



**Snow Geese
Impacts**

Have you noticed more than usual snow geese in the area on irrigated pastures or hay fields? Our neighboring counties have and are determining losses due to the snow geese. If you also have been impacted, please give me a call. I am not sure what options are available, but we do want to capture and demonstrate the losses you experienced.

By Theresa Becchetti
Livestock & Natural
Resources Advisor

**Carbon Neutral and Net Zero - What is possible
with range livestock production?**

Last month at the annual Society for Range Management meeting, there was a symposium on climate change by AgNext out of Colorado State University, "What role do rangelands play in climate neutrality for beef production?" Drs. Sarah Place, Justin Derner, and Greg Thoma presented the current research along with research and knowledge gaps. I thought it was a very interesting and informative symposium and wanted to share a summary for you here.

To start, a refresher about terms used and meanings. Carbon neutral is used as no new increase in carbon emissions while net zero refers to all greenhouse gases, carbon as well as nitrogen. Carbon neutral is easier to manage and has been the focus businesses typically use. With carbon, we have two forms - biogenic and fossil. Fossil carbon comes from burning fossil fuels: taking sequestered carbon and putting it back into the atmosphere. Biogenic carbon is about photosynthesis: vegetation pulls carbon from the atmosphere to grow, is harvested and then released back to the atmosphere as methane (ruminant grazing). GWP100 and GW* measure how potent a greenhouse gas is. GWP (Global Warming Potential)100 is how each greenhouse gas contributes to warming for 100 years. It assumes all greenhouse gases remain in the atmosphere for centuries. We now know that carbon tends to have a much shorter half-life compared to nitrogen in the atmosphere. Carbon's half-life is 10-20 years compared to nitrous oxide half-life of 100-150 years. We can also see quicker responses to changes in methane reduction, which is why there is the new term GW*. GW* takes the shorter-lived gases into consideration instead of overestimating their impact as GWP100 does. Life Cycle Analysis (LCA) and carbon footprints are other terms used. LCAs were first done by Coca-Cola to determine what was better - Coke in glass bottles or plastic bottles. (Turns out - the glass bottles were worse since the weight difference meant more fuel used in transporting.) We can do LCAs for any measurable unit - pound of gain, per animal, per ranch? Carbon footprints will be underestimating the overall contribution since only focusing on carbon, not the other greenhouse gases that the LCA includes.

Carbon Neutral and Net Zero	1
Range and Natural Resources Camp	3
Spring Livestock Meetings.....	4

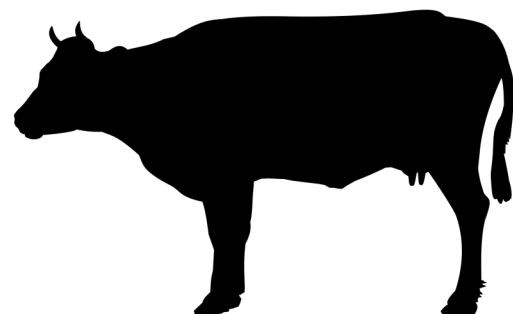
With that quick background, let's talk about how range livestock grazing can play a factor in greenhouse gas production and reduction. As you can imagine, there's not an easy answer, no one size fits all solution. General rules of thumb to keep in mind, all ruminants are part of the biogenic carbon cycle and therefore emitting methane (through burbs, not farts as the media likes to say). This means not only cattle who tend to take the brunt of the blame, but also sheep, goats, deer, antelope, elk, bison, and the pseudo ruminants like llamas, alpacas, camels, even horses (their cecum does what the rumen does in cattle- break down of poor-quality diets through fermentation) all produce methane. Granted, each species will produce varying amounts of methane. What the researchers found, and it make sense, the quality of the diet makes an impact in how much methane ruminants produce. Higher quality diet, less methane. From a methane production viewpoint - a steer in a feedlot being fed a grain ration will produce less methane than a steer on a low-quality sagebrush rangelands. More common for our range livestock, this time of year your animals are producing less methane than in the summer if they are on dry annual rangelands. Medusahead infestation in your pastures? It is a lower quality forage and therefore will produce more methane when cattle graze it (another reason to control Medusahead in your pastures!). What about all the brush that ruminants are browsing in the name of fuels reduction? Yep, that low quality feed is producing more methane than if the animals were on a lush pasture (even dry annual rangelands should be higher quality depending on the brush species). But reducing black carbon and wildfire emissions is better than the methane produced by ruminants browsing on it.

Researchers also pointed out that focusing on methane production per animal does not give a complete picture. Larger animals will consume more feed and therefore produce more methane. What about on a per pound of gain basis? Larger animals might produce more per head, but if they are more efficient, they will produce less methane per pound of gain. There are also differences per ranch or location. Higher clay soils will emit more nitrous oxide than a loamy or sandy soil which will have a different

potential for GWP simply due to where you are, regardless of your management.

To sum up the symposium, there are probably more unknowns and questions than knowns at this point in time. There are a lot of knowledge gaps and tools people think will help make improvements, specifically in methane production, that are just not currently available. Feed additives to improve efficiency for example has been discussed and some data is showing promise in a research setting of adding seaweed to rations and decreasing methane. Will this work on a range setting? We will start to see soon when some UCCE researchers start a project later this year. Can we create EPDs for methane emissions while still maintaining the end product our customers want to see? The traits should be heritable, what happens to other traits we are concerned with if we add a "Methane EPD"? We also need a better way to determine the amount of carbon we are sequestering on rangelands. We know there is a big potential, but quantifying exactly how much is sequestered is not a quick, simple process. Researchers all agree, not disturbing the soil surface is the best way to sequester carbon and prevent carbon that is sequestered to stay there. Rangeland conversion can release stored carbon back to the atmosphere. Reducing methane and sequestering carbon are both needed as part of the solution.

Completely removing ruminants is too simplistic of an answer and minimizes the positive impacts ruminant animals provide for habitat, biodiversity, soil health, fire management, social and economic factors, nutritionally dense food, use of marginal lands for food production, fiber production, as well as



other ecosystem services. We can see improvements in GW* by reducing methane and sequestering carbon since methane is quick to respond to management changes. A net cooling effect has been modeled by making some small changes.

Bottomline, yes, reaching carbon neutral is possible with range livestock. Reaching net zero will be harder since range livestock are not as big a producer themselves of other greenhouse gases like nitrous oxide. Efforts from AgNext, CLEAR Center at UC Davis and other universities will help us

determine our best way forward to meet the Paris Agreement of not more than 1.5-degree Celsius increase in temperature. We need to look at the big picture of our ecosystems and use the best tools we have to make improvements on all levels.

For more information about Greenhouse gases and livestock production, be sure to visit the CLEAR Center: <https://clear.ucdavis.edu/>



Range And Natural Resources Camp

Range Camp is preparing for the 39th annual Camp at UC Elkus Ranch, located south of Half Moon Bay. Dates this year are June 18 - 23, 2023. Camp is open to any high school students aged 15 to 18. Many students are sponsored by local Resource Conservation Districts and our local San Joaquin-Stanislaus Cattlemen's has budgeted to sponsor a member's child as well. Information can be found on the Camp's website: <https://ucanr.edu/sites/rangecamp/>



Necropsy

In the unfortunate event an animal dies, a necropsy can be very helpful in determining cause of death and possibly prevent more deaths. The California Animal Health and Food Safety labs at Davis, Tulare and San Bernardino can perform a necropsy for a reasonable rate. To help you determine what should be sent into the lab, we recently finished a how-to video that may not be for viewing over the dinner table. The current video is with a calf. While we finish editing the video for a cow, the calf video is valuable to help you know what samples are important and how big of a sample should be sent in. The video can be found here: <https://www.youtube.com/watch?v=YkFRkM3uBDg>

Ag Livestock Pass Mandatory Training

The Cal Fire training is intended to be universally accepted across the state and the state curriculum is almost completed. However, counties create and manage their own Ag Livestock Passes. You will need to apply for a pass in each county you graze livestock. For Stanislaus County, please complete the application at least one week prior to the training you are attending: <https://www.stanag.org/ag-livestock-pass.shtm> For neighboring counties, Santa Clara County's Ag Pass program is completed and the trainings mentioned below will be accepted, please contact your Ag Commissioner about your application. San Joaquin, Contra Costa, and Tuolumne Counties are in the process of finalizing their programs. Once the programs are adopted by the County Board of Supervisors, this training will meet the requirement for the application.



Spring Livestock Meetings

April 6, 2023

9:00am - 3:30pm

West Stanislaus County FPD Station 53

8598 Kern St. Westley, CA 95387

9:00am-1:00pm Ag Livestock Pass Training

1:00pm-1:30pm Lunch

1:30-3:30pm Westside Rancher Meeting

If you are not interested in the Ag Pass, please join us for lunch at 1:00pm.

Please RSVP to the Westside RCD at 209-892-3026.

****If Del Puerto Canyon Road is still closed, the meeting will be moved to Patterson.**

April 17, 2023

8:30am - 3:30pm

Harvest Hall (Stanislaus County Ag Center)

8:30am-12:30am Ag Livestock Pass Training

12:30pm-1:00pm Lunch

1:00pm Anaplasma Survey Results and Antibiotic Use with Foothill Abortion Vaccine, Dr. Gaby Maier

1:30pm Dewormer Strategies, Theresa Becchetti

2:00pm Overview of my research on Criollo Cattle in Arizona, and my plans and goals for the Central Sierra, Flavie Audoin

2:30pm Pasture Weed Control Options, Theresa Becchetti

***If you are not interested in the Ag Livestock Pass, please join us for lunch and the afternoon program. Register by mail or online (<https://ucanr.edu/2023livestockforum>).**

****Check and Credit Card options are available. Checks to be made payable to UC REGENTS, \$15/person, and mailed to Theresa Becchetti, 3800 Cornucopia Way, Ste A, Modesto, CA, 95358.**

Ag Livestock Pass and Livestock Forum

April 17, 2023

8:30am - 3:30pm

Harvest Hall (Stanislaus County Ag Center)

8:30am - 12:30pm Ag Livestock Pass Training

12:30pm - 1:00pm Lunch

1:00pm - 1:30pm Anaplasma Survey Results and Antibiotic Use with Foothill

Abortion Vaccine, Dr. Gaby Maier

1:30pm - 2:00pm Overview of my research on Criollo Cattle in Arizona, and my plans and goals for the Central Sierra, Flavie Audoin

2:00pm - 2:20pm NRCS Programs Overview, Philip Brownsey

2:20pm - 3:30pm Pasture Weed Control Options, Theresa Becchetti

Application for Pass: <https://www.stanag.org/ag-livestock-pass.shtm>

*Cal Fire training is universal across the state, but each county administers their own program. Contact your county for application.

Return for registration

Name: _____

Ranch: _____

Address: _____

Email: _____



Number of people registering: _____

Make checks payable to UC REGENTS and mail to: Theresa Becchetti
3800 Cornucopia Way Ste A
Modesto, CA 95358

Online registration - scan the QR code or go to:
<https://ucanr.edu/2023livestockforum>