

# Winter Management Update

## Feeding Cows During Cold Weather

James B. Neel, Professor, Animal Science and Extension Beef Cattle Specialist

Many cow/calf producers are not aware that cold weather brings added nutritional needs for cattle. Or, if they recognize that their cattle are stressed, they aren't sure how or what they should do to offset it.

Cold stress occurs when animals are exposed to weather conditions which put them below their lower critical temperature. For cattle with a dry winter coat, the lower critical temperature is 32 F. If the coat is extra heavy, that number drops to 18 F. If the normal coat is wet, however, the lower critical temperature may become 60 F.

When the environment results in an effective temperature below the animal's lower critical temperature, the animal must increase heat production to maintain a constant body temperature. To produce more heat, the animal either must receive an increase in energy from the ration or draw on body stores. To compensate for the energy deficit created by the cold stress, follow this rule of thumb: Increase the amount of feed 1 percent for each degree of cold stress. If a wind chill is present, use that temperature.

Keeping hay in front of cattle will not take care of the problem. If the hay is good (cut before it matured and baled before it was rained on), cattle will probably make it through cold weather in good condition. If hay quality is poor, the cattle may be in trouble. A 1,200 pound cow, in good body condition, needs a ration that has a minimum total digestible nutrient (TDN) value of 50 percent and crude protein (CP) value of 8 percent under neutral environmental conditions. The TDN value is often used to indicate the energy level of a feed. Concentrates have higher TDN values than forages, but do not generate as much heat. In comparison, shelled corn has a TDN of 90 percent and soybean hulls, 80 percent. If hay falls below the 50 percent TDN minimum, producers should consider supplementing with an energy-dense feed.

If protein levels are too low, rumen

microbes cannot efficiently digest fiber. In that case, adding supplemental protein can increase hay consumption and digestion. High-protein feedstuffs include soybean meal (49 percent CP), cottonseed meal (41 percent CP) and corn gluten feed (19 percent CP). If both energy and protein are low, the supplement should contain a balance of both.

Provide some type of shelter such as woods, hills or buildings to protect cattle from winds. Reduce mud in and around feeding areas. Cold mud on cattle draws on their energy stores and body temperature, especially in young calves. Monitor weather reports and make adjustments in feeding 2 to 3 days before the weather front hits the area.

## Study Winter Grazing To Determine If Feed Is Adequate

by: Heather Smith Thomas

Many cattle spend part or all of the fall and winter on pastures. The challenge for the stock grower is to manage these cattle to make use of inexpensive forage, yet keep cows in satisfactory body condition for calving and the next breeding season.

Pay attention to grazing behavior - whether they are slow to start in the mornings, whether they are working on the willows and brush in an attempt to generate more heat energy from their diet. Grazing behavior will tell you whether or not feed is adequate for their condition (even before they start to visibly lose weight), or if they need a little help. If you pay close attention to grazing behavior, the animals will give you clues that will help you get them through the winter without any serious weight losses, or serious feed bills.

Here are 5 hints for capitalizing on the beef animal's winter grazing behavior:

### 1. Assess the pasture's nutritional health.

Plant varieties vary in nutritional quality, and this can also vary from season to season. Grasses peak at the height of the growing season and decline as they mature and dry out. Some native grasses don't lose as much nutritional value when they mature as tame pasture species. Just as the early

buffalo thrived on native western grasses year-round, the cattle of today can usually manage on it, under normal conditions. Good types of grasses generally provide an adequate maintenance diet for the dry cow, meeting all her nutritional needs except for salt.

### 2. Check grazing patterns when assessing forage volumes

As days get colder, cattle spend less time in shady areas and may stop using them altogether during the shortest, coldest days of the year. Even if there is a lot of good feed left in those parts of a pasture, the cattle may prefer to stay in the sun and lose weight eating themselves into the ground. Any adverse weather will likely alter this naturally balanced grazing pattern. Drought, for example, lowers grass quality, and in time, will increase the cow's need for Vitamin A and protein. Excess snow cover will bring grazing to a halt as cattle won't paw through deep snow to graze as horses or buffalo do. In other words, you can't assess the carrying capacity of a winter pasture based solely on how much forage is there. You must take into account how much forage the cattle will go after.

### 3. Monitor feed intake

Ultimately, feed intake determines whether cows on winter range will hold condition or lose weight. And we know intake will vary with texture of the feed, weather, and amount of daylight. Poor-quality bulky feeds fill the rumen, limiting the amount a cow can eat, but probably won't provide enough needed nutrients. Even though cattle need more food energy in cold weather to keep warm, they often eat less on range pasture when temperatures dip. This is partly because the days are short, and partly because of the way the rumen functions.

After a cold night, it takes longer for temperatures to warm up in the mornings, and cattle on pasture will stand around trying to conserve energy and body heat, waiting for the sunshine. Then they often stand awhile in the sun trying to warm up, before they start grazing. They may only graze a few hours during the warmest part of the day, stopping again when temperatures drop sharply at sundown.

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One study at Miles City, Montana, found that cattle grazed only about half as long at -40 degrees C (-40 degrees F) as they did at -18 degrees C (0 degrees F). During extreme cold, some cows grazed only half an hour each day. Cattle don't like to move around much when it is extremely cold. Nor do they like to eat grass with frost on it, or nose through the snow at cold temperatures (they won't do it if snow is crusted). Cows will eagerly eat hay or straw, even at night in cold weather, but they usually won't graze under those conditions.

### **4. Look to protein supplements for winter pastures.**

Some types of supplements can be used to advantage on these cold range pastures, but others are actually detrimental. Wyoming and Montana studies found energy-rich grain supplements counter-productive because they reduced a cow's intake of range plants, whereas protein-rich supplements had the opposite effect.

At one site, 2.1 pounds of cracked

corn fed on alternate days reduced forage intake by eight percent, on average, but cows eating 3.3 pounds of soybean meal every other day consumed 18 percent more forage than unsupplemented cows, and 27 percent more than cows supplemented with corn.

Cold tends to decrease digestibility by increasing the rate at which food passes through the gut and by changing the rumen bacteria. Also, during extremely cold weather, cattle tend to eat more browse and woody plants (and will readily eat straw, if provided) since the digestion and breakdown of cellulose and fibrous parts of plants creates more heat energy in the body for keeping warm. In very cold weather, cattle need more roughage in order to generate enough body heat, and if cows are confined without access to pasture roughage or browse, you should give them straw in addition to the regular hay ration, or increase the amount of grass hay being fed.

This is when the added protein is needed to balance the diet and stimu-

late appetites.

### **5. Remember the rumen.**

In cold weather, cattle eating feeds barely meeting minimum requirements of the rumen bacteria have a hard time digesting forages because the cold slows down microbial activity in the gut. This is another reason why a little protein at these times can make a big difference to a cow's intake. Protein increases the ammonia-nitrogen concentration in the rumen to improve forage digestion. *Cattle Today Online*

### **Careful Changes In Diet Help Beef Cattle Cope With Winter Storms**

*Karl Hoppe, Livestock Specialist,  
Carrington Research Extension Center*

The art of feeding cattle takes on special importance in the face of brutal blizzards and sub-zero cold snaps, according to a North Dakota State University livestock specialist. "You have to know your cattle and what they're eating and then know what you can and can't do," says Karl Hoppe at

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NDSU's Carrington Research Extension Center. "We have a lot of producers who are forced to change their feeding strategies by the weather and it's easy to cause problems."

Hoppe notes that a cow's first stomach, the rumen, contains a complex mix of microbes to efficiently digest forages and grains. That's an advantage for the cow most of the time, he says. "But when you make sudden changes, it's easy to upset the balance," he notes.

In North Dakota, where producers are backgrounding calves or caring for beef cows, the easiest strategy during a blizzard is to provide the cattle with plenty of hay often of low quality. The cattle eat their fill, it stays in the digestive tract for a longer period of time than grain or high-quality forage and the leftovers provide bedding to protect them against the weather.

Hoppe says those long-stemmed forages blow around less during winter storms and take longer to digest, keeping cattle satisfied longer. Likewise,

whole grains are easier to handle in high wind than ground grain. Cattle waste less and take longer to digest them. And they are less likely to cause acidosis, the ruminant's version of heartburn.

"It's when we feed cattle diets with a higher caloric density that we cause digestive disturbances," Hoppe notes.

To avoid problems, Hoppe recommends changing the diet back to normal gradually, in increments of 5 or 10 percent daily. It's also best to mix the diet so that cattle can't pick only the grain and high-quality forage. "It's important to get cattle eating a high-quality diet as fast as possible after a storm to maintain their condition, but remember that it takes some time for the rumen to re-engineer the microbes necessary to digest those higher-quality forages and grains," Hoppe says. "You need to give cattle some time to adjust."

Coccidiosis, a condition that can cause diarrhea and intestinal damage, can also be a problem, Hoppe notes. Coccidia are microbes that normally

live in the rumen. But when cattle are under stress, those microbes can multiply excessively and become pathogens that attack digestive tissue. Coccidiosis can be prevented with a number of coccidiostats or treated in its early stages. Hoppe also advises producers to beware of "personality" problems among cattle that become magnified by hunger.

"Every herd has aggressive animals that will be first in line and eat the most," Hoppe says. "You may find those cattle suffering from bloat or acidosis while more docile cattle aren't getting enough to eat." Avoid that problem by providing enough bunk space for all cattle to get at the feed.

Hoppe advises cleaning the snow out of feed bunks before feeding time to eliminate ice buildup. He also advises removing ice buildup around cattle waterers. Cattle that don't have access to unfrozen water will reduce their feed intake even if hay is readily available. ■