

# Virtual Fencing on Public Lands (Gunnison County)

Project Mentors:  
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## PROJECT INTRODUCTION

Virtual fencing (VF) is a tool that has slowly worked its way into ranches throughout Colorado in the past years, bringing with it a variety of different viewpoints. The technology allows ranchers to fence, track, and evaluate grazing patterns in a more involved manner compared to traditional management tools.

The two primary stakeholders involved in the use of virtual fencing are the cattle producers and government agencies responsible for managing grazing allotments. In the summer of 2024, I researched the true costs of the technology as perceived by producers. This summer, I was given the opportunity to build on this topic by including the perspectives of rangeland managers, which, combined with my other research, will provide a more complete understanding of Virtual Fencing in Colorado.

## INTERNSHIP GOALS

When talking with staff at the U.S. Forest Service and Bureau of Land Management, we wanted to identify the primary issues and barriers associated with implementing this new technology as a management tool. To achieve this, it was essential to speak with staff who manage allotments where the technology is being utilized, as well as those who have only heard of Virtual Fencing. This would provide a more comprehensive understanding of the various perspectives within the government agencies.

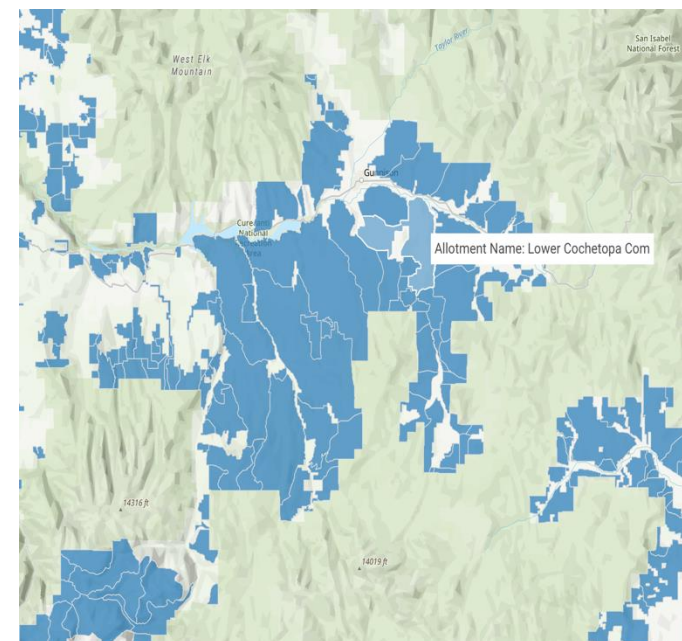
Another goal for the internship was to build on and refine my understanding of the technology so I could confidently help producers learn the program and answer important questions about the implementation of this technology.

## HOW DOES THIS APPLY TO YOUR EDUCATION

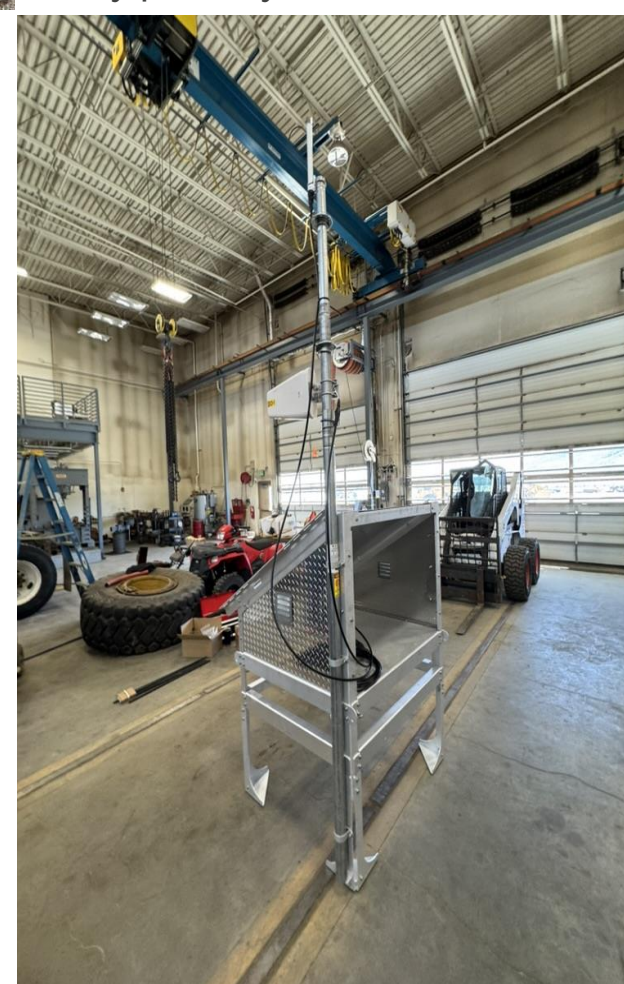
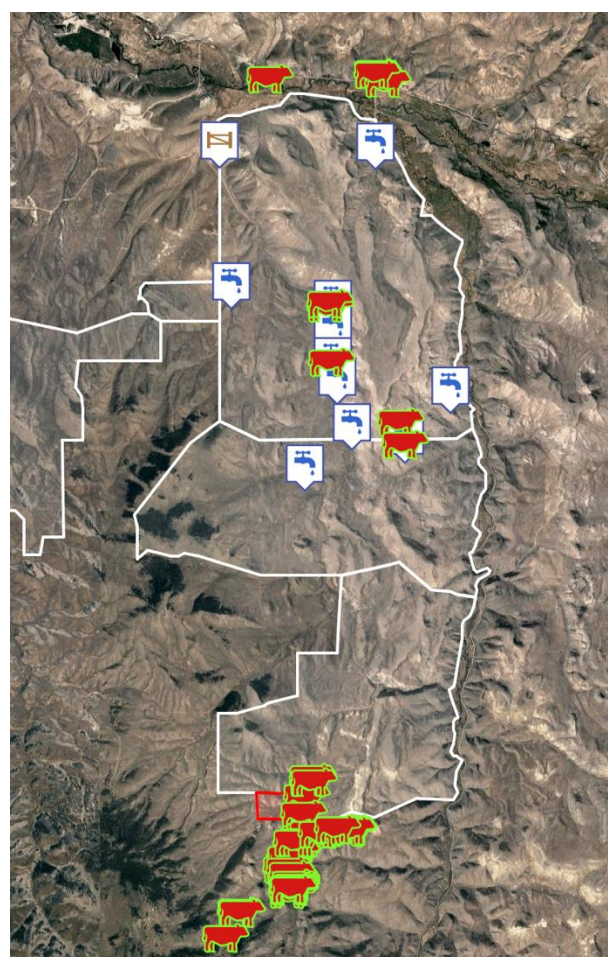
A unique characteristic of the agriculture industry is the coordination of various entities to achieve a common goal. This internship has allowed me to see this firsthand through working with producers and rangeland managers who manage cattle grazing with the common goal of range health and cattle growth. The education I have received from the College of Agricultural Science at CSU has given me a diversified understanding of different sectors of agriculture and given me the ability to confidently work with both ranchers and agencies and talk about their goals and experiences.

## WHAT YOU DID

**Primary Research**  
 During this internship, my primary research involved collaborating with a local rancher in Gunnison who was in the second year of trialing the technology. This hands-on experience allowed me to gain a deeper understanding of the technology in a real-world setting and apply the knowledge I gained last year to this year's research objectives.



**Secondary Research**  
 My secondary research involved contacting government rangeland managers to have a conversation about virtual fencing and their perspective on the topic. Additionally, I had the valuable opportunity to meet in person with a local BLM agent several times. During these conversations, we discussed his perspectives and connected my secondary research to my primary research.



## WHAT YOU LEARNED

### Producer and Agent Perceptions are more Similar than Different

- Many of the barriers and benefits of implementation are shared among both groups.
- Their goals in using VF are targeted primarily at land and animal management and health.

### Little Consensus Among Government Agents

- Levels of enthusiasm about the tech are different among the individuals I talked with.
- Knowledge of the technologies' capabilities is just as wide-ranging.

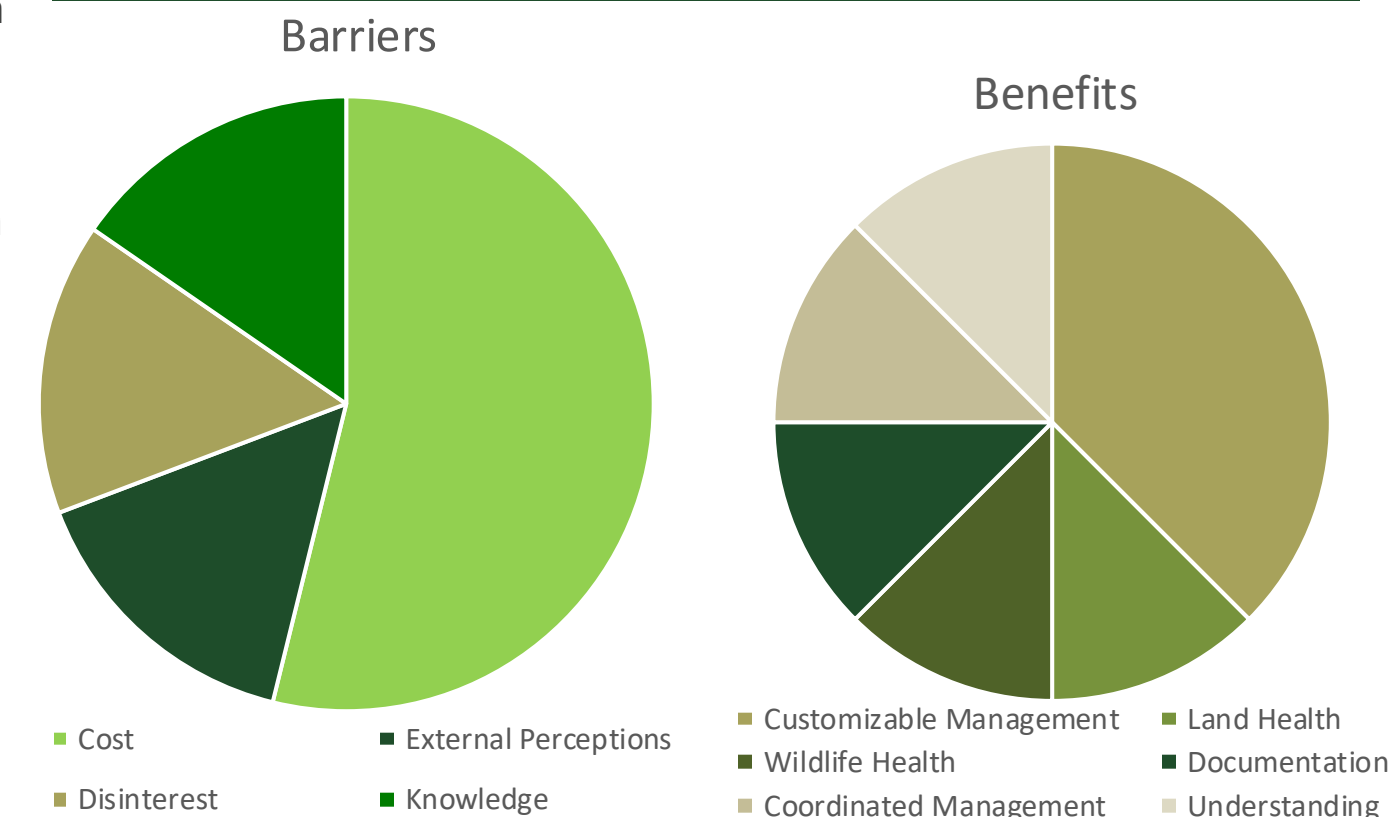
### The Barriers are Overwhelming

- Benefits were larger in number; however, the magnitude of the barriers seem to have a greater effect.
- Costs are the largest agreed-upon barrier by far.

### The Future is Bright for VF Technology

- Those with experience have more good to say about VF than bad.
- There is currently a VF permit possibly foreshadowing the future of management.

Table 1. Agents' Perspectives on Virtual Fencing



## NEXT STEPS

Those with experience using the technology believe it to be the future of rangeland management and those who haven't are interested in its capabilities. Though many barriers to implementation exist and many changes are required for mass adoption, the new capabilities provided by virtual fencing technology have enough impact to at least continue the conversation.