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# PROTEIN SUPPLEMENTATION OF STOCKER CALVES GRAZING TIFTON 85 AND COASTAL BERMUDAGRASS

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**Background.** Some of the most challenging stocker performance goals occur with fall-born, summer-weaned calves that are backgrounded throughout the summer on bermudagrass pastures. Previous research at Tifton, GA has showed Tifton 85 bermudagrass to increase ADG by about 25%. For this experiment, fall-born calves weaned in mid-June grazed either Coastal (COS) or Tifton 85 (TIF85) bermudagrass during the summer for each of two consecutive years at TAMU-Overton (Trial 1 and Trial 2). Results of Trial 1 were reported in Research Center Technical Report 2002-1 which compared stocker ADG from TIF85 alone vs. COS plus protein supplementation (SUPL). Trial 2 included TIF85 and COS both with and without SUPL. The SUPL in both trials was 1:1 (Corn:SBM) ration that contained 1.25% dicalcium phosphate, 6.25% magnesium oxide, 2.25% salt, and 0.5% Rumensin 80. The additional ingredients were added to enhance performance from the 28% protein ration and also to prevent gorging which allowed all animals an opportunity to consume SUPL. Stockers were fed 2 lbs/hd/da in both studies. In Trial 1, stockers were fed daily; whereas, in Trial 2, stockers were fed daily for 3 weeks to ensure consumption by all animals, and then fed a 7-day allotment 3 times per week (MWF). Cattle received Eprinex pour-on dewormer, fly tags, and Revelor-G ear implant both years. At relatively similar levels of available forage, the TIF85 pastures were stocked at 4.5 hd/ac and COS pastures stocked at 2 hd/ac in Trial 1. For Trial 2, stocking rate was 3 hd/ac on both COS and TIF85. In both trials, three replicate pastures were used per treatment. Stockers used in Trial 1 included Hereford x (Angus x Brahman) [HHAB] steers and heifers as well as F-1 (Hereford x Brahman) [HxB] steers. In Trial 2, stockers used were Simmental x (AxB) [SIMX] steers and heifers as well as HxB steers.

**Research Findings.** Table 1 shows average daily gain (ADG) comparisons for both studies and partitions gain by breed types. The two-treatment, Trial 1 supported our hypothesis that stocker ADG from non-SUPL TIF85 was about the same as ADG from COS plus SUPL. However, HxB steers had higher ADG (2.30 lbs/da) from TIF85 than steers grazing COS plus SUPL (2.03 lbs/da). The ADG advantage of the HxB steers over the 25% Brahman, HHAB stockers was about a half pound per day. The ADG of HHAB steers and heifers was similar. In Trial 2, each treatment ADG was different ($P<.05$) from one another when all cattle were used to quantify performance. The ADG from HxB steers was similar for TIF85 and COS plus SUPL in Trial 2; however, these mid-range treatment ADG's were greater ($P<.05$) than COS and less

(P<.05) than TIF85 plus SUPL. Gain per animal in Trial 2 ranged from 93 to 186 lbs (Table 2), and respective gains per acre ranged from 279 to 550 lbs/ac when stocked at 3 hd/ac. Regardless of bermudagrass variety, there was about a 0.3 lb/da advantage when using SUPL (Table 2). The supplement:extra gain conversion was 6.9 for COS and 6.1 for TIF85. With ration costs of $200/ton, for example, this extra gain due to supplement cost was $.69 and $.61/lb, respectively.

**Application.** From these two experiments, the opportunity to obtain ADG of 2.3 to nearly 3.0 lbs/da during the summer was feasible when using environmentally-adapted genotypes such as the HxB steers. Performance for both years on TIF85 using HxB steers was nearly identical at 2.3 lbs/da without supplementation. These initial studies also showed that the added nutritive value of TIF85 has created new potential opportunities for backgrounding cattle during the summer. Supplementation decisions, however, should be carefully considered before implementation. The primary factors affecting the economy of supplementation are uniquely linked to forage nutritive value, forage availability, supplement:extra gain efficiency, stocking rate, and retained ownership options. Successful backgrounding-grazing of stocker cattle during the summer includes management input to ensure appropriate measures for animal health, nutrition, and the use of environmentally-adapted genotypes.

**Table 1.** Average daily gain comparisons for Trial 1 and Trial 2 during the grazing-backgrounding summer period on Coastal and Tifton 85 bermudagrass.

| | Average Daily Gain | | | | |
|---|---|---|---|---|---|
| **Pasture** | **Trial 1[1] HHAB[3]** | **Trial 1[1] HxB[3]** | **Trial 2[2] SIM X[3]** | **Trial 2[2] HxB[3]** | **Trial 2 All Cattle** |
| | | | (lbs / da) | | |
| Coastal PAS | | | .91 d | 1.64 c | 1.01 d |
| Coastal + SUPL | 1.54 a[4] | 2.03 b | 1.18 c | 2.04 b | 1.30 c |
| Tifton 85 + PAS | 1.61 a | 2.30 a | 1.58 b | 2.33 b | 1.69 b |
| Tifton 85 + SUPL | | | 1.86 a | 2.89 a | 2.02 a |

[1]Trial 1 grazing from 6-16 to 8-31.
[2]Trial 2 grazing from 6-25 to 9-25.
[3]Breed types included Hereford x (Angus x Brahman) [HHAB], Simmental x (AxB) [SIMX] and F-1 (Hereford x Brahman) [HxB].
[4]Means in a column followed by a different letter differ (P<.05).

**Table 2.** Stocking rate, gain per animal and per acre, extra gain from supplement, and supplement:extra gain ratio for Trial 2.

| **Pasture** | **Stocking Rate** | **Gain / Animal** | **Gain / Acre** | **Extra Gain Suppl.** | **Suppl:Extra Gain** | **Suppl Cost/lb[1] Extra gain, $** |
|---|---|---|---|---|---|---|
| | (hd/ac) | (lbs) | (lbs) | (lbs) | | |
| Coastal PAS | 3 | 93 | 279 | -- | -- | -- |
| Coastal + SUPL | 3 | 120 | 360 | .29 | 6.9 | .69 |
| Tifton 85 PAS | 3 | 155 | 465 | -- | -- | -- |
| Tifton 85 + SUPL | 3 | 186 | 550 | .33 | 6.1 | .61 |

[1]Supplement costs estimated at $200/ton (0.10/lb).