



Effect of Frequency of Protein Supplementation of Cows Grazing South Texas Rangeland

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BOTTOM LINE

Protein supplement offered daily, three times weekly, or only once weekly reduced body weight losses by almost 100 lb in lactating cows grazing dormant South Texas rangeland.

Summary

- Cows that received no protein supplement lost over 100 lb more weight during the experiment than cows that were offered 2 lb of CSM daily.
- The trend for cows to lose slightly more weight with three times weekly or once weekly supplement feeding was not statistically significant.
- Protein supplement feeding had no effect on calf weights up to two months of age.
- The labor cost of daily supplement feeding was not economically justified.
- Feeding protein supplement once weekly may be economically desirable, if it can be made accessible to all animals.

Introduction

Supplementation of mature cows on South Texas rangeland is frequently needed to offset the deleterious effects of drought and winter dormancy. Supplement is a major production expense, but that may be exceeded by the cost of labor to feed it. Results of experiments conducted in the Edwards Plateau region indicate that feeding supplement three times or once weekly to mature cows, using the same total amounts of supplement, were almost as good as feeding supplement daily.

This experiment was conducted to determine whether those results on the Edwards Plateau could be confirmed and extended to the South Texas Plains.

Experimental Approach

In early Dec, 1995, 64 non-lactating, pregnant, Angus and Angus x Brahman crossbred cows were weighed, condition scored, and randomly divided into four groups. Body condition was scored using a nine-point system. Each group was randomly assigned to one of four protein supplement treatments: control (no protein supplement), 2 lb of cottonseed meal (CSM)/cow fed daily, 4.7 lb CSM/cow fed three times weekly, and 14 lb CSM/cow fed once weekly. The treatment groups were randomly allotted to four pastures ranging in size from 422 to 442 acres.

Before each supplement feeding, we called the cows in each group to their feed bunks. We recorded the

identity of cows that were missing for each feeding. Three feet of linear bunk space were allowed per cow. Mineral supplement was provided free choice to all groups.

The pastures were located on the South Texas Plains along the Maverick-Kinney County line. The vegetation consisted of an overstory of acacia species and honey mesquite and an understory of sideoats grama, red grama, buffalograss, Wright threeawn, common curleymesquite, plains bristlegrass, and the forbs, western ragweed and Texas croton. Groups of cattle were rotated among pastures on Jan 4 and Feb 1. All cattle, including calves born during the experiment, were weighed and cows were condition scored again when the experiment was terminated on Mar 19.

Results and Discussion

Table 1 shows average values by treatment for body weight, weight change, condition score, and condition score change for the four groups of cows and final weights for their calves. Because calving and the energy demand of lactation have such a dramatic effect on body weight and because not all groups had finished calving by the end of the experiment, we have also shown averages for only those cows that calved during the experiment.

The average weight losses for cows in groups that received supplement were statistically similar, and for each of those three groups it was significantly less than for the control group (Table 1). The small advantage in calf weights among

supplemented groups over the control group was not statistically significant. Group differences in number of cows that had calved by the end of the experiment were likely due to chance, since all cows were diagnosed as pregnant before the experiment began.

Supplement feeding frequency appeared to have an effect on group behavior. Generally, cows in the groups that were fed daily and three times weekly came to the bunks readily when called. The feeding activity of those two groups differed, however. Consumption of the CSM by the daily group was marked by a great deal of turbulence as dominant cows attempted to keep others away from the feed bunks. Cows in the 3X group ate quietly at the bunks. This difference in behavior was consistent with the difference in weight loss variation among cows within group, being almost twice as large for the daily group as for the 3X group.

The group that was fed supplement once weekly did not respond well to being called. However, cows in this group that were recorded most frequently as missing at feeding time did not lose more weight than others. We had placed the feed bunks for this group near their water supply, and apparently, enough of the large weekly feeding of CSM remained when these “missing” animals came to water to provide much of their CSM allotment. This hypothesis is supported by the variation in weight loss among cows in this group, which was similar to that of the 3X group.

Although protein supplementation did not improve calf weights during the course of this experiment, its major economic advantage lies in providing cow body condition sufficient to support re-breeding during the early months of lactation.

Table 1. Body weights, body weight changes, condition scores, and condition score changes for all cows and for cows with calves.

| Item | Treatment Group | | | |
|--------------------------|-----------------|------|------|-------|
| | Control | 1X/w | 3X/w | Daily |
| | k | k | | |
| All cows, number | 16 | 16 | 16 | 16 |
| Initial weight, lb | 1170 | 1178 | 1136 | 1140 |
| Initial condition score | 6.0 | 5.6 | 5.4 | 6.0 |
| Condition score change | -1.1 | -0.5 | -1.0 | -0.8 |
| Cows that calved, number | 11 | 14 | 16 | 10 |
| Initial weight, lb | 1186 | 1176 | 1136 | 1112 |
| Weight change, lb | -204 | -123 | -115 | -84 |
| Initial condition score | 6.0 | 5.6 | 5.4 | 5.8 |
| Condition score change | -1.6 | -0.7 | -1.0 | -1.0 |
| Calf weight, lb | 135 | 138 | 147 | 139 |

