

Central Grasslands Forum



NDSU Central Grasslands Research Extension Center
Streeter, ND 58483 (701) 424-3606

NDSU NORTH DAKOTA
STATE UNIVERSITY

Winter 2016

Volume 3, Issue 1

Distillers Grain as a Supplement for Corn Residue Grazing

Fara Brummer, Area Extension Livestock Systems Specialist, CGREC

Corn residue grazing is being utilized more and more here in the south-central region of North Dakota, especially with the mild winter of this year. At the Central Grasslands Research Extension Center, animal scientist Michael Undi, with a focus on winter grazing systems, used corn residue for grazing second and third calf heifers for 36 days starting in late fall.



The cattle were in their second trimester and were provided dried distillers grain at three different frequencies.

The distillers grain was supplemented every day, every third day or every six days at a rate of 4 pounds/head/day. Cattle pens were compared with each other and with cattle that had no supplementation. Cattle were weighed and body condition scores were recorded to measure cattle performance.

Undi's goals for the project were to determine if supplementation was necessary and to determine the most cost-effective method of supplementation.

"If a cattle owner is moving portable fence on his cornstalks every six days anyway, delivering supplement at that same

time would save him time and labor," Undi says. "In addition, delivering supplement at a higher amount every third or sixth day reduces cattle competition at the feed bunk."

This mild winter has Undi thinking that cattle performance will be very good. He built his initial feed plan with harsher conditions in mind. In addition, the high corn drop due to a late summer wind storm left ample grain on the ground. He states, "Just looking at the cattle, I can tell that they are in excellent shape. It will be interesting to compare this year with the next few years that we continue to do this (study)."

When asked for future plans to supplement in corn residue, Undi says he would like to add an intercrop, preferably a legume, to the corn so that after harvest, cattle have a balanced diet without any human labor necessary.

"Winter grazing systems should reduce the work load for the cattle producer," he says. "That is our goal as we continue to do research in these systems."

Undi can be reached at the CGREC at (701) 424-3606 or michael.undi@ndsu.edu.



CGREC Animal Scientist
Michael Undi



Photos by Rick Bohn, CGREC

IN THIS ISSUE

DISTILLERS GRAIN AND CORN RESIDUE GRAZING	1
FEEDING THE BREEDING COW IN LATE WINTER	2
MEASURING SOIL WATER AT CGREC	4
COUNTY CORNER: TRENDS IN TODAY'S CATTLE MARKET	5
A CRAFTY PROJECT: ROCK TRIVET	5

Feeding the Breeding Cow in Late Winter

Fara Brummer, Area Extension Livestock Systems Specialist, CGREC

Winter feeding for cattle is the single highest cost in a beef producer's annual budget, so being cost-efficient during this time is important.

However, winter also is the most critical time for spring-calving females, and skimping on feed during the winter will not pay in the long run. Pregnant cows have nutritional needs that steadily increase in the third trimester and peak in the first two months after calving when milk production is the highest. The better shape a cow can be in when she calves, the more likely she is to breed back and return our investment in her.

Remember, a home-raised heifer takes approximately six years to start paying us back in profit, and that is with a calf by her side every year. This is why we maintain the breeding female's nutrition and set her up for success to conceive and calve every year.

Research has shown that at a body condition score (BCS) of 5, adult cows have the maximum chance of conception. The adult cow with a BCS of 5 will have a nice, sleek covering over her ribs, with the last two ribs toward her rear, the 12th and 13th, lightly covered as well. The area on either side of her tail head will be filled smoothly as well, with no capping or fat stacking.

If she is heavier than this, conception may not be optimal, plus we will have wasted feed. Cows with a lower BCS will have a reduced conception rate. Because the adult breeding female is going to use the highest amount of energy after calving, we like to ensure that she is in a BCS of 5 at calving.

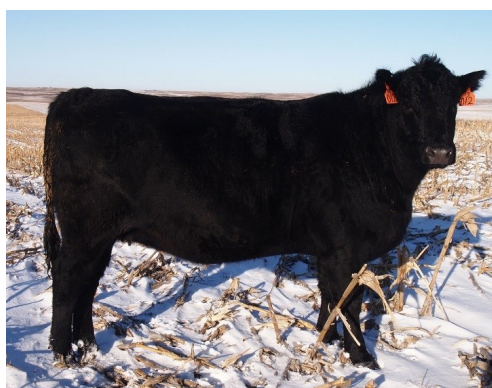
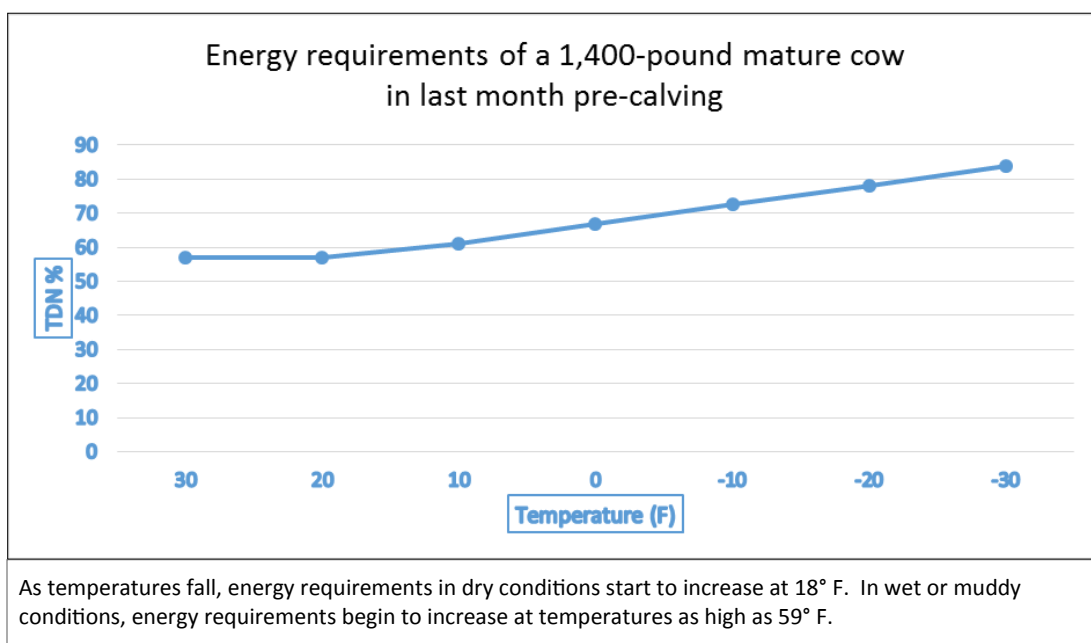


Photo by Fara Brummer

Winter is a time when the cow is using a lot of energy. Here in the northern Great Plains, cattle have to contend with cold and wind. Wind chill can be in the minus 50° F range some days, so the animal is burning a large amount of calories to maintain herself. If she is out on the range and has to walk to water or is grazing in the open, she is burning even more calories. Windbreaks and shelterbelts do reduce wind chill, but they are not always dispersed evenly in a pasture.

Depending on the severity of the winter, for every degree Fahrenheit below the "lower critical temperature" threshold, beef cattle require 1 percent more energy in the diet as their maintenance energy needs increase, and they naturally will start increasing feed intake to meet those needs. This critical temperature can vary from 59° F if

the hair coat is soaking wet to 18° F if the animal has her heavy winter coat and if conditions are calm and dry. Her fat condition, which is estimated by BCS, also will make a difference because fat has insulative value as well as being stored energy.



An assessment of our cows at the beginning of their third trimester, three months before they calve, can help us decide the type and amount of feed required. Thin, young and timid cows may need to be sorted and fed a higher-quality diet if they have not handled the winter well. In addition, if weather conditions are forecast to be severe, our feed quality and amount will need to be upgraded.

One of the wonderful aspects of the rumen is that it is a huge fermentation vat, so it heats the cow internally if it is kept well-stocked with the right type of fuel. Making sure our forages and supplemental feeds meet those standards is important. Testing forage feeds is a cheap insurance policy at \$15 to \$25 a sample and allows us to accurately determine protein and energy values because variability can be very high in forages.

Co-products from the grain industry such as distillers grains tend to be much more consistent in nutrient content, but checking on fat content and overall feed quality tests from your feed source is wise. Overfeeding to play catch-up if you need to upgrade cow condition will not be cost-effective. If the feed program needs to be amped up, work with your Extension agent or nutritionist to figure out the most cost-effective way of reaching your animal performance goal.

Most often in late winter, we will need to begin feeding higher-quality forages with a good energy profile or supplementing with co-products that are energy-rich. In general, we want to keep protein levels above the minimum level for the age and stage of the females. As an example, for a 1,400-pound cow with 30 pounds of milk in her third trimester, this would be 8 percent crude protein on a dry-matter basis, or 2 pounds daily, if you are feeding 32 pounds of feed that is 85 percent dry.

Keep in mind that when you feed protein, you are first and foremost feeding the rumen microbes. An increase in the amount of protein generally will cause an increase in forage intake because the rumen will be more active and digest forages more thoroughly. However, coarse or mature forage with a high amount of lignin will process more slowly due to low digestibility. Again, knowing your forage quality and profile becomes very important. Overfeeding

protein can be expensive, so take this into account when you are pricing your cattle diets.

Some co-products contain substantial digestible fiber, which is used as energy by the rumen. Such products would include distillers grains, wheat midds and soybean hulls. These feeds are priced very reasonably, but delivery costs should be factored in when pricing your feeds. Sometimes, the most cost-effective supplemental feed is a home-raised, early cut alfalfa. All of these feeds generally have a healthy protein profile to keep the rumen producing well.



Corn grain also can be fed but caution must be exercised because grain is high in starch energy and can compromise rumen function. Forage digestion decreases substantially when grain exceeds 4 pounds per head per day. If supplementing with grain, start slowly at 1 pound per head per day and move up from there during the course of several days. Corn should be fed at a maximum level of 3 pounds per head per day and should be delivered at the same rate every day, preferably mixed with forage to assure uniform intake by all cows.

To keep those hefty winter feeding costs down and protect your long-term cow investment, the best practice is to assess your cows, develop a diet to meet their emerging needs, keep ahead of the stress from blasts of winter and re-assess your cows regularly. Calving will be here before we know it, and well-planned winter diet practices will pay off in rebreeding performance in the upcoming year.

fara.brummer@ndsu.edu

Measuring Soil Water at CGREC: A 27-year Study

Janet Patton, Research Assistant, CGREC

Range scientist Bob Patton has been monitoring soil water on the grazing intensity pastures at the CGREC since 1989.

Patton and his crew sample soil water from 42 locations on all four grazing treatments of the study, plus six exclosures. They collect data every two weeks starting when the frost leaves the ground in the spring and continuing until the soil freezes in the winter. This results in 12 to 15 sampling times per year.

The neutron moisture meter used in this study has a probe on a cable that is lowered into a long steel tube sunk vertically into the ground. The tube is capped at the bottom, so the interior is dry.

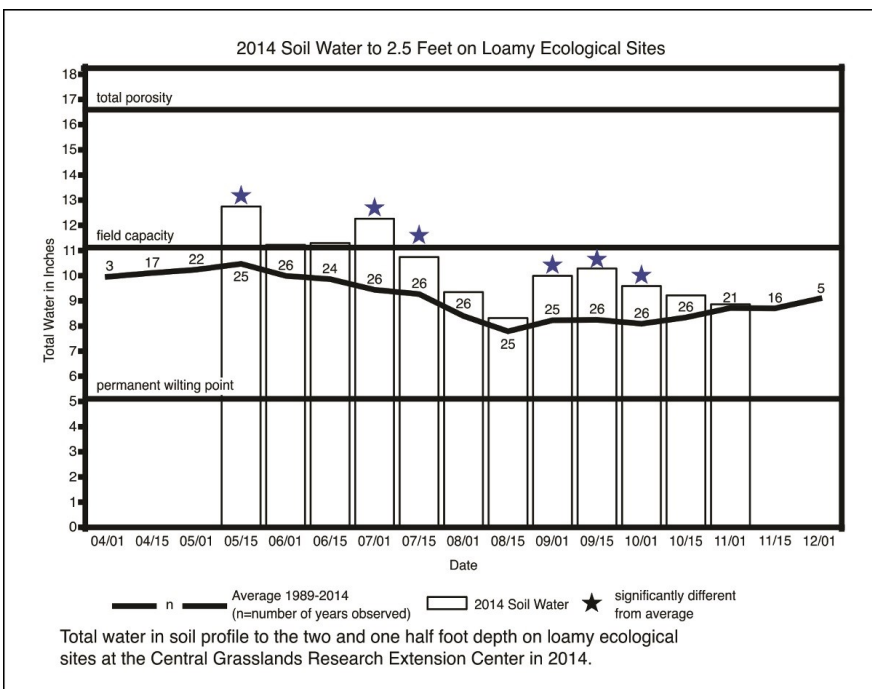
The probe emits fast neutrons and contains a detector that counts slow neutrons. Neutrons slow down when they strike an object of similar size, such as the hydrogen atoms in a water molecule. The more water in the soil, the more hydrogen atoms are present, and the more fast neutrons will be slowed as they bounce back to the detector.



Patton and his crew measure soil water every 6 inches in depth for the first 3 feet of soil and every foot after that to a maximum depth of 9 feet. The graph below represents average soil water content across the five treatments on the loamy ecological site and is an average from 16 soil water access tubes.

Results from this study indicate that:

- On loamy overflow sites, lightly grazed pastures have more available water than heavily grazed pastures.
- On loamy sites, moderately grazed pastures have more available water than ungrazed or heavily grazed pastures.
- On heavily grazed pastures, less soil water is available than on other grazing treatments because evaporation rates are higher, and more water runs off during a rain.
- The ungrazed treatment has low available soil water due to a litter buildup that prevents rain from reaching the soil.



Forage production corresponds to available soil water. The lightly grazed treatment produces the most forage and the ungrazed treatment produces less, while the extremely grazed treatment produces the least.

For more information, contact Patton at bob.patton@ndsu.edu.

County Corner: Trends in Today's Cattle Market

Ashley Stegeman, Burleigh County Extension Agent



After a steady downward trend in the U.S. cattle market, many are wondering what the results will be at livestock sales in early 2016. The markets appear to be reacting to issues from 2015, such as the loss of poultry exports to China because of avian influenza, which has increased competition with beef among meat protein sources here at home.



Photo by Fara Brummer

There's no question that the commercial bred heifer-cow market is down. For planning purposes, expect calves from this year's calf crop to average 5 to 10 percent lower in price than last year. Don't forget that prices still will be the second highest ever.

The potential size of the corn crop and low prices are wild cards that will cause unpredictability in calf and feeder markets. With the low cost of corn and dried distillers

grains, cattlemen may be more willing to hold over their calf crops and market later with heavier feeders.

Those who did not sell their calves earlier this year will take less now because the price on fat cattle is down a considerable amount from the last few months, and this trickles down to calf sales. We also are seeing a related increase in foreign beef imports.

In the past several years, cattlemen across the nation were very aggressive in expanding their herds, even though pasture rentals were high. Those high prices most likely will continue despite lower calf prices.

Those who have roughed it through past cattle cycles know very well that cattle prices are not the means to long-term success in the cow-calf business. The means to success is to control cost. Prices go up. Prices go down. One thing that we can count on is that eventually times will change again.

Rock Trivet

A crafty project by Sandi Dewald, Administrative Secretary, CGREC

To make a rock trivet you will need:

- Wooden disc or other shape of your choosing. They can be found in the wood section of a craft store.
- Black paint and a paint brush.
- Multipurpose glue, such as rubber cement. (Hot glue might have a tendency to come loose with heat.)
- Rocks gathered from the recipient's favorite spot or yard for a personal touch, or from the floral section in craft and dollar stores. Try to find rocks with one flat side and about the same height so the surface of the trivet will be even.



Photo by Sandi Dewald

Paint base and when dry, apply a generous amount of glue on a section.

Arrange the rocks on the glue and continue to add glue and rocks over the entire piece of wood.

Let the glue dry thoroughly, which might take several days.

Hint: Lay the rocks on a dry board first to see how many are needed.

NDSU Central Grasslands Research Extension Center*
Department 7070
P.O. Box 6050
Fargo, ND 58108-6050

Non Profit Org.
U.S. Postage
PAID
Permit 818
Fargo ND



*Street address:
4824 48th Ave. S.E., Streeter, ND 58483

Bryan Neville, Director
bryan.neville@ndsu.edu (701) 424-3606

www.ag.ndsu.edu/CentralGrasslandsREC
Editors: Fara Brummer and Janet Patton

In this Issue:

Distillers Grain and Corn Residue Grazing

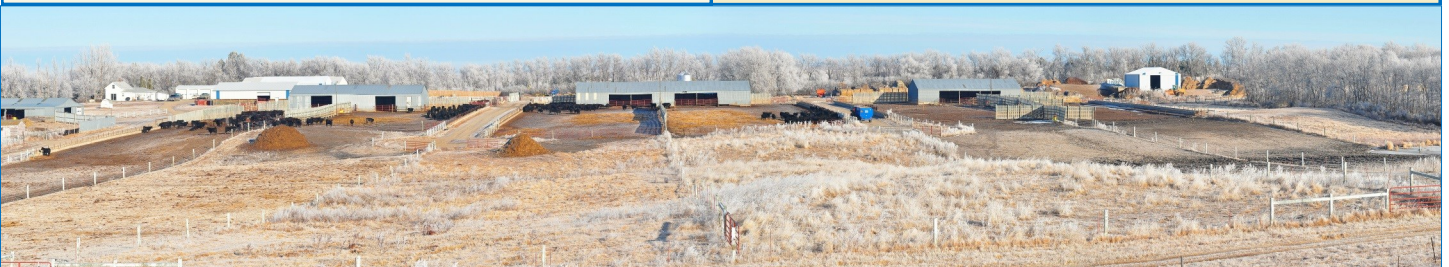
Feeding the Breeding Cow in Late Winter

Measuring Soil Water: A 27-year Study

Trends in Today's Cattle Market

Find out what's happening at Central Grasslands

- Visit our website:
www.ag.ndsu.edu/CentralGrasslandsREC.
- Sign up for the **Grasslands Forum** newsletter (email or print) on our website or by calling (701) 424-3606.
- Find us on Facebook:
www.facebook.com/NDSUCentralGrasslands.
- Visit us at: 4824 48th Ave. S.E., Streeter, ND 58483.



Photos by Rick Bohn, CGREC