The New Ranch Update
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New Waste Discharge Requirements for Confined Bovine Feeding Operations A Guide for Local Producers

In an order adopted last year, the Central Valley Regional Water Quality Control Board adopted a new regulatory program for "confined bovine feeding operations." To quote the Order:

> *"'Confined Bovine Feeding Operation' means commercial operations where cattle (cows, bulls, steers, heifers, or calves) representing 6 or more Animal Units (AU) [for purposes of this order, 1 animal unit equals 1000 pounds of animal weight] are confined and fed or maintained for a total of 45 days or more in any 12-month period, and where vegetation is not sustained over a majority of the confinement area during the normal growing season."*

Sounds serious, right?! Fortunately, the Order provides further clarification:

> *"Confined Bovine Feeding Operations do not include operations where animals primarily graze on pasture or rangeland, including any corrals that are an integral part of the grazing or pasture operation. However, corrals or other confinement areas used to finish cattle for slaughter at a grazing operation are considered Confined Bovine Feeding Operations requiring coverage under this Order."*

In plain English, what does all of this mean for ranchers in Placer, Nevada, Sutter and Yuba Counties?

- If you are not feeding cattle in a confined area to prepare them for harvest, you are not subject to the requirements of this order.

- If you do periodically feed cattle in your corrals or in a holding pen without vegetation, make sure the cattle have access to pastures. In other words, leave the gate to the pasture open!

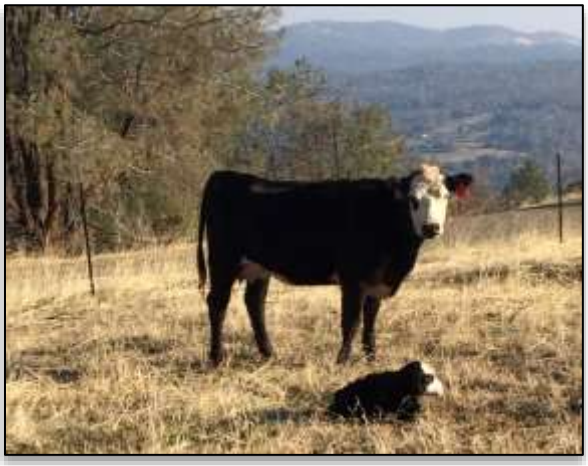
- Winter or temporary lots on your ranch are exempt (unless you are using the lot for finishing cattle).

The Order also includes separate tiers for Limited Time and Limited Population Operations (which are considered to be a low threat to water quality). A Limited Time Operation houses cattle for fewer than 24 days per calendar month. A Limited Population Operation houses between 6 and 99 Animal Units. These tiers include additional requirements for handling manure and containing storm water runoff. Finally, even if your operation falls under these regulations, your fees will be based on the number of animals in your facility. Currently, confined feeding operations with fewer than 100 cow/calf pairs, 300 calves, or 100 finishing steers/heifers are not assessed any fees.

If you have questions about whether this Order applies to your operation, contact me at dmacon@ucanr.edu or (530) 889-7385.

New Research to Evaluate Early Weaning as a Drought Strategy

Early weaning of calves (as well as other grazing livestock) can be an important drought response strategy. By weaning nursing animals early, we can save forage (by reducing forage demand) and maintain body condition of breeding females. Indeed, in an extensive survey of ranchers prior to the onset of California's drought, Dr. Leslie Roche surveyed 443 California ranchers, approximately 39 percent of whom identified early weaning as one of the drought management strategies they would consider. In telephone surveys I conducted following the 2012-2015 drought indicate that 75% of respondents used early weaning as a drought response strategy.



Even though this strategy was widely used in the last drought, California's unique annual rangeland system is different than much of the rest of the U.S. We simply don't know what the costs and benefits of early weaning (on calf values, cow performance, or forage savings) are in California.

Thanks to grant funding from the Western Sustainable Agriculture Research and Education (WSARE) program, we are beginning a two-year study of early weaning at the UC Sierra Foothill Research and Extension Center (SFREC). A number of local ranchers are serving on our project steering committee to ensure that we're asking the right questions and that we're using early weaning as it would be used on a working ranch.

Our project objectives include:

1. Quantifying the influence of early weaning on cow and calf performance, pasture utilization, soil protection and pasture diversity.
2. Developing decision tools to help ranchers evaluate the economic and ecological tradeoffs associated with early weaning compared to traditional weaning strategies.

3. Developing decision support tools that help ranchers decide how and when early weaning may work as a drought response strategy.

Stay tuned for more information – we'll hold field days at SFREC as this project moves forward. And let me know if you have any questions you think our research should address!

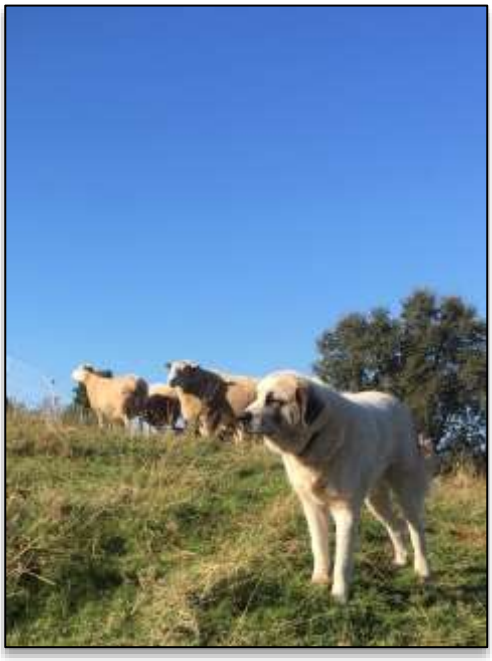
New Research Evaluates Livestock Guardian Dog Breeds

I'm often asked which breed of livestock guardian dog (LGD) is best. Some have heard that Great Pyrenees dogs are more likely to wander. Others have heard that Akbash and Anatolian Shepherd dogs can be more aggressive with humans. My experience with LGDs over the last decade suggests that there is greater variation between individuals than between breeds - in other words, breed is not as important as matching the behavior of a specific dog with the ranch's needs and environment. New research published in *Rangeland Ecology & Management* sheds new light on this topic.

In "A Livestock Guardian Dog by Any Other Name: Similar Response to Wolves Across Livestock Guardian Dog Breeds," authors Dan Kinka of Utah State University and Julie Young of the Wildlife Services National Wildlife Research Center compare several new (to the United States) breeds of LGDs with the typical American "whitedog" (Great Pyrenees, Akbash, Anatolian, Maremma, and crosses of these breeds). Some producers believe that because the American whitedog breeds were initially selected to protect small ruminants from coyotes, they may not be well suited to deterring larger predators (especially gray wolves and grizzly bears). As part of the study, Kinka and Young imported kangals from Turkey, karakachans from Bulgaria, and cao de gado transmontanos from Portugal. These breeds were selected because they were typically used in their home countries to protect livestock from wolves and European brown bears - and they were considered to be human-friendly. The imported dogs were placed with sheep ranchers in Idaho, Montana, Oregon, Washington and Wyoming. The whitedogs used by these operations were considered to be a single control breed for the purposes of the study.

The study included direct observation of behavior during normal ranch operations, as well a decoy test designed to simulate mule deer and wolf encounters. Kinka and Young recorded five behavior components (activity, posture, vocalization, proximity to livestock, and out-of-view of the observer). Within these components a number of specific behaviors were documented (like scanning, investigation, vigilance, chasing, etc.).

While the authors noted some subtle differences in behavior and responses to simulated wildlife encounters between breeds, they noted "that kangals, karakachans, transmontanos and whitedogs spent equivalent proportions of time in most behaviors during both baseline sampling and simulated wolf encounters." They also found that LGD age and time of day influenced LGD behavior and that sex had no effect on any behavior - observations I've made with my own LGDs. For example, our LGDs always seem to be much more active and vigilant at dusk than during the middle of the day. Ultimately, the authors suggest, "the homogeneity of behavioral data for multiple LGD breeds suggests that regardless of breed, LGDs operate in much the same way. As such, breed may be a less important predictor of a 'good dog' than often suggested."



So what makes a good dog? Obviously, this definition varies from one operation to the next based on context. In our operation, a good dog needs to stay with our sheep, inside our electro-net fencing. A good dog shouldn't chew on or chase (or kill!) the livestock it is protecting. A good dog should be reasonably friendly with people but prefer the company of sheep. And good dog should deter coyotes, mountain lions, black bears and other minor predators in our environment.

If wolves continue to move south, I suspect my definition of a good dog might evolve. I know ranchers in the northern Rocky Mountains who are using larger dogs (including some of the breeds evaluated in this study). A large-scale targeted grazing contractor who has grazed sheep and goats in wolf territory in Montana and Idaho swears by intact male whitedogs. For those of us in California, wolves are a wild card - our dogs have never had to contend with a large, pack-hunting predator.

While formal research on the behavioral attributes of successful LGDs is critical, we also need to share our on-the-ground experiences! What do you look for in an LGD in your operation? Do you use different dogs for different situations? I suspect each of us will have a slightly different answer to these questions! I hope you'll join in this conversation!

Reference

Kinka, D., Young, J.K., A Livestock Guardian Dog by Any Other Name: Similar Response to Wolves Across Livestock Guardian Dog Breeds, (2018), https://doi.org/10.1016/j.rama.2018.03.004

More on LGDs…

Despite their common use, very little is known about **direct** interactions between LGDs and common rangeland predators. In addition, as predators receive legal and regulatory protection (under state and federal endangered species acts, ballot initiatives, and other mechanisms), lethal predator control options are becoming limited for all livestock producers. LGDs may be a viable option for cattle producers as well as sheep and goat producers. Some ranchers express concern that LGDs may push predators onto neighboring lands – essentially pushing predator pressure to adjacent ranches. Livestock producers who operate in the wildland-urban interface express concern about potential habituation of predators to other livestock protection tools. Some wildlife agencies and nonprofits are concerned that LGDs may impact non-target wildlife. Finally, some land management agencies and nonprofit landowners have expressed concern over liability associated with livestock guardian dogs in proximity to recreation use of rangelands.

To begin answering some of these questions, I have initiated a LGD behavior study in the Placer foothills region. I am building GPS collars to track movements of sheep and LGDs, and using game cameras to document the kinds of wildlife that come into close proximity to sheep paddocks. My hypothesis is that LGDs disrupt predator behavior rather than displace predator presence. This mechanism allows predators to remain present within a specific landscape rather than pushing predators to neighboring lands. I also hypothesize that LGDs can also discern between threatening and nonthreatening wildlife.

Specifically, my research has the following objectives:

1. Analyze livestock guardian dog behavior relative to predator and non-predator wildlife, domestic dogs and humans.
2. Document livestock guardian dog response to predator presence.
3. Identify variables that affect livestock guardian dog effectiveness in specific operational and environmental settings.
4. Demonstrate livestock guardian dog interactions with predators in a variety of settings.

If you currently use LGDs and would like to participate in this study, please contact me at dmacon@ucanr.edu!

Placer-Nevada-Sutter-Yuba Livestock and Natural Resource Needs Assessment

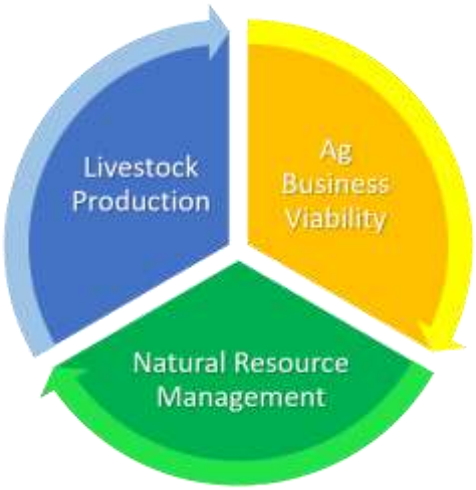
One of the first things I realized when I started this job more than 15 months ago is that the breadth of geography, terrain and ecosystems in my four-county region is remarkable. The lowest point in Placer, Nevada, Sutter and Yuba Counties is 23 feet above sea level at Joes Landing on the Sacramento River (Sutter County). The highest point in my four counties is Mount Lola in Nevada County at 9,148 feet above sea level. Rangeland types extend from Sacramento valley grasslands and riparian habitats, through the vernal pools and blue oak woodlands of the foothills, through the mixed conifer belt and mountain meadows of the Sierra Nevada, and on to the eastside pine and sagebrush habitats east of the Sierra crest.

From the confluence of the Feather and Sacramento Rivers to the summit of Mt. Lola and eastward to the California-Nevada border, the four county region is incredibly diverse.

The livestock production systems in my four counties reflect this variation. The ranches in my region primarily produce beef cattle, sheep, goats, hogs and poultry. Operational size varies as well, from small-scale, part-time ranches to large-scale, extensive enterprises. Grazing resources range from annual grassland to irrigated pasture (valley, foothill and mountain) to mountain meadows to sagebrush steppe, as well as a significant amount of brush-land.

Ranch ownership tends to be somewhat less diverse (at least according to the 2012 Census of Agriculture). 86% of ranch owners identify as white, and 61% are male. My focus is on serving commercial livestock producers; targeted grazing contractors; land trusts and other nonprofits with an emphasis on rangelands; local, state and federal land and resource management agencies; and local community and consumer groups interested in local food systems and natural resource management.

As I said, my method for learning about the needs of the region was largely informal. Over the course of my first year, I met with a variety of ranchers, agency land managers, nonprofit organizations, and others. These conversations revealed three primary and interrelated areas of need for applied research and extension activities



Most of the livestock produced in the region are ruminants (beef cattle, sheep and goats). The natural resource management needs focus on rangelands, wildfire, water quality and quantity, and wildlife. Agricultural business viability relates directly to these other two areas of emphasis.

Based on these themes, I've initiated a number of research and educational activities, including:

- Research regarding specific rangeland drought management and response tools.
- Research and demonstration of tools for enhancing the productivity and sustainability of irrigated pasture.
- Research and demonstration of tools that help minimize livestock-wildlife conflicts.
- Development and facilitation of emergency planning and response tools (especially for wildfire) for commercial livestock producers.
- Development and demonstration of ranch business planning and economic analysis tools, including online tools.
- Continued development of hands-on livestock husbandry and grazing management educational programs.
- Research into and demonstration of grazing as a vegetation management and fuel load reduction tool.

I'm very fortunate to be working with extension colleagues within my region and throughout the state on many of these issues. One of the strengths of the cooperative extension system is this opportunity for collaboration and for tapping into cutting edge research led by our campus-based specialists. As I begin my second year as an advisor, I am working with colleagues on a variety of projects:

- We're starting a 3-year study into the economic and ecological consequences of weaning calves early as a drought response strategy. This research will be conducted at the Sierra Foothill Research and Extension Center (see the article above).
- I'm leading an ongoing effort to better understand the direct and indirect impacts to ranching operations from a variety of predators, including gray wolves.

- We've developed research-based information regarding the effectiveness of a variety of livestock protection tools.
- We're continuing to offer a variety of farm and ranch business planning workshops and short courses designed to help beginning and established producers improve economic viability.
- We're conducting a cross-sectional survey of irrigated pasture management systems throughout northern California, including on five sites in Placer and Nevada Counties.
- I'm starting a research project evaluating livestock guardian dog behavior and wildlife interactions that may ultimately include ranch partners and researchers in other Western states (see the article above).

Coming into this position from a production background, I've realized that there are more needs than any one person can possibly address. My needs assessment has helped me identify what I feel are the key priorities currently. Obviously, these needs will evolve as economic, environmental, and climatic conditions change. What an exciting prospect!

I'd still like to hear from and talk with more producers! Contact me at dmacon@ucanr.edu or (530) 889-7385 if you have questions, comments, or would like to schedule a ranch call!

Fall/Winter Workshop and Events Calendar

October	
October 30, 2018 8:30am – 12:30pm Auburn, CA	***Grazing Technology Field Day*** Put technology to work in your operation! This field day will feature hands-on demonstrations of electronic identification systems, drones, smart phone apps for ranchers, electric fencing systems, portable water systems, and reproduction technology. Register at http://ucanr.edu/grazingtech See the flyer in this newsletter for more details!
November	
November 8, 2018 1:30P – 4:30P Placer Business Resource Center Rocklin, CA	***So you want to start a farm or ranch…*** Interested in starting a farm or ranch business? Come to this afternoon seminar covering considerations for beginning ranchers. Register at http://ucanr.edu/startranching
2019	
January-March, 2019 6 evenings + 2 Saturdays UCCE – Placer Auburn, CA	***Farm/Ranch Business Planning Short Course*** Want to take your farm or ranch business to the next level? Learn how to evaluate enterprises and develop a comprehensive business plan for your operation! Applications for the 2019 Class will come out in November – stay tuned!

The Foothill Grazing Geeks

UC Cooperative Extension

present the first annual

Grazing Technology Field Day

Tuesday, October 30, 2018 ◆ 8:30 a.m. – 12:30 p.m.
Auburn, California

Join the University of California Cooperative Extension and a local group of innovative ranchers for a morning of hands-on learning! See new technology used in a real-world setting – and talk to producers who use this technology every day!

Demonstrations will include:

Using Drones to Monitor and Manage Grazing	Roger Ingram, UCCE Emeritus/Flying Mule Farm
Mapping your Pastures with your Smart Phone	Rob Thompson, Legacy Ranching
Portable Electric Fencing Systems	Connie and Albert Scheiber, Scheiber Ranch
Portable Livestock Water Systems	Alana and Brad Fowler, The Goat Works
Reproduction Technology: AI and ET	Joe Fischer, Bruin Ranch
Pod Irrigation Systems	Melissa and Spencer Tregilgas, Free Hand Farm
Using EID Systems to Improve Livestock Management	Dan Macon, UCCE Livestock & Natural Resources

This Field Day is offered at no charge! Please RSVP at **http://ucanr.edu/grazingtech** *to reserve your spot and to obtain Field Day address and directions (and so we know how much coffee and donuts to have on hand!).*

For more info, contact:
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https://ucanr.edu/sites/Livestock/