The purpose of the California Multi-Species Grazing/Browsing Academy is to teach, demonstrate and provide practical experience in using sheep and goats to reduce fuel loads, control invasive plants, utilize forage for grazing and browsing, and develop a saleable product for a profit. The California Multi-Species Grazing/Browsing Academy will be a three day course emphasizing the practical application of research based grazing and browsing principles using sheep and goats.

Target audiences are ranchers, land managers and agency personnel who manage livestock on privately owned or public pasture and rangeland. Participants learn by actually applying the principles taught in range and pasture with live sheep and goats. Topics to be covered include: grazing/browsing principles, ecology, fencing, nutrition, supplementation, grazing/browsing planning, contract grazing/browsing, and much more.

Registration information is included in this newsletter and online at http://ceplacer.ucdavis.edu. Sign up today for this exciting course.
Forage Yield Results from the Sierra Research and Extension Center

The Sierra Research and Extension Center (SFREC) sampled forage on May 1, 2012, and results show a yield of 2,389 pounds per acre for peak standing crop. This is approximately 82% of normal yield.

The March and April rains helped improve forage conditions considerably. I would suggest taking this opportunity of less total forage to cull more deeply than normal to reduce animal numbers. This will leave more available feed for the rest of the herd and allow you to cull older animals and those that do not fit your genetic program.

Combining herds will make more paddocks available per herd and increase management flexibility and the ability to increase rest periods. Increasing the number of paddocks shortens the graze period, increases stock density, and provides an opportunity to use herd effect to impact weedy areas or break up places with hard capped soils.

To help you assess your forage conditions, go back to where you grazed to determine if you are fast or slow growth. Look ahead to the paddocks available to graze after the one you are in and graze the paddock that is ready - not necessarily the next one in a rotation. Grazing management means staying flexible and is not a rigid rotation. Assess the amount of residual left in the paddock you are in to assess stocking rate. By the end of the graze period, you should still have at least 3-4 inches of residual unless you have been topping off annual feed to leave feed bank for the remainder of the dry season. If you have grazed things down to less than 2 inches, you may want to question whether your stocking rate is appropriate with your carrying capacity (amount of forage).

California Grazing Academy celebrates its 20th years

The California Grazing Academy was first held in April 1992. The Academy was co-founded by Dave Pratt and myself. It is hard to believe that 20 years has flown by! We have 25 people at the last Academy held April 27-28, 2012. More than 550 ranchers, land managers, organic certifiers and agency people have attended the Academy since 1992.

The Academy has evolved over the years. Dave Pratt and myself taught the Academy from 1992 - 1999. Dave left the Cooperative Extension in 1999. I have taught the Academy since then. The Sierra Research and Extension Center has hosted all but two of the academies. I did hold it for two years at Swanton Ranch in Davenport, which is about 10 miles north of Santa Cruz on the coast. Cal Poly – San Luis Obispo operates the ranch. Conducting the academy with the ocean in the background is a good memory for me.

The unique aspect about the California Grazing Academy has always been the emphasis on hands-on experience to implement information conveyed in the classroom. Participants

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(Continued from page 2)
work in teams with their own herd and set up the
fencing design on their “ranch” to best determine
how to implement grazing principles. They then
determine the impact of their decisions the next
day by assessing ecosystem processes and make any
needed management changes.

The California Grazing Academy expanded
into goats in 2003 with the
California Browsing
Academy. A
California Sheep
Academy was held in 2007
and 2008.

Students install portable fencing to create a new grazing/browsing area.

PINKEYE—BAD YEAR COMING
PREPARE TO PREVENT OR TREAT

This drought year may be really bad for pinkeye. In fact, during the past several years
pinkeye outbreaks in calves have been worse than expected, so this year could be really expensive.
Last month’s Vet Views discussed fly control, which
is one extremely critical component of pinkeye prevention. In this month’s Vet Views, we revisit
some of the other basic principles of pinkeye prevention. We hope that this article provides you
with useful information that can guide in developing rational approaches to preventing this very
frustrating disease.

The currently accepted cause of pinkeye in cattle is an eye
infection with bacteria called Moraxella bovis. Along with M.
bovis, another recently identified species of Moraxella
called Moraxella bovoculi has also been cultured from pinkeye-
affected eyes of cattle. At the present time, no studies have
proven that M. bovoculi can actually cause pinkeye; however, its presence in eye cultures from affected
animals definitely makes its role in causing pinkeye very suspicious.

Vaccination. Vaccination against pinkeye
with commercially available M. bovis vaccines has
been associated with both successes and failures.
It is likely that the variable responses to
vaccination reflect differences in the strains of bacteria in a vaccine bottle versus the strains
circulating in the herd, and whether there is cross
protection between them. In most situations, it is
recommended to start vaccinating with a
commercially available M. bovis vaccine; if pinkeye is
still a problem, and then consider changing to a
different commercially available product or else to an
autogenous Moraxella
vaccine. Some producers have
found improvements in
pinkeye prevention by moving
to an autogenous vaccine
designed against M. bovis
and/or M. bovoculi isolated
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from pinkeye-affected cattle in their herd. At the present time, there are no commercially available *M. bovoculi* pinkeye vaccines. In situations where cattle have been vaccinated against *M. bovis* with a commercially available vaccine and over 5% of calves are still developing pinkeye, it is recommended to test eye swabs from affected animals for the presence of *M. bovis* and *M. bovoculi*. Such testing can be performed by your local veterinarian. If *M. bovis* or *M. bovoculi* are identified, you may then consider having an autogenous vaccine made against the particular strains present in your herd. Your local veterinarian can help advise you in pursuing this option. In a situation where you choose to simply change the particular brand of commercial vaccine you are using, it’s a good idea to carefully read the label on a vaccine before purchasing it to determine if the vaccine you are considering changing to covers different strains of *M. bovis* than the ones in the vaccine you’ve already tried. In some cases vaccine manufacturers provide this information, and when available, it can be very useful. It is important to work with your veterinarian when making this vaccine decision.

When vaccinating, it is important to begin vaccinating at least 6-8 weeks ahead of the time when you typically might expect to see your first pinkeye cases. If you wait until your first cases appear before you vaccinate, you have waited too long. By starting to vaccinate early, you give the calf’s body time to develop the necessary antibody responses against *Moraxella*. As part of a healthy and functioning immune system, also consider your trace mineral supplementation program. Both selenium and copper are vitally important in the overall immune “health” of your cattle; in other words, adult cattle and calves need these trace elements in order to develop adequate immune responses to *Moraxella* antigens, whether they arrive in the form of a vaccine or natural infection.

Another thing to be aware of is the use of modified live IBR vaccines right at the time of shipping. If using such vaccines, it may be best to wait several weeks before shipping to reduce chances for serious pinkeye outbreaks in calves.

**Clipping pastures.** Another aid in the prevention of pinkeye is to clip pastures before turning cattle out if grass is too long and already headed out. This will decrease irritation to the eyes that can initiate a pinkeye outbreak. The irritation of dust, plant pollen, or weed seeds can promote tearing from the eyes and may result in shedding of the bacteria (*M. bovis; M. bovoculi*) by “carrier cows”. These carriers may harbor *M. bovis* or *M. bovoculi* without actually showing signs of disease and serve as sources of bacteria that can then be spread by flies to susceptible cattle, especially calves.

**Foxtails or plant awns.** Eye irritation can be caused by tall grasses as mentioned above; however, another common plant product (foxtails) can cause severe irritation. Foxtails (or other weed seeds or awns that stick in the eye) become lodged in the eyes of cattle and cause significant damage, irritation, and watering (tearing) of the eye. This can lead to further spread of *Moraxella* bacteria. Face flies that are attracted to this tearing can easily spread the pinkeye organisms between animals. Cattle examined for pinkeye should also be examined for the possible presence of these foxtails or plant awns, and if found, they should be removed. One clue to the presence of foxtails is the location of the damage in the eye. With uncomplicated pinkeye the damage usually begins in the center of the eye and spreads outward. With a foxtail or other foreign body the damage will be “off-center”, starting at the edge of the cornea. The examination of the eye for foxtails and

**Pinkeye, an infectious bacterial disease in cattle, can cause a painful corneal ulcer that in some cases may lead to blindness.**

(Continued on page 5)
pinkeye creates another opportunity for spread of the disease and this spread must also be prevented as discussed below.

**Disposable gloves.** When examining eyes, always use disposable gloves. The pinkeye agents will bind to your hands (or clothes) and you can then become a very effective transmitter of the disease, and, in effect you become like a “giant face fly” in terms of helping spread Moraxella between calves. When you do treat a pinkeye-affected calf, be sure to use disposable needles and syringes—and then dispose of the needle when you are done treating the animal!

**Keep your clothing clean.** Just as with your hands, your clothing can easily become contaminated with the pinkeye causing agents. Therefore, it is best to treat any pinkeye or potential pinkeye cases after you have done all the routine animal handling procedures on healthy animals for the day. Alternatively, change clothes after handling pinkeye cattle and before handling normal cattle, or wear a plastic apron to protect your clothing from becoming soaked with the “eye juice” from a pinkeye-affected animal. This apron should be disinfected between animals as discussed below.

**Disinfectants.** The routine use of a disinfectant for any equipment used on animals with pinkeye is necessary. Nolvasan® (chlorhexidine; Fort Dodge now Boehringer-Ingelheim) is an excellent choice because it is not irritating to tissues and works well as a disinfectant. A very inexpensive and effective disinfectant is household bleach at a 1 to 10 dilution (mix 1 part household bleach to 9 parts water). Your veterinarian can also suggest other disinfectants that will accomplish these goals. Things to be disinfected include (1) forceps, hemostats, or tweezers used to remove foxtails, (2) nose tongs for restraint, or (3) rope or nylon halters. It may be a good idea to clean and disinfect the head catch or head restraint area of the chute as it may be an area of contamination and spread of the pinkeye causing agents.

**Eye patches.** There seems to be debate over whether eye patches are a good idea or not. From the standpoint of the pinkeye-affected calf, the eye patch should help make the calf more comfortable since it will help protect the calf from bright sunlight. Think how painful it is to walk out of your eye doctor’s office into bright sunlight without sunglasses after you’ve had your pupils dilated! By keeping the affected calf’s eye covered, you provide relief from bright sunlight and also help limit spread of eye secretions from animal to animal and reduce fly exposure to these infective ocular fluids. While these are potential benefits of eye patches, correct application is important. Leave the bottom of the patch open so there is some air circulation under the patch as well as a route for fluids to drain out of the affected eye. Periodically check underneath these patches to make sure the eye is OK; ideally you should be looking under a patch every 3 days. Along with applying a patch, consider separating pinkeye affected calves from the rest of the herd to help limit spread of infective fluid between animals.

**Treatment.** If pinkeye cases do occur, what are the treatment options? Two injectable (administered in the muscle or under the skin) antibiotics currently have label claims to treat pinkeye in cattle: oxytetracycline and tulathromycin (Draxxin®). Experimentally, ceftiofur (Excede®) and florfenicol (Nuflor®) have also been shown to be effective at treating cattle pinkeye; use of these drugs would be considered “off label” and would require a veterinarian’s prescription. Another popular treatment is penicillin injected under the bulbar conjunctiva. When giving penicillin injections under the conjunctiva of the eye, you will want to be wearing gloves and have the calf’s head restrained with a halter. These injections can be tricky to do correctly and potentially dangerous to the calf if the needle goes into the eye in the wrong place. To achieve good results, give 1 ml (1 cc) under the conjunctiva covering the sclera of both eyes for at least 3 days. This method can achieve fair to good results, but is more difficult and potentially more dangerous to the animal than simply giving an intramuscular or subcutaneous dose of oxytetracycline, NuFlor®, Draxxin®, or Excede®.

(Continued from page 4)
Continued use of tetracyclines in areas with high numbers of anaplasmosis cases may make cattle susceptible to sickness due to anaplasmosis. Consult with your veterinarian regarding this potential problem.

For many years Furox sprays or powders (Nitrofurazone, Furox®, Topazone®, NFZ Puffer, P.E. 7, etc.) placed into the eye were used for the treatment of pinkeye. This method was not as effective as the above methods. However, since 2002 this treatment has been illegal for cattle. This is irrespective of whether or not you have a prescription or if a drug supply company sold you a furacin-containing product. Do not use the furacin-type drugs in cattle any more.

There are some liquids and spray-type products still available for pinkeye treatment. These products only stay in the eye for about 7 minutes before the tears wash it out and therefore, are much less effective than any of the methods described above. As with all treatments that are placed directly into the eye, proper restraint is necessary and the use of disposable latex gloves is recommended.

For many years, treatment with dexamethasone (Azium®) has been popular. Research indicates that when this is given under the sclera, there is no difference in the rate of healing. Therefore, use of this product is not usually recommended.

Your veterinarian. This may be the most important part of your prevention plan. Get your veterinarian’s advice about prevention before an outbreak or if you had problems last year, seek your vet’s advice ahead of time. Topics to be covered should include:

1. fly control
2. vaccines
3. disinfectants
4. tools and supplies to have on hand for prevention and treatment
5. treatment protocols and any necessary prescriptions
6. keep written records of treatments and results

Discuss these with your veterinarian as you reevaluate pinkeye prevention and treatment plans for the future. Be sure your mineral program is working, as this is important in the animal’s immune responsiveness.

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Pasture Management Tips for Summer

Cool-season grasses such as Orchardgrass and Tall Fescue dominate most irrigated pastures in Placer and Nevada Counties. These grasses grow rapidly in spring and somewhat rapidly in fall. Growth rates slow in the summer resulting in longer recovery periods. Spring recovery rates on irrigated pasture are approximately 25-30 days. By July and August, this can increase to 35-45 days.

The longer recovery period can be made worse if you are short of water. Evapotranspiration is a term used to describe the sum of evaporation and transpiration, both of which account for loss of water from the plant. Weather station data from Auburn shows the following approximate evapo-transpiration rates:

- May – 5.5 inches
- June – 6.5 inches
- July – 8.25 inches
- August – 7.60 inches

You can irrigate 1.6 acres with 1 miners inch of water and replace water loss in July and August. If you are trying to stretch your miners inch on a large area, you will not meet water requirements in July and August, resulting in less production and a longer recovery period.

I would encourage you to build a feed bank going into July and August. In order to do this, you must leave more residual feed at the end of the graze period – around 5-6 inches. It will look like you are wasting feed, but it will prove beneficial by shortening recovery periods and having more feed going into the slow growth period. Please plan on coming to the July grazing and irrigation pasture walk in July or contact me with questions.
New Project at the Sierra Research and Extension Center

Prescribed Grazing to Restore Rangeland Soil Quality, Plant Diversity, Water Quality, and Agricultural Productivity


Funded by USDA Range Research Program and USDA Western Sustainable Agriculture Research and Extension Program

We are working directly with the ranching communities in Wyoming and California to integrate management expertise, ranch-scale research, and existing research information to identify and extend practical grazing options to optimize interdependent agricultural, economic, and ecological services. Wyoming represents a perennial, summer rangeland system, while California is representative of an annual, winter rangeland system. Perennial rangelands cover 27 million acres in Wyoming where cattle and sheep production exceeds $820 million annually. In California, annual rangelands encompass 16 million acres and statewide cattle production exceeds $3 billion annually. By working across these two representative agro ecosystems, the information developed from this project will have applicability across millions of acres. California's 16 million acre annual rangeland ecosystem provides critical livestock forage to support rural agricultural economies, houses the most diverse plant and animal communities in the state, and supplies drinking water supplies to millions of residents. Restoration efforts in this ecosystem must be based upon a clear understanding of social, ecological, and business factors determining ranch level grazing management decisions and ecosystem response.

Objective 1:
Determine social-cultural-economic-institutional factors driving grazing decisions; understand how managers receive, assess, and use grazing management information; and identify management perspectives on managing grazing intensity, grazing season, and rest from grazing for restoration of soil, plant, and water functions and other ecosystem services.

Objective 2:
Quantify the differential effects of season and intensity of cattle grazing, and associated interactions, on multiple ecosystem services. Compare the response of multiple ecosystem services between a rotational grazing system, which provides alternating seasons of grazing/rest across years, and a continuous grazing system, which provides the same season of grazing/rest every year.

Objective 3:
Conduct a ranch-scale, cross-sectional, observational field research survey to determine how field indicators of rangeland health on ranches in each state correlate to grazing management decisions (e.g., stocking rate, season of grazing/rest, rotational strategies) at the plant community, ecological site, and ranch scales.

Objective 4:
Develop an online prescribed grazing – restoration management decision support network that allows users to: access research and management derived information about prescribed grazing and restoration; receive assistance in developing grazing management and effectiveness monitoring options for site specific restoration applications; and participate in interactive prescribed grazing – restoration information exchange.

Approach:
We will conduct a survey of 1500 rangeland managers in CA and 500 in WY to achieve Objective 1, and provide information to develop the prescribed grazing management decision support tool (Objective 3). The survey will be designed to determine social-cultural-economic-institutional factors driving grazing decisions; to understand how managers receive, assess, and use grazing management information; and to determine their perspectives on managing grazing intensity, grazing season, and rest from grazing for ecosystem restoration. We will also collect information about specific grazing practices adopted, structure of social networks, and participation in outreach activities. The standard Dillman methodology of delivery introductory letter, survey package,
remind, second survey package, and second reminder will be used to encourage response. Objective two will be based upon establishment of a replicated, management-scale study to investigate prescribed grazing to restore key ecosystem services. The 10-year study will use 200+ commercial-type beef cattle across 33 pastures covering ~1500 hectares of annual rangeland at the UC Sierra Foothill Research and Extension Center. Prescribed grazing treatments will be based upon annual and seasonal forage production, weed species phenology, hydrology, and management constraints typical of annual rangelands. The eleven prescribed grazing treatments to be examined are a combination of: cattle grazing intensity, season of grazing, season of rest, and grazing system. A 10 year ungrazed treatment will be included as a long-term negative control. We will measure the response of biodiversity and resistance to weed invasion; forage production; water quality; and soil retention of N, C and moisture to grazing treatment over the course of the study. A cross-sectional observational study design will be used to identify associations between rangeland health (soil quality, plant diversity, forage production, etc) and grazing management (e.g., stocking rate, season of grazing, season of rest). This will be a field-based research project conducted on cooperating ranches. Rangeland health, based in part upon USDA Technical Reference 1734-6, will be evaluated at sites across each ranch. Sites will be selected to represent the gradients of grazing management and rangeland health present on each ranch. On-site interviews of manager(s) will be used to quantify grazing management for each site. Multivariate statistical analysis will be used to identify significant correlations between grazing management practices and rangeland health indicator values. Based upon the results of the survey of grazing managers, the prescribed grazing study, the cross-sectional survey of ranches, and the broader science base we will develop an online prescribed grazing – restoration management decision support tool that allows users to: access information about prescribed grazing and restoration; explore site-specific grazing management and effectiveness monitoring options; and participate in prescribed grazing – restoration information exchange.

For more information please contact Ken Tate, kwtate@ucdavis.edu

UPCOMING EVENTS

Contact Roger Ingram at 530-889-7385 or rsingram@ucdavis.edu to register or if you have questions. Check website for updated at ceplacer.ucdavis.edu

Pasture Walk
Grazing and Irrigation
July 2012

California Multi-Species Grazing/Browsing Academy
September 14-16, 2012
UC Cooperative Extension Office, Auburn, CA
This will be our fourth multi-species grazing academy. You will work in teams and manage sheep grazing and goat browsing during the academy. Ecology, grazing, nutrition, fencing, grazing planning, and a lot more will be covered.

Pond Management and Irrigation Classes for Small Landowners
Keith Crabtree, Green Acres 101
Call 530-269-1217 or go to greenacres101.com for information.

Roger Ingram
County Director, Placer and Nevada Counties
2012 California Multi-Species Grazing / Browsing Academy
Registration Form

Date: September 14—September 16, 2012 - Registration closes August 31, 2012

Cost: $160.00 (includes meals, and course materials)
No walk-in registrations due to set-up needed for hands-on activities

Register: Complete this form, mail with your check payable to University of California-Regents, to:
Roger Ingram
California Multi-Species Grazing Academy
11477 E Ave.
Auburn, CA 95603
OR, visit our website: http://ceplacernevada.ucdavis.edu and follow the links.

Location: Auburn, CA

First Name _______________________________________________ Last Name ________________________________
Address: ________________________________________________
City __________________________________ State/Zip ________________________________
Email: __________________________________ Phone Number: ________________________________

What types of animals do you graze or manage?
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

How many head: ____________________________ On how many acres: ____________________________

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(Complete nondiscrimination policy statement can be found at http://danr.ucop.edu/aa/danr_nondiscrimination_and_affir.htm )