

---

**K****Morning Versus Evening Supplementation  
for Heifers Grazing Winter Range****S****Eric Vanzant, Bob Cochran,  
Larry Corah, and Keith Zoellner****U**

---

**Summary**

Supplementing developing heifers in the morning was compared with supplementation at sundown. No difference was evident among treatments in average daily gain, distance traveled, or time spent grazing.

**Introduction**

Previous research from Montana reported increased average daily gain in steers when time of supplementation was shifted from morning to a time when grazing was normally minimal (in their situation, mid-afternoon). Steers in the Montana study were grazing good quality Russian Wildrye grass in the early autumn, were supplemented with cracked corn, and showed the greatest amount of grazing activity in the early morning and late afternoon/early evening. Grazing activity in the winter would be expected to be more uniformly distributed throughout the day, with reduced activity in the evening. Previous research from Montana also suggested that altering supplementation patterns was more likely to affect forage utilization when feeding energy supplements than when feeding protein supplements. Therefore, this study was designed to evaluate the effect of altering the time at which a moderate crude protein (CP) supplement was offered to heifers grazing winter, bluestem range.

**Experimental Procedures**

Forty-four crossbred heifers of primarily Angus x Hereford breeding (average weight = 476 lbs) were randomly assigned to four bluestem pastures. Pasture groups were then randomly assigned to receive one of two treatments: 1) AM supplementation -- supplement fed daily at approximately 8:30 AM and 2) PM supplementation-- supplement fed daily at sundown. Heifers were rotated among pastures every 14 days. Supplement offered was a soybean meal/milo mix formulated to contain approximately 20% crude protein. Six pounds of supplement per head was offered on a daily basis. Heifers were weighed and condition scored after an overnight shrink at trial initiation (November 17, 1987) and termination (March 3, 1987). Condition score was determined by palpation over the ribs and withers and represented rankings from four independent observers (1 = extremely thin to 9 = extremely fat). Six heifers were randomly chosen within each of the four pasture groups for measurement of grazing behavior. Heifers were fitted with pedometers and vibracorders for measuring daily distance traveled and daily grazing time, respectively. Grazing behavior measurements were recorded from February 17 through March 3, 1987.

---

<sup>1</sup> Appreciation is expressed to Mr. Gary Ritter and Mr. Wayne Adolph for their expert assistance during the data collection.

## Results and Discussion

Altering time of supplementation appeared to have little effect on performance or grazing behavior (Table 8.1). Grazing time averaged 9.4 hours per day, and heifers traveled an average distance of 2.4 miles per day. Lack of response to varying the time of supplementation may be due to the level of CP in the supplement. Research indicated that, unlike "protein" supplements, varying the frequency with which an "energy" supplement was fed exerted a significant impact on winter forage utilization. Our 20% CP supplement may have acted more as a protein supplement than an energy supplement. Thus, the potential for disrupting normal forage utilization may have been minimized.

Daily gain averaged .53 lb/day, whereas condition score, a measure of body fatness, declined by .34 units. The observed increase in weight with concurrent decrease in body fatness is probably explained by priority for skeletal and muscle development, rather than fattening, under such a restrictive nutritional environment.

Table 8.1. Influence of Time of Supplementation on Grazing Behavior, Weight Gain, and Change in Body Condition of Heifers

Item	Time of Supplementation	
	AM	PM
Grazing Time (hours/day)	9.2	9.5
Distance Traveled (miles/day)	2.3	2.5
Average Daily Gain (lb/day)	.5	.5
Condition Score Change <sup>a</sup>	-.35	-.32

<sup>a</sup>Condition Score, 1=extremely thin, 9=extremely fat.