NM STATE UNIVERSITY

"The mission of the CRLRC is to enhance the understanding of woody brush invasion, hydrology, livestock production, wildlife management and discover innovative solutions to improve economic development in rangeland bound communities."

CRLRC is a collaborative effort between animal, range and wildlife scientists, economists, land and wildlife agency personnel and ranchers.

Southwest Grazing Land Innovations
CORONA
Range and Livestock Research Center

December 2010 Volume 5, Issue 2

Ranch Update

Shad Cox
Ranch Manager

I hope this newsletter finds you in good health and with expectations of a wonderful new year. Just like the rest of the state, we have been warm and dry this winter. We did have a four inch snow almost two weeks ago that was really wet, and provided almost a half inch of moisture. As I prepare this issue, I am hoping that the forecast is correct and we will be seeing a storm towards the end of the week. I am thankful that we had above average forage production this year, however a little moisture could sure help out by popping some green forage, especially with our above average temperatures.

This half of the year has been very busy with quite a few events held at the center, as well as, the on-going construction project. Seven current research projects have kept us busy this fall while trying to wean and ship calves and lambs. We had a successful deer hunt with the quality of the deer showing a marked improvement. The decline in deer population has made major changes to our wildlife program and with the new recommendations that have come from five years of research on deer and pronghorn habitat, new opportunities are unfolding as we plan for the future. In this issue, Dr. Lou Bender provides a short summary of the results of this multi-year study.

The past couple years has provided some challenges in breeding cows of all ages, but especially younger cows. We do know that even with above average forage production, its quality was below normal. Past research on the Corona Range and Livestock Research Center (CRLRC) has focused on supplementation programs aimed at enhancing reproductive performance of young cows. Below, Travis Mulliniks provides a summary of seven years of young cow research on the effects of bypass protein and calcium propionate. This work demonstrates an advantage to feeding bypass proteins and adding a propionate source. Current research is planned to identify the most effective amino acids to include in supplements to improve cow and calf productivity.

Construction of the Southwest Center for Rangeland Sustainability (SWCRS) is right on track. It is completely erected and the interior is now starting to take shape with all the conduit and insulation being installed inside. The SWCRS will be the new outreach arm of the CRLRC. It will house offices for staff, visiting scientists and graduate students. There will be a library that contains numerous publications that will be of interest to our constituents. The classroom will give us the ability to conveniently host statewide meeting, educational forums and events. Having this facility will reduce the effort by staff to ready the work shop, thereby limiting the disruption of the day to day operation of the ranch and research programs. In 2011, our 3rd Triennial Research Field Day will be the inaugural event for the new SWCRS on June 9th. More information will be presented on our website and through advertising as it develops. Please note that the most convenient approach to the SWCRS is turn off of Highway 54 two miles north of where you have currently been turning to access our headquarters.

In closing, the staff at the CRLRC would like to wish you a very Happy New Year! with good wishes for abundant moisture this spring. If you would like further information about the research at the CRLRC or for more information on the SWCRS, please feel free to contact me with any questions or comments you may have at (505)849-1015 or shadcox@nmsu.edu.

Shad

MODELING 7 YEARS OF YOUNG COW RESEARCH

Travis Mulliniks, M.S.
Ruminant Nutrition
Ph.D. Candidate

Meeting the nutrient requirements of young beef cows in a cost effective manner can be challenging, this is especially true in the Southwestern United States. A 7-yr study was conducted at the Corona Range and Livestock Research Center using 2- and 3-yr-old lactating cows in an effort to determine the impact of 3 supplementation strategies on reproduction and economic returns. Supplements were 1) traditional cottonseed meal (36% crude protein), 2) ruminal by-pass protein (36% CP of which 50% was by-pass), and 3) ruminal by-pass protein plus calcium propionate. Supplements were fed twice weekly at a rate of 2 lb/head/day for an average of 70 d after calving. Cows fed by-pass plus propionate returned to estrus 5 to 6 d earlier over the 7 years than cows fed the other supplements. Pregnancy rates were highest in the bypass plus propionate group (95%) and lowest in the traditional (84%). Because by-pass protein and calcium propionate can be expensive, a theoretical model was developed to determine if the improvement in reproduction observed would be cost effective. Therefore, we modeled the performance and costs associated with each supplement for three theoretical 100 head beef herds fed one of the three supplements over the course of two years. The economic analysis demonstrated that feeding bypass plus propionate would increase net revenue by 18.0% compared to traditionally-fed cows and 7.7% compared to cows fed by-pass protein only. Therefore, the results from this study indicate that feeding bypass protein plus calcium propionate to young lactating beef cows can increase the net revenue of the ranch by increasing the number of calves sold the following year due to an increase in pregnancy rates and a decrease in days to first estrus.

Data from 2- and 3-yr-old cow postpartum supplementation studies (2000-2007) at NMSU's Corona Range and Livestock Research Center were used to model this 2-year partial budget.

Year 1	Traditional	Bypass	Bypass + Propionate
No. of Cows	100	100	100
Cost of supplement, $/ton	318	364	474
Days of Postpartum Supplementation	70	70	70
Cost of supplement/day	0.318	0.385	0.474
Postpartum supplement cost/cow	22.26	26.95	33.18
Weaning Weight, lbs	459	480	473
Price of calves, $/CWT	124	124	124
Weaned calf value, $	569.16	595.2	586.52
Minus Feed Cost, $	546.90	568.25	553.34
Net Revenue/100 hd, $	54,690	56,825	55,334
Difference from Traditional, $	--	**2,135**	**644**
Pregnancy rates, %	84	88	95
Days to first estrus, d	88	87	82
Calving death loss based on exposed females, %	2.8	2.8	2.8
Calf Crop, %	81.2	85.2	92.3
Year 2			
No. of Cows	81	85	92
Estimated Calving Interval, d	365	364	359
Cost of supplement, $/ton	318	385	474
Days of Postpartum Supplementation	70	70	70
Cost of supplement/day	0.318	0.385	0.474
Postpartum supplement cost/cow	22.26	26.95	33.18
Adjusted Weaning Weight for calving date, lbs	459	482	485
Price of calves, $/CWT	124	124	124
Weaned calf value, $	569.16	597.68	601.4
Minus Feed Cost, $	546.90	570.73	568.22
Net Revenue/cow herd, $	44,298.90	48,512.05	52,276.24
Difference from Traditional, $	--	**4,213.15**	**7,977.34**

IMPROVING MULE DEER HABITAT

Louis Bender, Ph.D.
Ext. Wildlife Specialist

Poor condition of adult doe mule deer on CRLRC indicated that overall habitat quality for deer was poor, and resulted in low survival and poor productivity of deer. Of existing habitats on CRLRC, only pinyon-juniper woodlands and savannahs were positively associated with condition and habitat quality of does, and most deer use was < 200 m from pinyon-juniper stands. Consequently, management strategies should be aimed at enhancing forage attributes of these cover types to increase the productivity of mule deer on CRLRC and similar ranges. Mechanical thinning and prescribed burns are 2 strategies that can increase the quantity and quality of forage species associated with woodland communities to benefit deer by freeing nutrients for herbaceous and shrub species, and decreasing the successional status of shrub communities. However, treatments must be carefully designed to maintain adequate cover attributes or deer use may actually decline; combined treated and unmanaged pinyon-juniper comprised > 50% of deer spring-autumn ranges on CRLRC, with an average of 25% untreated pinyon-juniper and 25% thinned to 11–30% cover. Management strategies that maintain 25% of home ranges in unmanaged (high cover, i.e. > 60% on CRLRC) pinyon-juniper and provide a mixture of thinned stands of 10–30% cover likely provide an acceptable balance between cover and forage, particularly if unmanaged stands are within 200 m of any point on thinned stands. Additionally, treatments associated with areas of higher forage production potential would likely show greater positive effects on deer habitat. In contrast, herbicide treatment of pinyon-juniper had no positive benefit to deer habitat quality on CRLRC, likely because treatments also killed other woody vegetation and thus lowered both forage and cover attributes of treated stands.

Conversely, short grasslands contain significant quantities of palatable herbaceous forages and browse, but were of low overall quality for deer because they lacked cover. Management actions to enhance the quality of grasslands for deer include prescribed burns to enhance the forb component and establishment of woody shrub patches near or adjacent to locally rugged topography to provide a cover component. Treatment areas are likely to see a greater response from deer if located < 200 m from areas providing cover for mule deer. In areas where carpeted shrubs are present, such as throughout much of CRLRC's short grasslands, grazing exclosures may also be useful to encourage expansion and increased vertical growth of these shrubs, particularly since establishment of shrub communities is often more difficult than enhancing existing shrub communities.

Regardless of treatments or habitat types managed, increasing cover of palatable shrubs on CRLRC and similar ranges should be a priority to maintain or increase mule deer numbers. Because of the effect of precipitation, particularly during the Jan–Jun and Apr–Jun periods, on deer condition and survival, deer require an environmental buffer that can mitigate the negative impacts of drought years, particularly on adult doe survival. An abundant and diverse browse community is less susceptible to drought than are forbs, and establishing such resources would make mule deer habitats far more drought tolerant, thereby reducing the severe declines seen in mule deer numbers in response to a combination of extremely low body condition and drought, particularly during late-winter and spring.

For more information contact your county extension office or Louis Bender directly at (575)646-7135 or email: lbender@nmsu.edu.

For more information or directions to the CRLRC contact:

Shad Cox — Ranch Manager
CRLRC
P.O. Box 392
Corona, NM 88318

(575)849-1015 Office
(575)799-3569 Mobile
(575)849-1021 Fax
E-mail: shadcox@nmsu.edu

Directions to the new Southwest Center for Rangeland Sustainability: Two miles north of Corona on Hwy 54 turn east on County Road CO20. Travel 8 miles to NMSU cattle guard then turn right.

http://CORONA.NMSU.EDU

Producer/Land Manager Section Improved

Newsletter Archives
Events and Announcements
Past Field Day Proceedings
Past Half Day of College Handouts
Maps and Images
Flora of the CRLRC Ranch
Climate and Precip Archives
Viewable Research Publications

Remember the Southwest Beef Symposium this January 18 and 19 in Amarillo!

One of the best beef producer events of the year!

More information: http://swbs.nmsu.edu or Manny Encinias (575) 374-2566

P.O. Box 392
934 County Line Road
Corona, NM 88318

Please feel free to contact us with any comments or suggestions regarding format and content of this newsletter. If you would like to help cut printing expenses and receive this newsletter via email, or if you would like us to add you, a neighbor or friend to our mailing list please call (505)849-1015 or email: corona@nmsu.edu