

Cold Weather Increases Livestock Energy Needs

While colder temperatures now experienced mean livestock producers need to be aware of increased livestock energy requirements, those animals that may be thinner because of the drought could need extra energy supplements sooner, an Ohio State University (OSU) Extension educator said.

Cold temperatures, cold rains and muddy conditions can significantly increase the energy required by livestock metabolism to provide enough heat for the animal to maintain its body temperature, said Rory Lewandowski, an agricultural and natural resources educator for OSU Extension.

Those animals that have less body condition and less body fat as a result of grazing on drought-impacted pastures may need to have that additional supplement sooner to be able to produce the energy needed to weather the cold period, he said.

Animals in good body condition can call on fat reserves, but if they are in colder temperatures for longer periods, they need the increased energy content in rations to help them alleviate cold stress, Lewandowski said.

Animals have a thermoneutral zone — a temperature range in which the animal is most comfortable and not under any temperature stress and that is considered optimum for body maintenance, health and animal performance. When livestock experience cold stress below the lower boundary of that zone, they reach lower critical temperature (LCT) and the animal's metabolism must increase in order for it to keep warm, Lewandowski said.

“That means the animal must increase its energy intake to maintain body temperature and basic body maintenance functions,” he said.

“Generally, energy intake must increase by 1% for each degree of cold below the LCT.”

Animals that are fed average- to good-quality hay are more likely to be able to increase intake enough to meet the additional energy demands. Those being fed low-quality forage are unlikely to be able to increase their intake enough to meet increased energy demands, Lewandowski said.

“If poor-quality forage is the only forage option or if there is an extended period of extreme cold weather, then some additional energy supplementation is necessary for the animals,” he said.

Producers should keep in mind that LCT is influenced by an animal's size, age, breed, nutrition, housing conditions, and hair coat or wool thickness.

The thicker the hair coat, the more the LCT decreases, he said.

“But with a wet hair coat, regardless of how heavy it is, the lower critical temperature increases to 59° (F), as hair coats lose their insulation ability when wet,” Lewandowski said, referring to cattle, horses and goats.

The LCT for beef cattle, taking into consideration their seasonal haircoat, is:

- Summer or wet: 59°
- Fall: 45°
- Winter: 32°
- Heavy winter: 18°

“For most livestock, it really is a matter of adapting to the weather,” he said. “Cattle will adapt to cold with a thicker

coat if they have the feed source, and ensuring livestock [are] blocked from the direct force of the wind will help protect them from wind chill.”

Breeding livestock that are subjected to prolonged periods below their LCT may experience reproductive issues, while other livestock classes will have reduced

gains or even lose weight, Lewandowski said.



Editor's Note: This article is adapted from a news release by Tracy Turner for the Ohio State University College of Food, Agriculture, and Environmental Sciences.