



PHOTO BY MARY RIDDER

Catering to Cattle Comfort Pays Off in Performance

by Kim Kanzler Holt

As the temperature dips and the wind howls, producers in the beef chain are on the job 24/7 as caretakers of their animals. They need little reminder that good animal husbandry is just good animal welfare.

“Like I always tell my guys, if the cattle are not comfortable, I’m not comfortable,” says Russell Schaefer, owner of Mountain View Feeders in

Ft. Collins, Colo. “And I think that’s the whole key to how they perform. If they’re comfortable, they’re going to do the best they can.”

Little things add up

Twig Marston says that the little things that we do to give cattle a feeling of comfort when we ask them to produce for us can really add up. Marston is the district director of the University of

Nebraska Northeast Research and Extension Center, Norfolk.

Some of these “little” things include observing animals, finding sick ones early and taking care of them in a timely manner; checking water sources to make sure they are clean with ample amounts available; keeping pens as clean as possible; making sure grazing lands are well cared for; fixing fences and keeping facilities in good working order so cattle don’t bump and bruise themselves; and cleaning syringes, using clean needles and changing needles.

“Just keeping things clean and operable are pretty important things,” Marston says. “All of those little things add up to make a better-run operation. It’s the little things that dot the ‘i’s’ and cross the ‘t’s.’”

Helping cattle find a level of comfort can reduce stress and increase performance. But this can definitely be more challenging when winter sets in. Climatic variation largely determines the comfort level of cattle, but wind, snow, rain and mud can add to winter cold stress and alter cattle maintenance energy requirements.

Minimizing winter’s effects

Experts like Marston say that providing protection from the environment is one of the most useful ways to help animals cope with adverse weather conditions, such as wind.

“Trying to minimize the effects of wind is important,” Marston says. “Letting cattle get to where they can get out of the wind can make a big difference.” Windbreaks or even choosing to winter cattle in fields where there are drains or cuts can help protect them from this adverse element. “That can have big savings as far as feed bills are concerned and make a big improvement in cow comfort,” he notes.

Bedding cattle down also makes a difference in performance. One of the quickest methods to minimize cold stress is to provide insulation or shelter for the animal, points out Terry Mader, University of Nebraska Extension beef specialist.

According to Mader, a summary of two trials conducted in South Dakota and Colorado found that providing approximately 1 kilogram (2.2 lb.) per head of straw daily as bedding during the winter feeding period improved gains 6.8% and efficiency of gain 6.6%. The economic benefit of providing bedding averaged \$11/head after taking into account bedding cost.

Similar research conducted at the North Dakota State University Carrington Research Extension Center showed that bedding not only provided cattle comfort but improved performance, carcass quality and returns.

During the first year of research, daily gains were higher for bedded steers by about 0.5 lb. more per day. Gains during the spring were dramatically lower for non-bedded steers — only 1.5 lb. per day average vs. their previous 3.16 lb. per day — because of a stressful spring thaw that included mud.

Mud affects intake

“Mud can have a tremendous effect on intake,” Marston points out. “It’s really important that we groom pens and provide mounds and dry places for the cattle to lie down, have some comfort and relax.”

A Kansas State University Extension publication Marston authored with Joel DeRouche and Joe Harner cited several research studies that clearly show the negative effect of muddy conditions on animal performance.

One study reported that mud reduced daily gains of animals by 25-37% and increased the amount of feed required per pound of gain by 20-33%. Another, conducted by the National Research Council, reports that small amounts of mud (4 to 8 inches deep) can reduce feed intake by 5-15%. Larger amounts of mud (12 to 24 inches deep) can decrease feed intake by up to 15-30%.

Marston believes that mud has an energy pull on cattle. “I think it also discourages cattle from coming to the bunk. Instead of coming up and eating five, six or seven meals a day, the animal might only come up two or three times because it’s muddy and too much work to get there.”

Researchers at the University of Nebraska also estimated the effect of mud on animal performance based on temperature conditions in the range of 21 to 39°F. These figures are shown in Table 1. When mud is dewclaw deep, performance can start to suffer.



Temperature vs. performance

While muddy pen conditions can cause cattle to reduce feed and water intake, mud can increase an animal's energy need just for maintenance. Cattle may also need extra energy to meet maintenance requirements if they range out of what's called their thermoneutral zone.

This is the range in effective ambient temperature where an animal's rate and efficiency of performance are maximized. From about 23 to 77°F for healthy animals, cattle are neither too cold nor hot, so they can maintain bodily functions on fewer nutrients.

If the temperature falls below an animal's lower critical temperature, as in the case of winter weather, an animal must use more energy to keep warm. Marston and colleagues point out that a wet hair coat is the most important factor in determining what is an animal's lower critical temperature (see Table 2).

For example, a steer may experience cold stress at 32°F with a dry winter coat, but this may change to 60°F if the animal's coat is wet. That's because air pockets between an animal's hair fibers are an insulation source, and if they get matted down in a cold rain, for example, the animal can lose this insulation.

Table 1: Risk potential caused by mud, 21 to 39°F

Mud depth	Potential loss of gain
No mud	0%
Dewclaw deep	7%
Shin deep	14%
Below hock	21%
Hock deep	28%
Belly deep	35%

Source: Beef Feeder, University of Nebraska, August 1991.

Table 3: Examples of effect of temperature on energy needs

Effective temperature	Extra TDN needed	Extra hay needed (lb./cow/day)	or	Extra grain (lb./cow/day)
50°F	0	0		0
30°F	0	0		0
10°F	20%	3.4-4 lb.		2-2.5 lb.
-10°F	40%	7-8 lb.		4-6 lb.

Table 2: Estimated lower critical temperatures for cattle with varying hair coats

Hair coat	Feed level	Lower critical temperature (°F)
Summer coat or wet	Maintenance	60
Fall coat	Maintenance	45
Winter coat	Maintenance	32
Heavy winter coat	Maintenance	19

Source: Brownson and Ames, 1985.

Experts report that for every one degree below the critical temperature, a cow's energy requirement (TDN) increases 1%. Therefore, it's no surprise that cattle need to be fed better during colder weather, as outlined in Table 3.

Feed, manage before calving

Females, especially, need to be fed better the last 60 days before calving because they are building their nutritional plane of protein and energy. "What we're trying to do is increase the concentration of

the immunoglobulins that are in the colostrum — those help set immune levels," Marston explains.

Feeding cows so they're in shape and have the stamina to calve in a timely manner, having windbreaks in calving pastures and calving in sanitary conditions to reduce pathogen load are just a few suggestions, Marston offers, that can help reduce stress at calving.

He says research trials have shown that the better we take care of cows prior to calving, the less time it takes from parturition to first nursing.

"On some of these cold mornings, half an hour to 45 minutes of time is pretty precious."

Anything producers can do to reduce the effects of cold and wet at the beginning of life can help improve a calf's colostrum intake and its ability to absorb immunoglobulins within the first 24 hours. Researchers have proven that healthy starts to life have positive effects on a calf's entire life from pasture to plate. **HW**