

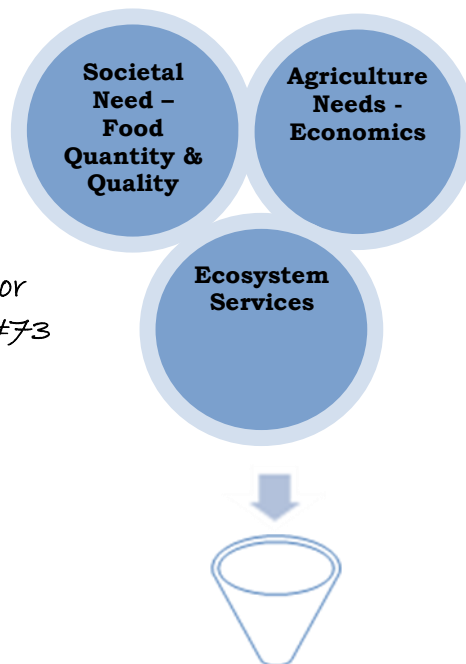
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THE STOCK EXCHANGE *Rangeland Management* Series 3 --Fall 2010

Dear Livestock, Dairy Producers, Rangeland Owners, and Operators,

Rangelands in Sonoma County and throughout the northern coast comprise the greatest land mass type. Local rangelands provide food through livestock production. i.e.: grass fed beef, lamb and poultry, and provide the view shed that enhances the beauty of Sonoma County. Furthermore, these lands not only enable livestock grazing but they also provide “Ecosystem Services” such as water capture, carbon sequestration, habitat, and biodiversity. Society gives high values to ecosystem services but fails to recognize that these are a result of the management of our local rangelands. Rangelands have gone unappreciated and their contribution to Sonoma County, undervalued. More economical returns should be given to these lands and the individual that manage them for local food and ecosystem services. Payment for ecosystem services would be one method to partner societal needs, such as food, habitat, view shed and water, with the economical needs of rangeland managers. Through this partnership, a local sustainable ecosystem would be established, providing rangelands managers’ economic incentives to increase revenues by marketing ecosystem services off rangelands. During the coming year, UCCE will be exploring methods to build this local partnership. One method will occur at the upcoming Sonoma County Food Forum, February 24, 2011. The goal of the forum will be to bring together agricultural producers, societal industries and policy makers to develop a local food system in Sonoma County. A local, sustainable ecosystem will be a positive step toward achieving this goal.

Stephanie Larson, Ph.D.
Livestock & Range Management Advisor
Certified Range Management License #73



Local Sustainable Ecosystem

RANGELAND MANAGEMENT



Weed infestations are an increasing problem in rangelands, as they decrease the quantity and quality of available forage. To help reduce these infestations, it is helpful to develop identification and management strategies. Every Stock Exchange will address one problem weed in the County in hopes of helping land operators develop management strategies. This issue focuses on Barbed Goat Grass. Please read the peer-reviewed publication in this newsletter. These are free publications available on the UC Davis publication website, which is <https://ucanr.org/freepubs>. There is a broad variety of subjects to choose from.

Dryland Pasture for Sheep and Cattle

Stephanie Larson, Livestock & Range Management Advisor



The process for improving a dryland pasture should begin in late summer. Existing vegetation should be grazed to less than 1,000 lbs. per acre or clipped down to two inches before seeding. This allows for a good seedbed preparation, and allows the sun to reach the new seedlings upon germination.

When to Plant:

Dryland pastures are seeded in the fall; prior to the occurrence of heavy winter rains. Seeding early in the fall allows plants to grow while temperatures are relatively warm and also reduces erosion hazards from high intensity rains. Long-range weather records show that the most favorable period to seed is from October 1 to October 31.

What to Plant:

Possible Seeding rates per acre:

10 lbs. Sub clover (inoculated)

Mixture of 2-3 types:

★ Mt. Barker, Denmark,
Woogenellup

8 –10 lbs. Tetraploid Ryegrass

2-5 lbs. Perennial Orchard Grass

Approximately 20-25 lbs. Total*

* Seeding rates will vary, depending on whether you are seeding a new pasture or improving an established pasture. Fewer pounds of seeds per acre are needed on an established pasture. Inoculation of sub clovers is crucial in establishing a good stand of clover. Only accept clovers that have been inoculated within the last two months. Inoculating the clovers yourself, assures higher counts of effective rhizobium, which means greater success.

Type of Fertilizer to Use:

Nearly all of our range and pasturelands are deficient in nitrogen and phosphorous, and some acres are also deficient in sulfur. The use of 200 lbs. per acre of 0-45-0-2 (treble super phosphate) or 150-200 lbs per acre of 11-52-0-2 (mono-ammonium phosphate) at the time of planting will supply adequate phosphorous and sulfur needed for the clovers. If only grasses are planted and/or nitrogen is needed quickly, the use of 250-350 lbs.

per acre of 16-20-0-10 will supply adequate nitrogen and phosphorus. How often fertilization is repeated, depends upon the initial amount used at planting.

Grazing Management:

Carefully control grazing the first year of pasture establishment, especially when soil is wet. Light grazing is recommended three to four months after seeding whenever the soil is firm. It is important to remove the grasses during the winter, thus allowing the sun to penetrate to the clovers. If subterranean clovers are shaded by the grasses early in growth, they will not grow properly and could be lost. Yields from a newly seeded pasture will be approximately 60 percent of future yield.

An important part of grazing management is implementing a controlled rotation grazing system that allows plants to rest and re-grow. Pastures should be managed to maintain animal health requirements while maintaining the needs of a new pasture.

Quality of Forage from Pasture:

The quality of forage produced is superior to most of our native pastures. Sub clover has a high percent of crude protein when green and will contain up to 12 percent crude protein in the mature, dry stage.

Acres needed per Animal Unit:

An animal unit is a 1,000-pound animal, usually one mature cow or five sheep. An animal unit will consume approximately 2 – 3 % of its body weight per day, depending on its nutritional requirements. Therefore, on average, an animal unit will require 900 pounds of forage per month or five tons of hay or its forage equivalent on a yearly basis. This amount of forage can be supplied

from five acres of well-fertilized, seeded, dryland pasture, allowing for adequate residual dry matter at the end of the grazing season.

Bluetongue Disease in California

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Bluetongue is an endemic disease in California and is a common problem of unvaccinated sheep living in the San Joaquin Valley of California. The disease is seasonal and is usually seen in the late summer and early fall months. Most clinical cases are usually seen during the months of August through the end of October. Bluetongue disease occurs worldwide and has recently caused serious economic problems in livestock in northern Europe.

Bluetongue is caused by a virus that is a member of the Orbivirus genus. This disease is not contagious from animal to animal and must be spread to susceptible animals by the bite from an infected insect vector. The insect vectors are biting midges (*Culicoides* species), which are common throughout California. There are 26 serotypes of Bluetongue virus present in the world, but only 5 serotypes are currently established in the United States. However, this could change fairly rapidly if virus containing midges or virally infected animals is introduced into the United States. Bluetongue strains 10, 11, 13, and 17 have been identified in California.

Although Bluetongue virus infects many different domestic (cattle, sheep and goats) and wild ruminant (deer) species, sheep tend to be the species most seriously affected. One particularly serious bluetongue strain of virus (Bluetongue virus strain 8) that was recently introduced into Northern

Europe from Africa is currently causing significant disease in sheep, cattle and goats. The strains of bluetongue virus in California tend to produce no disease symptoms in cattle and goats while causing apparent and severe disease in sheep.

Symptoms in infected sheep include elevated body temperatures (105°F to 107°F), excessive salivation, swelling of the face, lips, and nose, ulcers and erosions of the dental pad, tongue and lips, swelling and discoloration of the tongue (blue tongue), difficulty in standing and/or lameness with swelling and/or ulceration of the coronary bands and hemorrhaging of the mucus membranes of the mouth and tongue. Some sheep may have respiratory difficulty due to pulmonary edema in the lungs. Other sheep with significant lesions in the mouth, tongue and esophagus may occasionally vomit with aspiration to the lungs which can lead to severe pneumonia. Mortality can be variable with death rates approaching 30% to 80% of the infected animals. Infected pregnant animals that survive clinical disease can have abortions or deliver young that are deformed, blind, weak, or have serious neurological defects.

Yearly vaccination of animals in the spring protects most sheep from becoming seriously affected by this viral agent. Since the Bluetongue vaccine is a modified live vaccination it is not recommended to vaccinate pregnant sheep because the virus in the vaccine may cause abortions or deformities in the fetus.

If you suspect bluetongue in your sheep you should contact your veterinarian immediately and discuss further testing of your flock. Testing of sick or dead animals for this disease can be

accomplished through your regional veterinary diagnostic laboratory.

VET VIEWS from Cotati Large Animal Clinic, Cotati, CA

Is Your Herd Ready?

What you need to know for breeding season

Gene Harlan, DVM, Penngrove

A beef producer's income comes primarily from calves born into the herd, making herd fertility a very important trait. Studies evaluating profitability of cow herds have shown that reproduction rate (every cow has a calf) is the factor with the greatest influence on economic success.

It's been estimated that fertility is five times more important than growth rate and ten times more important than carcass quality to a producer's income. In these economic times, with all of our input costs at a high rate, reproductive management of beef herds is more important than ever.

The two major goals of reproductive management are to increase the number of females in estrus early in the breeding season and to improve conception rates.

How to increase the number of females in estrus early in the breeding season:

The goal should be to have 90 percent of your cows and 85 percent of your heifers cycling in the first 21 days of the breeding season. This goal can only be reached with careful attention to nutrition, the calving/breeding interval, selection of replacement heifers and timely pregnancy diagnosis.

Nutrition:

It has been reported that 45 percent to 91 percent of cows in good body condition will be cycling in the first 21 days of the breeding season. This figure

contrasts with 28 percent of thin or 37 percent of moderate body condition cows cycling in the same period.

Cows calving at a body condition score (BCS) greater than 5 were in estrus at a higher rate earlier in the subsequent breeding season than cows that were less than BCS 4 at calving. Interestingly, the average daily gain from calving through the breeding season had no effect on conception on cows with BCS greater than 5, but dramatic effects on conception on cows with BCS less than 4.

First calf heifers (primiparous) can have reproductive rates comparable to older cows but only if they calve at a higher BCS. Pregnancy rates for first-calf heifers calving with BCS 4 and 5 were 65 percent and 71 percent respectively. Pregnancy rates for first calf heifers of BCS 6 and 7 were 87 percent and 91 percent respectively.

In general, dietary protein and energy levels primarily determine body scores. However, there are certain grasslands and forages lacking in or containing excessive micronutrients that also need to be considered.

Calving/Breeding Interval:

Most cows will require 50 to 60 days between calving and re-breeding before they begin cycling again. A shorter calving/breeding interval translates to more profit for the producer as every 20 to 21 days earlier that a cow becomes pregnant in the breeding season, her calf will wean 30 to 40 pounds heavier.

The duration of the breeding season is just as important as when it starts, as a shorter breeding season leads to a shorter calving season and a more uniform calf crop. The recommended maximum duration of the breeding

season is 60 days for cows and 45 days for heifers.

The heifer breeding season should begin 20 to 30 days before the cow herd to allow first calf heifers a little extra time to rebreed in the following season. Heifers that become pregnant early the first time will have a better chance of breeding back early in the future.

In summary, a breeding season that is timed for early calving and short duration will: increase average weaning weights; increase the number of heifers calving early; provide a more uniform calf crop; and increase the number of cows cycling early in the next breeding season.

Heifer size at first breeding:

Heifers should be bred at approximately 65 percent of their adult body weight. This will vary slightly with frame scores. It has been shown that less than 30 percent of well-fed heifers will be cycling at 12 months of age, whereas 85 percent to 90 percent of the same heifers will be cycling at 15 months of age. This demonstrates the effect of age and body weight on onset of puberty.

An excellent tool that I have used 30 to 60 days before breeding is to palpate replacement heifers and assign each animal a reproductive tract score and a pelvic measurement. A reproductive tract scoring system was developed as an indirect determination of age at puberty. Heifers with immature reproductive tracts that are not cycling at the time of replacement selection may be sold before breeding. At the same time, heifers with small pelvic measurements will not be retained as replacements. The application of body weight, reproductive trait scores and pelvic measurements to selection of replacement heifers will increase the

percent of heifers cycling early at 12 to 15 months.

Keys to successful heifer management to first breeding:

- Genetics (very critical in some breeds)
- Retain 15 percent to 25 percent more heifers at weaning
- Start breeding season 20 to 30 days before cows
- Calculate target weights and average daily gain
- Monitor weights
- Cull heifers which are underweight at 12 months of age
- Palpate for reproductive tract score and pelvic size
- Limit breeding season to 30 to 45 days
- Select sires for calving ease to reduce dystocia

How to Increase Conception Rates

Once you have implemented the management strategies discussed above to ensure that a high percentage of your cows and heifers are cycling early in the breeding season, you can focus on other reproductive management practices which contribute to conception rates: infectious disease prevention and bull breeding soundness examination.

Infectious Diseases:

The major infectious causes of reproductive failure in beef cows are campylobacteriosis, trichomonosis, leptospirosis, infectious bovine rhinotracheitis, bovine viral diarrhea, neospora and foothill abortion.

Herd level protection against most reproductive diseases takes a lot of scientific thought and management effort. This may be the cheapest part of an entire reproductive management program, and yet many herds are not

vaccinating and are not protected from the problems they can prevent.

A well thought out herd level vaccination program using the latest principles of immunology and epidemiology must be in place. Your local veterinarian is a good source of information on this subject.

Many times an investigation into the causes of reproductive failure and high cull rates due to low conception rates will yield information which can help you improve reproductive efficiency in the future.

Bull Breeding Soundness Exams:

Variation in bull fertility has a marked effect on conception rates. The goals for pregnancy rates should be 85 percent for heifers and 95 percent for cows after their respective breeding seasons. When bulls identified as "satisfactory" breeders by veterinarians following specific guidelines are chosen as herd sires, conception rates increase by 6 percent to 9 percent.

Producers purchasing yearlings or older virgin bulls should select bulls that meet their herd production criteria and expected progeny differences (EPDs) for performance – growth and carcass characteristics, milk EPD and calving ease – just to name a few. In addition, scrotal circumference, semen quality (if those bulls are old enough to evaluate for semen quality) and physical soundness should be considered.

Before purchase, the health program of the herd of origin should be reviewed to see if it is compatible with the purchaser's existing herd program. Specific vaccines and other products administered to a purchased bull and a complete medical history should be available for each bull purchased.

On arrival, newly purchased bulls should be placed in quarantine for a minimum of three weeks. These bulls should be kept separate and not allowed to share feeders or water with other animals.

During the quarantine period, vaccines and other products needed to bring the animal in line with the resident herd program can be administered.

Additional tests can be performed during the quarantine period to meet the health standards of the producer's herd. This might include testing for tuberculosis, bovine viral leukosis, Johne's disease, brucellosis, and BVD virus.

Bull Management to improve reproductive performance:

Vaccination and parasite control

The vaccination program in yearlings is aimed at providing long term immunity to common viral infections and preventing reproductive diseases as well as diseases such as anaplasmosis, if the herd is in a problem area.

Also, vaccination for leptospirosis, vibriosis, trichomonosis, respiratory viruses and clostridial infections can be given at semen evaluation with a booster vaccination when indicated 2 to 3 weeks before breeding season.

Bulls age 12 to 24 months are more susceptible to internal parasites than are heifers at this age. Bulls should be given a broad spectrum de-wormer 2 to 3 weeks before the breeding season. De-worming can be repeated at 6 months after the first breeding season.

Bulls should be conditioned for 2 to 3 months before breeding season to improve endurance and strengthen feet and legs. Successful programs locate bull pastures on hillsides with separation of feeders and water to encourage good exercise. If bulls are used in

multiple sire groups, they should be paired with the other bulls at this time so that social dominance within a peer group can be established. When a bull is placed in the breeding group, its early breeding attempts should be observed. If a bull shows a lack of interest or can't mate, it should be removed early so that the first 20-day pregnancy rates will not be lowered.

Most health problems during the breeding season are related to injuries to the back, feet, legs and penis. Ideally, bulls should be observed daily. If any sign of illness occurs, the bull should be removed from the pasture and treated. Illness associated with fever of several days' duration can impair semen quality for up to 60 days. Conditions that limit a bull's mobility result in lowered pregnancy rates.

Breeding groups for younger bulls should be one bull per 25 cows, while older bulls may be grouped with 40 cows per bull.

How to measure the success of your reproductive management program:

The percent net calf crop is a good index of the reproductive efficiency of a herd. To calculate this value, divide the number of calves weaned each year by the number of cows and heifers exposed to the bull during the breeding season, then multiply that number by 100. Ideally this number should be between 90 and 95 percent. The national average is around 71 percent.

$$\% \text{ net calf crop} = \frac{\text{\# of calves weaned}}{\text{cows} + \text{heifers exposed}} \times 100$$

The four major factors which affect percent net calf crop are:

1. Females not pregnant after breeding season ends (17 percent national average)

2. Calf deaths during gestation (2.3 percent) – this number is generally not high unless you have a leptospirosis storm or a foothill abortion problem.
3. Neonatal calf deaths (6 percent) – numerous studies have shown that dystocia is a major cause of calf mortality. In 1991, 20.4 percent of calf mortality in 18 western states was due to calving problems. Early assistance in dystocia not only increased calf survival, but also increased average daily gains. Early assistance also led to an increase in the number of animals cycling at the onset of the subsequent breeding season and a 14 percent increase in pregnancy rate.
4. Calf deaths from birth to weaning (2.9 percent). Calf scours and pneumonia are the two major problems. These illnesses can be minimized by a good herd health program.

Pregnancy Exam:

5. The best way to increase economic efficiency is to decrease the costs incurred. Why feed an animal that is not pregnant or that has problems conceiving? We will minimize our costs by selling all cows and heifers not diagnosed pregnant by rectal palpation, or pregnant but due to calve much later than the rest of the herd. Timely pregnancy diagnosis by your local veterinarian can greatly improve your economic efficiency.
6. We have just reviewed some key management factors critical for successful reproductive rates in

- beef herds. These controllable management factors are:
7. Postpartum interval to start of breeding.
 8. Calving season duration
 9. Nutrition/body condition (mature cows, first calf heifers and replacement heifers)
 10. A herd health program. Involving vaccination and parasite control, pregnancy exams, reproductive tract exams and bull breeding soundness exams.

I haven't mentioned synchronization programs, which can play a valuable role in beef reproduction. There are now a variety of products and systems available for synchronization in beef cattle. Synchronization systems and artificial insemination are not employed by the vast majority of commercial beef producers, but can increase the success of your beef herd if implemented.

On a herd basis, most synchronization programs result in insufficient estrus and/or ovulation responses and low pregnancy rates for dollars and time invested. Beef producers cannot successfully adopt new technology before management fundamentals are in place. For more information about these practices, contact your local veterinarian.

With beef cattle, all decisions, economic evaluations and successes should be evaluated at the herd level not at the subgroup or individual level.



SAVE THE DATE:
Sonoma County Food Forum
February 24, 2011
Sonoma County Fairgrounds.
More information to follow