Monitor and Manage Heat Stress

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Heat stress can greatly impact cattle producers through decreased milk production and subsequent calf growth, decreased reproductive performance in cows and bulls, and decreased stocker and feeder performance. It has been estimated that heat-related events in the Midwest have cost the cattle industry over $75 million in the past 10 years. As summer approaches, make preparations to reduce the risk of heat stress in your cattle.

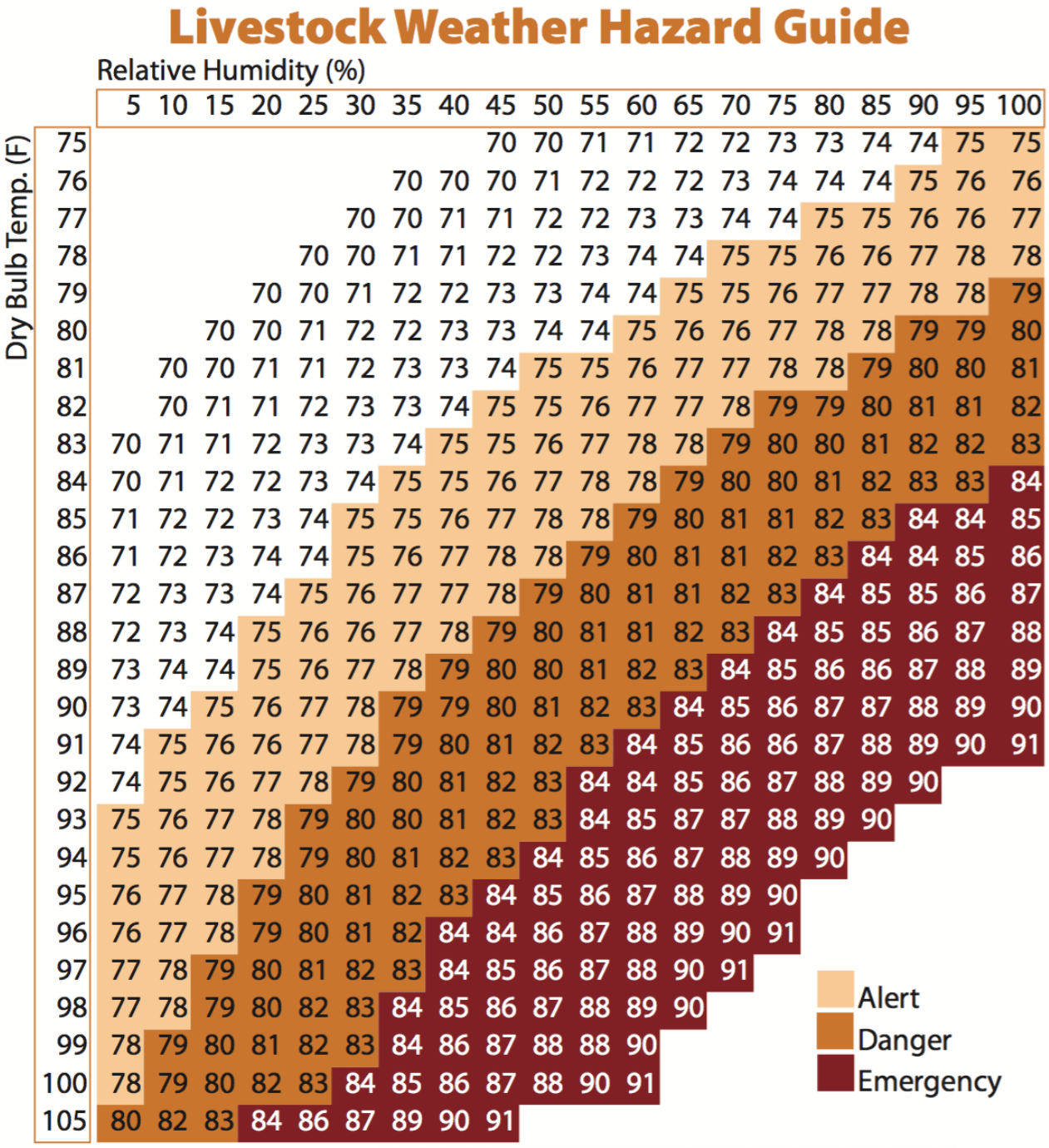
The ideal temperature range for beef cattle is between 41°F and 77°F. When temperatures exceed this, cattle are at risk of heat stress. Many environmental factors affect the potential for heat stress, including relative humidity, wind speed, solar radiation, ground cover, access to water, diet, shade and nighttime temperatures. In addition, individual animal characteristics can contribute to heat stress. These include hide color, breed, health, adaptation, hair coat length and disposition. When a combination of these factors and ambient temperature cause an animal's heat load to exceed its ability to dissipate that heat, heat stress occurs.

Identifying Heat Stress

When heat stressed, cattle exhibit many physical and behavioral changes. Heat-stressed animals will have increased body temperatures, increased water consumption, decreased feed consumption and decreased weight gains. These changes may be subtle and difficult to recognize or impractical to measure. Fortunately, there are many signs of heat stress that are easy to recognize. The most obvious are cattle congregating in shady areas or standing in ponds, and decreased grazing activity. You may also notice cattle panting. According to the USDA's Agricultural Research Service, more than 90 breaths per minute is an indication of heat stress, and a respiration rate over 110 indicates a dangerous heat stress level.

Tools are available to help producers identify conditions that are potentially dangerous for cattle. The Livestock Weather Hazard Guide provides guidelines that indicate the potential of heat stress at different temperatures and relative humidity.

This table is color-coded based on the severity of heat stress potential.



Another way to monitor heat stress conditions in your area is the Heat Stress Forecast. The USDA has developed a website that reports heat stress forecasts for the central United States. These forecasts provide a more accurate prediction because they account for wind speed and solar radiation in addition to temperature and humidity. This website can be found at: www.ars.usda.gov/plains-area/clay-center-ne/marc/docs/heat-stress/recognizing-heat-stress/.

Managing Heat Stress

Provide fresh, clean water to cattle at all times. Water intake increases during times of heat stress, so make sure that piped water can refill tanks fast enough to keep up with cattle demand. If ponds are the only source of water, monitor water quality throughout hot, dry periods. Be sure that cattle have adequate shade. If shade is limited, heat stress can be compounded by animals crowding together.

If possible, avoid working and transporting cattle during periods of heat stress. If cattle must be worked or rotated to a new pasture, do it as early as possible in the morning.

Heat stress can also affect the reproductive performance of cows and bulls so plan your breeding season to avoid the hottest months. Keep in mind that heat stress can impact semen quality for up to eight weeks.

Be prepared by planning now for heat stress. As hot weather approaches, monitor the Heat Stress Forecast or use your local conditions with the Livestock Weather Hazard Guide to determine the potential for heat stress in your cattle.