



HIGH-CONCENTRATE FEEDING BEEF COWS TO REDUCE HAY NEEDS

The beef cow is a highly adaptive animal capable of producing and thriving on very diverse rations. This is possible because the rumen in a beef cow can change rumen microbial populations to adapt to a wide range of feedstuffs and energy levels.

Abnormal weather conditions in the Midwest in many years may cause severe shortages of forages (especially hay) for feeding beef cows during the winter. Additionally, the hay in some situations may be low in energy or protein — or both. When droughts or unusually wet conditions occur, the cost of hay generally soars, making it a very expensive feedstuff to buy and use for wintering beef cows and replacement heifers.

But can the beef cow get by and produce normally if fed high-concentrate rations for extended periods of time? The answer is yes. Two studies have been conducted at Ohio State University and Purdue University that show how well cows will perform with high-concentrate ration programs.

Ohio State trial

The first study done at Ohio State University in 1993 utilized spring calving cows weighing 1,300 lbs. Cows were split into two groups; 30 were assigned to a high-concentrate group while 42 were put in the full feed of hay group. The feeding schedule was as follows for the high-concentrate group:

November and December feeding months

- 2 lbs. first cutting hay
- 2 lbs. supplement
- 12 lbs. whole-shelled corn

January through April (until grass)

- 2 lbs. hay
- 2 lbs. supplement
- 14 lbs. whole-shelled corn

Ohio State's supplement used in this trial was as follows:

Ingredient	%
Ground corn	32.1
Soybean meal	45.6
Urea	4.1
Limestone (feed grade)	7.8
Dicalcium phosphate	4.3
Trace mineral salt	3.2

Dyna K	2.3
Selenium premix (200 ppm)	0.4
Vitamin premix ^a	0.2

^aVitamin A @ 15,000 IU/gram,

Vitamin D @ 1,500 IU/gram

Supplement contains the following nutrients:

Crude protein	36.0%
Calcium	3.75%
Phosphorus	1.00%

Ohio State's findings for high-concentrate feeding cows (see Table 1) were quite positive. Cows were able to achieve equal or better performance with a very limited hay supply. There were no differences in calving performance, and rebreed rates were within 5% of each other. Calf weaning weights were in favor of the high-concentrate group. During this 188-day winter-feeding trial, the total hay use for the two groups was 6,054 lbs versus 489 lbs. The difference in cost to winter the cows amounted to \$158 per cow in favor of the high-concentrate group. In a herd of 40 cows, this would amount to more than \$6,300.

Purdue trial

In 1989, Purdue University did a similar study involving two rates of feeding ground corn to 2- and 3-year-old beef cows. This winter and spring trial utilized chopped hay, ground corn and 44% soybean meal as the feed ingredients. Hay was offered at either 2%, 1% or 0.5% of the cow's body weight.

Table 2 gives the results of the Purdue trial. There were no significant differences in how the three groups performed on their different rations. If anything, the cows on the higher grain levels performed slightly better with their calves gaining slightly better for the first 30 to 60 days. The total hay use would amount to 780, 1,524 and 3,036 lbs per cow for the three different groups.



Practices for success

1. You may have to adjust the corn or concentrate intake to achieve the desired weight and/or body condition score. Smaller cows will require less corn than recommended in these trials, while larger exotic breed cows might require more.

2. When starting high-concentrate programs of this type, take three to four days to adjust the corn up and decrease the hay down to the low level.

3. Make sure bunk space is adequate so all the cows get their share. Cows should be in a securely fenced lot.

Why? Because these limited-intake rations will leave cows hungry, and they will have a desire for more dry matter intake. You might consider offering a round bale of lower-quality feedstuff, such as cornstalks, soybean stalks, straw, etc. This will provide “filler” and reduce the incidence of fence riding.

4. Do your best at mixing these rations. Poorly mixed rations will result in ration hot spots and inadequate nutrition for some of the cows.

— *Prepared by Daryl Strohbehn, Iowa Beef Center*



Table 2. Performance of 2- and 3-year-old cows limit fed hay during the winter, Purdue, 1989.

Hay dry matter level	2.0% of body weight	1.0% of body weight	0.5% of body weight
Feed Provided (lbs as fed)			
Chopped Hay	25.3	12.7	6.5
Ground Corn	0.0	5.5	9.0
Soybean Meal (44%)	0.0	0.5	1.0
Initial Cow Weight	1130	1124	1113
Initial Condition Score (5-point system)	3.20	3.16	3.13
Winter Weight Change (January-April)	-66	-80	-49
Condition change	-0.40	-0.37	-0.35
Calf birth weight	89	92	92
Calf daily gain (first 30-60 days)	2.04	2.02	2.11

Southern Indiana Purdue Agricultural Center, 1989

Table 1. Results of 91-92 Ohio State University High Concentrate Cow Trial

Item	High Concentrate Group	Hay Group
Number of cows	30	42
Cow weight (10-23-91)	1294	1308
Cow weight (4-28-92)	1299	1272
Total intake (lbs./day)	15.7	32.2
Concentrate	13.0	0.0
Hay	2.6	32.2
Cost per cow day	\$.84	\$1.49
Calf birth weight	97	92
Cow weight (7-13-92)	1389	1330
Calf weight (7-13-92)	386	368
Calf weight (10-6-92)	675	620
% Cows palpated as pregnant	90%	95%

Cost were calculated using corn at \$2 per bushel and hay at \$80 per ton.