

GONE *Go* Grazing

How knowing the “hill climbers” and “bottom dwellers” of your herd can help you boost your operation.

by Megan Silveira, editorial intern

There's something relaxing about watching an animal chew its cud. Maybe it's the methodical pace they keep or the content look in their eyes. Whatever it is, chewing cud is just another aspect of a ruminant's life.

Cattle spend six to 11 hours grazing each day to gain the nutrients they need to function. Ranchers need their ruminants to graze efficiently so they can continue to provide the world with high-quality beef products. New information on grazing distribution allows ranchers to ensure their cattle are using their ability to graze to its highest potential.



Covering basic ground

“Grazing distribution is a very broad term,” says Milt Thomas, professor and John Rouse Chair of breeding and genetics at Colorado State University. “As you put cattle into a pasture, grazing distribution is all about how they distribute themselves amongst the pasture land.”

Cattle often do not graze uniformly across a pasture, even if there is enough grass available, according to Derek Bailey, professor and Chihuahuan Desert Rangeland Research Center director at New Mexico State University. When cattle concentrate in one area of a pasture, they lose the ability to gain the nutrients they need from grazing.

“Not all cows are created equal,” Bailey says. “There are some distinct innate differences in the way cattle graze.”

Bailey divides cattle into two categories: “hill climbers” and “bottom dwellers.” He says some animals are willing to climb for food where as others do not possess the desire or drive to scale hills or mountains when grazing.

Thomas explains the importance of understanding this concept further, saying ranchers who know where their cattle go to graze can help prevent under- and overgrazing.

In flat pastures, Thomas says you can often find cattle overgrazing land close to watering areas and undergrazing land distant from water sources. Pastures with steeper landscapes, however, require cattle to climb away from water sources.

Thomas adds that ranchers with pastures containing areas of higher elevation often find their cattle unwilling to make the trek necessary to graze the hills.

Nature or nurture?

Thomas says research on grazing distribution was driven by the desire he and Bailey had to understand why some cattle are willing to climb to graze and

others are not. While this might sound like a classic “nature vs. nurture” question, Thomas says there is a genetic association with this trait.

While cattle somewhat create their grazing habits from their environment, Bailey says grazing habits are heritable.

“There is a genetic difference between cattle that climb and cattle that don’t,” Thomas says. “We’ve found a certain genotype on a certain chromosome associated with whether a cow will be a hill climber or a bottom dweller.”

While bulls do not exhibit grazing traits themselves, Bailey explains they possess the ability to produce daughters with the hill climber gene. With the help of a grant from the Sustainable Agriculture Research and Education (SARE) program, Bailey and Thomas have conducted research to learn how to track the desired hill climber trait in cattle.

By tracking the movement and grazing patterns of cattle through the use of DNA collars, Bailey and Thomas are able to identify individuals potentially carrying the hill climber gene. By tracking a large number of animals, the trait’s genetic markers are identified and then used to help find other animals possessing the trait.

Gene projections

Bailey and Thomas’ first studies might have shown that a link between grazing patterns and genetics does exist, but they need to validate the results before ranchers can take full advantage of grazing distribution.

The end goal for this study — a new DNA test Bailey says will create a genetic value similar to an EPD (expected progeny difference) where ranchers can predict if bulls will produce daughters with the hill-climber trait.

Current estimates predict the DNA tests will cost around \$30 per head. Bailey considers this a reasonable amount. Owning females with the hill-

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climber trait has the potential to raise an operation’s stocking rate by a third of its current capacity.

Ranchers seem to reflect Bailey’s belief. A survey distributed to ranchers in the western half of the U.S. revealed 85% would be willing to pay more for a bull with the ability to pass the hill climber trait onto their daughters.

Thomas explains the current challenge of this research is collecting enough data to validate the results for the first study. Since most cattle in today’s industry are Angus, Thomas says they have been collecting a majority of their data from cattle registered with the American Angus Association.

While this sounds promising for getting the Association access to the new EPD once it is published, Thomas says it will be at least a year until this information and the DNA test are available to the public.

The hill-climber trait is one Bailey describes as a “favorable genotype,” and claims the ability to predict it in cattle is the key to creating a more efficient industry. While the trait might be difficult to track, Bailey and Thomas believe it is one worth the effort.

“As a beef industry, we’ve done a pretty good job historically of making genetic improvements in classic traits,” Thomas says.

“Now is the time to challenge ourselves to make EPDs for traits that are hard to collect data on.” **AJ**

