



Haven't got the newest Chemical Weed Control Guide? If you desire a hard copy stop in at any of our Sunflower District Extension offices. If an electronic version works better for you, access a copy at this link: www.agronomy.k-state.edu/extension/weed-management/

Virtual Fencing for Livestock

Virtual fencing is not new to the world, dog owners have been virtually mapping their lawns and letting fido roam without fences or a leash for a few years now. The dog wears a collar that emits a sound or vibration when the animal comes close to the virtual boundary, letting the dog know to put the brakes on.

Apply this concept to a larger acreage and a larger animal. A livestock manager maps a pasture and adorns the stock with a device that monitors the animal's movement through GPS, controlling livestock distribution in rangeland without physical fences. When the livestock reaches the limit of the virtual fence, a series of loud beeps emit from the collar. As the animal nears the boundary, they receive a benign shock. Cattle, sheep, and goats have demonstrated the ability to rapidly learn the virtual fencing cues.

Virtual fencing has the potential to improve soil and water quality through managed grazing. Managed grazing is the careful monitoring and movement of livestock density and timing. It can stimulate plant regrowth and add manure to the soil. While managers with traditional fences practice managed grazing, it requires much more labor, and animal movements are limited to pastures defined by physical fences. Virtual fencing allows managers to frequently and efficiently move livestock from one pasture to the next and define new within-pasture boundaries.

Other benefits of virtual fencing include eliminating wildlife conflicts with wire fencing and usage in areas that are difficult to build traditional fences. Another application is the exclusion of livestock from certain areas, like riparian zones, newly burnt pasturelands, or areas of forage toxicity concerns.

There are challenges associated with virtual fencing. Learning the software and how to set up paddocks, exclusions and identification of animals is one challenge. A second challenge maybe the time investment to collar all the livestock that need to be virtually fenced. Another consideration to account for is what containment rate within a paddock is acceptable, which will vary based on producers' perspective, what "fail rate" is a producer comfortable with?

Figure to the right: Virtual Fencing Vendor Comparison chart

Interested in more Virtual Fencing information? Contact Rheanna Melcher at rmelcher@ksu.edu or (785) 332-3171.

Virtual Fence vendors for Cattle							
Basic Comparison (February 2026)							
	VF software	Connectivity	Collar battery	Herd size	Pasture size	Up front cost	Yearly cost
eShepherd from GALLAGHER	Gallagher from computer or mobile app	Multiple base stations OR Cellular	Solar charged 7-10 years*	20+	~45ft X 45ft No max	\$250-300/collar** \$5,000-6,000/ base station (if necessary)	Base station: \$18/neckband Cellular: \$24/neckband
Halter	Mobile app (view mode only for computer)	Multiple base stations	Solar charged 5 years*	50+	~32sq ft/ animal No max	\$4,500/ base station	\$72-96/collar**
Nofence <small>Also available for small ruminants</small>	Nofence-app from computer or mobile app	Cellular	Solar charged 5-10 years*	5+	0.5 ac - ~10,000 ac	\$309-349/collar** (includes year 1 subscription)	\$35-45/collar**
VENCE <small>Merck Animal Health</small>	HerdManager from computer or mobile app (view mode only for mobile app)	Multiple base stations	Replaceable one-time use 6-9 months	100+	>200 ac No max	\$10,000-12,500/ base station	\$40/collar + \$10/battery/ collar***

*According to vendor **Variable pricing based on herd size ***Year-round use requires ≥2 batteries/collar/year

Virtual fence components from different vendors 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 vendor. Follow the vendor's recommendations and guidelines. Contact vendors for more information on pricing and availability. The University of Arizona does not endorse a specific product.

Questions? Contact Flavie Audoin (faudoin@arizona.edu)
 Access more virtual fence information at RangelandsGateway.org/vf
 Supported from USDA NIFA W&S&E (WDRP22-01A) and AFRI IDEFAS (2022-68014-20715)

THE UNIVERSITY OF ARIZONA