Successful "Virtual Fence" workshop in Sutter Creek, Amador County.

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On July 13th, in Sutter Creek, we had our Virtual Fencing (VF) workshop. As a reminder, Virtual Fencing (VF) is an alternative to traditional physical fences which has the potential to enhance the efficiency of grazing management. Ranchers create virtual fence boundaries in a digital map software, like Google Maps, that communicate through cell service or radio towers with GPS collars worn by the livestock.

During the workshop, participants heard from representatives from three different VF companies, four ranchers, and researchers from the UC ANR.

The virtual fence companies all provide the same overall service, but each has unique characteristics that may be more suitable to a rancher's specific operational needs. Table 1 compares these features. Nofence was represented by Meghan Filbert and Allysse Sorensen, and are the only company that makes collars for small ruminants (*Fig. 1a*). Vence was represented by Nathaniel Slinkert, and are commercially available in the United States (*Fig. 1b*). Gallagher eShepherd collars were represented by Sarah Adams (*Fig. 1c*).

Table 1. Comparison of the 3 virtual fencing companies.

	VENCE	Nofence	GALLAGHER
Country of Origin	USA	Norway	New Zealand
Availability	Now	Spring 2024	Spring 2024
Collar Cost	$40 cattle	$299 Cattle $199 Goats and Sheep	$240 Cattle
Collars Leased or Purchased	Leased	Purchased	Purchased
GPS Tower Cost	$10,000	No Tower Required	$5,000
Cell Reception	Required	Required	Required
Battery Life	6 – 9 Months	5 – 10 Years	7 – 10 Years
Solar Chargers on Collars	No	Yes	Yes
Subscription Cost	Not Required	1 – 49 collars: $56 per collar for 1 year, then $52 annually. ≥50 collars: $42 per collar per year, then $36 annually.	$18 per collar for 1 year, then $1.5 per collar per month, with options to skip months

Figure 1. a) Cattle wearing Vence collars (credit: Vence); b) Goat wearing a Nofence collar (credit: Nofence); c) Cattle wearing Gallagher eShepherd collars (credit: eShepherd).

The following four ranchers shared their experience using Virtual Fence Technology.

- **Leisel Finley**, a cattle rancher in Amador County who has used Vence collars since 2022. She has been authorized to use these collars on the El Dorado National Forest after the 2021 Caldor Fire removed many miles of physical perimeter fencing. Leisel said *"Virtual Fence gives us the ability to block access to sensitive areas, and to go on vacation for several days without worrying so much about our cattle".*

- **Lauren Sizemore**, a cattle, sheep and goat rancher, in Humboldt County has been using Vence collars with her family since 2022. Their collars allowed them to provide accurate GPS coordinates to helicopter pilots for hay dropping during the rough 2023 winter. Vence does not recommend using their collars on animals under 700 lbs, but Lauren's family has been experimenting with goats and sheep. Lauren said *"We put one of our collars on our livestock guardian dog puppy, and she was the easiest one to train".*

- **Matt Little**, a cattle rancher in El Dorado County has been using the Vence collars with his family since 2022. They found that the collars really help them at time of gathering.

- **Annette Howell**, a cattle rancher in Kings County has been using the Nofence collars since 2022. Annette presented a list of advantages of using Virtual Fence collars for her operation and said that *"I am saving money because I don't have to fence as much, and it is a great tool to exclude the animals from hazards or sensitive areas. It helps me keep peace with my mom by protecting her flowers."*

Since VF is still a new technology on the commercial market, each rancher shared some benefits and challenges that they have encountered since incorporating it into their livestock operations. These experiences were recorded in the Virtual Fencing Survey at the end of the workshop and are displayed in Figures 2 and 3. Each of the company representatives seemed receptive to the rancher's feedback, as they all seek to make their products more "cow proof."

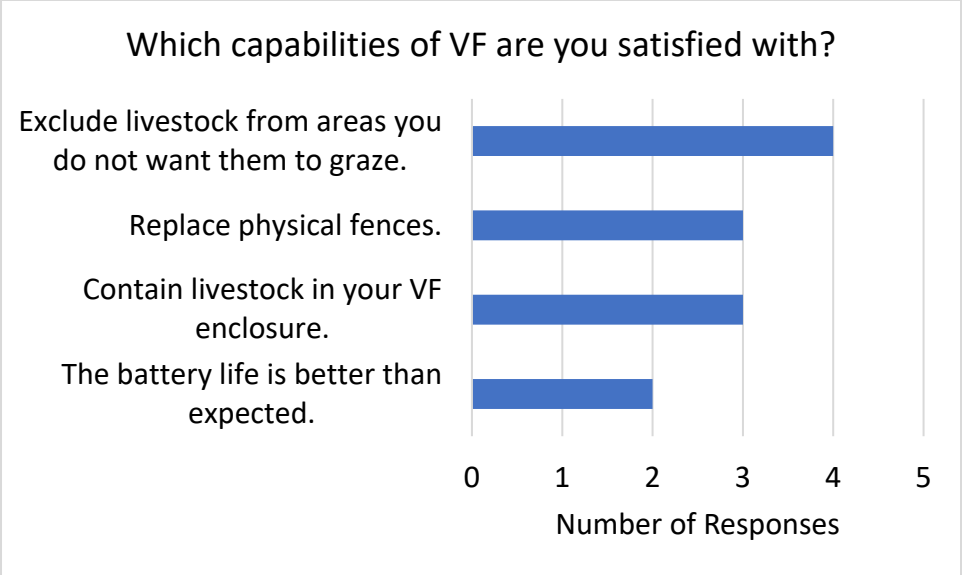

Figure 2. User reported benefits of using a VF system.

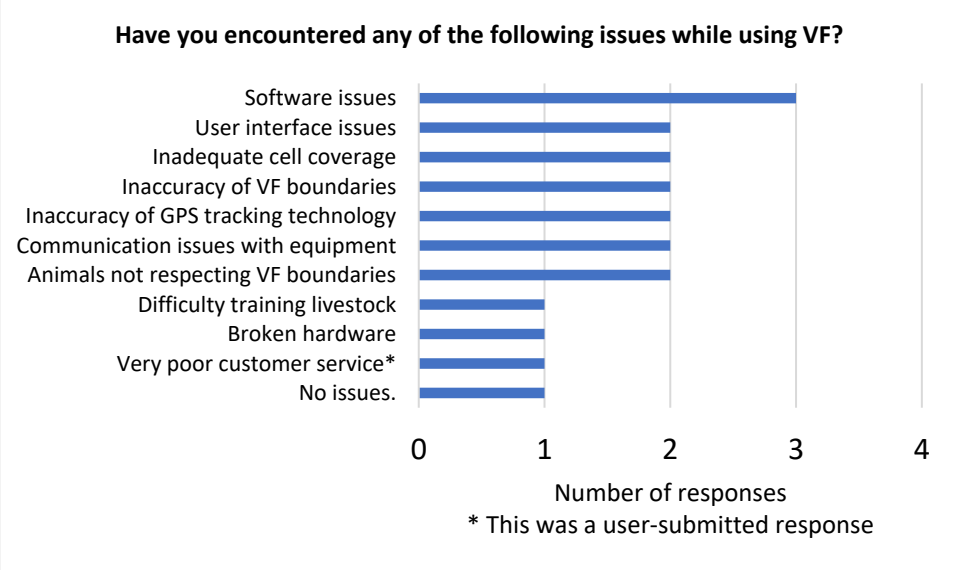

Figure 3. Challenges users have experienced while using VF collars.

What a great turn out, we had 51 participants in our in-person workshop and 20 participants in our online workshop! We did have a few technical issues through our hybrid option, but overall, we hope that this workshop was useful to everyone who attended. Some participants have even said that they are seriously considering purchasing Virtual Fence collars for their livestock (*Fig. 4*)!

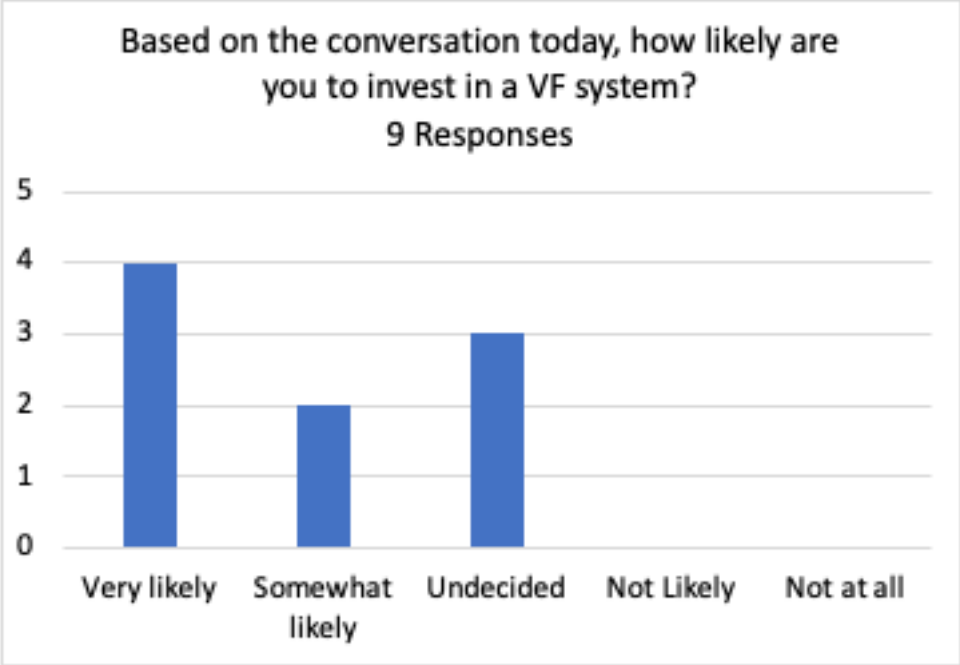

Figure 4. Probability of investing in VF technology.

Thank you to the 71 participants for joining us in learning more about Virtual Fence (*Photos 1 & 2*)!

Photo 1: In-person attendees.

Photo 2: Nathaniel Slinkert (left) representing Vence.

Brian Allen is working on building a website dedicated to Virtual Fence on our UC ANR platform where you will be able to find all of the necessary information concerning the different companies. Stay tuned!

If you have any questions, please feel free to contact Brian Allen at brallen@ucanr.edu or Flavie Audoin at faudoin@ucanr.edu