



Changing weather patterns with more weather extremes are becoming increasingly common. It is essential for dairy farmers to understand the impact of high temperatures/heat stress on their cows and implement effective mitigation strategies to safeguard animal wellbeing, maintain high fertility performance and maintain optimal milk production.

Understanding Heat Stress in Dairy Cows

Heat stress occurs when a cow's ability to dissipate heat is exceeded, resulting in elevated body temperature and physiological imbalances. Several factors contribute to heat stress, including:

1. **Ambient Temperature:** Cows have a narrower thermal comfort zone compared to humans, and temperatures above 25°C can trigger heat stress.
2. **Humidity:** High humidity levels hinder cows' ability to cool down through evaporative cooling (panting and sweating), intensifying heat stress.
3. **Solar Radiation:** Direct exposure to sunlight can amplify heat stress, especially in dark-coloured cows that absorb more solar radiation.

Recognising Heat Stress Symptoms

Early recognition of heat stress symptoms is vital to implement timely interventions. Key indicators of heat stress in dairy cows include:

1. **Increased Respiration Rate:** Cows regulate their body temperature by panting. Rapid, shallow breathing and open-mouthed breathing are signs of heat stress.
2. **Decreased Feed Intake:** Heat-stressed cows experience reduced appetite, leading to lower feed consumption, possible negative energy balance and potential nutrient deficiencies.
3. **Altered Milk Production:** Heat stress negatively impacts milk production. Cows may exhibit a decline in both milk quantity and quality, affecting profitability.
4. **Behavioural Changes:** Restlessness, reduced activity levels, seeking shade, or increased aggression are common behavioural signs of heat stress in cows.

Mitigating Heat Stress in Dairy Cows

The following strategies can be employed to mitigate heat stress during periods of elevated temperatures:

1. **Provide Shade:** Ensure access to shaded areas, either through natural tree cover, or well-ventilated housing. This allows cows to seek refuge from direct sunlight.
2. **Ventilation:** Traditionally, cow accommodation and milking facilities were built with cold wet winters in mind. Modern facilities are built to be more open with increased air flow. With temperatures increasing and winter accommodation now potentially having to double to provide shelter in times of intense heat, new building should be built to be open with plenty cross ventilation. Existing building may need modification.
3. **Adequate Water Supply:** Ensure a constant supply of clean, cool drinking water, as cows increase their water intake during periods of high temperature, to maintain hydration and regulate body temperature.
4. **Buffer feeding:** Avoid buffer feeding during peak heat periods. If buffer feeding provide high DMD silage or TMR to compensate for reduced feed intake during hot periods.
5. **Nutritional Supplementation:** Consult with a veterinarian or nutritionist to formulate balanced diets that include additives like electrolytes, vitamins, and minerals, which help alleviate heat stress and maintain cow health.
6. **Breeding and fertility:** Heat detection can become more difficult during intense heat. Increase intensity of heat detection. Consider investing in heat detection technologies. Heat stress resulting from increased body temperature will affect fertility. Conception rates can decrease and increased embryo deaths can occur. An early pregnancy discuss is worth considering.
7. **Stock bull management:** Stock bulls are very susceptible to excess heat. It can affect their ability to serve cows and effect their fertility. Ensure the ratio of stock bulls to potential empty cows is correct. A mature bull is capable of 3 empty cows every 2 days, a young bull is capable of 2 cows every 3 days. Keep AI'ing if repeats exceed these numbers or if you are doubtful about a bull.

Conclusion

Over the last number of years, heat stress is posing an increasingly significant challenge to dairy herds in Ireland, potentially affecting health, productivity, and welfare of dairy cows. It is essential to be aware of the challenge and be ready to put practices in place to alleviate the risk and implications.