it everyday that producers want to feed their cows "cheaper". When we put together a ration for optimum production we are simply balancing your forages with a supplement to meet the cow's needs. The better the forage, the less expensive it is to balance the ration. The difference in crude protein from early cut forage to mature cut forage can be as drastic as 24% to 12%. We can argue the problems with having too high a protein in our hay crop and its effect on cows, but my point is this, good quality hay in a ration makes it more palatable, as well as off sets the protein requirements needed to be bought in. Cows will eat more and milk more off of your own feed.

Does this not make sense? Why not grow and feed your own protein instead of buying it. Walk your fields and optimize your profits.

## ANNOUNCING...



BSC Animal Nutrition Inc. is please to welcome Colin Pool as their new Ruminant Sales Representative.

Colin joins us with over 20 years of experience in the dairy industry including 10 years of managing the Ridgetown College dairy herd. He has also worked as an agriculture equipment sales representative and is committed to the community with 25 years of 4-H service.

He currently resides in Ridgetown with his wife Margaret and their 5 children.

Colin's primary focus at BSC will be on improving profitability and livestock health for Dairy and Beef Producers.

Please contact Colin if you would like more information about our Dairy or Beef Program and Management Services.

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**DAIRY UPDATE** is published in the interest of helping dairy producers become more profitable. We welcome your comments.

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