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FEATURED

Heat stress in livestock taken seriously

By Greg Hitchcock
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Cattle in a pasture
Submitted

As summer continues to bring heat, livestock producers across the country including Montana have to watch that their animals are safe from heat stress.

According to Dr. Richard Waterman, a research animal scientist with the ARS Livestock and Range Research Laboratory in Miles City, Montana cattle do not experience a lot of heat stress compared to other animals in more humid climates in the midwest and south.

However, with the recent high temperatures producers should be aware of the warning signs and preventive measures, Waterman said, because humidity really influences heat stress on animals.

Causes of heat stress

Genetics play a role in heat stress, Waterman explained.

“We have continental livestock which are our angus and our Herefords. Those breeds can be more susceptible to heat stress than a bos indicus which is an Indian breed,” he said. “These cattle were born and raised in environments that allow them to tolerate heat.”

He said hide color also plays a role on heat stress, the more black the color of the animal the more susceptible to heat stress the animal is.

Breeding and lactating cows are also a factor in heat stress conditions. When animals are lactating, the energy required for milk production creates heat, Waterman said.

“And it is the season for breeding. Bulls are susceptible to heat stress because they are active,” he said.

Signs of heat stress

“Breathing, respiration, and core temperature are three areas that we evaluate,” Waterman said.

“Animals that have 40 to 60 breaths per minute are considered to be in the normal range. But, when they get above 60 to 80 breaths per minute that may be an early sign of heat stress,” he said.

Above 80 to 100 is the critical threshold, Waterman explained and above 100 emergency intervention needs to take place immediately.

“Another sign is excessive salivation. That is a sign of heat stress,” he said. “What gets critical is when an animal has those signs and the animal’s head lowers and saliva stops. That is an animal in critical condition and needs immediate care from a veterinarian or we need to cool that animal down.”

Waterman said a normal body temperature for a cow is between 101 and 102.5 degrees. When it gets above 103, it is an indication that it either has an infection, a reaction to an immune response, or heat stress.

According to Waterman, if a producer observes cows spending less time lying down and ruminating, they seem uncomfortable, they may be experiencing heat stress.
“Cattle have grazing bouts. They will go out at different times and graze and go lay down. If there is a change in that routine, that is an indication that something is going on,” he said.

“Another thing is lameness. When heat stress occurs, animals may seem lame when they limp, they don’t walk, and don’t move around as frequently,” Waterman said.

Impacts of heat stress

Heat stress impacts many of the productive processes, according to Waterman, from weight loss and meat quality to breeding and milking.

“Heat stress can cause animals to lose weight. For lactating cows, milk production can go down which not only impacts the cow, but the offspring or calf nursing,” he said. “Heat stress can interfere with their immune system. They are more susceptible to pneumonia, or other

types of infections."
"You can have diminished reproductive performance as a result of heat stress. And you can have embryonic loss, and as a result of heat stress pregnancy doesn't occur," Waterman explained.

When temperatures increase, algae can form in some reservoirs and in catchments, and the blue green algae can produce a bacteria that is fatal to livestock.

"It is different from algae you see in ponds and stock tanks. Our producers are aware of this and they frequently check water tanks and stock ponds so if they observe this blue green algae, they can get those animals off that water source immediately," Waterman said.
Animals in feedlots and dry pens especially in drought conditions don't have forage so are fed there, Waterman said. This often produces dust that accumulates in the air causing respiratory issues that combined with high temperatures can lead to heat stress.

"To alleviate that is to put straw bedding down or watering the pens down a few times a day to minimize the amount of dust," he said.

Producers also feed their cows with protein for better digestion of forages that they are consuming, but Waterman said producers should use caution not to overfeed their cows protein.

"Because if we do it leads to the protein being bio-processed in the cow and excreted in urine, but that is a heat expenditure that increases the cow's internal body heat," he said. "If we don't have that in balance, we can exacerbate heat stress problems."

Waterman also warned of the outbreak of flies this year and the negative impact it has on cattle.

“This year, we see cattle bunched up. They have a lot of flies on them. When cattle bunch up, they make their own micro-environment. As temperatures increase and cattle bunch up, they increase heat production in that micro-environment making them more susceptible to heat stress,” Waterman explained.

“One way to reduce that is we have to try some method of mitigating flies on our livestock whether it be putting fly ear tags in, using a pour on product, or having a roller or dust cloth cattle can rub off against that keep flies at a minimum,” he said.

In feed lots or in the pasture, producers would like cows to have some distance from each other, said Waterman, explaining that it lets air movement around the animals, helping them cool them down.

“The smoke that is coming down from Canada is new this year from all the fires up there. If we impact their lungs making it difficult for them to breathe and temperatures increase, we introduce them to potential heat stress,” Waterman said.

Managing heat stress

“The most important nutrient an animal can get is water. We need to make sure the water is clean, fresh, and as cool as possible,” Waterman said.

He explained underground piping helps make the water cooler when it is carried to producers' stock tanks or feeds a reservoir.

Waterman said producers need to make sure there is enough trough space for their animals to come in and drink. He recommends three linear inches of tank space per head, one and a half gallons of water per 1,000 lb animal per hour during extreme heat.

“If an animal weighs 1,000 lbs, it needs 30 gallons of water per day or more,” Waterman stressed. “Another rule of thumb is they need a gallon of water per pound of dry intake.”

Waterman recommends producers get with an Extension agent or they need to get their own TBS meter and evaluate their water.
“Animals that are on pasture, especially during the hot periods of the year: Are there cooling draws or ravines their animals can get in to cool off? Are there trees they can get under for shade? If they are in a feed lot, do they have some area of the pen that is shaded?” Waterman said.

In some parts of the country, producers spray their animals down to dispense the heat.

“Livestock producers need to consider working their animals earlier in the morning or late in the evening, and not in the prime heat of the day,” he said.

“Also, use low stress handling techniques. We want to work our cows and keep them calm as possible. If they get excited, that generates heat and can put them in a heat stress situation,” Waterman concluded. “If we feed them in the evening, the digestion that takes place allows them to have the heat expended before daytime temperatures influence it.”

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