

# High Concentrate Feeding Beef Cows to Reduce Hay Needs During Drought Years



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

Drought conditions in the Midwest this year may cause severe shortages of forages (especially hay) for feeding beef cows this winter. Additionally, the hay in some cases may be low in energy or protein, or possibly both. When droughts occur generally the cost of hay soars making it a very expensive feedstuff to buy and use for wintering beef cows and replacement heifers.

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 the 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 in 1993 utilized spring calving cows weighing 1300 pounds. Cows were split into 2 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:

| <b>Ingredient</b>                 | <b>%</b>   |
|-----------------------------------|------------|
| 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        |
| <u>Vitamin premix<sup>a</sup></u> | <u>0.2</u> |

<sup>a</sup>Vitamin A @ 15,000 IU/gram,

Vitamin D @ 1500 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 percent 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 6054 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 over \$6300.

## Purdue Trial

In 1989 Purdue 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 cows 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, 1524 and 3036 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 would 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 3 to 4 days to adjust the corn up and decrease the hay down to the low level.
3. Make sure bunk space is adequate so all 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 corn stalks, 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.

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

| <b>Item</b>                 | <b>High Concentrate Group</b> | <b>Hay Group</b> |
|-----------------------------|-------------------------------|------------------|
| 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.

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

| <b>Hay Dry Matter Level</b>                  | <b>2.0% of Body Weight</b> | <b>1.0% of Body Weight</b> | <b>0.5% of Body Weight</b> |
|--|----------------------------|----------------------------|----------------------------|
| 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 pt system)        | 3.20                       | 3.16                       | 3.13                       |
| Winter Weight Change (Jan-Apr)               | -66                        | -80                        | -49                        |
| Condition Change                             | -0.40                      | -0.37                      | -0.35                      |
| Calf Birth Weight                            | 89                         | 92                         | 92                         |
| Calf Daily Gain (1 <sup>st</sup> 30-60 days) | 2.04                       | 2.02                       | 2.11                       |

Southern Indiana Purdue Ag. Center, 1989