

**USING THE NUTRITIONAL  
BALANCE ANALYZER  
(NUTBAL) PROGRAM  
TO TRACK  
CRUDE PROTEIN VALUES  
FOR RANGELAND AND CRP  
UNDER DROUGHT  
CONDITIONS**

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Since 1997, the Natural Resources Conservation Service (NRCS) in Nebraska has participated in the Forage Quality and Animal Well Being Project. Through this project NRCS personnel are able to collect fecal samples for analysis and provide a nutritional balance profile to landowners for a variety of landscapes and cattle herd situations.

Because of the dry conditions last spring (2000), I saw an opportunity to collect samples on land enrolled in the Conservation Reserve Program (CRP).

According to the National Weather Service in Goodland, Kansas, Dundly County receives an average of 14.75 inches of rainfall from January to August in a normal year. During the summer of 2000, Dundly County received 9.34 inches for the same time period. This lack of precipitation was accompanied by several days of 100-degree temperatures and 20-mph south winds during June and July.

The most noticeable lack of rainfall came in May and June. In May, the normal rainfall is 3.03 inches and in June, 2.92 inches. This year, we received 0.12 inches rainfall in May and 1.92 inches in June. This lack of rainfall accompanied by high temperatures and strong winds at the start of the growing season slowed the germination and the growth of grass in the warm-season pastures.

Our normal grazing season runs from May 10 to October 15. There are basically two types of plant communities in Dundly County: mixed grass prairie and sand sage prairie. The majority of this county in which I work is in the sand sage prairie plant community.

Fecal samples were collected on native rangeland from May through August. The crude protein values ran from a high of 12.01 percent in May and gradually decreased to a low of 6.46 percent in August. There was a steady decrease in crude protein, as expected, because of normal grass growth patterns.

On June 9, 2000, Dundly County was released for Emergency Grazing on land enrolled in the CRP program. Fecal samples were collected from CRP land starting in June and continuing through September. In June, the crude protein was 10.67 percent. The last sample collected in September had a crude protein of 9.57 percent. Overall, the crude protein levels for the CRP land did not vary much throughout the summer.

Once the analysis is returned to the field office from the lab, the information is entered into the Nutritional Balance Analyzer program. This program requires data from the herd such as type of animal, breed, weight, age, body condition score, and if bred or lactating. Also entered are environmental data such as temperature, wind speed, slope of area grazed, and if adequate water is available. If supplements are fed, a lab analysis of the feed is required. After the data have been entered, an animal profile is generated. One significant figure is the digestible organic matter to crude protein ratio (DOM/CP). The recommended range is 4-7.

This ratio will determine if the available forage is meeting the needs of the animal.

During the past two years, this ratio has risen above 7.5 by mid-August on native rangeland. This is a warning sign to the producer that a protein supplement may be needed to maintain body condition score. This past summer, a ratio above 7.5 was seen at the end of July. A recommendation for a protein supplement was passed on to the landowner. A sample collected one month later showed the consumable crude protein had increased to 7.9 percent, which lowered the DOM/CP ratio from 7.8 to 7.2, assuming the cattle consume 1 pound per head per day. The landowner provided a 22 percent protein tub for the cattle to use free choice.

On CRP land, the crude protein levels from two samples in August were 10.66 percent and 10.95 percent. A landowner running cow/calf pairs was concerned that the forage would not allow the cow to maintain a calf. The DOM/CP ratio for his herd was 5.9. According to the information I was given, the forage he was grazing was adequate for the cow to maintain a calf. This particular CRP field had never been grazed

or hayed, and had set idle since 1989.

Many times when discussing the option of renting CRP to graze, the landowner indicated it is too expensive. Let's take a look at the cost based on number of cow-calf pairs per month. In this area, native rangeland rents for approximately \$18 per cow-calf pair per month. For 160 acres, averaging 0.5 AUMs per acre, the stocking rate would be 62 cow-calf pairs. The average rent for CRP in this area is \$7.50 per acre per month (based on an average CRP rental rate of \$30 per acre per month). The stocking rate would be 92 cow-calf pairs, assuming 1.0 AUM per acre (75 percent of normal stocking rate according to CRP regulations). The cost per cow-calf pair would be \$13.04 per month. On CRP, you can run an additional 30 head and the cost per pair per month is less than the cost per pair for native rangeland (\$13.04 compared to \$18). Other costs to consider when grazing CRP are boundary fence and labor to install the fence, the cost and time to haul water each day, or the cost for electricity to provide water.

An additional cost on native rangeland during dry weather is the protein supplement. When calculated on a per-day basis, the protein cost is approximately \$0.26 per head per day, assuming the cattle utilize 1 pound per day.

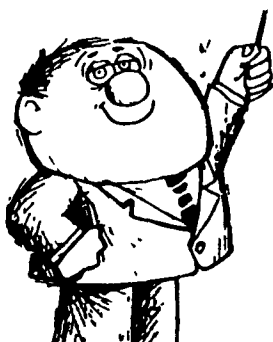
In summary, I would like to restate three things that caught my attention. First, the crude protein values for the CRP land stayed fairly steady throughout the summer, whereas the values for native rangeland drop off as the plants go through their growth cycle, especially during dry weather. Second, the DOM/CP ratio for CRP stayed within the allowable range, indicating the animal was receiving adequate protein from the forage. Third, on native rangeland, the

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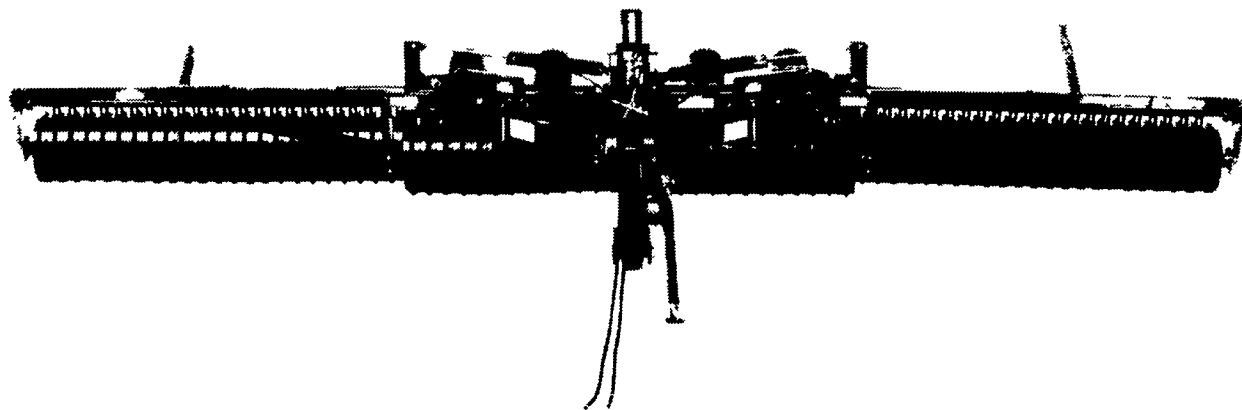
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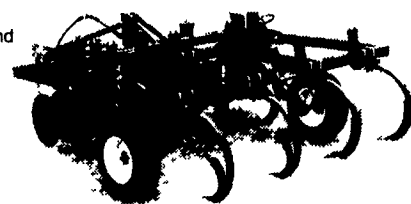
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