University of California
Agriculture and Natural Resources

Livestock Lines

Stanislaus & San Joaquin Counties

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Did You Know?

California Department of Fish and Wildlife's Nongame Wildlife Program is seeking volunteers to participate in a large-scale wildlife research effort?

Theresa

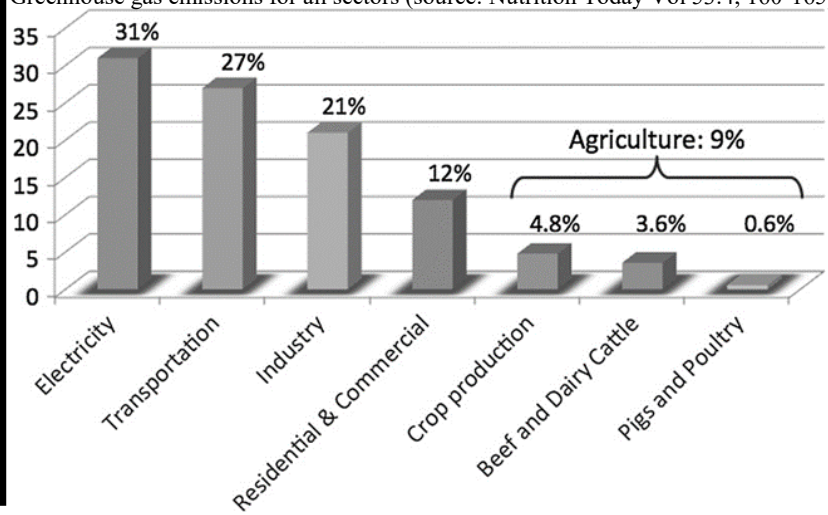
By Theresa Becchetti
Livestock & Natural Resources Advisor

The Sustainable Diet Discussion – Animal or Plant Based?

I'm sure everyone has seen the argument that a plant-based diet is better for the environment than animal-based diet. It's hard to avoid it; we see it everywhere, especially with today's social media and reality TV "stars" pushing plant-based diets to save the planet. But for those who spend their lives raising livestock and caring for the ground, I'm sure you have a different view point. There is a recent publication in the journal Nutrition Today that asks that very question. They discuss some background, such as how do you make your apple to apple comparison. Most of the time people simply compare calories to calories and use the Greenhouse Gas Emissions (GHGEs) to produce that calorie. However, this doesn't tell the complete story, which is why livestock, especially beef, normally gets the bad rap. It takes longer to produce beef than it does sugar beets for instance.

The authors argue that calorie for calorie is not comparing apples to apples; the data is skewed to a diet high in carbohydrates and low nutrient dense foods since sugar beets, corn, wheat and tropical fruits have the lowest GHGEs. With the US obesity and diabetes rates, this type of a "sustainable" diet most definitely is not sustainable for the human population. The authors instead want to compare the foods' ability to provide our daily protein requirements and the GHGEs required to meet our needs. Lysine is one of the essential amino acids that is limiting in many foods. A 165 lbs. adult needs 3.4 grams of lysine (or 0.12 oz). Wheat contains only 2.6% of lysine compared to soybean (tofu) at 5.1% and beef at 9.0%. A person would have to eat 3,700 calories per day of wheat cereals or bread vs 240 calories per day from beef to meet the lysine requirement. To complicate the issue further, some plant-based proteins are not bio-available. The protein is bound up in the cell wall with the fiber content and cannot be digested completely. An animal diet will provide more bio-available complete protein, as well as a nutrient dense food for less calories than a plant-based diet.

Greenhouse gas emissions for all sectors (source: Nutrition Today Vol 53:4, 160-165)



The paper goes further with their argument that a simplistic comparison has been flawed. Most people argue that if we get rid of cattle, the

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"corn" used to feed them can go to feeding people. When was the last time you fed corn, or any grain, to your cattle? Most people do not realize that whether grain fed in a feedlot or "grass-fed", cattle consume the majority of their diets as high fiber, from grass, almond hulls, silage and other by-products along with grain in the feedlots; 85% of cattle diet is not feasible for people to use. Monogastrics cannot take advantage of the same low-quality diet that ruminants do. The authors use corn as the common feed that most people comment about and use the example of Iowa grown corn. The numbers look like this: 25% of corn production goes to livestock, with 5% of that being for beef and dairy. 53% of the crop is used for ethanol production (and ruminants use the byproducts, saving it from the landfill), 12% of corn for human production, mainly as high fructose corn syrup, and the remaining 10% is exported. Removing beef from our diet will only cause an increase in 5% available corn for human consumption.

The paper continues to touch on the third part of the typical debate, that if we did not use land for livestock production, we can use that land to produce more food for people. The authors point out that about 30% of the world's land mass is used for grazing and is not suitable for anything else but ruminant animals. That is a world number, not a U.S. number, but a separate paper estimates that nearly 80% of the U.S. agricultural lands are only suitable for grazing.

The authors do not recommend one diet over another but do challenge how we define "sustainable" and not take the simple, easy way out. These discussions will continue to happen as more and more people are concerned about how their daily choices may affect their small piece of the world and beyond. Ruminant animals definitely have a place at our tables, and every table, to provide a nutrient dense food from low-quality inedible food sources while conserving habitat. If you would like to read the article yourself, it is available online. "Assessing the Role of Cattle in Sustainable Food Systems" by Donald Layman, Nutrition Today Volume 53, Issue 4, page 160-165, July/August 2018. (found at http://bit.ly/Sustainfood)

If this is something that you are interested in, Dr. Mitloehner's talk in March will be very informative. Dr. Mitloehner has been looking at beef sustainability, greenhouse gas emissions, carbon footprint and more of animal agriculture and has refuted with his data global numbers that were being used.

UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

Upcoming Events

The Rangeland Summit will be held at the Stockton Ag Center January 15, 2019. The focus is one that is on everyone's mind – fire. While the 2017 Summit was more focused on trying to find solutions after a fire occurs, this year we want to have a proactive look at fire. How can we try to minimize fire risk? Is there anything to point at where there may be a higher risk to focus attention? Are there tools we haven't used lately that we should be using more to manage risk? Since the 2017 Summit we have had two research projects looking at post fire grazing, one in the intermountain area and one on annual rangelands. Researchers from both areas will be presenting their findings. The agenda and registration information are included in this newsletter. We hope to have you join us. For those who have not attended a Summit, the audience is a mix of ranchers, agencies and environmental groups. We all agree that we want to see rangelands maintained for many different reasons. Having ranchers attend helps provide a strong rancher voice and that your abilities and limitations to maintain rangelands stays forefront in discussions. We hope you find value to the program as well, since fire can and does affect all rangelands.

Save the date for March 7, 2019 for the Oakdale Livestock Forum. This traditional quad-county forum will be a half day this year and will focus on invasive grass control (Theresa Becchetti, UCCE Stanislaus Co), animal health (Dr. Gaby Maier, UCCE Beef Vet Specialist), newest information on EPDs (Alison Van Eenennaam,

UCCE Animal Biotechnology and Genomics Specialist), and on livestock grazing in relation to sustainability (Frank Mitloehner, UCCE Air Quality Specialist). The program will end with lunch and will be held at the Bianchi Community Center. More details and registration will be out in early 2019.

	Lys Content,[b] %	Protein Required,[c] g/d	g Protein,[d] 100 kcal	kcals Consumed[e]
Wheat	2.6	131	3.5	3700
Maize	4.0	88	2.5	3500
Soy	5.1	69	7.5	920
Beef	9.0	40	16.7	240

[a]Data from US Department of Agriculture Food Composition Database.[17]
[b]Lysine density expressed as grams of Lys/100 g of total protein.
[c]Amount of protein required to achieve the daily lysine requirement of 3.4 g/d.
[d]Grams of protein present in 100 kcal of common food sources.
[e]Total calories consumed to meet lysine requirement with common food sources.

Lysine content for Wheat, corn, soy, and beef (source: Nutrition Today Vol 53:4, 160-165)

Preventing Catastrophic Wildfire in California - The Role for Livestock Grazing
Tuesday, January 15, 2019
Stockton Ag Center
2101 E. Earhart Avenue, Stockton

9:00am	**Registration and Morning Coffee** *Midvalley Cowbelles*
9:30am	***WELCOME!*** Bre Owens, Chair and Sheila Barry, Moderator
9:40am	**A Rancher's Perspective: Living with Fire** Mike Williams, Ventura County Rancher
10:10am	**Fire Risk Increasing Unevenly on Public and Private Lands** Van Butsic, UCB Specialist
10:40am	**Break**
11:00am	**Grazing to Control Brush** Lynn Huntsinger, UC Berkeley
11:30am	**Prescribed fire in California: Bottlenecks and opportunities** Jeff Stackhouse, UCCE Humboldt County
Noon	**Lunch prepared** by *MidValley Cowbelles*
1:00pm	**Post Wildfire Grazing on Public Lands in Northern California** Laura Snell, UCCE Modoc County
1:30pm	**Post-Wildfire Considerations on Ranches in Annual Rangelands** Matthew Shapero, UCCE Ventura & Santa Barbara Counties
2:00pm	**Fire Effect on Rangelands** Rancher (tbd)
2:30pm	**Current and Upcoming Fire Policy** Policy (tbd)
3:00pm	**Wrap up & Adjourn**

Other Features: Photo Contest, Posters, Booths, Silent Auction
To register go to http://ucanr.edu/summit2019 or call Theresa at 209-525-6800

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Look What's Inside:

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