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Abstract

Limit-feeding a high protein creep (36% CP) and a high energy creep (16% CP) was compared with no supplementation in a 61-day preweaning trial. Salt was used to limit daily creep intake to 1.5 to 2.0 lb per head. Calves given the limited energy and protein creep feeds outgained (P<.01) the unsupplemented calves by 0.2 lb and 0.3 lb, respectively. Conversion of creep feed consumed to extra gain was 6.7 and 5.3 for the energy and protein creep-fed calves, respectively (salt included). Trucking shrink of the noncreep-fed calves on the day of weaning and shipping was 4.9 lb and 7.0 lb less (P<.05) than that of the energy and protein creep-fed calves, respectively. Postweaning daily gains of the energy creep-fed calves was higher than those of both the protein creep-fed calves (P=.09) and the noncreep-fed calves (P<.01) by 0.3 lb and 0.5 lb, respectively. The energy creep-fed calves consumed more (P<.05) daily dry matter than the protein creep-fed and unsupplemented calves. Little difference was observed in postweaning feed conversion among creep treatments.

Keywords

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INFLUENCE OF LIMITED-CREEP FEEDING ON PRE- AND POSTWEANING PERFORMANCE OF SPRING-BORN CALVES

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Summary

Limit-feeding a high protein creep (36% CP) and a high energy creep (16% CP) was compared with no supplementation in a 61-day preweaning trial. Salt was used to limit daily creep intake to 1.5 to 2.0 lb per head. Calves given the limited energy and protein creep feeds outgained (P<.01) the unsupplemented calves by 0.2 lb and 0.3 lb, respectively. Conversion of creep feed consumed to extra gain was 6.7 and 5.3 for the energy and protein creep-fed calves, respectively (salt included). Trucking shrink of the noncreep-fed calves on the day of weaning and shipping was 4.9 lb and 7.0 lb less (P<.05) than that of the energy and protein creep-fed calves, respectively. Postweaning daily gains of the energy creep-fed calves was higher than those of both the protein creep-fed calves (P=.09) and the noncreep-fed calves (P<.01) by 0.3 lb and 0.5 lb, respectively. The energy creep-fed calves consumed more (P<.05) daily dry matter than the protein creep-fed and unsupplemented calves. Little difference was observed in postweaning feed conversion among creep treatments.

Introduction

Milk production of spring-calving cows decreases in late summer and early fall, coinciding with decreased nutritional value of native grasses. This can result in less than optimum gains in suckling calves. Creep feeding offers a way to improve weaning weights and increase carrying capacity of late summer pastures.

Research has shown that "full" creep feeding is often economically unattractive because of poor feed conversion and/or excessive calf condition at weaning, which may reduce market value. Limit-creep feeding suckling calves appears to be more cost effective because of improved feed conversion. The objective of this study was to evaluate the pre- and postweaning performance of spring-born calves receiving salt-limited creep feeds vs unsupplemented calves.

Experimental Procedures

One hundred and sixty-three Angus-Hereford crossbred, suckling calves averaging 400 lbs were allotted randomly to three treatments: (1) noncreep-fed controls, (2) energy creep-fed, or (3) protein creep-fed. On August 19, 1988, the calves were weighed, paired with dams, allotted to treatment groups, and put on native pasture located in east central Kansas. Treatment groups 2 and 3 were provided creep feed in self feeders located in cattle loafing

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areas. Nutrient composition of the creep feeds is shown in Table 9.1. Creep intake was closely monitored, and salt content was increased as needed to limit daily intakes to 1.5 to 2.0 lb per head. The cow-calf pairs were rotated among pastures, so all treatment groups were exposed to each pasture for the same length of time.

Calves were weaned, weighed, and shipped to the KSU Beef Research Unit on October 19 for a 43-day growing trial. During this period, the calves were fed an average of 2.5 lb of a 36% protein supplement, 0.5 lb of milo, and full-feed of grain sorghum and forage sorghum silages daily. Final calf weights were taken on December 1 after an overnight stand without feed.

Results and Discussion

Table 9.2 details the pre- and postweaning performance of the calves. Calves consuming the energy and protein creeps gained 0.2 and 0.3 lb per day more ($P<.01$) than non-creep fed calves preweaning. Calves given the energy creep consumed an average of 1.9 lb per head daily with a conversion to extra gain of 6.7. Calves receiving the protein creep consumed an average of 1.9 lb per head daily and required 5.3 lb of creep feed per lb of added gain. Both types of creep feeds required up to 15% added salt late in the creep feeding period to limit daily intakes between 1.5 and 2.0 lb per head. Protein creep-fed calves were 27 lb heavier ($P<.01$) than noncreep-fed calves at weaning. Transit shrink on the day of weaning and shipping (100 miles) differed. Noncreep-fed calves shrunk 4.9 lb and 7.0 lb less ($P<.05$) than the energy and protein creep-fed calves, respectively. Similarly, shrink as a percentage of body weight varied among treatments. Protein creep-fed calves had a shrink of 4.6%, which differed ($P<.01$) from that of the noncreep-fed controls (3.6%). Energy creep-fed calves had a shrink of 4.3%, which also tended ($P=.06$) to differ from that of the noncreep-fed calves. This difference in shrink was most likely due to differences in fill prior to shipping.

Energy creep-fed calves gained 0.5 lb per day more ($P<.01$) than noncreep-fed controls and 0.3 lb per day more ($P=.09$) than protein creep-fed calves in the 43-day postweaning feeding period. The energy creep-fed calves consumed 0.8 and 1.4 lb more ($P<.02$) dry matter daily than protein creep-fed and noncreep-fed calves, respectively. Postweaning conversion varied only slightly; however, the energy creep-fed calves tended ($P=.10$) to have better feed conversion than noncreep-fed calves, 5.6 vs 6.1. For the entire trial (61 days preweaning + 43 days postweaning), the energy and protein creep-fed calves averaged 1.9 lb gain per day, which was significantly more ($P<.01$) than the noncreep-fed controls (1.5 lb/day).

Table 9.1. Nutrient Composition of Limited-Creep Feeds Used

Nutrient	Energy Creep	Protein Creep
Crude Protein, %	16.0	36.0
Crude Fiber, %	11.2	11.5
Estimated TDN, %	69.5	68.6
Calcium, %	.85	.85
Phosphorus, %	.85	.85

Table 9.2 Effect of Limited-Creep Feeding on Pre- and Postweaning Calf Performance

Item	No Creep	Limit-Fed Energy Creep	Limit-Fed Protein Creep
Preweaning Calf Performance: 61 days			
Number of calves	56	53	54
Weaning Weight., lb	499[a]	509[ab]	526[b]
Total Gain, lb	73[a]	85[b]	92[b]
Daily Gain, lb	1.16[a]	1.44[b]	1.50[b]
Daily Creep Intake, lb	-0-	1.91	1.82
Creep/Extra Gain, lb	-0-	6.8	5.4
Trucking Shrink, lb	18.1[a]	22.2[b]	24.4[b]
Shrink as a % of Body Weight	3.6[a]	4.3[ab]	4.6[b]
Postweaning Calf Performance: 43 days			
Daily Gain, lb	2.1[a]	2.6[b]	2.3[ab]
Total Gain, lb	90[a]	112[b]	99[ab]
Daily Dry Matter Intake, lb	12.8[a]	14.2[b]	13.4[a]
Full Dry Matter/Gain	6.1[a]	5.6[a]	5.8[a]
Whole Trial: 104 days			
Daily Gain, lb	1.5[a]	1.9[b]	1.9[b]

[ab]Means in a row not sharing the same superscript differ (P<.05).