

Over The Wire

A Beef Cattle E-Letter for Area Cattle Producers

Nutrient Requirements for Beef Cows During the Winter Feeding Period

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What Do They Need?

The nutritional requirements of a mature beef cow during the winter feeding period can vary due to many factors. Producers need to ask themselves the following questions:

- ◆ Where does the cow fall in the reproduction cycle?
- ◆ If the cow is a spring calver, is she in the second or third trimester of the gestation period?
- ◆ Does the cow milk heavy or is she an average milking cow?
- ◆ If she is a fall calving cow, is she bred back or still open?
- ◆ How much does she weigh?
- ◆ What is her body condition score and does she need to gain weight?

As you can see, there are many factors that need to be considered when designing a ration that meets the nutritional requirements of cows during the winter feeding period at the least cost to the producer.

The following tables will outline the requirements for cows based on where they are in the reproductive cycle and their body weight. If weight gain is needed to reach the desired body condition score of 5 on the calving date, they will require additional energy and protein. Please contact me for more information on requirements for these cows.

Table 1: Daily energy (TDN) and protein (CP) requirements of mature pregnant beef cows in the second trimester.

Weight	TDN	TDN	CP	CP
(lbs)	(lbs/day)	(%)	(lbs/day)	(%)
1000	8.8	48.8	1.3	7
1200	10.2	48.8	1.4	7
1400	11.4	48.8	1.6	6.9

Table 2: Daily energy (TDN) and protein (CP) requirements of mature pregnant beef cows in the third trimester.

Weight	TDN	TDN	CP	CP
(lbs)	(lbs/day)	(%)	(lbs/day)	(%)
1000	10.5	53.6	1.6	7.9
1200	11.8	52.9	1.7	7.8
1400	13.1	52.5	1.9	7.6

Let's look briefly at these two tables. Notice the difference in the amount of protein and TDN that is required by cows as they progress through the gestation period. A 1000 pound cow requires almost 2 pounds more energy and 1/3 of a pound more protein each day when she is in the third trimester compared to the second.

As cattle producers, we need to adjust the ration to accommodate the increase in requirements as we progress through the winter feeding period. So ask yourself, am I making adjustments or just feeding the same thing all winter?

If you think the requirements change a great deal during the gestation period, they really increase after the cow has her calf. Table 3, outlines the energy and protein requirements of cows 3 to 4 months postpartum.

Table 3: Daily energy (TDN) and protein (CP) requirements of mature beef cows 3 to 4 months postpartum that produce an average amount of milk.

Weight (lbs)	TDN (lbs/day)	TDN (%)	CP (lbs/day)	CP (%)
1000	11.4	56.6	2	9.6
1200	12.8	55.5	2.1	9.3
1400	14	54.7	2.3	9

As you can see, the requirements really increase after calving. A 1000 pound cow requires almost 1 pound of additional TDN and almost a half pound of additional crude protein after she calves compared to the last trimester.

What Needs to Be Done to Balance the Ration?

The first step towards balancing a ration at the least cost is knowing what feed stuffs are available in the area either grown on your home ranch or close by and the cost of these feeds. Secondly, the nutrient content of these feed stuffs should be determined. Have a forage analysis conducted on the feed. The cost is around \$20 per sample.

Next, determine the nutrient requirements of your cows. Use the information listed in the three tables in this newsletter. Then use the forage analysis data and the requirement tables to formulate a ration.

There are several computer programs that can help you balance a ration. Oklahoma State University

has a free easy to use ration balancing program. It is called COWculator and can be accessed at <http://www.ansi.okstate.edu/exten/cowculator/>. I like the fact it is free. There are other programs that also can be purchased.

Finally, be willing to make adjustments during the winter feeding period to match the needs of the cows. Many people feed the same thing all winter which may result in exceeding the needs of the cattle or the ration may come up short on nutrients. Both scenarios will cost you money.

Example Ration:

Let's look at an example ration using hay available in North Central Idaho. We have a lower quality grass hay that tests out at 6.8% CP and 48.5% TDN. By the way this is an actual hay sample that I tested this summer.

We are feeding 25 pounds of this hay to our cows each day and the cows are in the second trimester of pregnancy and they weigh 1200 pounds. We feed free choice TM salt and that is all the cows get. Are we meeting the nutrient requirements for our cows? Let's look:

- ◆ The first thing we do is convert the 25 pounds of hay from an as fed to a dry matter basis: Our hay is 8% moisture so we multiply 25 by .92 to get the dry matter consumed.
- ◆ $25 \times .92 = 23$ pounds of hay consumed on a dry matter basis per day.
- ◆ Next we figure how much protein the cows are getting in pounds per day:
- ◆ $23 \times .068 = 1.56$ pounds per day.
- ◆ Then we figure how much TDN the cows are getting in pounds per day:
- ◆ $23 \times .485 = 11.16$ pounds per day.
- ◆ Our cows need 1.4 pounds of protein each day and 10.2 pounds of TDN (Table 1.). Compare this with our hay: CP Needed = 1.4 the hay provides = 1.56. TDN Needed = 10.2, the hay provides = 11.16. The ration meets the requirements of our cows.

When the cows reach the last trimester of pregnancy and we continue to feed 25 pounds of our grass hay to the cows per day, do we still meet the requirements?

Table 2. shows that a 1200 pound cow in the third trimester of pregnancy requires 1.7 pounds of CP per day and 11.8 pounds of TDN. Our hay supplies 1.56 pounds of CP and 11.16 pounds of TDN.

Third Trimester of Pregnancy

Crude Protein

Cow needs = 1.7

Hay = 1.56

Diff. = 0.14 pounds short

TDN

Cow needs = 11.8

Hay = 11.16

Diff. = 0.64 pounds short

We are short on both protein and energy. We need to adjust the ration.

When the cow has her calf, she will need even more protein and energy. If we continue to just feed our grass hay, we will really be short changing her on nutrition.

At Calving and 3 to 4 months post calving

Protein

Cow needs = 2.1

Hay = 1.56

Diff. = 0.54 pounds short

TDN

Cow needs = 12.8

Hay = 11.16

Diff. = 1.64 pounds short

If we make no adjustment to our ration, when the cow has her calf and in the 3 to 4 months after calving, we will be setting ourselves up for a wreck. Milk production will suffer resulting in smaller calves at weaning and future reproduction performance will also suffer.

Please realize that we have only balanced this ration for CP and TDN. To do a complete job, we would need to look at minerals and vitamins as well.

Summary

As the ranch manager you will have to make decisions on rations during the winter. If your ration is not meeting the requirements of your cattle you will have to look for feedstuffs that provide the nutrients needed at the least cost. It may be as simple as adding a couple of pounds of alfalfa hay to your ration or it may require some other supplements such as barley.

Know what your cattle need to meet their nutrient requirements. You will need to know their weight and where they are in the reproduction cycle. Know what your feed provides in regards to nutrients. This will probably require a nutrient analysis. Use this information to balance the ration.

It will pay to balance a ration to prevent over feeding expensive feed or under feeding and losing production and calf weight. Balancing the ration will protect the bottom line.

Good luck with your winter feeding program this coming year and if you need assistance in balancing a ration, feel free to contact me.

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References:

Aloha, J.K., Rules of Thumb for Winter Cow Rations. University of Idaho Extension Beef Specialist Column. Winter 2007.

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