Heat Stress in Dairy Calves

Heat stress is a significant concern in dairy calves. During the summer months strategies are needed to alleviate symptoms and maintain optimal health. Cold stress during the winter may seem a more obvious concern but the hot sun, high temperatures and high humidity of summer put calves and heifers at particular risk.

Cattle, as well as humans, maintain a very regulated internal temperature regardless of the external environment. Under certain conditions, this internal temperature can be regulated without any extra expenditure of energy. This range of temperature is known as the thermoneutral zone. The thermoneutral zone for calves is between 15-25°C. Consequently, any temperature above 25°C requires calves to utilize energy beyond their maintenance needs in attempting to cool themselves.

During the summer calves have a reduced appetite while their energy needs required to maintain their body weight can increase as much as 20-30%. Hot weather can also impair the calf's immune function and promote bacterial growth resulting in more infectious diseases and secondary infections. Ultimately this can lead to overall poor development and performance and in severe cases may cause death.

Strategies to Alleviate Heat Stress:

Ensure sufficient ventilation and reduce exposure to direct sunlight – turning hutches to face east in the summer maximizes air movement and minimizes solar heating. Air movement can also be enhanced by opening vents and placing a block under the back wall of hutches. Studies suggest improving airflow helps to decrease bacterial contamination.

Ensure calves have full access to fresh, clean water - hydration is very important and calves should always be offered water in addition to their regular milk/milk replacer feedings. During the summer, calves will actually lose water in an attempt to maintain their body temperature. This water loss occurs through increased respiration (panting) and evaporative cooling (sweating). Water should be readily available in a clean bucket to all calves, even as young as a day old. Free access to water is also beneficial because it encourages greater consumption of calf starter.

Ensure adequate caloric intake – grain intake is reduced as a result of heat stress but maintenance energy requirements increase (as stated above). This results in decreased feed efficiency and weight gain will most likely suffer. Free choice water will encourage starter intake. Above all, in an effort to remedy this reduced caloric intake it helps to supplement the diet with additional milk or milk replacer.

Reduce stressors - when possible activities such as dehorning, vaccinating and transportation should be carried out when the environmental temperature is at its lowest (morning or evening).

Since calves are the foundation of your future milking herd it is important to ensure that their welfare is a priority.