

ON THE RANCH

Nebraska Women in Agriculture Conference

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Virtual via Zoom
12:00 to 2:15 p.m. CT

All lives sessions will be
recorded for later viewing.

<https://wia.unl.edu/conference>

Over and Under Feeding

Ben Beckman, Nebraska Extension Educator

While this winter has been fairly open allowing us to utilize grazing opportunities, snow later on in the year is always a possibility. When the drifts get deep, hay is the feed of choice to get our animals through. While an invaluable feed resource, the cost of getting a herd through the winter can be substantial.

Hannah Greenwell, Extension Beef Educator in a recent article points out that one of the easiest ways to overspend feeding is by providing animals more than they need. On the flip side, underfeeding can lead to thin cows and down the road calving issues and low conception rates. Neither one is desirable. So how do we make sure to get animals exactly what they need? The first step is getting a forage test.

When we get tests back, I'd wager that there is going to be some differences in the different cuttings and types of hay you have on hand. While it might seem minor, even as little of a difference as 2% in crude protein content can have a huge impact.

Let's take a hay that tests at 9% crude protein and compare it with one at 7%. A 1,300 lb. spring calving cow in her second trimester needs about 1.6 lb. of crude protein on a dry matter basis in her diet daily to meet her nutritional needs. For our 9% protein hay, this cow needs to consume 17.8 lbs. dry matter of hay daily. Feeding the 7% protein hay, this jumps to 22.9 lbs. While 5 lbs. doesn't seem like that much, spread that out over a herd of 100 animals and that's 500 lbs. dry matter daily (555 lbs. as fed).

If you take it one step further and drop the hay to 5% crude protein, that same cow now needs to consume 32 lbs. of hay on a dry matter basis daily. That's now 14 additional lbs. on a dry matter basis needed with a change of just 4% protein. Again spread that out over a 100 cow herd and we need 1,400 additional lbs. of hay on a dry matter basis (1554 lbs. as fed).

Given slower digestibility with a low quality feed, it's probably likely the cow can't even eat enough hay to meet this requirement. At this point, now we need to begin adding in an additional supplement earlier than we probably planned to keep the cow from losing condition.

To look at this another way, good quality brome hay is going for around \$100 per ton according to the USDA Nebraska Hay Report. Even comparing the 9% to 7% hay, the additional hay is going to cost the 100 cow herd an additional \$832.50 each month. That's a pretty nice chunk of change that could be spent elsewhere, especially when the cost of running a forage sample is usually less than \$20. If you need help figuring out exactly what that diet should look like, bring your feed tests in to any beef systems extension educator and we'd be happy to help walk through it with you.

This winter, take some time to look at your feeding plan, especially if the snow starts to fly. Feeding animals what they need can keep the heard happy and healthy and your pocket book full.

REMOVING NET WRAP AND TWINE

Is twine or net wrap good feed? Obviously not, but it can cause health problems if animals eat too much of it.

Feeding hay is work. To lighten the work load feeding hay, we often take short cuts and leave some twine or net wrap on the bales. And whether we want them to or not, animals eat some of that twine.

There is the potential for twine to accumulate in the rumen of cattle and cause obstruction. Research at North Dakota State University has confirmed this risk and provided further information on what happens to twine when cattle eat it.

In a series of experiments, the North Dakota research first showed that neither plastic net wrap nor biodegradable twine get digested by rumen microbes. The old fashioned sisal twine, however, does get digested, although quite a bit more slowly than hay.

In another study net wrap was included in the ration fed to steers for an extended period of time. Then, 14 days before the steers were harvested, the net wrap was removed from the feed to learn if the net wrap eaten earlier might get cleared out of the rumen and digestive system. Turns out it was still in the rumen even after 14 days.

So what should you do? First, remember that it doesn't appear to be a health concern very often. And cows obviously are more at risk than feedlot animals. So, it might be wise to remove as much twine, especially plastic twine, as can be removed easily from bales before feeding. Twine in ground hay may be less of a problem since more of it is likely to pass completely through the animal.

Think about how shortcuts and work-reducing actions you take this winter might affect your animals. Then act accordingly.

Source: Jerry Volesky, Nebraska Extension

PASTURE FERTILITY: Olsen Phosphorus

After we receive soil tests back from the lab, the next step is developing a plan for pasture fertility. The main nutrients to consider are nitrogen, phosphorus, potassium, & sometimes sulfur. Today, let's take a look at phosphorus.

Phosphorus plays a critical role in many plant processes, including root development, N-fixing ability in legumes, plant strength, and a central role in the photosynthetic process. Research in Nebraska and other states has shown that the combined effect of nitrogen and phosphorus fertilization often produces higher yields than application of either nutrient alone, especially when phosphorus is low.

In addition to soil test results, phosphorus application will depend on whether or not the pasture is irrigated and how many legumes are present. If legumes make up 25% or more of the pasture's production, phosphate should be applied at 50% more than for grass alone.

Soil phosphorus can be tested in 3 ways, Bray, Mehlich, and Olsen. All three tests give results in parts per million (ppm), but values for the Bray or Mehlich test will differ from those of the Olsen. It is important to know what test you are using before making a fertilization plan. Last week we went over the Bray/Mehlich test. This week we will look at the Olsen. For the Olsen test, values over 17 ppm do not need any phosphate applied for either dryland or irrigated pastures.

- 0-3 ppm apply 60 lb. P₂O₅/acre for irrigated or 40 lb. P₂O₅/acre for dryland
- 4-10 ppm apply 40 lb. P₂O₅/acre for irrigated or 20 lb. P₂O₅/acre for dryland
- 11-17 ppm apply 20 lb. P₂O₅/acre for irrigated or 10 lb. P₂O₅/acre for dryland

Phosphorus is fairly immobile, so fertilizing can be done yearly or every other year, as long as applications match recommendations for the length of time desired. The NebGuide G1977: Fertilizing Grass Pastures and Hayland is a great resource if you want more information, and as always, for additional help or information, contact your local extension office.

Source: Ben Beckman, Nebraska Extension Educator

WINTER BULL MANAGEMENT

By: Ben Beckman, Nebraska Extension Educator

While breeding season may be a ways off, making sure our bulls are cared for throughout the winter and ready to go when it is time to turn out is critical. A sound and fertile bull can mean the difference between success or failure of next year's calf crop. While AI is a valuable tool to use in breeding, across the U.S. 87% of operations still utilize bulls in some capacity.



Winter care for bulls can be broken down into two categories, body condition and fertility. Let's look at body condition first. Bull condition going into breeding season is a major factor in the success of a bull's breeding capacity. In general, a 1:20 ratio of bull to cows is a good starting point, but depending on pasture size, number of herds, and other factors, that number can vary significantly. However, even with a 1:20 ratio maintained, bull vigor and dominance will also play a role in breeding success. One study noted animals servicing anywhere from 4 to 80 females during the breeding season.

The energy required to meet the demands of breeding is substantial, and bulls can be expected to lose anywhere from 100 to 400 lbs. during the course of the breeding season. Getting animals back into condition for next year is one of the primary focuses we should have. So far this winter especially with a periods of warm temperatures and little snow cover, there has been a great opportunity to build back body condition. Typically we want animals back to a body condition score 6 before turn out next year.

To do this, take a body condition score now if you haven't already done so and develop a plan for feeding. Remember that young animals may not yet be fully grown so will need additional energy and protein to continue growth and build condition. For this reason, depending on the number of bulls in a herd, separating mature and younger animals into separate herds can make meeting feed requirements for each group easier.

Meeting mineral requirements is also important. Research has shown that in particular selenium and zinc are key in maintaining fertility health and sperm production. Iodine in mineral can help with hoof issues and ensure sound feet going into the breeding season.

The second factor to consider with bulls during the winter is fertility. Major impacts on fertility in the winter months are cold and frostbite on the scrotum. Even minor injury can have some impact on fertility, but we really want to protect against major damage that will eventually result in blisters and scabbing. At this point, sperm production will be impacted. Spermatogenesis takes up to 61 days, so damage can have long term impact. Keep an eye out for possible damage when checking bulls and evaluate injured bulls after 45-60 days with a breeding soundness exam. It's better to know early that a bull won't be ready than scrambling for a replacement option last minute.

To keep cold damage to a minimum, do your best to protect animals from the wind and cold. Provide plenty of space for animals to find shelter and windbreaks to cut down on wind-chill impacts. A layer of bedding on the ground helps insulate animals from the cold and protect against freezing.

While bulls may not be our first focus this time of year, don't forget to give there care some thought. Evaluate animal condition and have a plan to get body condition scores back to 6 before next year's breeding season. Providing shelter from the cold with windbreaks and bedding will help safeguard fertility and prevent any unwanted surprises later on.

Annual Cow Costs – The Big Three

By: Aaron Berger, Nebraska Extension Beef Educator

When looking at annual cow costs and doing an economic analysis, three categories tend to make up the largest percentage of total costs: feed, labor/equipment and cow depreciation. Other expenses occur, such as breeding expense and veterinary costs, but they tend to be significantly less than the “Big Three.” To conduct an economic analysis, break the ranch into enterprises to understand where value is being created and costs are occurring. Land ownership, hay production, cow-calf and replacement heifer development are four of the major enterprises on many ranches.

Feed

When including both grazed feed and harvested feed, 40-70% of annual cow costs fall into this category. If the ranch is owned, the cash cost for feed may be less; however, when conducting an economic analysis, grazed and harvested feed from owned land should be valued at market price. In other words, the cow-calf enterprise is asked to pay fair market value for the grass that is grazed and the hay that is fed. If the land is owned, the market value of the grass is a return to land ownership. The same goes for hay raised on the ranch. What is the market value for the same quality of hay if you were to sell it off the ranch? The cow-calf enterprise should be asked to pay that value to the hay enterprise. If the market value of the grass that cows graze or the hay they are fed is not being accurately accounted for, then the cow-calf enterprise may be being subsidized by other enterprises on the ranch.

Labor/Equipment

When categorizing costs to the cowherd, labor and equipment can be lumped together as a category because they often go hand-in-hand. Equipment is often purchased to reduce labor and labor is needed to operate equipment. These two things together are also often identified as a fixed or an overhead cost. Overhead costs are expenses that don't change very much based on the number of cows in the herd. For example, if a rancher has 200 cows and leases a neighbor's place and is now able to run an addition 100 cows, they probably are not going to buy another pickup, trailer, tractor, or ATV just because they added another 100 cows. The equipment they had to care for 200 cows is likely adequate to care for 300 cows. Overhead costs related to labor/equipment tend to be the second largest expense for the cow herd after feed. When a rancher is serious about trying to address annual cow costs, overhead expenses per cow unit is an area where there is often opportunity to improve. Increasing the number of cows per person/equipment or aggressively finding ways to reduce the labor/equipment needed to care for cows are two ways to address this expense.

Cow Depreciation

Cow depreciation is an economic cost that is often overlooked on many ranches. The costs associated with getting a bred heifer into the cowherd are often hidden because many ranchers raise their own replacement heifers. In an economic analysis, the heifer calf's market value at weaning is identified and then all additional costs from weaning until she enters the herd as a bred female are accounted for. A market value is placed on the heifer at weaning because that was value generated by the cow-calf enterprise. A market value is also placed on the bred heifer at the time she enters the cowherd because that value minus her weaning value was value



Photo credit Troy Walz

generated from the replacement heifer development enterprise. The heifer calf could have been sold at weaning or she could have been sold after being developed as a bred heifer. Knowing the economic cost of developing a replacement heifer can give insight into understanding where value is being created and where costs are occurring on the ranch. If the market value of a bred replacement heifer is less than what it costs the ranch to develop her, buying replacements may be a better option.

Cow depreciation expenses can be addressed three ways for a cow-calf enterprise.

1. Reduce the cost to get a cow into the herd.
2. Create and capture more value from a cow when she leaves the herd.
3. Find ways to increase the number of years that a cow is productive in the herd.

For many ranchers, creatively finding ways to reduce or even eliminate cow depreciation can be a significant way to reduce annual cow costs.

A quick and dirty way to calculate the cost of depreciation to a cow herd inventory that basically remains constant is to annually compare the market price of bred females entering the herd to the revenue being generated by cows leaving the herd. Don't forget to include death loss when counting the cows that leave the herd! If bred heifers have a market value of \$1500 and cull cows leaving the herd have a value of \$700, this is \$800 of depreciation. If a cow is in the herd for an average of 4 years, this is a cost of \$200/year for cow depreciation.

As we close the year on 2020 and start 2021, now is a great time to evaluate all of the costs associated with the cow-calf enterprise. In particular take a look at "The Big Three" of feed, labor/equipment and cow depreciation. Consider where there are opportunities to make changes that could improve profitability in the upcoming year and develop a plan to implement them.

If you would like to further develop your skill set in calculating cost of production for your own operation, we invite you to attend a two-day [Unit Cost of Production Workshop on February 3 and 4 in Valentine](#). Call Cherry County Extension at 402-376-1850 to register by January 27th. In this hands-on workshop, participants will work through a ranch scenario and calculate unit cost of production for land, cow-calf, heifer development and hay enterprises on a ranch. Participants will receive access to Excel® spreadsheet templates that can help analyze cost of production for their own operation. Nebraska Extension Educators will be available for follow-up after the workshops.

System Budgets for a Cow Herd - 2019

The *System Budgets for a Cow Herd* is an Excel template to analyze the costs and returns for a cow-calf producer. In addition to the breeding herd enterprise, it contains budget sheets to analyze calves that are retained past weaning. These include the enterprises of wintering calves, grazing stockers, and feedlot placement. It also has a budget that analyzes feeding cull cows prior to their sale.

Five downloads offer representative budgets for different regions of the state. Additionally, a blank template allows users to customize their budget. To download a budget visit <https://agecon.unl.edu/publications/cattle-budgets>

Each budget is available in two formats. The PDF version includes background information on how the budget was compiled, as well other considerations. The Excel file is a tool that allows users to enter their own information into the formulas.

For more information, contact Glennis McClure, extension educator, at [402-472-0661](tel:402-472-0661) or gmcclure3@unl.edu.