

EFFECT OF DIFFERENT MANAGEMENT PRACTICES ON WEIGHT GAINS OF STOCKER CALVES GRAZING BERMUDAGRASS

Jim Cantrell¹, Gerald Bryan¹ and K.S. Lusby²

Story in Brief

A cooperative field trial was conducted at the Kerr Foundation Ranch to determine the effectiveness of different management practices in improving gains of stocker calves grazing bermudagrass. One hundred forty-one calves averaging 442 lbs were separated into three groups and were grazed on bermudagrass with no supplement (control), received one lb of protein supplement/head/day (supplement), or were assigned to a pasture that was managed to maintain high quality forage (rotation). For the 57 day trial conducted in late summer, supplemented calves gained 0.3 lbs/day faster than unsupplemented calves and 0.15 lbs/day faster than calves of the rotation group (1.25, 1.10 and .95 lbs/day for supplemented, rotation and control groups, respectively). The results of this trial indicate that protein supplementation will improve gain of stocker calves grazing mature bermudagrass, but may not be economical if pastures are maintained in a state of high quality.

(Key Words: Pasture Rotation, Beef Cattle, Bermudagrass.)

Introduction

Summer stockers or fall-born calves are typically grazed on bermudagrass in much of eastern Oklahoma. Although bermudagrass can tolerate very heavy grazing pressure, daily gains are often disappointing. Research with native grass indicates a very favorable response to protein supplementation and this response may also apply to bermudagrass. In addition, work in Louisiana, Texas and Oklahoma indicates that with very heavy stocking rates and high fertilization, bermudagrass can produce impressive gains per head and per acre. This trial was designed to compare the effects of protein supplementation, and a more intensive pasture management system to a traditional bermudagrass grazing program.

Experimental Procedure

One hundred forty-one Angus, Angus X exotic, and Angus X Brahman calves, approximately 10 months old, were assigned to one of three treatments. Forty calves were assigned to a control group (no supplement), forty calves to a supplemented group (1.0 lb soybean meal cubes per head per day, fed 2.5 lbs/head on Monday and Friday and 2.0 lbs/head on Wednesday) and 61 calves to a pasture management group (rotation group) where high quality forage was maintained. All three pastures were approximately 25 acres in size with forage consisting predominantly of bermudagrass with a small amount of ladino clover. The stocking rate was 1.5 calves/acre for both the control and supplement groups, and 2.5 calves/acre for the rotation group.

¹Kerr Foundation, Inc., Poteau, OK ²Associate Professor

The control and supplement pastures were fertilized with 300 lbs/acre of 17-0-31 on June 7, 1984 and with 150 lbs/acre of 34-0-0 on July 18. The rotation pasture was fertilized with 300 lbs of 17-17-17 on June 7, and with 150 lbs of 34-0-0 on July 18. All the pastures had been cut for hay three to four weeks prior to onset of the trial, and were in good to excellent grazing condition.

The rotation treatment was designed to maintain the forage in a high quality state by keeping the grass grazed to a short, rapidly growing condition. This management was accomplished by subdividing the rotation pasture into three smaller pastures with electric fence and then rotating the calves among the three small pastures. Any excess forage was clipped to maintain quality. The rotation dates were based on visual appraisal of forage quality and quantity, and not on a strict time schedule.

The control and supplemental groups were also rotated between pastures at two week intervals to reduce pasture effects. All cattle were held off water and feed overnight before each weighing.

Results and Discussion

Results of this trial are shown in Table 1. All three pastures involved in this study had been cut for hay three to four weeks before the start of the study, and the similar gains for the first weight period indicate that all pastures were of comparable quality.

When quality of bermudagrass is adequate to support a daily gain of 1.86 lb/day without supplementation (control group), there is apparently no advantage for protein supplementation. During the second 28 days of the study, the apparent forage quality dropped substantially in all pastures. This decrease in quality is probably a combination of factors--increased height and maturity of the forage in addition to seasonal factors. This decrease in forage quality was partially offset by feeding supplemental protein. The more intense management of the pasture rotation treatment also appeared to improve gain, although gain differences between the control and rotation groups were not significant. It should be pointed out that the trial was carried out during a serious drought, and consequently all forage was probably lower than normal in quality.

Table 1. Weight gains of calves grazing bermuda pasture.

	Control ¹	Supplement ²	Rotation ³
Number calves	40	40	61
Initial wt, lb	438	440	446
Gain/day, lb, (total)			
8/16-9/14 (28 days)	1.86 (52) ^a	1.89 (53) ^a	1.82 (52) ^a
9/14-10/12 (29 days)	.08 (2.2) ^a	.62 (18) ^b	.37 (10.7) ^{ab}
8/16-10/12 (57 days)	.95 (54.4) ^a	1.25 (71.4) ^b	1.10 (62.5) ^{ab}

^{ab} Means with different superscripts differ (P<.05).

¹Bermuda + no supplement.

²Bermuda + 1.0 lb soybean meal/day (three times/week).

³1.5 times the stocking rate of control and supplement pastures, rotated through three pastures with no supplement.

The results of this trial indicate that the response to protein supplementation by stockers grazing bermudagrass in late summer is highly dependent in forage quality. Apparent feed conversion was 3.3 lbs soybean meal per pound of gain in the supplemented group over the controls. Although the rotation group did not gain significantly faster than the control group, the pasture rotation did appear to improve gains over the control pasture. Protein supplementation may be a more viable option than intensive rotation for some producers because less fencing is required and a greater stock pile of forage can be accumulated. These results indicate that protein supplementation of stockers grazing bermudagrass in late summer is beneficial and economical if stocking rates are traditional, and forage quality is low. If the forage is maintained in a short, fast growing condition, supplementation may not be economical.

Literature Cited

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