

# Moving Livestock Research Forward

## Exploring Nofence Collars: Virtual Fence Technology

Rotational grazing systems can help maximize soil health and pasture productivity, but are hard to implement due to labour shortages and infrastructure costs. To help farmers overcome these challenges, researchers at the Technology Access Centre for Livestock Production (TACLP) at Olds College of Agriculture & Technology performed a test in August 2022 with a virtual fencing system to understand how beef cattle respond to the technology.



The study provided preliminary information on the functionality of the Nofence® collar, an animal-friendly novel virtual fence technology that allows producers to remotely contain and control grazing cattle by using audio cues and electric stimuli from collars instead of physical fences. While Nofence has been tested in some countries, this was one of the first trials using this technology to manage cattle in Alberta conditions.

“We wanted to start testing the collars on cattle in real-world scenarios to see if they could help enhance pasture productivity and soil health,” says Laio Silva Sobrinho, Research Associate with the TACLP at Olds College. “We’ve been conducting great research on the Olds College Smart Farm with rotational grazing and regenerative agriculture practices during the last few years. Virtual fencing systems could make managing herds easier in order to prevent overgrazing and implement rotational grazing — which could increase carbon sequestration for producers.”

During the initial seven-day test in August 2022, the TACLP gathered a total of eight Angus crossbred heifers, aged 18 months, from the College herd with no prior experience of a virtual fencing system. Half of the herd (four heifers) were fit with Nofence collars. Researchers regularly monitored the animals in the field and activities of the animals using the Nofence mobile app.

From performing this initial test, the TACLP researchers observed the heifers were quick to learn how the system works and how to respond to the audio cues and electric stimuli (electrical pulse between one to three kilovolts for

one second). It appeared that by using collars on only half of the herd, the team was still able to manage the whole herd. Researchers also found that the GPS accuracy and cell connectivity works well with the Nofence collars.

Since the College's cattle herd spends winter in the campus feedlot, researchers will continue preliminary testing of the Nofence collars at Neilson Cattle Development, a producer partner site near Stettler, Alta., during the upcoming months. The TACLP works on numerous applied research and fee-for-service projects with Lance and Karyn Neilson, and their farm allows researchers to test products and services in a real-world scenario.

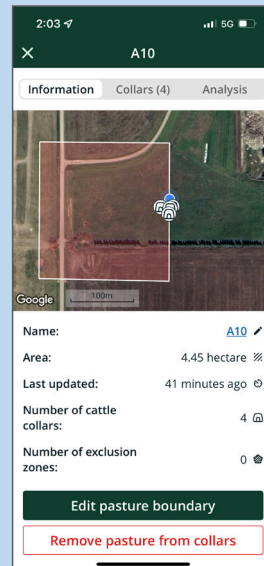
On Neilson's farm, researchers will be evaluating other cattle wearing the collars while grazing in a corn field to test battery life in Canadian winter conditions, Nofence-app usability and animal performance. Researchers are also interested to see if the collars work with different sized pastures (especially small pastures) and if animals can learn to avoid the virtual fence boundaries.

The TACLP is planning to conduct more comprehensive trials on virtual fencing once additional collars arrive at the College in 2023. Researchers intend on testing the Nofence collars in larger areas and with a larger group of cattle wearing the collars. Researchers also want to continue observing the collars' performance in different seasons under a variety of outdoor temperatures.

Visit [oldscollege.ca/TACLP](https://oldscollege.ca/TACLP) to continue learning about virtual fencing on the Olds College Smart Farm as the TACLP continues to move forward with its research.

## Benefits of virtual fencing for producers can include:

- Managing herds remotely.
- Changing the location of livestock without much effort (less labour intensive) — especially on larger lands.
- Being able to graze cattle in locations that are difficult to fence due to hills and varying geography, including Crown land leased by producers.
- Saving money on fencing since the collars can be less expensive than installing fencing (due to recent increases of lumber and fencing supply prices).
- Eliminating fencing issues for wildlife conservation.
- Excluding cattle from areas with management concerns more easily.
- Preventing overgrazing, implementing rotational grazing to enhance pasture productivity and soil health, and increasing carbon sequestration — leading to potential carbon credits for producers.



Screenshot from the Nofence® mobile app during the preliminary test in August 2022 on the Smart Farm.

