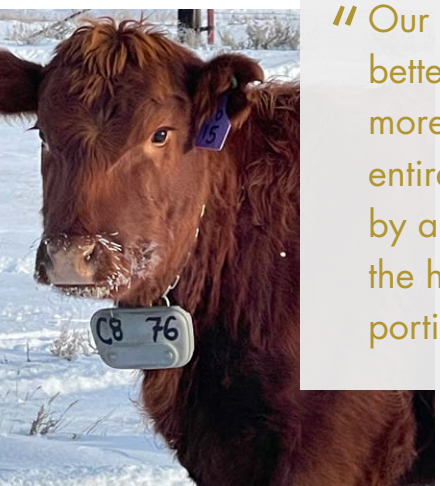
PRODUCER PERSPECTIVE:

Invisible Boundaries Create Noticeable Forage Improvement on Barthelmess Ranch

BY MACEY MUELLER

With an average annual rainfall of just 11 inches on their Malta, Montana, ranch, Leo Barthelmess and his family are taking an intentional and innovative approach to managing their valuable forage resources. Using "virtual fencing" technology that involves advanced GPS tracking collars on each of their nearly 500 commercial Red Angus cows, the family operates a precise and effective intensive rotational grazing program across 25,000 acres of private and public land.

Leo and his brother Chris, along with their wives Darla and Deb, began utilizing holistic management practices on the Barthelmess Ranch in the 1980s to improve forage conditions and reduce the time and expense spent putting up hay. Since then, they have installed about 15 miles of permanent two-wire electric fence and an additional five miles of barbed wire fence to subdivide their northern Montana rangeland into 38 pastures ranging from 30 to 4,000 acres. However, as fencing material prices continued to increase and labor was harder to come by, the family began exploring virtual fencing to better manage the undergrazed areas of those pastures while helping to encourage wildlife migration through their region.



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"Our goal is to build better nutrition and more quantity into the entire grazing resource by allowing more rest in the historically overused portions and forcing our cattle to graze the old decadent grass off," Leo said. "Virtual fencing allows us to quickly move and keep cattle in those outlying areas.

"At the same time, we are located in an area with the second-longest mammal migration in North America, and the virtual fencing helps better facilitate wildlife movement across the ranch because we are not installing physical fence barriers."

In 2019, Leo began working with the California-based technology company Vence to erect five repeater station towers across his family's grazing area that relay invisible pasture boundaries to the tracking collars worn by his cows. When an animal approaches a boundary, the collar first issues an audible signal, and if the animal continues, it receives an electric stimulus.

"For the most part, the cattle are quite responsive to the collars, and we've seen somewhere between a 95 percent to 100 percent compliance rate," Leo said. "There are certain individuals that just don't respond, and they're likely the same ones that crawl out through a barbed wire fence, too."

From the convenience of his home computer, Leo uses a number of different strategies to build the virtual pasture boundaries. For example, in the winter, he can graze cows farthest from water sources because they will eat snow. This allows him to utilize stockpiles closer to available water during the warmer months.

The family also spends a considerable amount of time evaluating forage conditions and identifying the historically undergrazed areas. With a gridded map of the ranch, they can then use the Vence system to build out pastures in those areas.

"We're already seeing a change in the cattle's behavior when they enter that pasture the next time," Leo said. "They will now go to these outlying areas to graze because it's fresher grass since they've previously harvested all the old forage."

While collaring cattle is a pretty simple process – and a lot more fun than fixing fence, Leo admits – there are still some challenges with the emerging technology.

"The batteries realistically only last about five to six months depending on how small of an area you're containing the cows," he said. "The more times cows get close to a boundary, the more the collars start consuming battery since they're communicating with the tower.

"Collar retention can also be an issue because there's a safety break away, so sometimes they get hung up on a fence post or cattle get to pushing on each other and a collar will come loose."

Despite some of the logistics, Leo sees great potential in the future of virtual fencing and considers it an investment in continuing his family's ranching legacy. Each repeater station tower costs about $12,000 to install, and collars require a $3 service fee per month, per animal.

"It's a substantial expense, but with the rising cost of fencing materials, virtual fencing is now very competitive with other hard infrastructure products," he said. "It has also allowed us to continue adding days to our grazing season with the goal of eventually grazing out 12 months a year, nine out of 10 years, and producing an animal and providing a product the feed yards and the packers want."

Leo added that the technology becomes even more economical when like-minded neighbors cost-share some of the required equipment. His towers easily cover as many of his neighbors' acres as they do on his ranch, and they can be used by more than one person with the benefit of complete anonymity.

"As stewards of this land, we all have the responsibility to utilize it effectively, and we hope this technology will encourage future generations to work together in these types of management and conservation practices," he said.

Photos by Leo Barthelmess

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