

LOW COST COW/CALF PRODUCTION

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“Wheat middlings

consist of fine particles of bran, shorts, germ, flour and some of the offal from the ‘tail of the mill.’” In the School and in this Bulletin, we’ve addressed the effect on intake and digestibility of forage when feeding grain-based supplements. Recall that grain starch can reduce rumen pH and inactivate cellulase and if severely reduced, can kill off the cellulolytic microorganisms. There is then the matter of the **starch effect**. Grain starch in the rumen promotes the growth of amylolytic microorganisms. These bugs are a little tougher than those that ferment cellulose. Therefore, in the competitive world of rumen microflora, they take any nutrients they so desire and leave the crumbs to the cellulolytic bugs. Forage digestion takes a back seat. Many attempt to avoid this by feeding some of the grain by-products which, at the very least, contain only a limited amount of starch.

Mids is one of these

Researchers at SD State U¹ supplemented native forage with mids in two grazing trials, from Dec 2 to Feb 4 the first yr and from Dec 8 to Feb 10 the second. The average high and low temperatures were, respectively, 32 and -10.4° F for yr 1 and 39.2 and -14° F for yr 2. The average snowfall for the 1st yr was 14.5 and 13.4 in. for the 2nd. The studies were conducted at the Range Research Station near 44° 5’ N. The cows’ ages were from 2 to 8 yr. Heifers commenced calving Feb 15 and cows Mar 15 the 1st yr and Feb 26 and Mar 18 the 2nd. Each year ½ the cattle grazed in high-forage pasture (not grazed since previous winter) and the remaining grazed in a low-forage pasture (previously grazed). The cattle had access to supplements at 0800 each day. A soybean meal (SBM) supplement was used as a base to provide 0.75 lb of crude protein (CP). A low wheat mids (LWM) supplement, containing the same amount of CP, was the second treatment. The third was a high

mids (HWM) supplement with double the energy and CP of the LWM. The fourth treatment was a corn soy (CS) blend that provided the same energy and CP as the HWM. Daily consumption of the four supplements is shown in the following table.

Daily intake from supplement				
Nutrient	SBM	LWM	CS	HWM
Dry Matter, lb	1.90	4.19	6.44	8.36
Crude Protein, lb	0.84	0.77	1.52	1.52
NEm, Mcal	1.48	3.93	7.96	10.89

ble. The CP consumption was similar for the SBM and LWM as well as the CS and HWM. NEm consumption was not.

How’d the cows do

The following table says it all. These

Cow performance				
Item	SBM	LWM	CS	HWM
N. Cows	62	63	63	61
Initial wt, lb	1107	1111	1105	1096
Initial BCS	5.3	5.4	5.3	5.2
Initial Backfat, cm	0.3	0.29	0.29	0.25
Wt Change, lb	-10.14	-27.78	67.02	21.38
BCS Change	-0.28	-0.36	0.1	-0.09
Backfat Change, cm	-0.07	-0.07	-0.02	-0.03

cows were in their last trimester while all of this was going on. Weight includes the product of conceptus; therefore, the weight loss was big time and weight gain was nothing to shout about. All cattle lost backfat. The composition of the forage is presented in the next table. Energy was

Composition of forage				
Nutrient	Year 1		Year 2	
	Low	High	Low	High
Crude Protein %	3.39	4.45	5.06	5.32
NEm, Mcal/lb	0.44	0.47	0.45	0.46

similar for both pastures in both years. CP was higher the second year. Forage availability had an impact on the cows’ performance as well. This is indicated in the previous table. Those grazing the low

Cow performance		
Item	Forage available	
	Low	High
N. Cows	124	125
Initial wt, lb	1107	1102
Initial BCS	5.3	5.3
Initial Backfat, cm	0.28	0.29
Wt Change, lb	-13.67	39.02
BCS Change	-0.3	-0.01
Backfat Change, cm	-0.06	-0.03

available forage lost weight while those with more forage gained a bit. Both slipped in BCS and backfat thickness. Winter calving, coupled with the need for a high BCS at calving, places a very high demand on fall and winter feed. \$\$\$\$

Forage utilization

Steers with rumen fistulas were used to determine the effect of the four supplements on forage utilization. Prairie hay was fed ad libitum while measured quantities of the four supplements were fed each morning at 0700. The following table

Daily intake of steers				
Dry Matter	SBM	LWM	CS	HWM
Hay, lb	20.50	18.96	16.98	10.80
Total Diet, lb	23.15	24.03	25.79	21.83

shows the results. The SBM supplement apparently did not interfere with forage consumption. The other three supplements did. In fact, the HWM almost blew out any forage consumption at all.

Rumors

“96% cows bred. Greatest conception and preg check ever.” Thank you Rob Beard, Texas.

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¹ Heldt, J.S., R.J. Pruitt, C.P. Birkelo, P.S. Johnson and Z.W. Wicks. 1998. Evaluation of wheat middlings as a supplement for beef cows grazing native winter range with differing forage availabilities. J. An. Sci. 76:378.