UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

Livestock Lines

Stanislaus & San Joaquin Counties
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What do you get when you cross an angry sheep and a moody cow?

An animal that's in a baaaaaad mooooooood!

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Rangeland Wildfires and Forage Production

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University of California Cooperative Extension researchers (local "Farm Advisors" like myself as well as campus-based Specialists) have been researching wildfires on grazed landscapes more intensively for a few years now. Our efforts cover a wide swath of curiosity, from determining the value of forage loss due to a fire, to how much fine fuels are removed by grazing and everything in between. I want to summarize a few key things we have found over the years to potentially help you as we move into what is shaping up to be a bad fire year.

Determining value of lost forage. After a wildfire, ranchers are left trying to decide what to do next, which often includes determining the value of the forage they lost. Everyone realizes they lost the standing forage they had saved for the fall, but the fire impacts the next two growing seasons as well. Through research plots, we have looked at forage growth after a fire and discovered that the growing season after the fire has a 40% reduction in forage production and the second year after the fire, still has a 20% reduction. Why? Most of our annual grasses would have already dropped seeds for the fall and those seeds should not be damaged by the fire. We see a reduction because without any standing biomass (what we refer to as Residual Dry Matter – RDM) there is no microclimate to protect new seedlings as they germinate. The publication, Estimating the Cost of Replacing Forage Losses on California Annual Rangelands, UCANR Publication 8446, includes a set of spreadsheets helpful in determining how many tons of forage would have been lost in the current year, as well as in the next two growing seasons. The spreadsheet walks you through what you need to enter and then the final tab is where the value comes in, replacing the forage with the price of hay delivered to the ranch. For more information and access to the spreadsheets, please visit : https://ucanr.edu/sites/forageloss/

How many tons of fine fuels do cattle remove every year in California? For this we used county Crop Reports, Ag Census data and UCCE data. Cattle are found in every county except San Francisco. They graze on about 19.4 million acres of rangeland, primarily privately owned but with a mix of federal and other publicly owned lands in the mountains and desert areas.

The amount per acre of fuel removal varied by region from 174 pounds per acre in the southeast (desert) to 1020 pounds per acre in the San Joaquin-Sierra region with an average statewide of 596 pounds per acre. In the Santa Clara Unit Lightening Complex Fire (SCU Fire) footprint, we calculated forage removal by contacting landowners in the footprint to determine stocking rate (animal unit per acre). Grazing removed 10,602 tons of forage before the SCU Fire began in August 2020. We were able to calculate a reduction in emissions due to grazing, while also taking into consideration normal methane emissions from cattle grazing (rumination).

Flame length and grazing. We have all heard hand crews can fight fire on the ground if the flame length is below four feet. We wanted to see how high flames would be on different RDM levels. What we found was light to moderate grazing levels (from 2,500 to 1,250 pounds per acre) would probably keep flame length around four feet, but that there would be a higher chance the wildfire would keep burning. Moderate to heavy grazing (1,250 to 400 pounds per acre) would have flame length below four feet and would allow hand crews to stop the fire. Moderate to heavy grazing will have a patchy appearance, giving hand crews a better chance of stopping a fire.

Bottom line. Grazing plays a role in managing California's large landscape for many different benefits. Grazing not only can reduce the fire risk by removing fine fuels, but also grazing heavy in higher risk areas can increase the chances of low flame length and a higher likelihood of hand crews stopping the fire. By grazing, we are also reducing emissions from wildfires. I haven't even touched on how grazing can help extend the life of shrub removal, further reducing emissions. And grazing is done by all ruminants – cattle as well as sheep and goats. Yes, it is popular in some areas to see small ruminants grazing below houses or along a freeway with electric fence, but cattle also play an important role. When there is a wildfire that destroys the ranch's forage base, ranchers should be compensated for what they have lost, and we have a mechanism to determine the value of lost forage. California's wildfire issue is not going to be solved overnight, but ruminant livestock can play an important role in the solution.

Bull Management—Fall Breeding

While it is still early August and you are probably in the middle of calving, breeding season will be here before you know it. Now is a good time to start planning.. Any bulls you kept from last season, it would be a good idea to have all of them go through a breeding soundness evaluation to make sure they are ready. And if you are going to be purchasing any new bulls this fall, this should be the bare bones minimum conducted on any bull you buy.

A basic breeding soundness evaluation consists of:

- Physical examination of the animal
- Semen evaluation
- Measurement of scrotal size
- Examination of reproductive organs

The physical exam should ensure that the bull is able to see, eat, smell, and move freely to successfully breed cows. Structural soundness is important if the bull is expected to travel across a range of conditions and mount a cow. Also many structural defects are hereditary and may be passed on to the calves. Body condition should be examined to ensure the bull has enough condition to breed the cows, with a score of 7 recommended for range bulls entering the breeding season. They will be working when our annual rangelands are not providing much quality or quantity, so the extra weight they have going into the breeding season will help them with the energy they will need.

Internal reproductive organs should be examined for any inflammation, adhesions, or fibrosis. The spermatic cord, scrotum, testicles, and epididymides are examined for evidence of abscess, injury, tumors, or frost bite damage if the bull is from a colder climate. The testicles are the factory where sperm cells are produced, and they should be firm, resilient, equal in size, and adequate to large for the bull's age. Degenerative change in any of these organs is a frequent cause of reduced fertility. Testicular hypoplasia (underdevelopment) is also evaluated at this time. Hypoplasia reduces fertility and is highly heritable. With this condition one or both testicles are one-third of normal size.

The penis and sheath should be examined for any sores, lacerations, abscesses, scar tissue, or adhesions. On erection with the electro-ejaculator, the penis should come from the sheath in a straight line with the body of the bull. Persistent penile frenulum (tied back penis) is occasionally found during this part of the examination. Injuries to the penis usually occur during the active breeding season, but may be resolved enough to be missed until the breeding soundness exam. Old lacerations and adhesions usually prevent the penis from being fully extended or cause pain during breeding. Bulls with any type of painful lesion will usually quit trying to breed cows. Warts on the tip of the penis are a relatively common finding in young bulls.

Scrotal size is important because it correlates not only to sperm production, but is also a heritable trait. Bulls with larger testicles reach puberty at an earlier age and produce more semen. They will sire heifers and sons who will reach puberty at an earlier age, and their sons will have larger testicles.

A bull can be normal on general physical and reproductive organ examination and still have low fertility due to poor semen quality. Sperm cell concentration (number of normal sperm cells), motility (vigorous, active sperm), and morphology (shape of the sperm cells) evaluations are the basis for the scoring system developed by the Society of Theriogenology. This scoring system has become the standard across the country and is used by almost all veterinary practitioners.

In addition, the following tests or procedures may be included in a breeding soundness evaluation:

- Trichomonosis testing.
- Mating ability: Some assessment of the bull's desire (libido) and ability to breed a female in heat (termed serving capacity).
- Pelvic measurement; believed to be a heritable trait and predictor of early maturity in heifers as well as reducing calving problems.

If you turn multiple bulls into a pasture with cows, using a chin-ball marker with a unique color for each bull can give you a quick idea as to how many of the bulls are actually breeding the herd. You may find that one bull may be servicing more cows than expected, while a couple may be doing nothing for you. You can do a DNA test on the calves to determine which bulls bred the majority of your herd. From research conducted a "few" years ago by Dr. Alison Van Eenennaam, she found that about 7% of the bulls from multiple ranches in her research did not sire any calves. At the time, DNA paternity testing per animal in general was not cost effective to justify the expense. With a 7% cull rate, either the tests had to be pretty cheap, or your feed bill for the bulls pretty high to justify. A chin-ball marker would be a much cheaper alternative, and while potentially not as accurate, could give you some information. In her project, the bulls siring calves had an average of 20 calves each, but the range per bull varied quite a bit. One ranch found one bull only sired one calf, while another bull sire 52. Multisire pastures have many benefits (tighter calving interval being a big one), but you might find that one bull may be dominate and service more cows. Having an idea as to what each bull is siring can give you a quick look at how the genetics you have selected are getting into your herd. If the fancy bull with the "perftect" EPDs is the bull only giving you one calf, then the direction you were hoping to move your herd is not happening. Always remember to keep yearling bulls in a separate pasture from older bulls to reducing fighting and allow those new genetics you bought to have a chance to produce some calves for you.

Whatever you decide to do for breeding season, start making your plans now and talk to your veterinarian about scheduling some basic breeding soundness evaluations.

Fire Season and Livestock Pass

San Joaquin County is in the process of completing a Livestock Pass to help aid ranchers when a wildfire comes through the area. This pass will also be used in any flooding event as well. Training will be coming this fall, so please be on the lookout for the announcement. It will be held at the San Joaquin Ag Center off Arch Road and will be approximately four hours long as per the requirements of the pass. For anyone who has already completed training and has their Livestock Pass for Stanislaus County, the pass is good until spring of 2025. Before it expires, we will hold the one hour training needed to renew your pass.

When you do attend a training, be sure to keep the certificate somewhere you can find it, if needed, or better yet, take a picture of it and save it to your favorites or tag it somehow so it does not get lost in your camera roll. The actual pass may vary in size depending on the county it was issued from, but I know Ag Commissioners are trying to work with neighboring counties to be similar. And remember, in the case of an emergency, the Livestock Pass does NOT guarantee you access to your ranch, but it will allow you to get in faster and easier once the Incident Commander has deemed it safe for you to enter the area. They will always err on the side of human safety, so please keep that in mind. This pass is not a free pass to get access whenever you want. But it has worked in some counties and made it easier for ranchers to get in and take care of their livestock. Keep an eye open for an early October date for the San Joaquin County training.

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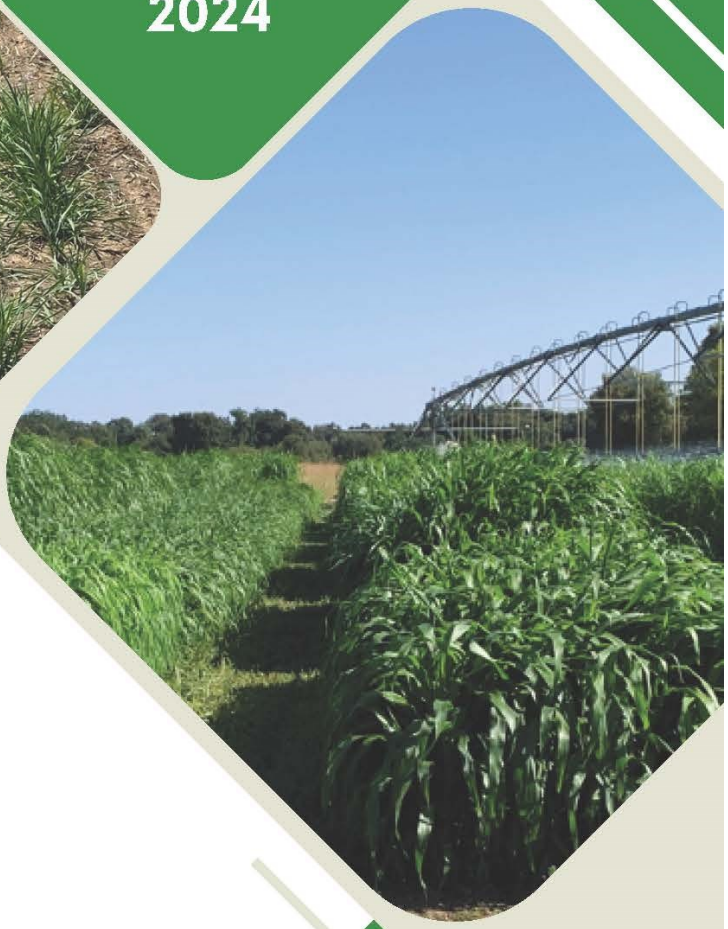
SEPTEMBER 17, 2024



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- ✔ Warm Season Perennials Grasses
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