
Animal Science

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COLD, WET, WINTER WEATHER INCREASES FEED NEEDS OF COW HERDS

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Cattle producers should be aware of the cattle's increased feed demands due to cooler and wetter, winter weather and make feeding and management adjustments to ensure profitable performance.

In general, hay provides more heat during digestion than concentrate feeds. This is the basis for the recommendation that the primary focus of a cold weather feeding strategy is to provide plenty of good-quality hay for energy. Most producers are aware that cows can become "hay burners" during cold weather.

Cattle nutritional requirements were determined assuming the environment to be in the 60 degree to 30 degree F° range. As the temperature drops below freezing, the cattle's energy needs increase. Wind and rain additionally increase the feed required to maintain production. If the extra feed is not provided, cattle performance will decline. As the old folks used to say about cattle and winter, "February will shake-em and March will take-em."

How can the extra feed needed by the brood cow to ensure optimum performance during winter weather be calculated? The following examples, developed by Oklahoma State University, beef specialists, demonstrate how to calculate feed needs. The extra feed needed when it is not raining or the wind is not blowing can be calculated by the following "rule of thumb." Cattle energy needs for maintenance increases about 1 percent for each degree below 32 degrees in dry cold. This is fairly simple. Following are a few examples.

1. **Cows are in an environment where the temperature is 25 degrees F°.**
There is no wind or rain. How much extra feed will be needed as result of the drop in temperature?
 - a. Subtract 25 (degrees) from 32. The remainder is 7.
 - b. The feed will need to be increased so that the ration will contain 7 percent more energy. If the cow was being fed 18 lb. of hay, feed 19.25 lb. of hay.

2. **Cows are in an environment where, the wind is blowing and the “wind chill” temperature is 4 degrees F°.**
 - a. Subtract 4 from 32. The remainder is 28.
 - b. Apply the “rule of thumb” to increase the energy intake 1 percent for each degree below 32 degrees F°. In this case, the temperature is 28 degrees below 32.
 - c. Therefore, increase the feed fed the cows an extra 28 percent of their normal daily energy intake. Using the previous 18 lb. of hay, feed the cows 23 lb. of hay during the period of cold weather.

3. **The herd is now in an environment where the temperature is 32 degrees and it is raining.** In wet weather, the calculation method is similar, except the starting temperature is 59 F° and the energy increase is 2 percent for each degree below 59 degrees F°. Feed needs are much greater with a wet hair coat when it is rainy, the critical temperature is 59 F°. Wet hair coats reduce the animal’s ability to control body heat and maintain optimum performance.

- a. Subtract 32 from 59. The remainder is 27.
 - b. Apply the “rule of thumb” for wet weather to increase the energy intake 2 percent for each degree below 59 degrees F. In this case, the temperature difference is 27 below 59 degrees F. Multiply $27 \times 2 = 54$.
 - c. Therefore, in this situation increase the ration 54 percent of the normal energy intake. Again, assuming that 18 lb. of hay was previously meeting the nutrient requirements, then with the wet hair coat, the hay to be fed would need to be increased to 28 lb.
4. **Cows are in an environment where it is raining and the wind chill is 25 F°.**
- Generally, when it is raining, the wind is also blowing. In this example, assume that the wind chill is 25 F° and it is raining.
- a. As in example 3, when it is raining, the critical temperature for cattle is 59 F°.
 - b. Again, apply the “rule of thumb” for wet weather to increase the energy intake 2 percent for each degree below 59 F°. In this case the temperature difference is 34. Multiply $34 \times 2 = 68$.
 - c. Also, the “rule of thumb” for “wind chill” will need to be applied. Subtract 25 from 32. The remainder is 7. Therefore the feed will need to be increased an extra 7 percent for the wind chill.
 - d. Add the adjustments for the wet hair coat and the wind chill. $68 \text{ percent} + 7 \text{ percent} = 75\%$.
 - e. Therefore in this situation, increase the ration 75 percent of the normal intake.

f. Again, assuming that 18 lb. of hay was meeting the cow's energy needs, the amount of hay needed to be fed would now total 31.5 lb. Unless the hay is of better quality than what is normally fed beef cow herds in Tennessee, it will be difficult to consume enough to meet the cow's energy needs. This would require supplementing with grain in amounts that could cause digestive problems. It would preferable to increase the energy intake by a smaller amount during the extreme weather and extend it into the days when the weather is more favorable. The hay could be increased to 22 lb. per day and feeding 5 to 6 lb. of corn per day. Extending this added feed level for 3 to 4 days following the bad weather would help the cows recover the losses that occurred during the bad weather and would not cause the digestive problems that could result from rapidly providing too much grain to meet the energy needs. It would be better to keep up with the weather forecasts and start making adjustments in feed intake 2-3 days before bad weather occurs.

Be sure that the cattle are consuming adequate protein with lower-quality hay. The protein will especially enhance microbial digestion of hay. Local feed dealers can provide options of several protein supplements. With low quality hay, it would be better to feed a plant protein supplement.

Cattle that are in good body condition (BCS 5+) will make it through the cold weather and wind chill better than those in a poor condition. But, cows can quickly lose condition if not properly fed and performance is also reduced. Parasite control prior to the start of the

wintering period also can help to both reduce feed needs and maintain body condition.

Producers should also be close observers of weather forecasts. Be aware of weather fronts and start making feeding adjustments in time for cattle to be prepared for winter weather changes. If concentrate supplements are part of cold weather feeding strategy, this should be started well in advance of cold weather.

For additional information on cattle feeding, contact your local University of Tennessee Agricultural Extension Service office.

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