THE UNIVERSITY OF ARIZONA
Cooperative Extension

az2105 January 2025

Overview of the Arizona USDA-NRCS Cost-Share Program for Virtual Fence

Flavie Audoin

Introduction

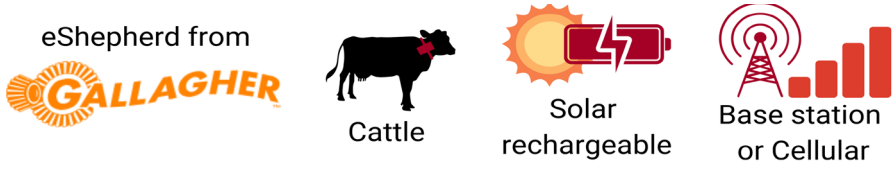
Virtual fence can be used for different applications such as rotational grazing, targeted grazing, post fire grazing in unburned areas, exclosures from potential sensitive areas, etc. However, like physical fence, virtual fence is not a 100% perfect tool, and livestock operators need to make sure to have an exterior physical fence at all times.

A virtual fence (VF) system includes the following elements: (1) a software interface to draw VF lines and the boundary zone on a digital map, which define the grazing area and exclusion zone; (2) a GPS-enabled collar (or neckband) fitted around the circumference of an animal's neck or other wearable device that contains technology to track livestock movement and deliver auditory and electrical cues to influence or limit livestock distribution; and (3) base stations and/or cellular signal to transmit and receive communication between the software and collars (Antaya et al., 2024; Ehlert et al., 2024). As of January 2025, there are four commercially available VF vendors in the United States. These trademarked vendors include: eShepherd from Gallagher; Halter; Nofence; and Vence from Merck Animal Health.

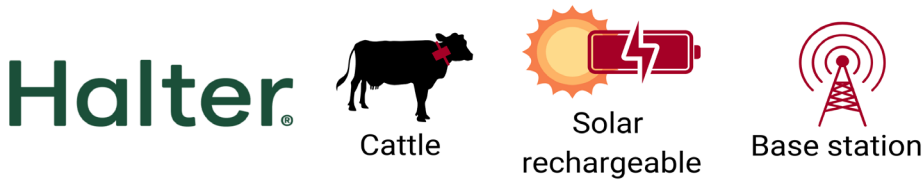
If you are interested in buying VF for your livestock operation, you may have heard that this new technology can be quite expensive. Under certain circumstances, you might be able to work with your federal agencies to decrease the cost of this technology. In some cases, agencies have bought base stations, and ranchers bought the collars; and in other cases, agencies have bought both the base stations and the collars. It is essential to think about who owns the data under those circumstances. As of October 1st 2024, the USDA Natural Resources Conservation Service (USDA-NRCS) has a financial assistance program which helps cover part of the costs of VF. They recently published an article titled "Virtual Fence Systems for Managing Livestock" (USDA-NRCS, 2024).

In this factsheet, we will briefly review the four VF companies available in the United States as of January 2025, we will get an overview of USDA-NRCS cost-share program for VF, and we will illustrate that funding with a specific example.

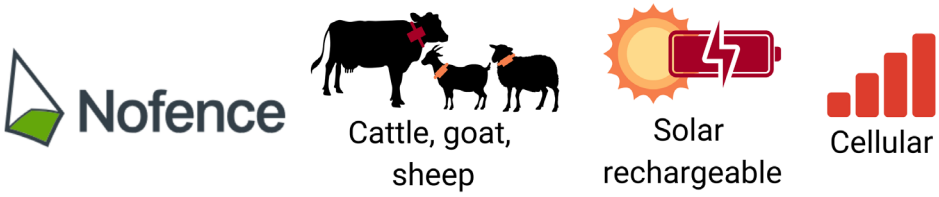
Companies available as of January 2025



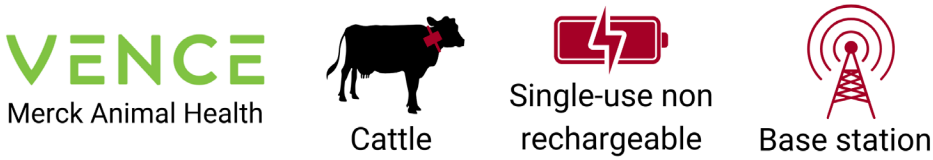
Gallagher is a New Zealand based company who bought eShepherd's technology in 2016. The company specializes in neckbands for cattle. Their neckbands are not designed for small ruminants. To use this system, solar powered neckbands must be purchased. eShepherd from Gallagher is the only vendor using either a cellular network or base stations. Base stations have a coverage of 2 to 4 miles depending on the environment. Neckbands are estimated to last between 7 and 10 years; however, this has not been tested on North America rangelands. The system became available in the United States during spring 2024. To be able to work with Gallagher, the minimum number of animals you need to have in your herd is 4, and there is no maximum.



Halter was founded in New Zealand in 2016. The company specializes in collars for cattle. Their collars are not designed for small ruminants. This VF system requires multiple base stations and a 36-48 months contract for the collars. If you are not satisfied with the technology, they will take the collars back. Collars are solar powered and estimated to last for 5 years. While the lifespan has not been rigorously tested in the US, the collars have a lifetime warranty. Halter is the only company that offers left and right stimulation, which should influence livestock to move directly in one direction to return to the grazing area. Halter also has a vibration mode created to entice livestock to move forward. The Halter system became available in the United States during summer 2024. To be able to work with Halter, the minimum number of animals you need to have in your herd is 50, and there is no maximum.



Nofence is a Norwegian based company founded in 2011. The Norwegian Food Safety Authority allowed the use of their VF collars on goats in late 2017. Nofence is the only vendor with collars designed for cattle, sheep, and goats. Nofence relies on a cellular network system and requires that the solar powered collars be purchased. Collars have a warranty of 5 years and are estimated to last between 5 and 10 years. However, this has not been rigorously tested in the US. The Nofence system became commercially available in the United States during spring 2024; after a 2-year pilot project with 45 producers. The rechargeable batterie has to be swapped out periodically depending on grazing management and solar gain. To be able to work with Nofence, the minimum number of animals you need to have in your herd is 5, and the maximum is 200.



Vence is an American based company, which was established in 2017 and purchased by Merck Animal Health in 2022. Collars are designed for cattle, but they are doing research on small ruminants. The Vence system requires multiple base stations, each with coverage up to 9 miles. The collars use a single-use battery estimated to last 6 to 9 months depending on use. Additional batteries must be purchased. Vence is the only VF company that leases collars; which means that you will receive new collars if they make changes to them. The Vence system became commercially available in the United States in 2021. To be able to work with Vence, there is no minimum or maximum for the herd size.

Payment Rate offered by USDA-NRCS

The payment rate offered by USDA-NRCS depends on where you live in the state of Arizona and how many VF collars you need to purchase for your herd (payment is per animal). The payment rate is county based, and is higher if a livestock producer is from a historically underserved group (HU) (Figure 1).

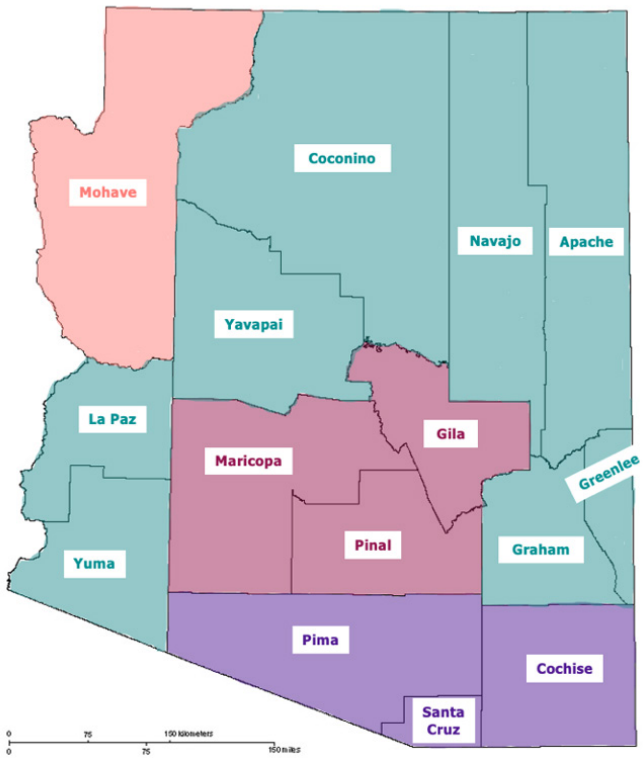
If a livestock producer receives funding, USDA-NRCS will pay for VF for five consecutive years. The first year will cover the cost for purchasing equipment and set up (Table 1). From year two to five will cover the cost of subscriptions, operation and maintenance (Table 1).

Gila, Maricopa and Pinal counties will be receiving the highest payment rate, while Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai and Yuma counties will receive the lowest payment rate. Cochise, Pima, Santa Cruz and Mohave will receive a payment rate between these two extremes (Table 1).

USDA-NRCS has established a minimum herd size for use of VF for people seeking financial assistance. The minimum herd size for cattle is 51, and there is no minimum for sheep and goats. If you have a lower number of animals, USDA-NRCS has concerns about the economic returns. If you are in this situation, it will be determined on a case-by-case basis. The same applies for sheep and goat producers.

Table 1: USDA-NRCS Payment Rate per Arizona County for Virtual Fence (adapted from table sent by Emilio Carrillo, Arizona USDA-NRCS State Range Management Specialist)

	Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai, Yuma		Cochise, Pima, Santa Cruz		Gila, Maricopa, Pinal		Mohave	
Component	Cost	HU Cost	Cost	HU Cost	Cost	HU Cost	Cost	HU Cost
VF, Startup Year One, 51 to 199 animals	$139.73	$167.68	$142.66	$171.20	$147.00	$176.40	$143.10	$171.72
VF, Startup Year One, >=200 animals	$91.92	$110.30	$93.85	$112.62	$96.70	$116.04	$94.14	$112.96
VF, Startup Year One, Sheep or Goat	$224.20	$269.04	$228.91	$1274.69	$235.86	$283.03	$229.60	$275.52
VF Adaptive Management, Years 2-5	$60.48	$72.57	$61.75	$74.09	$63.63	$76.34	$61.94	$74.32



Map 1: Arizona Counties colored according to USDA-NRCS Payment Rate (county based) for the Virtual Fence Program

Example of each VF Company's cost with Payment Rate offered by USDA-NRCS

For this example, we will use a hypothetical rancher with a 100 VF cattle collars on 10,000 acres. We will be looking at each VF company available in the United States as of January 2025 (Tables 2, 3, 4, 5 & 6). We estimated that two base stations are needed for Vence and four base stations are needed for Gallagher and Halter. The number of base stations needs to be determined by each VF company, and is heavily influenced by topography and the base station coverage. If you are interested in a specific VF company, it is important to contact them to talk about prices, their VF system, and specifics regarding your livestock operation.

All of the prices listed below are as of January 2025 and are susceptible to change in the future. New VF companies might also become available in the American market in the future.

Gallagher

Table 2: Cost of the Gallagher technology (Base Stations) for 100 cattle neckbands with Arizona county-based USDA-NRCS Payment Rate

BASE STATIONS	USDA-NRCS COST-SHARE PROGRAM FOR VIRTUAL FENCE
	Practices "Fence" for Year 1 & "Prescribed Grazing" for Years 2-5

GALLAGHER

			Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai, Yuma				Cochise, Pima, Santa Cruz			
	Number of neckbands		Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
	Price	100	Year 1		Year 1		Year 1		Year 1	
Neckbands (cost)*	$250	$25,000	$139.73		$167.68		$142.66		$171.20	
Base station (4 for the example)**	**	$21,000	Year 2-5		Year 2-5		Year 2-5		Year 2-5	
Annual fee (subscription)	$18	$1,800	$60.48		$72.57		$61.75		$74.09	
Year 1	TOTAL	$47,800	$13,973	$33,827	$16,768.00	$31,032.00	$14,266	$33,534	$17,120.00	$30,680.00
Year 2 (annual fee)	$18	$1,800	$6,048.00	-$4,248.00	$7,257.00	-$5,457.00	$6,175.00	-$4,375.00	$7,409.00	-$5,609.00
Year 3 (annual fee)	$18	$1,800	$6,048.00	-$4,248.00	$7,257.00	-$5,457.00	$6,175.00	-$4,375.00	$7,409.00	-$5,609.00
Year 4 (annual fee)	$18	$1,800	$6,048.00	-$4,248.00	$7,257.00	-$5,457.00	$6,175.00	-$4,375.00	$7,409.00	-$5,609.00
Year 5 (annual fee)	$18	$1,800	$6,048.00	-$4,248.00	$7,257.00	-$5,457.00	$6,175.00	-$4,375.00	$7,409.00	-$5,609.00
TOTAL 5 years		$55,000	$38,165.00	$16,835.00	$45,796.00	$9,204.00	$38,966.00	$16,034.00	$46,756.00	$8,244.00
TOTAL for 1 cow/5 years		$550								
TOTAL for 1 cow/1 year		$110								

*4 - 19 neckbands = $350 / neckband
20 - 59 neckbands = $200 / neckband
60 + neckbands = $250 / neckband

** Number of base stations will have to be decided with the VF company's help. Base station range (2 to 4 miles).
First base station = $6,000 - Additional base station = $5,000

Gila, Maricopa, Pinal				Mohave			
Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
Year 1		Year 1		Year 1		Year 1	
$147.00		$176.40		$143.10		$171.72	
Year 2-5		Year 2-5		Year 2-5		Year 2-5	
$63.63		$76.34		$61.94		$74.32	
$14,700	$33,100	$17,640.00	$30,160.00	$14,310	$33,490	$17,172.00	$30,628.00
$6,363.00	-$4,563.00	$7,634.00	-$5,834.00	$6,194.00	-$4,394.00	$7,432.00	-$5,632.00
$6,363.00	-$4,563.00	$7,634.00	-$5,834.00	$6,194.00	-$4,394.00	$7,432.00	-$5,632.00
$6,363.00	-$4,563.00	$7,634.00	-$5,834.00	$6,194.00	-$4,394.00	$7,432.00	-$5,632.00
$6,363.00	-$4,563.00	$7,634.00	-$5,834.00	$6,194.00	-$4,394.00	$7,432.00	-$5,632.00
$40,152.00	$14,848.00	$48,176.00	$6,824.00	$39,086.00	$15,914.00	$46,900.00	$8,100.00

All Arizona ranchers will need some out-of-pocket funding to use Gallagher (Base Stations). Changing the number of collars and/or base stations will lead to a different result.

Table 3: Cost of the Gallagher technology (Cell Service) for 100 cattle neckbands with Arizona county-based USDA-NRCS Payment Rate

CELL SERVICE	USDA-NRCS COST-SHARE PROGRAM FOR VIRTUAL FENCE
	Practices "Fence" for Year 1 & "Prescribed Grazing" for Years 2-5

GALLAGHER

			Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai, Yuma				Cochise, Pima, Santa Cruz			
	Number of neckbands		Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
	Price	100	Year 1		Year 1		Year 1		Year 1	
Neckbands (cost)*	$250	$25,000	$139.73		$167.68		$142.66		$171.20	
Base station	NA	NA	Year 2-5		Year 2-5		Year 2-5		Year 2-5	
Annual fee (subscription)	$24	$2,400	$60.48		$72.57		$61.75		$74.09	
Year 1	TOTAL	$27,400	$13,973	$13,427	$16,768.00	$10,632.00	$14,266	$13,134	$17,120.00	$10,280.00
Year 2 (annual fee)	$24	$2,400	$6,048.00	-$3,648.00	$7,257.00	-$4,857.00	$6,175.00	-$3,775.00	$7,409.00	-$5,009.00
Year 3 (annual fee)	$24	$2,400	$6,048.00	-$3,648.00	$7,257.00	-$4,857.00	$6,175.00	-$3,775.00	$7,409.00	-$5,009.00
Year 4 (annual fee)	$24	$2,400	$6,048.00	-$3,648.00	$7,257.00	-$4,857.00	$6,175.00	-$3,775.00	$7,409.00	-$5,009.00
Year 5 (annual fee)	$24	$2,400	$6,048.00	-$3,648.00	$7,257.00	-$4,857.00	$6,175.00	-$3,775.00	$7,409.00	-$5,009.00
TOTAL 5 years		$37,000	$38,165.00	-$1,165.00	$45,796.00	-$8,796.00	$38,966.00	-$1,966.00	$46,756.00	-$9,756.00
TOTAL for 1 cow/5 years		$370								
TOTAL for 1 cow/1 year		$74								

*4 - 19 neckbands = $350 / neckband
20 - 59 neckbands = $200 / neckband
60 + neckbands = $250 / neckband

Gila, Maricopa, Pinal				Mohave			
Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
Year 1		Year 1		Year 1		Year 1	
$147.00		$176.40		$143.10		$171.72	
Year 2-5		Year 2-5		Year 2-5		Year 2-5	
$63.63		$76.34		$61.94		$74.32	
$14,700	$12,700	$17,640.00	$9,760.00	$14,310	$13,090	$17,172.00	$10,228.00
$6,363.00	-$3,963.00	$7,634.00	-$5,234.00	$6,194.00	-$3,794.00	$7,432.00	-$5,032.00
$6,363.00	-$3,963.00	$7,634.00	-$5,234.00	$6,194.00	-$3,794.00	$7,432.00	-$5,032.00
$6,363.00	-$3,963.00	$7,634.00	-$5,234.00	$6,194.00	-$3,794.00	$7,432.00	-$5,032.00
$6,363.00	-$3,963.00	$7,634.00	-$5,234.00	$6,194.00	-$3,794.00	$7,432.00	-$5,032.00
$40,152.00	-$3,152.00	$48,176.00	-$11,176.00	$39,086.00	-$2,086.00	$46,900.00	-$9,900.00

All Arizona ranchers will be fully covered by USDA-NRCS funding for Gallagher (Cell Service). Changing the number of collars will lead to a different result.

Halter

Table 4: Cost of the Halter technology (Base Stations) for 100 cattle collars with Arizona county-based USDA-NRCS Payment Rate

BASE STATIONS			USDA-NRCS COST-SHARE PROGRAM FOR VIRTUAL FENCE Practices "Fence" for Year 1 & "Prescribed Grazing" for Years 2-5							
Halter			Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai, Yuma				Cochise, Pima, Santa Cruz			
		Number of collars	Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
	Price	100	Year 1		Year 1		Year 1		Year 1	
Collars (cost)	$0	$0	$139.73		$167.68		$142.66		$171.20	
Base station (4 for the example)*	$4,500	$18,000	Year 2-5		Year 2-5		Year 2-5		Year 2-5	
Annual fee	$66	$6,600	$60.48		$72.57		$61.75		$74.09	
Year 1	TOTAL	$24,600	$13,973	$10,627	$16,768.00	$7,832.00	$14,266	$10,334	$17,120.00	$7,480.00
Year 2 (annual fee)	$66	$6,600	$6,048.00	$552.00	$7,257.00	-$657.00	$6,175.00	$425.00	$7,409.00	-$809.00
Year 3 (annual fee)	$66	$6,600	$6,048.00	$552.00	$7,257.00	-$657.00	$6,175.00	$425.00	$7,409.00	-$809.00
Year 4 (annual fee)	$66	$6,600	$6,048.00	$552.00	$7,257.00	-$657.00	$6,175.00	$425.00	$7,409.00	-$809.00
Year 5 (annual fee)	$66	$6,600	$6,048.00	$552.00	$7,257.00	-$657.00	$6,175.00	$425.00	$7,409.00	-$809.00
TOTAL 5 years		$51,000	$38,165.00	$12,835.00	$45,796.00	$5,204.00	$38,966.00	$12,034.00	$46,756.00	$4,244.00
TOTAL for 1 cow/5 years		$510								
TOTAL for 1 cow/1 year		$102								

Gila, Maricopa, Pinal				Mohave			
Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
Year 1		Year 1		Year 1		Year 1	
$147.00		$176.40		$143.10		$171.72	
Year 2-5		Year 2-5		Year 2-5		Year 2-5	
$63.63		$76.34		$61.94		$74.32	
$14,700	$9,900	$17,640.00	$6,960.00	$14,310	$10,290	$17,172.00	$7,428.00
$6,363.00	$237.00	$7,634.00	-$1,034.00	$6,194.00	$406.00	$7,432.00	-$832.00
$6,363.00	$237.00	$7,634.00	-$1,034.00	$6,194.00	$406.00	$7,432.00	-$832.00
$6,363.00	$237.00	$7,634.00	-$1,034.00	$6,194.00	$406.00	$7,432.00	-$832.00
$6,363.00	$237.00	$7,634.00	-$1,034.00	$6,194.00	$406.00	$7,432.00	-$832.00
$40,152.00	$10,848.00	$48,176.00	$2,824.00	$39,086.00	$11,914.00	$46,900.00	$4,100.00

** Number of base stations will have to be decided with the VF company's help.*

All Arizona ranchers will need some out-of-pocket funding to use Halter. Changing the number of collars and/or base stations will lead to a different result.

Nofence

Table 5: Cost of the Nofence technology (Cell Service) for 100 cattle collars with Arizona county-based USDA-NRCS Payment Rate

CELL SERVICE			USDA-NRCS COST-SHARE PROGRAM FOR VIRTUAL FENCE Practices "Fence" for Year 1 & "Prescribed Grazing" for Years 2-5							
Nofence			Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai, Yuma				Cochise, Pima, Santa Cruz			
		Number of collars	Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
	Price	100	Year 1		Year 1		Year 1		Year 1	
Collars (cost)*	$289	$28,900	$139.73		$167.68		$142.66		$171.20	
Annual fee (subscription)**	$42	$4,200	Year 2-5		Year 2-5		Year 2-5		Year 2-5	
Chargers	$59	$590	$60.48		$72.57		$61.75		$74.09	
Spare batteries***	$89	$445								
Year 1	TOTAL	$34,135	$13,973	$20,162	$16,768.00	$17,367.00	$14,266	$19,869	$17,120.00	$17,015.00
Year 2 (annual fee)	$36	$3,600	$6,048.00	-$2,448.00	$7,257.00	-$3,657.00	$6,175.00	-$2,575.00	$7,409.00	-$3,809.00
Year 3 (annual fee)	$36	$3,600	$6,048.00	-$2,448.00	$7,257.00	-$3,657.00	$6,175.00	-$2,575.00	$7,409.00	-$3,809.00
Year 4 (annual fee)	$36	$3,600	$6,048.00	-$2,448.00	$7,257.00	-$3,657.00	$6,175.00	-$2,575.00	$7,409.00	-$3,809.00
Year 5 (annual fee)	$36	$3,600	$6,048.00	-$2,448.00	$7,257.00	-$3,657.00	$6,175.00	-$2,575.00	$7,409.00	-$3,809.00
TOTAL 5 years		$48,535	$38,165.00	$10,370.00	$45,796.00	$2,739.00	$38,966.00	$9,569.00	$46,756.00	$1,779.00
TOTAL for 1 cow/5 years		$485								
TOTAL for 1 cow/1 year		$97								

Gila, Maricopa, Pinal				Mohave			
Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
Year 1		Year 1		Year 1		Year 1	
$147.00		$176.40		$143.10		$171.72	
Year 2-5		Year 2-5		Year 2-5		Year 2-5	
$63.63		$76.34		$61.94		$74.32	
$14,700	$19,435	$17,640.00	$16,495.00	$14,310	$19,825	$17,172.00	$16,963.00
$6,363.00	-$2,763.00	$7,634.00	-$4,034.00	$6,194.00	-$2,594.00	$7,432.00	-$3,832.00
$6,363.00	-$2,763.00	$7,634.00	-$4,034.00	$6,194.00	-$2,594.00	$7,432.00	-$3,832.00
$6,363.00	-$2,763.00	$7,634.00	-$4,034.00	$6,194.00	-$2,594.00	$7,432.00	-$3,832.00
$6,363.00	-$2,763.00	$7,634.00	-$4,034.00	$6,194.00	-$2,594.00	$7,432.00	-$3,832.00
$40,152.00	$8,383.00	$48,176.00	$359.00	$39,086.00	$9,449.00	$46,900.00	$1,635.00

Prices for cattle collars. Small ruminants collars are $199.

*** Annual fee for 50 collars or more is $42 for the first year, and then $36 per year.*
Annual fee for 49 collars or less is $56 for the first year, and then $52 per year.

**** Extra expenses may be needed for shelter beacons and longer chains.*

All Arizona ranchers will need some out-of-pocket funding to use Nofence. Changing the number of collars or livestock species will lead to a different result.

Vence

Table 6: Cost of the Vence technology (Base Stations) for 100 cattle collars with Arizona county-based USDA-NRCS Payment Rate

BASE STATIONS			USDA-NRCS COST-SHARE PROGRAM FOR VIRTUAL FENCE Practices "Fence" for Year 1 & "Prescribed Grazing" for Years 2-5							
VENCE			Apache, Coconino, Graham, Greenlee, La Paz, Navajo, Yavapai, Yuma				Cochise, Pima, Santa Cruz			
		Number of collars	Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
	Price	100	Year 1		Year 1		Year 1		Year 1	
Collars (annual fee)	$40	$4,000	$139.73		$167.68		$142.66		$171.20	
Base station (2 for the example)*	$12,500	$25,000	Year 2-5		Year 2-5		Year 2-5		Year 2-5	
Annual fee (2 batteries at $10)**	$20	$2,000	$60.48		$72.57		$61.75		$74.09	
Year 1	TOTAL	$31,000	$13,973	$17,027	$16,768.00	$14,232.00	$14,266	$16,734	$17,120.00	$13,880.00
Year 2 (collar fee + 2 batteries)	$60	$6,000	$6,048.00	-$48.00	$7,257.00	-$1,257.00	$6,175.00	-$175.00	$7,409.00	-$1,409.00
Year 3 (collar fee + 2 batteries)	$60	$6,000	$6,048.00	-$48.00	$7,257.00	-$1,257.00	$6,175.00	-$175.00	$7,409.00	-$1,409.00
Year 4 (collar fee + 2 batteries)	$60	$6,000	$6,048.00	-$48.00	$7,257.00	-$1,257.00	$6,175.00	-$175.00	$7,409.00	-$1,409.00
Year 5 (collar fee + 2 batteries)	$60	$6,000	$6,048.00	-$48.00	$7,257.00	-$1,257.00	$6,175.00	-$175.00	$7,409.00	-$1,409.00
TOTAL 5 years		$55,000	$38,165.00	$16,835.00	$45,796.00	$9,204.00	$38,966.00	$16,034.00	$46,756.00	$8,244.00
TOTAL for 1 cow/5 years		$550								
TOTAL for 1 cow/1 year		$110								

Gila, Maricopa, Pinal				Mohave			
Cost	Out-of-pocket	HU Cost	Out-of-pocket	Cost	Out-of-pocket	HU Cost	Out-of-pocket
Year 1		Year 1		Year 1		Year 1	
$147.00		$176.40		$143.10		$171.72	
Year 2-5		Year 2-5		Year 2-5		Year 2-5	
$63.63		$76.34		$61.94		$74.32	
$14,700	$16,300	$17,640.00	$13,360.00	$14,310	$16,690	$17,172.00	$13,828.00
$6,363.00	-$363.00	$7,634.00	-$1,634.00	$6,194.00	-$194.00	$7,432.00	-$1,432.00
$6,363.00	-$363.00	$7,634.00	-$1,634.00	$6,194.00	-$194.00	$7,432.00	-$1,432.00
$6,363.00	-$363.00	$7,634.00	-$1,634.00	$6,194.00	-$194.00	$7,432.00	-$1,432.00
$6,363.00	-$363.00	$7,634.00	-$1,634.00	$6,194.00	-$194.00	$7,432.00	-$1,432.00
$40,152.00	$14,848.00	$48,176.00	$6,824.00	$39,086.00	$15,914.00	$46,900.00	$8,100.00

** Number of base stations will have to be decided with the VF company's help. Base station range (up to 9 miles).*
Price of base station used in this example is professional installation. If you install it yourself, it will be $10,000.

*** Single-use batterie estimated to last 6 to 9 months depending on use.*

All Arizona ranchers will need some out-of-pocket funding to use Vence. Changing the number of collars and/or base stations will lead to a different result.

Discussion

As you can see in the previous section and this Basic Comparison of virtual fence companies, this new technology is expensive. Having the option to qualify for a USDA-NRCS cost-share program could be very helpful for some Arizona ranchers. From the example shown in this factsheet (100 cattle collars), all Arizona ranchers will be fully covered by USDA-NRCS funding for Gallagher (Cell Service). Some out-of-pocket funding will be necessary to use Gallagher (Base Stations), Halter, Nofence and Vence. Changing the number of collars, base stations or livestock species will lead to a different result. (*Spreadsheet used for the example is available upon request.*)

As a reminder, cost of VF technology should not be the only factor to decide which company you work with. Each VF company has a different product, and some VF systems might fit your operation better than the other ones.

You should reach out to your local USDA-NRCS office to ask questions and get some information about the program. Before meeting with USDA-NRCS, it is recommended to look at the different VF companies presented in this factsheet, and maybe reach out to those companies to see which one is the most adapted to your operation and your objectives. In addition, it is very important to spend time considering how you are going to use VF on your ranch because VF might not always be the solution depending on your objectives. Best of luck with using virtual fence technology if you decide to invest in the technology!

Disclaimer

There are several companies that manufacture hardware and software including eShepherd™ from Gallagher™, Halter™, Nofence™, and Vence™. Virtual fencing components from different manufacturers are generally not interoperable or interchangeable. Specific components, GIS data needs, software protocol, software training, frequency and duration of the cues, GPS error, livestock collaring, and livestock training protocols may vary depending on the manufacturer. Follow the manufacturer's recommendations and guidelines. The University of Arizona does not endorse a specific product.

Acknowledgements

The information about the USDA-NRCS Payment Rate was provided by Emilio Carrillo, Arizona USDA-NRCS State Range Management Specialist. The figures found in the section "Companies available as of January 2025" were designed by Amber Dalke, University of Arizona.

For additional information about virtual fence, visit: https://rangelandsgateway.org/virtual-fence

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THE UNIVERSITY OF ARIZONA
Cooperative Extension

AUTHORS

Flavie Audoin
Assistant Professor, Plant Herbivore/Targeted Grazing
Assistant Specialist, Natural Resources and the Environment

CONTACT
Flavie Audoin
faudoin@arizona.edu

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Edward C. Martin, Associate Vice President and Director of the Arizona Cooperative Extension System , The University of Arizona.