



# From Straw to Shade

*Preparation helps mitigate large temperature swings for cattle comfort.*

*Story & photos by*  
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When it comes to cattle comfort, small investments can make a big difference.

Terry Mader, Nebraska emeritus Extension beef specialist, discussed environmental planning for optimum animal well-being at the Feeding Quality Forum earlier this year.

“We are doing a much better job today than we did 20 years ago,” he said, “but we can do more.”

“Shade itself does not change the temperature underneath the shade relative to the outside temperature, but it will change the ‘feel-like’ temperature, because it takes the solar heat off the animal,” said Terry Mader.



To get a full picture, cattle feeders must evaluate their susceptibility to both heat and cold stress. In the last decade, winter storms have taken cattle at a rate of nearly five times that of summer heat.

“These tend to be catastrophic events ... it’s not something that’s occurring every year,” Mader said, “as opposed to heat, where we’re pretty certain we’re going to have hot weather in the cattle-feeding region every year.”

Cattlemen know they cannot control Mother Nature, but they can study trends and be prepared to work with her, especially by thinking of the “microclimate” in the feedyard.

Research shows bedding a small area with straw during extreme cold has benefits.

“It will diffuse that radiant heat from the sun. It is light-colored and will reflect back, and so it can be effective,” Mader said.

As cattle genetics have changed,

*Feeding Quality Forum*

the heat they're generating from feed intake is substantial.

"They can withstand wind chill indexes of -20° relatively well," he said. "They can handle a lot in the cold."

### Preparing for heat

That boon could become a burden in the summer, were it not for planning based on the predictability. Mader noted a map showing where at least some days could bring heat and humidity that require attention and forethought for cattle comfort. The areas stretched from as far north as the Minnesota-South Dakota border on down to the desert Southwest.

"It's a really interesting phenomena when you look at the weather pattern, but usually, the very worst part of these heat events is in the forward part of a frontal boundary that stalls out, and in front of that, for about 30 or 40 miles, it's clear," Mader said. "We may have had a rain event where the ground may be wet, so we're evaporating moisture off the ground, it raises humidity, but in front of that boundary there's very little air flow."

Although weather forecasts give an idea of where problems may occur, he hopes to see more precise predictions in the future.

Management and facility improvements can work in concert to reduce risk, Mader said. For example, processing and moving should be restricted to the coolest times of day. Pens can be cooled by wetting portions of their surface or using sprinklers. Other options are altering the feeding schedule or ration, offering more shade and allowing greater access to drinking water.

"Shade itself does not change the temperature underneath the shade relative to the outside temperature, but it will change the 'feel-like' temperature, because it takes the solar heat off the animal," he said. Just five minutes of shade can reduce ground temperatures in the summer by 30° to 40°.

Water can be applied directly to the ground to change that environment, too, Mader added.

"It's just like shading the ground. You put water on the ground, and you're going to cool it off," he said. "A lot of people don't like to use this method because they think it raises humidity, and it does a small amount, but the temperature-humidity index relative to that area is still low. It does help minimize the effects of that radiant heat."

Cattle comfort can have an impact on everything from performance to health, but Mader said it's about more than that. Mitigating stress is simply the right thing to do.

Regardless of the time of year, "We have to be prepared," he said. "We have to have a plan."

The Forum is co-sponsored by Roto-Mix, Purina Mills, Micronutrients, Zoetis, *Feedlot* magazine and Certified Angus Beef LLC.

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