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Abstract

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Keywords

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INCREASING LEVELS OF GRAIN SUPPLEMENTATION FOR INTENSIVE-EARLY STOCKED STEERS: TWO-YEAR SUMMARY

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Summary

During the first 2 yr of a 4-yr experiment, increasing the level of grain sorghum supplementation (from 2 to 4 lb/d) for steers managed within an intensive-early stocking program tended to increase average daily gain in direct proportion to supplement level (2.3 (no supplement) to 2.5 and 2.7 lb/d, respectively). During both years, the amount of grass remaining in the pastures after the cattle were removed (July 15) and at the end of the growing season (October 1) was greater when cattle were supplemented with 4 lb of grain sorghum. Level of supplementation for grazing steers did not influence subsequent feedlot performance.

(Key Words: Intensive-early Stocking, Supplementation, Grain Sorghum, Stockers.)

Introduction

Information regarding the value of grain supplementation for stockers managed within an intensive-early stocking system is unavailable. Knowledge of how such practices would affect pasture characteristics as well as animal performance during the grazing and finishing phases is needed to assist producers in making decisions regarding the application of supplementation to intensive-early stocking. A 4-yr study was initiated with the objective of monitoring average daily gain and changes in forage production when intensive-early stocked steers were supplemented with increasing levels of grain sorghum. In addition, during the second year, subsequent feedlot performance was monitored. This report represents a compilation of the first 2 yr of data from that study.

Experimental Procedures

British × Zebu crossbred steers were randomly assigned to six, 60-acre pastures during each of the 2 yr. Stocking rate (1.5 acres/550 lb steer) was equal among pastures. In addition, number of steers per pasture was adjusted depending on the starting weight of the steers to ensure that the same stocking rate (lb/acre) was maintained for each of the years. Pastures were randomly assigned to three treatments (two pastures/treatment): 1) no supplementation; 2) 2 lb rolled grain sorghum supplement per head; 3) 4 lb rolled grain sorghum supplement per head. Supplemented groups were bunk-fed daily at approximately 1:00 to 2:00 pm. All pastures were burned in late April, and subsequently steers grazed the pastures from early May through

[1]Appreciation is expressed to Gary Ritter, Wayne Adolph and the student workers at the Range Research Unit for their invaluable assistance in conducting this trial.

mid-July. Weights were taken after an overnight stand without feed or water at trial initiation, mid-June and trial termination. Conversion efficiency (lb feed/lb extra gain) was calculated by dividing the quantity of supplement fed to a treatment group during a given period by the amount of gain above that of unsupplemented steers during the same period. Steers were implanted during initial processing and had access to a Bovatec®/mineral mixture during the entire trial. Consumption of the Bovatec/mineral mixture was not different (P>.10) among treatments or years and averaged .15 lb/d (approximately 110 mg Bovatec/head/d). Forage production was measured in the pastures at the end of the grazing period (July 15) and at the end of the growing season (October 1). Production was determined by clipping 10, ½ m^2 frames at random locations within different range sites in each pasture. Following grazing, steers were allotted to a finishing trial in order to ascertain whether weight differences among treatments at the end of the grazing period would be maintained throughout the finishing period.

Results

Average daily gain during the early period (May to early June) was largely unaffected by supplementation (Figure 32.1); however, gain increased (P=.09) in direct proportion to the level of supplement during the latter grazing period (June 10 to July 15), which resulted in a trend toward increased gain over the entire grazing period. Because the level of supplement offered was fixed, the conversion efficiencies followed the same pattern as average daily gain. Conversion efficiency during the early grazing period was poor (2 lb = 59:1 and 4 lb = 12:1) but improved considerably during the latter part of the intensive-early stocking period (2 lb = 5:1 and 4 lb = 7:1). Conversion efficiency for the entire grazing period was 9.6:1 and 9.1:1 for the 2 lb and 4 lb groups, respectively. Using an assumed cost for rolled grain sorghum of $80.00/ton, the feed cost for each additional pound of gain would be 38 and 36 cents/lb for the 2 lb and 4 lb treatments, respectively. Given that the cost of labor would be relatively similar regardless of level of supplement fed, the 4 lb treatment appeared preferable in that the labor costs were spread over a larger amount of gain. Subsequent performance in the feedlot was not influenced by the supplementation treatments applied during the grazing period (Table 32.1). The numerical spread in off-pasture weights among the treatment groups was maintained throughout the finishing period.

Table 32.1. Influence of Supplement Level during the Grazing Period on Subsequent Performance in the Feedlot

Item	Grain level (lb/d) 0	2	4	Standard error	Probability value Linear	Quadratic
Initial weight, lb	753	770	792	19	.24	.92
Final weight, lb	1163	1177	1198	16	.23	.85
Dry matter intake, lb/d	21.1	21.52	1.5	.35	.42	.65
Average daily gain, lb/d	3.5	3.5	3.5	.07	.74	.88
Feed/gain	6.0	6.1	6.2	.14	.39	.65

Quantity of grass remaining in the pastures during the second year after the steers were removed was greater (P<.10) for those pastures where steers received 4 lb of supplement (Figure 32.2). Quantity of forbs in the pastures was similar among treatments in mid-July. When measured at the end of the growing season, the same patterns were evident except that the quantity of forbs was less (P<.10) in the pastures where steers were supplemented. In contrast to observations from confinement trials, which indicated that forage intake was not affected by supplementation level, the increased quantity of grass remaining in the pastures when steers were supplemented suggests that the supplement did substitute for forage to some degree and, thus, reduced grazing pressure. Forage production during the first 2 yr of this study was less than 50% of normal because of drought conditions. These conditions may have modified the supplement's influence on digestive physiology and forage intake. This project will continue for 2 more years in hopes of monitoring responses under varying environmental conditions.

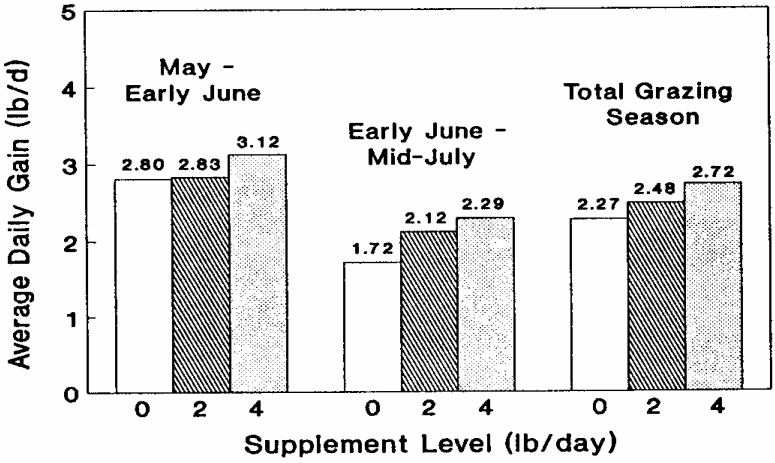

Figure 32.1. Influence of Level of Grain Supplementation on the Average Daily Gain of Intensive-early Stocked Steers — Two-year Summary (linear increase in gain with increasing supplement level; P=.09 for early June to mid-July and P=.20 for the total grazing period).

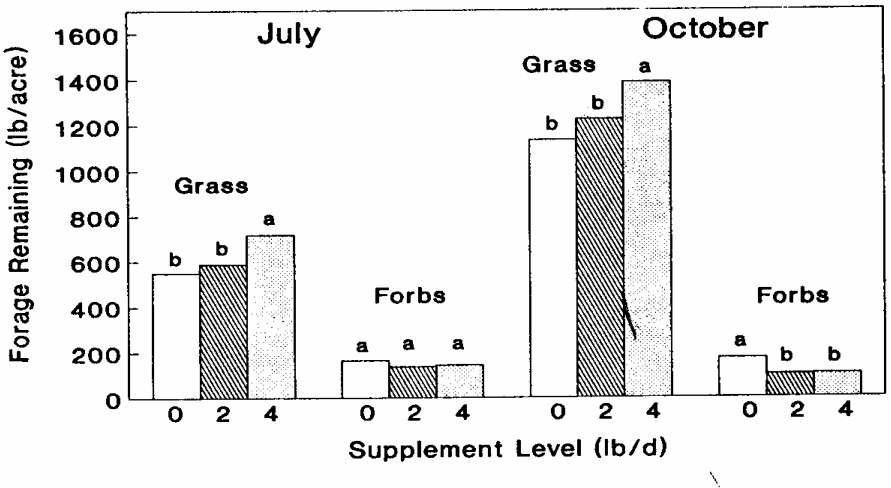

Figure 32.2. Influence of Level of Grain Supplementation on the Forage Remaining in Intensive-early Stocked Pastures at Mid-July and Early October (columns within forage type accompanied by different letters differ, P<.10).