

Feeling the Heat

Hopefully you have already implemented your heat stress mitigation plan for the summer. But if you are looking at other or additional methods to help your cattle deal with the heat, there are a number of options for you to look at.

Working with feedlots, our experience would indicate that shades are the best heat stress mitigation tool that producers can use. It is obvious when you look at a pen of cattle if they are using the shades and it may even be on days that you wouldn't expect a tremendous amount of heat stress. The solar radiation can cause substantial heating of the dirt pen floor and so cattle get heat stress from both above and beneath in unshaded pens. When shade is provided, it helps eliminate the direct solar radiation on the animals' coats and reduces heating of the pen floor as well. Fabric shades are generally the least expensive way to provide shade. In one study, steers with 35.5 ft² of shade gained 0.3 lb/d more than unshaded steers and had feed conversions that were significantly better over the 120-day finishing period (shown in the table at right). This study was conducted with black-hided steers and had a 21-day period of heat in which the *average daily temperature* was over 86°F. A survey of producers after a record-setting heat wave in 1995 in Iowa indicated that shade made a substantial difference in terms of cattle losses (Busby and Loy, 1996). A 13-county area in west central Iowa lost 3,750 head of cattle on feed. The survey identified shade as a factor that decreased losses as detailed in the table at right.

Sprinklers have been commonly used as a heat stress mitigation technique. One common challenge with sprinklers is that they are commonly turned on too late in the day after the cattle are already significantly stressed. Wetting the pen floor helps reduce the temperature of the ground and gives the cattle a cool place to rest. If you wait to spray the cattle directly, you need to be able to spray a large number of cattle to help reduce the stress on the entire pen. Spraying large droplets is more effective than a mist because it can help the cattle with evaporate cooling. A mist can increase the humidity without reaching some of the cattle, which worsens the heat stress. Make sure to turn on the sprinklers early in the day to get the most benefit from them.

In a Nutshell:

- * **Shade helps reduce stress and maintain gain in feedlots**
- * **Use sprinklers to wet the pen floor and wet hides of cattle**
- * **Evaluate drinking capacity to ensure adequate water**
- * **Look at ways to improve air flow through pens**
- * **Feeding time may be changed to reduce heat stress**
- * **Look at USDA's heat stress forecast for livestock**
- * **Purina's Beef Abate feed-through can help maintain gains**

	Unshaded	Shaded
Initial BW, lbs	871	876
Final BW, lbs	1272	1311
ADG, lbs/d	3.32	3.63
DMI, lbs/d	22.0	22.7
F:G	6.58	6.25
Water intake, gal/d	14.03	13.02

Adapted from Gaughan et al, 2010

	Shade	No Shade
No. of lots	35	46
No. of cattle	3940	5890
% of heifers	8	35
Lot area, sq ft/hd	349	568
Shade area, sq ft/hd	24.0	0.0
% death loss	0.2	4.8
% of lots with no death loss	86	19

Busby and Loy, 1996

PASTURE MANAGEMENT

Drinking capacity and refill rates are critical to helping cattle get through the heat. Recommendations are for at least 1 linear inch of drinking space per head in a pen. During heat stress, supplemental drinking space and capacity can help you avoid a wreck. Cattle use the water to help cool the rumen and their internal body temperature. They can expend a significant amount of energy trying to keep themselves cool. Up to 3" of linear space for heat stress can help make sure that all of the cattle can drink as needed. If you get in a pinch and have cement feed bunks, sand bags can be used to block off ends and the bunk can be filled with water.

Air flow is something else to consider for your feedlot pens. In the winter, we are mindful to provide wind protection with wind breaks. In the summer though, air flow is helpful in cooling the cattle. Clearing the area around the outside of the feedlot pens can help improve airflow. Also, keeping in mind which pens in your yard are better for summer finishing pens may help you determine which cattle to put in which pens.

Feeding time variation is another tool that some producers have used to try to help lessen the effect of heat stress. Feeding once a day at night or split feeding with 40% of the ration in the morning and 40% at night can mean that the heat of fermentation takes place at night when the cattle have a better chance to dissipate that heat. You need to consider if you can manage feeding consistently at the same time each night if you are going to use this approach. Feeding cattle off schedule, particularly with finishing rations, could mean you end up with more digestive problems in the cattle and more days off feed or with reduced intakes.

Cattle feeders and farmers are used to watching the forecast intently. The USDA has a livestock heat stress forecast for different regions of the country to help anticipate the severity of the upcoming heat. It takes into consideration humidity, air temperature, and wind to predict emergency conditions for livestock. You can find their forecast here: <https://www.ars.usda.gov/plains-area/clay-center-ne/marc/docs/heat-stress/main/>

Feed-through products seem to get a lot of attention for heat stress. Purina developed a product called Beef Abate that helps cattle maintain intake during heat stress. It is designed to feed ¼ lb/hd/d and has additives including Diamond V XPC Yeast Culture and Zinpro zinc methionine to help maintain gut integrity during a stress event along with extra potassium for maintaining hydration. You need to feed the product several days before a heat event and continue during the heat stress to get the full benefit of the product. If it is something you are interested in trying, let us know.

Generally the best investment to mitigate stress is to reduce the stress by providing shade. Cattle can take hot days if they are at least protected from the direct solar radiation. We hope not to have any deadly heat stress events this summer but even lost performance can be expensive in the market conditions we have. If you have more questions about mitigating heat stress, don't hesitate to let us know.

Roxanne Knock, PhD

Things to be thinking about:

- *Get your creep feeders in shape to put out in pastures and ***get creep feed out for spring-born calves***
- * Keep mineral in place for the cows on pasture
- * Feed ***Altosid*** to control horn fly populations
- * Implant calves at branding time
- * Get prepared for heat stress for cattle in the lots- shades, sprinklers, extra water tanks, etc.
- * Ask about Intense Calf WSC mixer for orphaned calves
- * Order wasps for feedlot fly control or ask about ***Clarifly*** for feed-through fly control in the feedlot
- * Make sure the bulls have mineral too! Stress Tubs or Ultimate Breeder mineral provide the Availa-4 mineral
- * Have a breeding soundness exam and semen test done on your bulls to help ensure high pregnancy rates