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ABVista proposes strategies to mitigate heat stress in dairy cows

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Heat stress occurs in dairy cows when they absorb more heat than they can expel, leading to discomfort, reduced feed intake, poorer productivity and impaired fertility. It can cause significant economic losses. In the US alone, the dairy industry loses between $897 - $1,500 million/year in revenue due to heat stress (St-Pierre et al., 2003).

The harmful effects of high ambient temperatures in production conditions are enhanced by high humidity and insufficient air flow. When the Temperature-Humidity Index (THI) exceeds 72, cows suffer heat stress.

Heat stress affects cows in all physiological phases. In dry cows it results in reduced blood flow to the uterus, reduced placenta weight and birth of smaller calves with lower vitality. High yielding cows are more prone to heat stress, especially in peak lactation. Milk production could reduce by 10-25% due to decreased appetite and feed intake, and lower levels of lactogenic hormones. In heat stressed cows, dry matter intake is reduced by 8-12%, and milk yield by 20-30%. It can also affect milk quality, with reduced butter fat content and increased somatic and bacterial cell counts, most likely due to impaired immunity. Endocrine status of cows can also be negatively affected, together with reduced intensity and duration of oestrus, impaired fertility and elevated early embryo mortality.

To mitigate the risk, Dr. Dimcho Djouvinov, Technical Manager CEE and Dr. Derek McIlmoyle Technical Director Ruminants EMEAÂ at ABVista proposes certain key strategies.

Some of the key management and nutrition actions proposed to help mitigate the negative effects of heat stress are, Protecting the animals from direct sun radiation, Increasing ventilation rate in barns, Applying cool water spray, Reducing animal density, Allowing access to cool drinking water, Use high-quality dietary ingredients to improve nutrient content, Ensuring gradual and on-time adaptation to corrected diet. Further, Diet to be fed mainly during the cooler part of the day along with increasing feeding frequency with smaller portions.

Specific nutritional strategies can reduce the physiologic impact of heat stress, to support milk yield and health status of cows such as Time and frequency of feeding, Forage/concentrate ratio, Fat level, Nitrogen balance, Electrolyte balance, and Mineral buffer additives. and live yeast (Saccharomyces cerevisiae) supplementation, explains ABVista experts.

Moreover, the heat stress can result in higher bicarbonate loss in the urine, causing less bicarbonate being available to help buffer acids in the rumen and pH is reduced, leading to SARA, according to expert opinion.

Dr. Dimcho Djouvinov and Dr. Derek McIlmoyle indicates that there is no single approach to alleviate heat stress for dairy cows. Effective management and nutritional strategies are required to balance the homeostasis of the animal and help support feed efficiency, productivity and reproduction. Supplementing the diet with live yeast (*Saccharomyces cerevisiae*) can be a successful part of these strategies to help counteract the negative effects of heat stress.