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Virtual Fencing for Livestock

Technology is constantly changing management practices. Dairy farmers can monitor a cow's milk output, veterinarians estimate a foal's date of birth using ultra-sound equipment, and electronic ear tags can track an animal from the farm through the stocker and feeding industry segments. Pet owners can create boundaries for their furry friends without putting a single post in the ground.

It's this last example I'd like to discuss. Virtual fencing is not new to the world, dog owners have been virtually mapping their lawns and letting Fido roam without fences or a leash for a few years now. The dog wears a collar that emits a sound or vibration when the animal comes close to the virtual boundary, letting the dog know to put the brakes on.

Apply this concept to a larger acreage and a larger animal. A livestock manager maps a pasture and adorns the stock with a device that monitors the animal's movement through GPS, controlling livestock distribution in rangeland without physical fences. When the livestock reaches the limit of the virtual fence, a series of loud beeps emit from the collar. As the animal nears the boundary, they receive a benign shock. Cattle, sheep, and goats have demonstrated the ability to rapidly learn the virtual fencing cues.

Virtual fencing has the potential to improve soil and water quality through managed grazing. Managed grazing is the careful monitoring and movement of livestock density and timing. It can stimulate plant regrowth and add manure to the soil. While managers with traditional fences practice managed grazing, it requires much more labor, and animal movements are limited to pastures defined by physical fences. Virtual fencing allows managers to frequently and efficiently move livestock from one pasture to the next and define new within-pasture boundaries.

A recent survey of cow-calf and stocker producers in Nebraska showed that most producers have an understanding of this new technology, but do not have first-hand experience. The same survey tells us 10 out of 10 ranchers agree labor is always an issue. Most respondents agreed that labor, or the lack thereof, is a consideration when looking at grazing plans.

Other benefits of virtual fencing include eliminating wildlife conflicts with wire fencing and usage in areas that are difficult to build traditional fences. Another application is the exclusion of

livestock from certain areas, like riparian zones, newly burnt pasturelands, or areas of forage toxicity concerns.

Of course, there are challenges with new technology. More research needs to be conducted on the cost-to-benefit ratio, as the implementation costs are quite high. Livestock managers would need to install collars on each animal and monitor the device's battery life. There are also questions about the collar size of growing animals.

To learn more about new technologies, contact Wendie Powell, Livestock Production Agent, (620) 784-5337, wendiepowell@ksu.edu.

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