Morning Versus Evening Supplementation
for Heifers Grazing Winter Range

Eric Vanzant, Bob Cochran,
Larry Corah, and Keith Zoellner

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

1Appreciation 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

<table>
<thead>
<tr>
<th>Item</th>
<th>AM</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing Time (hours/day)</td>
<td>9.2</td>
<td>9.5</td>
</tr>
<tr>
<td>Distance Traveled (miles/day)</td>
<td>2.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Average Daily Gain (lb/day)</td>
<td>.5</td>
<td>.5</td>
</tr>
<tr>
<td>Condition Score Change&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.35</td>
<td>-.32</td>
</tr>
</tbody>
</table>

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