

Vesicular stomatitis has been detected in neighboring counties. If you notice anything, contact your vet. For more information, please see the Summer 2023 Livestock lines for an article on Vesicular stomatitis.

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## Virtual Fencing Becoming a Reality.

Wireless dog collars have been around for quite a while. Many of us probably know someone who uses them. But what about using the technology for other critters, and bigger pastures than your yard? The same basic technology is being used to keep cows, sheep, and goats in their “yards”. Virtual Fencing (VF) has been used for a few years and is slowly making its way to the United States and California. The technology is very similar in all of them, and for those of us who are not tech savvy (including myself!), the collar is sent to GPS locations through one avenue or another (each company has a slightly different method). Once the fence is “loaded” into the collar, if an animal gets close to the invisible line, they hear an audible cue letting them know they are approaching the boundary. If they keep moving forward and cross the “fence line”, they receive a small shock, just like the dogs do. If they keep moving forward, they do not keep getting shocked. Anyone who has worked around animals knows what would happen in that case, they would not turn around and come back but would instead run off to get away from the shock. Each company handles it slightly differently, but the animal is given a chance to correct course and get back into the pasture, most continue with audible cues and the occasional shock to get them to turn around. The collars also have a failsafe where, after a certain time period, they no longer shock the animal. Most of the collars have an interface with your phone, so you can be in a meeting in Sparks, pull up your pasture and see where your animals are. A rancher I know in Humboldt did just that at the California Cattlemen’s convention last year as she was telling us about the technology and how it was working for them. She could also change the pasture shape from her phone. Imagine being able to move your animals without even having to be at the ranch.

Since I am not a “techy”, I am more interested in the use of the collars and not the nuts and bolts of how they work. Australia, one of the early adopters of the collars, has a law on their books that states only dogs can have these types of collars for animal welfare reasons. Researchers had to investigate the animal welfare concerns more than anything else to have them approved. They collected blood to examine cortisol levels and found no difference between cows with the collar versus the controls; VF was no different from electric fencing. Researchers used the VF to bring pasture based dairy cows in to be milked twice a day and found the cost of the collar was more cost effective for moving animals and did not impact milk production.

We know the collars work and do not create undue stress on the animals, so how can we use them in California? I think the options are huge and could open a lot of

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grazing ground for ranchers. Not only could VF be used to help manage your ranch – create sub-pastures to increase stocking rate on invasive grasses like Medusahead; access steeper slopes where traditional fencing is not as feasible – it can be used for targeted grazing where there are no fences; when a fire goes through an area and fences are lost, especially interior fences; used on public lands to avoid sensitive areas; used on public lands where grazing was removed but there are resource concerns that grazing can address. Those are just some ideas. The VF companies are working to be approved in the United States, but we do have one start up in California, and only one company currently has collars for small ruminants. The collars have plusses and minuses of course, like anything else. But the technology is changing rapidly, and I'm sure in a couple of years they will

have made leaps and bounds forward to provide a collar that's cost effective and will work anywhere. This is one future item the Jetsons never had! They may have been ahead of us with cleaning robots, virtual meetings and video calls, but the industry came up with this one. If you are interested in learning more, you can search "virtual fence" and either cattle, sheep, or goats depending on which livestock you have to see what companies are out there. And be on the lookout for more information as projects mature. My colleagues to the east have a small grant to use VF in different settings that are just getting underway. NRCS is considering having VF be an option in the future, probably under EQIP funding. The advances we see in technology just make me remember a song from the late 80's "The future's so bright, I gotta wear shades."



## **22-23 Forage Production for the County.**

This should not be a surprise to anyone in the counties, but last year's forage production was above normal, in some cases WAY above normal. While the forage was slow to start growing with the colder January, the spring growth took off once soil temperatures warmed up. My production plots have been averaging around 2,200-2,500 lbs/acre on the east, and about 500 lbs/acre less on the westside. For the 22-23 forage production year (October 1-September 30), the county varied between 5,000 lbs/acre to over 10,000 lbs/acre. The westside had plots at the upper end of the range. For once, it is nice to not have to declare a loss for the county and to see forage standing at the end of the season on the westside. With storms starting to be in the forecast, here is hoping to at least normal forage production for the 23-24 year.

My colleagues and I have also finished collecting field data for a project where we hope to see if remote sensing is able to accurately predict forage production. The project is now in the final stages on the Davis campus, where faculty and our Rangeland Specialist will analyze the remote sensing data in relation to our on-the-ground data collection. If remote sensing can accurately measure forage production, Farm Service Agency will be able to use it to determine loss. More to come on the progress in future newsletter.



## **International Year of Rangelands and Pastoralists, 2026.**

I have mentioned before that 2026 will be the International Year of Rangelands and Pastoralists (IYRP), but so what? What are the goals? Will anything actually happen? There are multiple levels currently coordinating to plan activities for IYRP, with the website being updated as things progress. At our Society for Range Management annual meeting in Sparks, NV in January 2024, our North America subgroups will meet again to continue planning and prioritizing issues we see needing to be highlighted. Globally, IYRP has set goals to accomplish, and drafted activities that might happen to help achieve the goals. I've listed them below. I can see many having overlap and importance for California Rangelands. I'll keep you posted on how things progress, but I can share that in 2026, our Society for Range Management will hold the annual meeting in California, specifically in Monterey. Our local chapter was excited about the potential to host this international association during the IYRP to highlight California rangelands.

*What does the IYRP initiative seek to achieve by 2026 and beyond?*

- Greater awareness in spheres of government, science and society about how rangelands and pastoralists contribute to food security, economy, environment, cultural heritage & social wellbeing
- Resolutions taken by UN and other international entities in support of healthy rangelands and resilient pastoralists and global rangeland stewardship
- Changes in subnational, national, regional and global policies in favor of sustainable management and conservation of rangeland resources by pastoralists and other stakeholders
- Increased sustainable and ethical investment

in rangeland management and pastoralist livelihoods

*Some activities planned to achieve this:*

- Engaging in collaborative and participatory research and publishing science reviews
- Formulating and sharing policy briefs and advocacy statements
- Organizing pastoralist gatherings
- Conducting social media campaigns
- Launching film festivals and travelling photo exhibits
- Hosting pastoralist innovation fairs
- Arranging sessions and side events at international conferences
- Holding conferences and webinars

## **Grazing Impacts Greenhouse Gases From Wildfires.**

In 2020, locally the westside of Stanislaus and San Joaquin Counties experienced one of the largest wildfires in the state's history, the Santa Clara Unit Lightning Complex Fire (SCU Fire). While the fire was devastating to many, my colleagues and I were able to take advantage of the fire footprint being primarily rangelands, most of which is grazed, and document the impact grazing can have on greenhouse gas emissions (GHG). By answering our questions when I called, we were able to document the pounds per acre of forage removed from the fire footprint by grazing. In the footprint, we were able to calculate 10,602 tons of forage removed before the fire started. Even with taking methane emissions from cattle into consideration, there is still a net reduction in million metric ton (MMT) of carbon dioxide that was prevented from being released due to normal cattle grazing. Granted, the numbers are small, 0.0051 MMT of CO<sub>2</sub>, but from one fire. What about all the fires that happen on grasslands in the state?

We also took typical regional stocking rates for the entire state, and calculated the amount of forage statewide that grazing removed from 2010 through 2020. We then took the burned grassland acres in each region and with the use of models, calculated the CO<sub>2</sub> equivalent (CO<sub>2</sub>e) and particulate matter that is of most concern for human health (PM<sub>2.5</sub>) that would have occurred without grazing (removal of fine fuels). Of course, grazing impact varied between regions, but an average of 586.1 metric tons (MT) of CO<sub>2</sub>e were mitigated by grazing, and an average of 73.9 MT of PM<sub>2.5</sub>. That is with the normal grazing that happens every year in the state by you and other ranchers. That is not considering any prescribed or targeted grazing that is happening to reduce shrub cover. We know shrubs will release more CO<sub>2</sub>e and PM<sub>2.5</sub> during a wildfire than grasses will. Using livestock to maintain a patchy habitat of grasses and shrubs will reduce the CO<sub>2</sub>e and PM<sub>2.5</sub> as well as provide a healthier environment for wildlife and livestock.

Senate Bill 675 proposes to potentially pay for prescribed grazing to reduce fuel cover. Cattle, sheep and goats can all play a role in not only reducing our wildfire risk, but also protecting our air quality during a wildfire.

To read the article yourself, it is a free access paper and can easily be searched: Ratcliff, F.; Barry, S., et al. (2023). Cattle Grazing Moderates Greenhouse Gas and Particulate Matter Emissions from California Grassland Wildfires. *Sustainability*. 15:18, 13539. 8/2023.

# Livestock Lines

Stanislaus & San Joaquin Counties

## California Rangeland Summit 2024

The Rangeland Summit will again be held in Stockton on February 23, 2024 at the Cabral Ag Center. Our focus will be on California's 30x30 initiative and how conservation easements with organizations such as California Rangeland Trust can be a part of 30x30. As a brief refresher, 30x30 plans to conserve 30% of the state's land and water by 2030. Right now, many conservation easements are not counted in the percent of the state's lands conserved. Registration should open after the first of the year and we would love to have local ranchers at the table to help with the discussion.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

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