UC CE University of California Cooperative Extension

Northern California Ranch Update

ANR University of California

Volume 1, Issue 1—January 2007

Individual Animal Identification

Dan Drake, Ph.D
Livestock Farm Advisor, Siskiyou County

As the debate continues on over a national animal identification system for animal health purposes, an increasing number of producers are realizing the importance of individual animal identification for marketing and management purposes. Marketing is moving into an era where identification is critical and economically valuable in the value received when marketing of cattle. Historically cattle characteristics (attributes) important in marketing, such as carcass weight, could be easily obtained and were easily assigned to an individual (live or carcass). Increasingly, attributes such as age are important determinants of value, but are not easily obtained and require some type of animal identification carried through the animals production cycle. Often important attributes require some type of paperwork linking a production practice to specific animals. Sometimes individual identification can be short-circuited such as placing a red ear tag in animals to denote those receiving antibiotics and thus excluded from "antibiotic-free" cattle. However, if we are producing cattle with several key attributes, then we may quickly be overwhelmed with these special marks. A unique ID number for each animal can be easily associated with any number of special practices to assist with marketing while also benefiting cattle management.

Ear tags are a handy method of individual identification, however they are often not unique. A variety of reasons leads to duplication of numbers including lost tags that are replaced, worn out tags, and mis-communication. In contrast, electronic button identification tags (EIDs) typically are better retained due to their smaller size and placement in the ear compared to dangle ear tags, and by their manufacture no duplication will occur. Think of EIDs as the equivalent of the VIN (vehicle identification number) for a car or truck. Traditional ear tags are the equivalent of the license plate. Like ear tags license plates can be lost, stolen, transferred from vehicle, and are unique to states. Usually we don't use the VIN number but refer to vehicles by the license plate. However, when we want to be very positive about the vehicle we use the VIN number because it is unique. The same holds true for cattle and EIDs. Over time EIDs may get easier to use and we could use them all the time, but for now it is generally easier to use a traditional ear tag most of the time, but have that connection to the EID just like we have the connection between the license plate and VIN for vehicles.

Using that same vehicle analogy, if you ran a business that had numerous vehicles that were all pretty similar, all white Chevy trucks, you would want them individually identified. They would have your common number for everyday use such as the license number, or a special number you assigned. But they would also have a unique VIN number. You would simply keep track of which license plate went with which VIN, and the same is done with cattle when visual ear tags and EIDs are used.

What will it cost to move into individual identification. The supplies will run less than ½ cent per pound at sale time for the best possible set of separate dangle ear tag and EID button, and just an ear tag would be even less. Potential market advantages from verified individual animal attributes could easily provide a financial return for the investment. The cost of labor to apply the tags would likely be overcome by the improved communication and management in subsequent working of the cattle.

Treatment of Calf Scours

What causes calf scours? As new calves arrive, so does the threat of the common condition known as "calf scours" or neonatal calf diarrhea. Infectious agents such as viruses and bacteria cause this condition. These agents have the common property of causing a **net loss** of water and electrolytes from the calf's body via the gut. This causes potentially life-threatening dehydration and electrolyte imbalances that can result in death. The main infectious organisms that can cause diarrhea in beef calves are:

Rota virus
Corona virus
Cryptosporidium parvum
E. coli (K99 enterotoxigenic form)

The first 3 on the list usually cause diarrhea at 7 to 21 days of age, while the common *E. coli* strains cause diarrhea within the first few days of life. The diarrhea is the result of a combination of factors including: (1) dose (number) of organisms the calf is exposed to, (2) calf immunity (colostrum), and (3) stress on the calf. The number of organisms in the calf's environment is a result of sanitation or the lack of sanitation, i.e., mud, manure, and other cattle. The immunity of the calf is dependent on the quality and quantity of colostrum that the calf received from the cow. Calves that do not receive adequate colostrum are much more susceptible to disease and are at much greater risk of dying from the resulting diarrhea that occurs. Stressful conditions (low milk production by underfed cows, bad weather, crowding) further increase the risk of diarrhea in young calves. The balance of all these factors determine if disease occurs and the severity of disease.

When should I treat the calf? Calves running around the pasture with their tails in the air, bucking and kicking with yellow or white diarrhea may not need treatment. The main indications for treatment are (1) general disposition, (2) appetite, (3) dehydration, and (4) body temperature. If the calf is weak, depressed, or reluctant to move these are all indications that something is wrong. If the calf is not eating, the cow's udder will be distended and this is sign of trouble also. Dehydration can be evaluated easily by pulling up the skin on the side of the neck or shoulder. In a normal calf, the skin snaps back into position quickly. In a dehydrated calf, the skin remains "tented" for a period of time—the longer it remains "tented" the worse the dehydration. Also, as dehydration worsens, the eyeballs sink back away from the eyelids—this is a bad sign and fluids are indicated immediately. Normal body temperature (measured with a rectal thermometer) is 100.5° F to 102.5 ° F. Body temperatures less than 100 ° F and greater than 102.5 ° F is a sign of problems and treatment should be started.

What are the recommended treatments? The main treatment is fluid therapy. Secondary treatments are antibiotics and nursing care. Because the main problem in scouring calves is loss of body fluid and electrolytes, the primary treatment must be aimed at restoring the water balance. The calves are thirsty, but they are too sick to drink. Therefore, the first line of treatment is ***oral electrolyte solutions***. There are a number of excellent commercial products on the market for treatment of calf scours. All of these products contain glucose or a similar material, sodium chloride (table salt), and other electrolytes. The glucose and sodium allow the animal to absorb the water they need from their digestive tract. **Giving straight water does not work.** Usually 2 liters (just over 2 quarts) of the oral fluid solution is given 1 to 3 times per day to the sick calf. Consult with your veterinarian regarding the appropriate oral electrolyte product for your operation. **Always follow the label mixing instructions**—do not add too much powder to the solution as this may kill the calf and unnecessarily adds to the cost of treatment. Antibiotics are often given to scouring calves even though antibiotics do not kill most of the calf scours agents. Due to damage in the gut of scouring calves, bacteria will "leak" into the blood stream of these calves and cause further problems. Antibiotics are of value for this reason. Again, consult with your veterinarian regarding the correct choice of antibiotics to give. Many of the antibiotics are not labeled for calf scours and thus require a prescription from your veterinarian and an extended withdrawal time. Avoid the use of injectable gentamicin or kanamycin. Tissue residues from these drugs can persist for up to one year and this can cause problems in the packing plant. Long acting tetracyclines can cause some kidney damage in dehydrated calves and should be

avoided. Baytril® is not labeled for scouring calves and should not be used. In addition to fluids and antibiotics, nursing care may be essential for the calves to recover. Shelter from the wind, heat lamps, etc can be very helpful. However, this requires some type of facility and may result in a contaminated environment and increased spread of the germs that cause calf scours. Additionally, the problem of separating the cow and calf has to be solved. **When treating sick calves, always treat them *after* you have attended to all the normal calves.** This will decrease the spread of germs from the sick calves to the younger healthy calves. Also, keep all your treatment equipment clean—including your hands and clothes, as you can easily transmit these agents.

When do I need additional help? If your treatment methods are not working, contact your veterinarian immediately for additional help. If more than 5% of your calves are scouring and require treatment, you need help. If death loss is greater than 2% due to calf scours contact your veterinarian. Many advances have made the diagnosis of these conditions. Your veterinarian can submit refrigerated (not frozen) stool samples to the University of California's Veterinary Diagnostic Laboratory and receive answers in as little as a few days. Freshly dead calves can also be examined to determine the cause of the diarrhea and to aid in determining those factors needed for prevention and treatment in your herd.

John Maas, DVM, MS
Diplomate, ACVN & ACVIM
Extension Veterinarian
School of Veterinary Medicine
University of California-Davis

UC Research Aids in Older Cow Culling Decisions

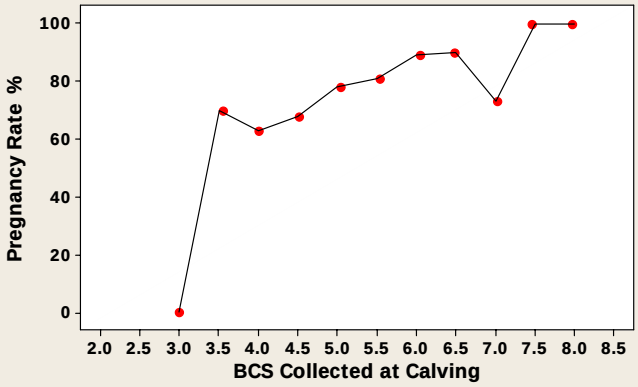
Josh Davy, Benjamin Renquist and James Oltjen

Generally, cow-culling decisions are made at pregnancy testing, with open cows being "sent down the road." Results of studies conducted by UCD researchers at the Sierra Foothill Research and Extension Center provide a new perspective for considering how long to keep cows around. The research looked at the contributions of age, supplementation and body condition score (BCS) to reproductive efficiency and calf performance. Reproductive efficiency was gauged by pregnancy rate and calving interval. Birth weight and weaning weight were used as the determinants of calf performance. Keep in mind this research was collected on 454 British crossbred cattle at one location, thus results are not necessarily exactly the same in all herds. In any case, the information does prove valuable.

The applicability of this five-year project comes from the individual analysis of cows ranging in specific ages of three through ten, rather than simply comparing first calf heifers to older cows. Without the consideration of BCS, it seemed that cow age was very significant in determination of pregnancy rate. However, further analysis shown that body condition score outweighed the importance of age on pregnancy rate. This implicates a more causative affect to be attributed to the cow's body condition score when evaluating pregnancy rate. More explicitly, it most likely demonstrates that a cow can be fed to a high pregnancy rate by maintaining her BCS, regardless of age. Table 1 shows the relationship of BCS collected at calving to the subsequent pregnancy rate. Note that the extremes of pregnancy rate seen at body condition scores of less than 3.5 and more than 7 could partially be due to the low number of cows seen at these two extremes.

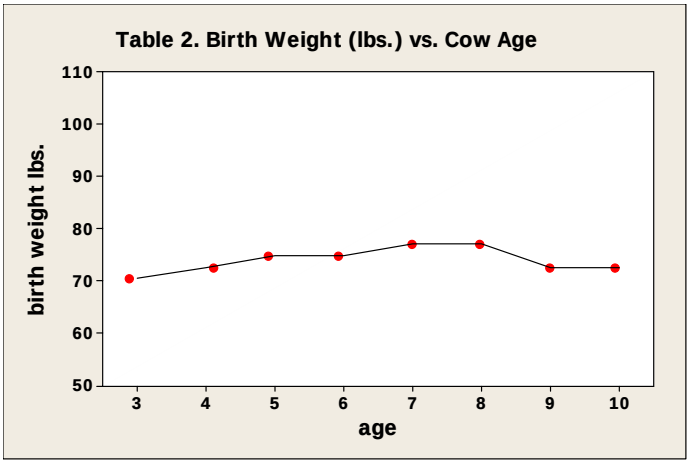
Calving interval dropped in the three to four year old cows by 11 days, but had little difference in the older aged cows. The difference in calving intervals between younger cows can be expected due to the normal complications of dealing with first calf heifers.

Table 1. Pregnancy Rate % vs. Cow BCS Collected at Calving

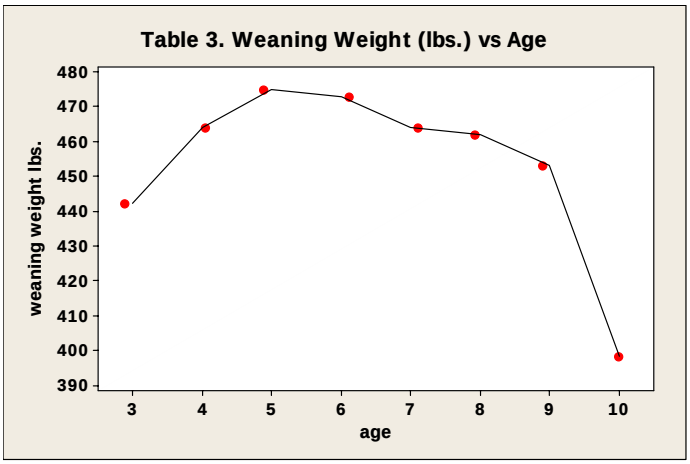


The difference in calf birth weights at any cow age was never greater than seven pounds. This is shown in Table 2. Regardless of the BCS effect, a dramatic drop in calf weaning weights was seen as cows reached age 10. At age 10, cows weaned calves that were 44 pounds lighter than even their three-year-old herd mates. Even

more alarming, 10 year old cows weaned calves 77 pounds lighter than five-year-old cows.



The relationship of age and weaning weight can be seen in Table 3. It's important to note that this is a difference between weaning weights of calves that were born with no statistical difference in birth weights.



Taking it one step further, a complementary analysis subjected cattle with varying ages to different supplement and stocking rate strategies for five years. Again, there was no difference between birth weights. Increases in weaning weights by supplemented groups over non-supplemented cows were only seen when cow age was considered as a factor in the analysis. If cow age wasn't considered, no difference in weaning weight appeared. This indicates that the nutrition management was compensating for the difference performance, which gave the impression of the herd being on a level plane of performance. However, the addition of cow age to the analysis complemented the previous finding of cow age importance on calf weaning weight. No difference was seen between adjustments of stocking rates.

The implications of this research demonstrate that although adequate nutrition can help older cows to continue producing calves in a timely manner, calf performance still decreases. Management time may be better suited to replacing these older cows with heifers that that will gain in efficiency.

References:

Renquist B. J., J. W. Oltjen, R. D. Sainz, and C. C. Clavert. 2006. Effects of age on body condition and production parameters of multiparous beef cows. J. Anim. Sci. 84:1890-1895.

Renquist B. J., J. W. Oltjen, R. D. Sainz, and C. C. Clavert. 2006. Relationship between body condition score and production of multiparous beef cows. Livestock Sci. 104: 147-155.

Renquist B. J., J. W. Oltjen, R. D. Sainz, J. M. Connor, and C. C. Clavert. Effects of supplementation and stocking rate on body condition and production parameters of multiparous beef cows. Anim. Sci. 81: 403-411.

Milestone, a New Herbicide for Yellow Starthistle

By Glenn Nader and Guy Kyser

Milestone® (aminopyralid) is a new herbicide for use in rangeland, pasture, wildlands, and rights-of-way to control broadleaf plants, especially thistles. It controls some important Sacramento valley weeds such as yellow starthistle, Italian thistle, and artichoke thistle. The label rate for the control of most thistles with Milestone is 3 to 5 ounces per acre. The very low amount of material required per acre and the limited movement of the product from the application point has allowed it to be registered under the Reduced Risk Pesticide Initiative of the U.S. Environmental Protection Agency. Research trials conducted from 2000 to 2006 on rangeland sites in California by UC Weed Specialist Joe DiTomaso found that as low as 2 ounces per acre controlled yellow starthistle.

It is made by Dow Agrosciences, the same company that makes Transline. Milestone® is expected to replace Transline for starthistle control because of its lower costs (estimated $9 to $10 per acre for the product at the 3 ounce per acre rate and $6 for the 2 ounce rate), and the fact that it has a broader control spec-

trum which includes fiddleneck.

Milestone® gives three to four months of pre-emergence control of starthistle in addition to post-emergence control. Starthistle can germinate in the Sacramento valley from October to May. Thus, treatments of Milestone are best applied from December to March. March applications may require a higher rate to be effective. Applications should be made before starthistle bolts or before annual grasses exceed four to six inches in height. Research has shown that the earlier the application, the more grass that is produced on the site.

Aminopyralid 3 oz/A

Treated with Milestone Control thick w/starthistle

Items to Think About Before Entering into a Pasture or Grazing Lease.

Glenn Nader, UC Livestock Farm Advisor

Term of the Lease

The number of years the lease is valid for and the time each year the animals enter and leave the ranch.

Payment

Price

Per animal on a monthly basis ($16 to 25/ animal unit).

Flat fee for the grazing of the property for a set season.

Payment schedule

50% when the cows come on and 50% before they leave.

Payment at the end of the grazing season.

Dates

On and off dates when the cattle can arrive and must leave should be stated.

Area to be Grazed

The areas that are will be provided for grazing should be defined by name or by legal description.

Maintenance

The fences, corrals and all other improvements will be maintained in the same state as the start of the lease.

Responsibilities of Operation

The lease should describe who will irrigate the pasture and how it is done, who pays for the water costs, who applies and pays for the fertilizer, who provides and check livestock water, who will provide salt, move cattle from pasture to pasture, receive and ship cattle, check and doctor sick animals, if full care is provided by the landowner, then an acceptable death loss will be described and compensation if that amount is exceeded.

Insurance

The lessee will provide liability insurance naming the landowner on the policy.

Liens

Both parties will declare any liens that are held on the property or the cattle.

Other Land Uses

Hunting, fishing, horseback riding, hiking and other uses of the ranch should be defined as to which party holds the rights to that use.

Use of Other Facilities

The allowed use of any barns, houses or other improvements on the ranch should be identified.

Proper Grazing Levels

The pasture grazing management should be defined to describe the acceptable level of grazing. This can be such things as stocking rate, end of season stubble height, or riparian protection.

Some long-term grazing leases are recorded on the ranch deed to protect the lessee if a transfer of the property occurs.

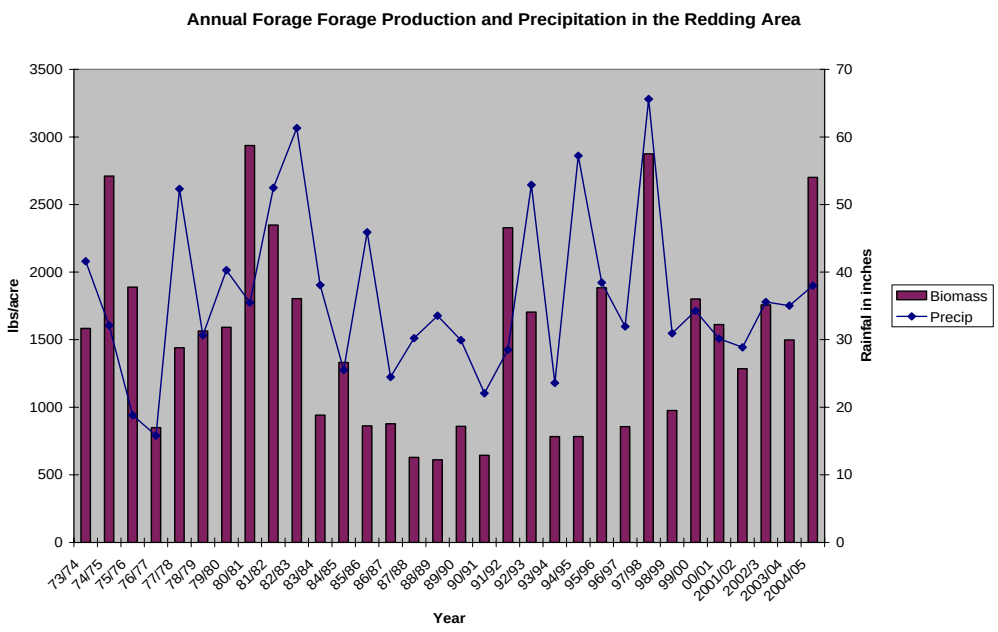
This list is not intended to be legal advice, it is only intended as a checklist to consider for a rental agreement. All legal agreements should be reviewed by legal counsel prior to signature.

Managing Northern California Winter Pasture

Larry Forero, Livestock Farm Advisor
Shasta County

Ranches are frequently described based upon the number of cow-calf pairs a given ranch will run for the season. The value of a ranch lease is generally a function of the number of head of livestock that it can carry. Ranch carrying capacities are frequently points of discussion. Determining how many animals a ranch will carry for how long can be a challenge. While ranches are frequently leased on a whole tract price, most producers break the cost back to a per head basis for the season. This requires some estimate of forage production, which on California's annual rangeland is always a challenge. In the final analysis, whether or not the range was appropriately stocked is assessed at the end of the season.

Forage production on California annual range is highly variable. Long term plot data on a ranch located near the Redding Airport has an average annual production of about 1500 lbs/acre. Figure 1 shows the variation in forage production for thirty years at the same site. The plot also shows rainfall amounts and the strong correlation between rainfall and production.



There are basically four factors that influence forage production—*precipitation*, *temperature*, *soil characteristics* and *Residual Dry Matter* (RDM).

Precipitation and Temperature

University of California Scientists have worked for generations to develop a prediction tool to help rangeland operators estimate appropriate stocking rates for annual grassland ranches. In the early 1970's, A.L. Murphy determined that, at the University of California Hopland Research and Extension Center, he could accurately estimate annual forage productivity 50% of the time based on precipitation falling before November 20. M.D. Pitt and H.H. Heady (1978) reported a strong (90% accurate) relationship between forage production and five variables sampled through the growing season. However by the time all the data is collected and the prediction is made, there are only a couple of weeks left before peak standing crop. An analysis by M. R. George et.al. (1989) demonstrates the importance of the spring starting date in over all forage production. The later spring begins, the fewer days of favorable growing conditions (primarily adequate temperature and soil moisture), and thus reduced forage production. This is the type of production we experienced in northern California for the 2005/2006 forage year.

George et al also notes the effect precipitation and temperature have on species composition:

1. Forage species composition is usually established by December 1 and is largely determined by the dates of autumn rains and by autumn temperatures.
2. In dry years or years with adequate but poorly distributed rainfall filaree will generally be the dominate species.
3. High rainfall years and years with late spring rains will result in grass dominated rangeland

Early rains coupled with evenly spaced adequate rain fall generally provide good clover years.

Site Influences

Depth of soil, fertility and aspect can influence annual forage production as well. Deeper soils with good

water holding capacity can help buffer low rainfall amounts or poor distribution of rainfall. Nitrogen is frequently limited on annual grasslands, however it is seldom cost effective to fertilize annual rangelands. South sides dry out more quickly than north slopes, and since moisture is usually the limiting factor, production is less on southern facing slopes.

Residual Dry Matter

Leaving adequate feed at the end of the grazing season provides the soil protection from erosion as well as serves as protection for the newly germinating annual forage plants in the fall. It may also help facilitate percolation of rainfall into the soil, reducing runoff and increasing soil moisture. M. R. George et al (1984) noted that lower levels of RDM encourage less productive grasses (silver hair grass, nit grass, little quaking grass) as well as filaree and turkey mullein). Leaving higher amounts of RDM at the end of the season encourages desirable species like soft chess and wild oats.

Summary

While the variation of the annual grassland can be a challenge to work with, there are some things a producer can do to better manage this resource. These include:

1. Manage RDM by trying to learn everything you can about the past stocking rate. Calling past tenants can provide insight into this. Ask when they came in and when the left. Try to get some sense for the size of the animals they pastured. Be sure to ask if they calved in the spring or fall. With this information, try to set a realistic stocking rate.
2. Before the end of the growing season, look at the amount of dry feed that is left and how much you anticipate may grow. Make sure you are comfortable that the ground will be protected for the subsequent growing season and there is adequate dry feed to help provide for your stock until the break in season. If you think there isn't enough dry feed, adjust your stocking rate.
3. Think about what you might do if faced with a situation that results in less feed than you anticipated (destock, supplemental feed, early wean, etc).
4. If it is a leased ranch, consider meeting with the landlord to share information and your stocking plan. Inquire as to their vegetative goals for the property.

References:

George M.R. et al. 1984. Annual Grassland Forage Productivity. University of California Division of Agriculture and Natural Resources. Leaflet 21378

George M.R. et al. 1982. Guidelines for Residue Management on Annual Range University of California Division of Agriculture and Natural Resources. Leaflet 21327

George M.R. et al. 2001. Annual Range Forage Production. University of California Division of Agriculture and Natural Resources. Publication 8018.

Biswell, H.H. 1956. Ecology of California Grasslands. J. Range Manage. 9:19-24.

Let us know what you think!!!

This newsletter contains articles written by University of California Farm Advisors, Specialists, and Program Representatives. Our aim in writing this newsletter is to provide the ranching community in the Sacramento Valley with science based information for your consideration. Our intent is that this newsletter will be published on a quarterly basis. We welcome your feedback and encourage you to call or email with questions, comments, or ideas for future articles.

Larry Forero, Shasta-Trinity UCCE, 1851 Hartnell Ave., Redding, CA 96002
lcforero@ucdavis.edu 530-224-4900
http//ceshasta.ucdavis.edu

Glenn Nader, Sutter-Yuba UCCE, 142 Garden Highway, Suite A, Yuba City, CA 95991-5512
ganader@ucdavis.edu 530-822-7515
http//cesutter.ucdavis.edu

Josh Davy, Tehama- Glenn-Colusa UCCE, 1754 Walnut Ave., Red Bluff, CA 96080
jsdavy@ucdavis.edu 530-527-3101
http//cetehama.ucdavis.edu

Dan Drake, Siskiyou UCCE, 1655 South Main Street, Yreka, CA 96097
djdrake@ucdavis.edu 530-842-6931
http//cesiskiyou.ucdavis.edu