Combat Heat Stress On Dairy Cattle

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Heat stress can have a drastic negative effect on milk production and reproduction of dairy cows. Milk production may drop 20 to 30 percent depending on the number of consecutive days of high heat and humidity. Mild heat stress can begin when temperatures reach the mid-70s and when the humidity is in the mid-70s or higher. The temperature and humidity generate a great deal of environmental heat that, when added to the cow's own body heat, creates a heat overload. In order to get rid of the excess environmental heat, a cow must have access to shade, air and sprinklers, along with fresh feed and drinking water.

Providing shade should be routine and the first step to relieving heat stress for the dairy herd. Freestall barns need to be designed as a shade in the summer and a windbreak in the winter. This requires 12- to 14-foot open curtain sidewalls and open ridge ventilation that will allow for adequate air movement. The use of fans in the barn and under outside shades is recommended. Shade, fans and sprinklers over feed bunks and holding pen areas will also help reduce heat stress and encourage feed intake.

Fans will provide a cooling effect by moving air over the cows – but only if the air temperature is lower than the animal's body temperature. Air movement from fans combined with water from sprinklers can provide a powerful cooling effect. Sprinklers will greatly increase the cooling power because of the water evaporating from the haircoat and skin of the cow. Sprinkling with large water droplets is required to penetrate the haircoat. Sprinkling systems need to be regulated by a timer to avoid over-wetting the cow, udder or footing area. An "on" cycle of 2 minutes water spray every 15 minutes will provide an adequate job of conserving water usage while sufficiently wetting the animal. However, the "water on" interval needs to be increased to every 10 minutes as the temperatures go above 90 degrees and to every 5 minutes when 100 degrees temps are reached. The water nozzles should be spaced to get an overlapping coverage over the cows.

Fans will need to run continuously. Fans can be hung above the cows in the freestall barn and above the sprinklers outside. A downward tilt at 20- to 30-degree angles will direct the air flow onto the cows. A rule of thumb for placing horizontal axis fans is to mount 36-inch fans to move air 30 feet and 48-inch fans to travel air 40 feet.

Fresh drinking water is most important for dairy cows during the summer heat. Cows will need to drink up to 50 percent more water during the summer months because much of their body water is used to dissipate heat. If water intake is restricted, the cow will have less water available for milk synthesis, thus decreasing milk production. Water and feed should be placed close to the shaded or cooled areas where cattle will congregate. Δ

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