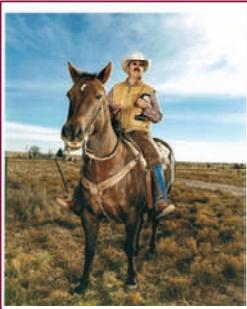


Ranch Update



Shad Cox
Ranch Manager

I hope the later half of the year has found you in high spirits and high grass and that the New Year will be wet and prosperous! Our last newsletter was mailed before the summer rains had started and it was not looking very good. However, I think we all have seen the worst and the best range condition in many years and all within a couple of months of each other! Who would have thought going into this year that it could recover so quickly.

In November, Michael Rubio ran off to greener pastures and took a job a little closer to home. He and Christy are now living in southwestern New Mexico near Playas. We wish them the best of luck.

Here at the ranch, the dry winter and spring took its toll on productivity, weaning percentage, breeding percentage and wildlife survival. Calf weaning weights were down significantly with steers weighing 468 lbs. compared to our last three year average of 561 lbs. Lambs marked was down by 21 percent and with some coyote trouble we weaned at only 60 percent. In the fall, our cows pregged at 87% bred compared to a three year average of 92%. We have a 60-day breeding season and know that one more cycle would have helped, however our decision was to adhere to our management plan and continue our effort of strengthening the fertility in our herd.

The biggest disappointment this year was observing a decrease in deer population of around 40% from January to July and then to see our pronghorn herd decrease around 30% after the rains had fallen in the month of July. Our country is significantly lacking in natural browse for deer and pronghorn, so we rely heavily on green forbs

being available throughout the winter and especially in the spring with seasonal moisture. A 40% mortality rate can easily be explained do to lack of protein and the essential nutrients provided by these forbs in the winter and spring. However, the 30% mortality rate in the pronghorn happening after the growing season was a surprise and has us wondering what caused it. This condition was noticed in western NM and eastern AZ as well, so it was not unique to our herd. We are starting the second year of an intensive wildlife habitat use monitoring project that Drs. Bender and Boren have committed funding and personnel to. Early this month their group spent a week capturing, sampling and radio collaring about 70 deer and pronghorn. Their students will be on the ranch weekly to locate individual animals and record their location and habitat use. Hopefully, in a few years we will have a better understanding of preferred wildlife habitat and can use this knowledge to design tree removal plans that will enhance both forage productivity and wildlife habitat.

As always, please feel free to contact me with any questions or comments you may have at (505)849-1015 or shadcox@nmsu.edu. *Shad*

AN EYE ON THE WEATHER!



L. Allen Torell, Ph.D.
Agricultural Policy, Business and Economics, Ecology and Conservation

Quantifying the link between rainfall, soil moisture, forage production, carrying capacity, and profitability is a difficult task. An effort to estimate these relationships is underway on the CRLRC using forage production data collected since 1990 combined with rainfall data for the Corona area going back to

1914. CRLRC rainfall during the summer and fall period averages about 11 inches, but years with below average rainfall are most common.

The research shows that rainfall received from April through October has a major influence on grass production. In general, each inch of growing-season rainfall grows about 40 lb/acre of forage, depending on the amount of rainfall received, the probability that different levels of forage will be produced is shown for Corona blue grama

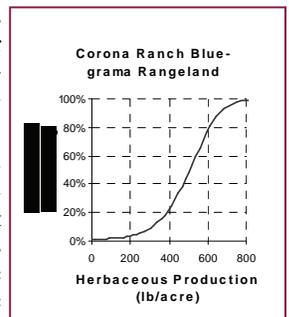
rangeland. Snakeweed-free pastures can be expected to produce something less than 800 lbs/acre with a 99% certainty. About 1/3rd of the time annual forage production will be something less than 450 lb/acre. In only 1 of 5 years can it be expected that peak annual forage production will exceed 600 lbs/acre.

A common stocking rate recommendation for blue grama grassland is to leave about 300 lb/acre of residual forage so as to realize peak animal performance and maintain rangeland productivity. Blue grama rangeland areas on the CRLRC produce less than 300 lb/acre and thus have no useable carrying capacity about 1 year out of 10. This was the situation faced by the CRLRC in 2000-2001 when the ranch was completely de-stocked.

It takes about 500 lbs/acre of forage production to support 15 head/section. About half the time forage production exceeds this level on the CRLRC. An obvious implication is the need to maintain a

forage surplus and carry-over given the extreme production variability.

Understanding the probability that different levels of harvestable forage will be produced is a necessary step for improved stocking rate decisions. Proper rate of grazing use depends on the tolerance to risk and the economic consequences of having forage shortfalls. This research strives to better understand these key relationships. (Collaborative project with Kirk McDaniel)



For more information contact your county extension office or Allen Torell directly at (505)646-4732 or email: atorell@nmsu.edu.

YOUNG COWS SEEK SHELTER IN PIÑON-JUNIPER WOODLANDS DURING SPRING



Andrés Cibils, Ph.D.
Grazing Management and Ecology

Tree-clearing in piñon juniper country is known to provide a number of benefits, the most important of which is perhaps the remarkable increase in grass production that is frequently observed after tree removal. These benefits, however, could be offset at some point by the loss of appropriate shelter for cattle, particularly for pregnant cows during the calving season.

Eight nursing cows and eight open cows were tracked with GPS collars during the calving seasons of 2004 and 2005 to quantify the need for sheltered sites of young nursing cows. Trees from half the area in the study pastures had been mechanically cleared in the 1980s; the remaining half had mature woodlands of varying density. Data recorded by the GPS collars allowed us to track each cow's position every five minutes during both day and night.

We had predicted that cows would preferentially graze the open grassland and would eventually move into the trees when the best grass in cleared areas had been depleted. However, their behavior did not quite match our expectations. During the



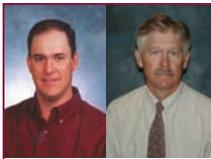
first year of this study, when grass was fairly scarce, collared cows spent up to 90% of a given day in the trees if wind chill corrected temperatures remained at around 32° F for three consecutive days or more. In fact, in this year, weather data alone (especially temperature, wind, and precipi-

tation) allowed us to predict cow location (whether in the juniper or not) with a fair degree of accuracy. In the second year, grass production almost doubled and all collared cows spent considerably less time in the wooded areas. Weather factors were no longer accurate predictors of collared cow location.

We think that piñon juniper shelter may be important to help cows conserve energy during calving particularly in years when feed is scarce. Our data suggest that collared nursing cows that were doing more poorly tended to spend more time in the trees than their peers that were better off. We are hoping that this data will help design improved strategies for piñon juniper management that explicitly address the shelter needs of nursing range cattle.

For more information contact your county extension office or Andrés Cibils directly at (505)646-4342 or acibils@nmsu.edu.

MINERALS IN NEW MEXICO FORAGES



Drs. Clay Mathis and Mark Petersen
Ruminant Nutritionists

In 2001 and 2002 a statewide forage mineral survey was conducted by NMSU to evaluate forage mineral profiles by geographic region. The results indicated that dormant forage samples were almost always deficient in phosphorous, potassium, magnesium, copper, and zinc. Selenium concentration was also highly variable. One of the sampling locations was located at the CRLRC. The average of dormant forage samples from this location that were collected in the late winter supplied less than 37% of the gestational mineral requirement for phosphorous, potassium, magnesium, sodium, and sulfur; and less than 50% of the requirement for manganese and zinc. All other minerals were present in sufficient concentration. When compared to the statewide survey averages, the samples from the CRLRC were slightly lower in the content of macro minerals, were lower in zinc and

manganese, but higher than average in copper content.

The CRLRC approach

Vegetation diet samples have been collected with ruminally cannulated cows at CRLRC. The mineral content of their diet was compared to the requirements for cows, calves, yearlings and heifers. The difference was used to determine the amount of mineral needed in a self fed salt mineral mix. After a couple of years the cattle were biopsied at the liver to determine animal mineral status. If the liver storage was determined to be adequate to meet production goals then the formula remained unchanged for that mineral. Daily intake per cow is continually monitored.

The foundation of a balanced range nutrition management plan is to supply needed minerals. We do this with a self-fed salt/mineral mix that is projected to be consumed at 2 ounces per day per cow averaged over an entire year.

On a yearly basis, cow intake of our mineral is 1.8 ounces per head per day. (For example the average yearlong intake for 2004 mature cows was 1.91 oz/hd/d.)

This amount has been very consistent year after year even though there is extreme variation within a year. The results of our liver biopsies in cows and yearlings indicates that our mineral mix minimizes the loss of production that could occur due to the low concentration of minerals found in grazed forage diets (phosphorous, magnesium, copper, manganese and zinc).

CORONA RANCH Mineral Composition	
Calcium, maximum	11.5 %
Phosphorus, minimum	8 %
Magnesium, minimum	2 %
Potassium	2 %
Copper	2000 ppm
Zinc	1000 ppm
Manganese	2500 ppm
Selenium	13 ppm
Vitamin A, units/lb	120,000

For more information contact your county extension office or Clay Mathis directly at (505)646-8022 or email: cpmathis@nmsu.edu.



For more information or directions to the CRLRC contact:
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CRLRC
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(505)799-3569 Mobile
(505)849-1021 Fax
E-mail: shadcox@nmsu.edu

Directions to CRLRC Headquarters: Turn east off of Hwy 54 (north edge of town) at the railroad tunnel. Follow county road (thru tunnel) for 8 miles. Road ends at gate.

<http://CORONA.NMSU.EDU>

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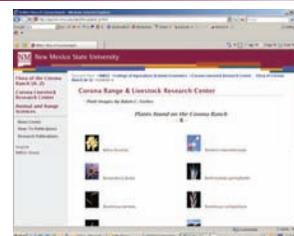
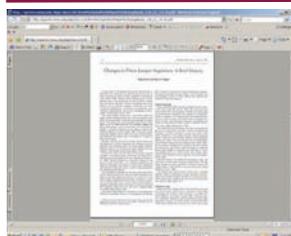
Flora of the CRLRC Ranch

Past Field Day Proceedings

Climate and Precip Archives

Past Half Day of College Handouts

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