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Protein Supplementation for Cows  
Wintered on Milo Stubble

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Summary

Cows in mid-to-late gestation gained significantly ( $P < .05$ ) more while grazing milo stover supplemented on alternate days with 4 lbs. per head of a natural protein than cows with no protein supplement. Although protein supplementation stimulated extra gain, the cows receiving no protein supplement gained weight and maintained adequate condition for mid-to-late gestation. When quality and quantity of milo stover are satisfactory, satisfactory performance can be achieved by cows in mid-to-late gestation without supplemental protein.

Introduction

Milo stover is economically important to cow-herd operators. Previous research at KSU has shown that pregnant cows can maintain weight while grazing standing milo stover with no supplementation other than salt or mineral. This study further evaluated the need for and benefit from feeding protein supplement to pregnant cows grazing milo stalks.

Experimental Procedure

Forty mature Hereford and Simmental x Hereford cows in mid-to-late gestation were allotted into 4 groups by weight, condition score, breed, and calving date. All groups grazed milo stover. Two groups received 4 lbs. of a 16% natural protein supplement on alternate days, 2 groups did not receive protein supplement. The 2 groups receiving protein supplement each had 15 acres of milo stover; the 2 nonsupplemented groups each grazed 20 acres of milo stover. Estimated stover yields were lowest in the 20-acre fields.

The 61-day trial began December 2, 1976, and ended February 1, 1977. The cows were scheduled to start calving March 1, 1977. All cows had access to a 50% dicalcium phosphate, 50% salt mineral mix. Cows received wheat straw 17 days when snow reduced grazing.

Results and Discussion

Milo stover analysis, 16% natural protein supplement formulation, and cow performance are presented in Tables 16.1, 16.2, and 16.3.

Cows supplemented with 16% natural protein while grazing milo stover gained more ( $P < .05$ ) than cows not supplemented. Protein did not affect condition score.

Milo stover appeared to be excellent in quality. Although cows on protein supplement gained significantly more than cows not supplemented, those not supplemented exceeded required gains. The results indicate that when milo stover is of excellent quality cows will perform satisfactorily without protein supplementation.

Table 16.1. Analysis of milo stover winter grazed by pregnant cows.

	Crude protein	Crude fiber	Ether extract	Ash	Acid detergent fiber	Protein insoluble in hot water	Calcium	Phos.
% dry matter basis								
Milo stover (15-acre fields)								
Leaves	4.4	32.9	2.0	17.1	66.9	2.6	.56	.14
Stalks	3.4	34.3	1.4	12.3	56.0	1.6	.30	.10
Milo stover (20-acre fields)								
Leaves	6.4	33.4	2.0	12.6	57.2	3.6	.55	.18
Stalks	5.1	36.5	1.6	10.5	50.9	2.1	.41	.11

Table 16.2 Formulation of 16% natural protein supplement.

Ingredient	% as-fed
Soybean oil meal	15.0
Milo, rolled	54.9
Molasses	7.5
Vitamin A premix	.1
Dehydrated alfalfa	20.0
Dicalcium phosphate	2.6
Pellet binder	.05

Table 16.3 Performance of pregnant cows grazing milo stubble.

	No. cows	Initial wt. lbs.	Initial condition <sup>1</sup>	Wt. gain lbs.	Condition change <sup>1</sup>
16% natural protein	19	1010	5.17	113 <sup>a</sup>	.45 <sup>a</sup>
No supplement	21	1080	5.60	76 <sup>b</sup>	.34 <sup>a</sup>

<sup>1</sup>Scores based on a scale of 1-10: 1=very thin, 10=very fat.

a,b Means with different superscripts differ significantly (P<.05).