

Industry Presentation - Nutritional Management Strategies for Dairy Cattle during Thermal Stress

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Two primary strategies to maximize performance of cattle during warm summer months are to alter the environment around the animal and change nutritional management to maximize feed intake and substrate utilization. During periods of heat stress the nutrient requirements of animals are altered resulting in the need to reformulate rations. Rations fed to animals exposed to thermal stress need to be of higher nutrient density since feed intake will be suppressed. Clean water should be available to all animals at the milking parlor exit lane and in the housing area under shade. Additionally behavioral changes in animals relative to feeding behavior and seeking shade require good feeding management programs. Finally use of feed supplements to reduce impact of stress on animals and improve immune function is warranted.

Immune function is generally suppressed during periods of thermal stress. The feed additive Omnigen-AF has been shown to improve immune function and animal health when fed during periods of thermal stress. Addition of buffers to the ration should also be considered to combat development of acidosis due to higher density rations and the impact of thermal panting on animals. If animals are on a by-product ration which is low in K⁺, then addition of K⁺ to the ration should be considered because thermal stress has been shown to increase K⁺ requirements by as much as 12 %.

I. Nutrient Requirements

- a. Feed high quality feeds

- b. Increase nutrient density of ration
- c. Maximize availability of water

II. Behavioral Changes

- a. Change feeding times to increase availability of fresh feed at night
- b. Provide feed under shade during daytime hours
- c. Provide water under shade during daytime hours

III. Feed Supplements

- a. Consider use of buffers to combat acidosis
- b. Consider adding K⁺ to diet if cows are on byproduct rations due to increased K⁺ loss in sweat
- c. Omnigen-AF has been shown to reduce blood cortisol and adrenal response to ACTH
 - Associated with improved immune function and reduced health issues
- d. Yeast products are widely used to improve rumen function and digestive tract performance during hot summer months
- e. Ionophores and betaine can also be considered to improve availability of glucose which is a primary substrate of peripheral tissues during thermal stress

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