

# ECONOMIC FEASIBILITY OF VENCE GRAND COUNTY (GRANBY/KREMMLING)

## PROJECT INTRODUCTION

The Fitch Ranch, located in Grand County, has installed a *Vence* (<http://vence.io/>) virtual fencing system– one of the first in Colorado. Virtual fencing allows ranchers to fence cattle through the internet and a collar on the livestock. The Fitch Ranch manages about 200 head of cattle on about 26 square miles of range that include Bureau of Land Management (BLM) and U.S. Forest Service (USFS) grazing allotments. Virtual fencing can be economical compared to traditional fencing, eliminates wildlife losses associated with barbed wire, and offers flexibility that can improve both profit and environmental outcomes. It can even be used to efficiently accommodate rotational grazing systems or to exclude livestock from sensitive areas. But it is new and mostly unexplored.



## INTERNSHIP GOALS

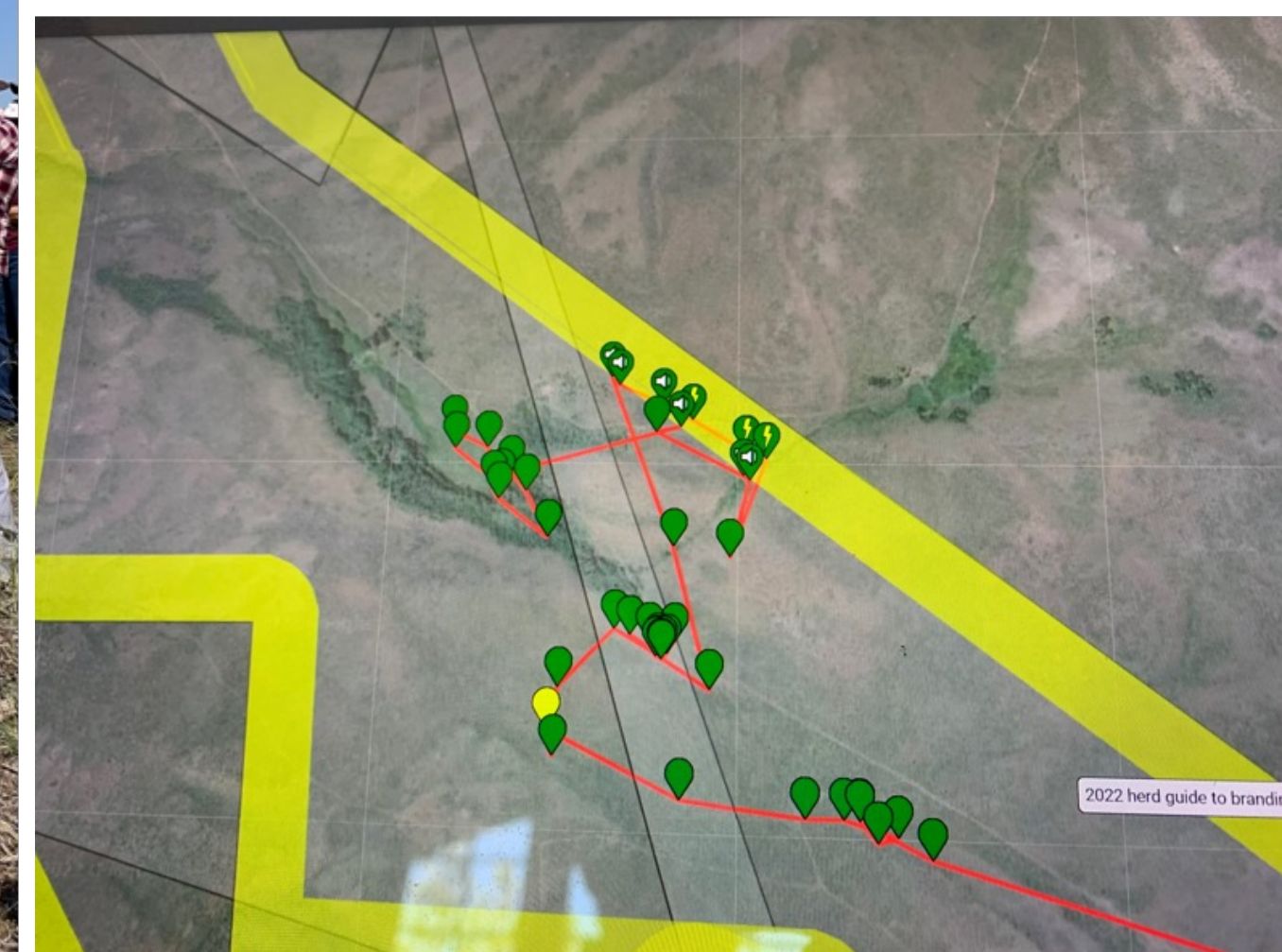
The main goal of this internship was to assist ranch operations, while also collecting data to better understand the costs, benefits and capabilities of a virtual system compared to traditional fencing. In addition to looking at economic feasibility (Table 1), I interviewed several producers about their understanding of the value of virtual fencing for a research survey. Personally, my goal for this internship was to network within the agricultural industry and to strengthen my skills and knowledge in ranch management by gaining realistic career experience.

## HOW DOES THIS APPLY TO YOUR EDUCATION

I grew up having a passion for animals and the ranching industry. I decided to get my bachelors in Animal Science with a minor in Agricultural Business. I was eager to get real-life and hands-on experiences related to ranch management that would coincide with what I have learned in my classes. This internship has been an amazing experience for me to learn and grow in the Agricultural industry. I aspire to be a ranch manager one day and this internship not only gave me that opportunity but opened doors to numerous connections and chances to learn more about my desired career path. Learning about the Vencing system specifically has intrigued me to learn more about new agricultural technologies that have been and continue to advance in the industry to aid in successful ranch management. This internship has definitely and will continue to guide me through my last year at CSU and I am excited to further my education with my newly acquired skills and knowledge.

## WHAT YOU DID

During my time at Fitch Ranch I assisted with the daily ranch tasks while learning about their new virtual fencing system. These daily tasks included: feeding and caring for two bottle fed calves, Cowabunga and Chimichanga, working daily on their irrigation system, spraying invasive and toxic plants with herbicide, checking on all herds (physically & monitoring online through Vence's Herd Manager website), and picking up ranch materials when needed. I learned how to use the Herd Manager website to locate and track cattle, along with setting up or taking down virtual fences. I also was in charge of rebuilding collars which consisted of changing out the battery and reconstructing the chain that allows the collar to fit on the bovine. Amongst my time there I also helped during the branding days where we collared, branded, banded, ear tagged and vaccinated the cattle. In addition to the ranch tasks, I spent time calling and surveying ranchers all over Colorado who either are also currently using Vence, recently installed Vence or have been hearing about it and are interested in implementing. I gathered the economic feasibility information around Vence and the different perspectives from ranchers and producers. Additionally, I conducted research on traditional fencing costs including the fluctuation on fencing prices and how it compares to the cost for the Vencing system.



## WHAT YOU LEARNED

To start out, I learned virtually all there was to Vence. This includes the history of the company, their mission and goal, how they operate, and most importantly what their system does and could potentially do in the future. Briefly, Vence is an animal-friendly fencing system that enables livestock to be confined or moved without using physical fences. It uses Global Positioning System sensors and wireless technologies to control the movement and location of animals. In essence, it's an invisible electronic fence producers create and maintain on their computer. Vence is controlled by a tower and a collar that receives signals from this tower. I learned how to put the collars on, take them off and how to re-build them. I also learned how to operate a hydraulic squeeze chute and tractor, how to manage an irrigation system, processing and packaging meat, how to do a necropsy on a cow, how to identify the numerous toxic native and/or invasive species of plants, sorting and herding cattle, ear tagging, banding, branding, and vaccinating and a few tips and tricks (many I already knew). As shown in Table 1 below, I estimate that the cost of traditional fencing is actually lower than virtual fencing, but can be more or less expensive depending on local conditions (e.g. # of cattle, miles of fence)

Table 1. Vence v.s. Traditional fencing costs for 100 head of cattle

Vence Costs	Traditional Fencing Costs
Tower: \$12,500 each (\$407 annual cost)	Wood posts
Collars: \$35 per head (\$3,675/yr)	Steel posts & staple/clips
Batteries: \$10 per head/per year 2x	Barbed & woven wire
Laptop: \$734 (\$2,000 new, 3 year life)	
Annual Labor: \$300 + \$4160	Labor & equipment
The first cost is rounding up and collaring cattle twice per year, the second cost is an estimate on a weekly basis for Herd Manager website.	*Based on 42 hours of work
Total: 407+3,675+2,000+734+4,160=\$10,976	Total: \$6,608
This fencing system can cover 13 sq miles and last a lifetime, with the battery replacement cost varying.	This annual total is based on 13 miles of fence at 1.48 per foot, without accounting for fence damages or maintenance cost. The costs items listed above are for installation. \$6,608 is the annual cost based on an investment cost of \$101,587.

## NEXT STEPS

The next steps are to continue to follow the growth of the business and keep up with any changes and updates to the technology. I predict that within the next couple of years Vence will advance to be more efficient, affordable and possibly even become the new modern fence that a lot of producers implement on their ranches or farms.

My next steps will be to utilize the numerous contacts I made to attain even more field experience and hopefully develop a career that will set me up for stability and success in the agricultural industry. Looking closer into the future, I plan to use what I learned this summer to adhere to my last year at CSU as an Animal Science major and set me up for life after college.