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Summer Heat Stress

County Fair season is in full swing, which typically means that summer's heat and humidity become oppressive, just to add to the atmosphere I suppose. Earlier in the year I spoke about the Kansas Mesonet Animal Comfort Index tool during cold weather, it is equally useful for monitoring heat stress. <https://mesonet.k-state.edu/agriculture/animal/forecast/> The best heat-stress strategy is preparation to avoid an animal health crisis.

Summer heat stress reduces livestock performance, reproductive efficiency and animal welfare. Extreme heat stress can even result in death. It isn't just temperature alone that creates heat stress. Humidity, direct sunlight, wind speed and the amount of nighttime cooling all influence the heat load that animals must manage.

Ruminants accumulate heat during the day and normally release most of it overnight as temperatures cool. Consecutive hot days become especially dangerous when nighttime temperatures remain above 70°F, which limits the amount of night cooling. This nighttime cooling effect is as important to monitor as daytime heat and humidity for heat stress, something the aforementioned tool easily illustrates.

Early warning signs include reduced grazing or feed intake, restlessness, increased standing and crowding around water. As heat stress progresses, breathing rate increases and animals may begin drooling or foaming at the mouth. Open-mouth breathing, extended tongue, labored breathing and/or isolation indicate severe heat stress and require immediate action.

Water consumption varies greatly by species and stage of production. A general rule of thumb is 1 to 2 gallons of water per hundred pounds of body weight. With heat stress, this can be on the upper end and easily double requirements. Before a heat event, check water supplies, flow rates and storage capacity of water systems to make sure water is not a limiting factor. Keep troughs clean and, when practical, shaded because animals drink less as water temperatures rise. Crowding can limit access, so provide additional tanks before extreme heat arrives rather than waiting until livestock are stressed.

Shade reduces the solar heat load and can lower respiration rates and body temperature and can increase feed intake and improve performance during the summer. Shade can interfere with good grazing distribution but can help reduce heat stress during the hottest parts of the day. Space needs vary by animal size and maturity. General recommendations per head are: Beef Cattle & Dairy Cows: 20- 40 square feet (mature cows may require up to 40–80 square feet to prevent bunching), Stocker/Feeder Cattle: 15 to 25 square feet, Sheep/Goats: 10 to 15 square feet. Structures should be high enough to allow airflow and large enough that livestock are not forced to bunch tightly underneath them.

Avoid working, hauling or moving livestock during dangerous conditions. Work animals early in the morning, not during the evening, when their internal heat load may still be near its daily peak. Use small groups, minimize time in holding pens and move quietly. When nights provide little cooling, postpone nonessential work. Flies cause bunching, increasing activity and heat load, so maintaining fly-control programs is important.