Vet Call

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Prepare for heat stress

Almost every summer, at least some portion of the U.S. suffers from a period of extreme heat and humidity that can cause problems for cattle. As we move into summer, it is important to be prepared to limit the negative effects of heat stress. Cattle are more susceptible to heat stress than humans and start suffering from heat stress if the temperature-humidity index reported in many weather reports reaches 80° F or higher.

Heat stress factors

Factors other than temperature and humidity are also involved with heat stress. These factors include high body condition, black hide color, precipitation, lack of wind, lack of night cooling, crowding together to avoid flies, and consumption of endophyte-infected fescue.

Rain and high humidity reduce the ability of cattle to use evaporation to get rid of body heat. Evaporation of sweat is one of the primary means that cattle have to cool themselves at temperatures higher than 70° F.

For cattle in a feedlot situation, special attention should be given to newly arrived cattle and heavier cattle that are approaching finished weight.

Hot weather immediately following a rain is often associated with heat stress in cattle. In addition, if winds are calm or cattle congregate behind a windbreak or to fight off biting flies, their ability to cool themselves diminishes.

Night temperatures that remain above 70° F increase the danger of heat stress because of little or no night cooling. Cattle that are not accustomed to hot weather are also at greater risk if weather changes rapidly or if they are shipped from a cool environment to a much hotter environment.

Another factor that plays a role in heat stress is hide color, with black-hided cattle at greater risk than cattle with light-colored hides. Breed also plays a role. *Bos indicus* breeds (Brahman and others) handle heat better than do *Bos taurus* (European) breeds. Brahman-type cattle have more sweat glands, the glands are more widely spaced, and they have a slightly larger surface area created by skin folds, which allows better heat dissipation. European breeds have a faster metabolic rate as indicated by faster gains than *Bos indicus,* which makes them less heat-tolerant.

For cattle in a feedlot situation, special attention should be given to newly arrived cattle and heavier cattle that are approaching finished weight. Iowa researchers found that non-shaded lots facing south, southwest or west had higher death loss than lots facing east or southeast during a period of severe heat stress.

Cattle that have eaten endophyte-infected fescue may have increased body temperature and may be predisposed to heat stress. Following removal from endophyte-infected fescue pastures, cattle may continue to experience severe health problems related to summer toxicosis for several weeks.

In cattle grazed on endophyte-infected fescue and then moved to a feedlot, death loss has been reported to be as high as 10% in the 24 to 48 hours after extreme heat stress and then diminished in three to five days, followed by a lingering intolerance to heat.

Management strategies

In cow herds it is important to recognize that, in addition to its effect on health and production, heat stress also affects reproduction. Heat stress dramatically lowers conception rates, influences behavior during estrus, modifies hormone function, and delays or interrupts early embryo development. Work in dairy cattle showed that heat stress occurring on the day of estrus or within one to seven days after breeding is particularly deleterious to embryo survival.

During periods of heat stress, it is important to have ample water available. When temperatures reach 80° F, cattle need 2-3 gallons (gal.) of water per 100 pounds (lb.) of body weight, and the well capacity and water storage should be able to accommodate 5-10 gal. per animal per hour.

If cattle must be handled, work them from midnight to 8 a.m. Do not move or work cattle after 10 a.m. Even handling cattle in the evening hours is not recommended — wait until the cattle have had at least six hours of night cooling before working.

Shades that are 10-12 feet (ft.) tall and provide 20-30 square feet (sq. ft.) of shade or more per head have been shown to reduce heat stress and to increase feed intake, weight gain and performance of cattle. Shade reduces the heat gain resulting from direct sunlight, even when air temperature is not reduced.

During periods of heat stress, cattle seek out the coolest spots and are unwilling to leave these areas. Shades should therefore be placed over feed and other areas where the producer wants the cattle to spend time. Shades should have a north-south orientation to allow drying under the shades as the shaded area moves throughout the day.

Windbreaks that are used to protect cattle from wind chill in the winter should be removed or fenced off during the summer. For cattle confined in a lot, enhance airflow by providing mounds for cattle to stand on. Move cattle away from windbreaks and wind dead spots in the feedlot.

Sprinklers can be used to combat heat stress. In geographic areas where humidity can be high, a large water droplet is required to wet the skin; fine mists or fog systems are not recommended. Sprinklers reduce heat stress by increasing evaporative losses, by reducing ground temperature and reducing radiant heat gain, and by reducing dust.

Sprinkling should be done occasionally throughout the day, otherwise high humidity may result and there may be little opportunity for evaporation. A one- to two-minute shower followed by 20-30 minutes of drying and evaporation is commonly used to reduce heat stress.

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