

Supplemental energy or protein level on stocker gain on rye + ryegrass pasture and effect on feedlot and carcass traits during two years

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Application: Supplementation of stocker calves on winter annual grass pastures may be used to buffer stocking rate and/or enhance gain per animal for niche marketing or feedlot tenure.

Introduction: The primary objectives of this 2-year study were to document effects of level of an energy or protein-based supplement on pasture and subsequent effects in feedlot and carcass trials.

Materials & Methods: Bermudagrass was sod-seeded each year in mid-October with 100 lb/ac 'Maton Rye' and 30 lb/ac 'TAM-90' ryegrass. Pastures were fertilized in late November, late January, early March and mid-April for a total annual rate of 254-20-43-455 in Year 1 and 205-0-0 in Year 2. Simmental-sired calves with Angus x Brahman (F-1) dams were born in Jan-Feb and weaned in late-September to mid-October. These steers and heifers grazed rye + ryegrass from mid-January to late May each year. Stockers were assigned to replicate pastures of pasture only and daily group fed cracked corn (CRN) at 0.4%, 0.8%, and 1.2% BW per hd/da; and 0.4% and 0.8% BW corn gluten (GLU) pellets. Rye + ryegrass pastures were stocked at 2.5 to 2.8 550-lb stockers per acre which could be classified as a medium stocking rate for these pastures with fertilizer applications. At termination of stocking pastures, cattle were transported 425 miles to a commercial feedlot in South Texas. When feeders reached a visual backfat of 0.5 inches, they were shipped 40 miles to an abattoir for carcass trait evaluations.

Results: The two-year average ADG was slightly higher than previous rye-ryegrass pasture experiments and ranged from 3.19 lb/da for cattle on pasture only to 3.82 lb/da for stockers receiving 1.2% BW CRN daily (Table 1). Stocker ADG was greater from 1.2% BW CRN, 0.8% CRN, and 0.8% BW GLU than the 0.4% BW level of CRN or GLU and pasture only (Table 1). Gain per acre followed a similar trend of treatment differences as that of ADG, and ranged from 1160 lb/ac to 1247 lb/ac for 0.8% BW and 1.2% BW supplement, and 921 to 927 lb/ac for pasture only and 0.4% BW supplement. Feedlot ADG was greater for pasture only and lesser for 1.2% BW CRN (Table 2). Carcass traits were similar for all treatments.

Conclusions and Implications: With current demand and prices of stocker cattle, management strategies should consider value of calf at weaning, cost of winter pasture, cost of supplement, and anticipated value at the termination of stocking and at initiation of feeding.

Table 1. Effect of level of daily cracked corn or corn gluten supplement on gain per animal and gain per acre of stockers grazed on rye + ryegrass pasture during a two-year study.

Supplement¹	ADG (lb/d)	Final BCS	Final BW (lb)	Gain / Ac² (lb/ac)
1.2% BW CRN	3.82 a ³	6.2 a	1037 a	1247 a
0.8% BW CRN	3.63 a	6.1 a	1016 a	1135 a
0.8% BW GLU	3.67 a	5.8 ab	1014 ab	1160 a
0.4% BW CRN	3.21 b	5.5 bc	982 ab	927 b
0.4% BW GLU	3.35 b	5.8 ab	982 ab	919 b
Pasture Only	3.19 b	5.3 c	956 b	921 b

¹ Daily supplement group-fed at % bodyweight (BW) included cracked corn (CRN) or corn gluten (GLU).

² Body weight of 1 stocker = 550 lb.

³ Numbers in a column followed by a different letter differ at $P < 0.05$.

Table 2. Two-year feedlot and carcass traits of feeder cattle stocked on rye-ryegrass pastures and receiving daily levels of cracked corn or corn gluten supplement¹.

	Cracked Corn (CRN)¹ %BW			Corn Gluten (GLU) %BW		PAS
	1.2	0.8	0.4	0.8	0.4	
Feedlot Final Wt (lb)	1453 a ²	1492 a	1505 a	1513 a	1473 a	1466 a
Feedlot ADG (lb/d)	2.82 b	3.16 ab	3.18 ab	3.26 a	3.13 ab	3.37 a
HCW (lb)	913 a	928 a	953 a	939 a	918 a	929 a
Backfat (in)	0.55 a	0.39 a	0.44 a	0.48 a	0.45 a	0.45 a
Rib Eye Area (in ²)	16.41 a	16.96 a	17.02 a	16.15 a	16.30 a	16.93 a
KPH (%)	2.62 a	2.56 a	2.54 a	2.63 a	2.66 a	2.72 a
Marbling	426 a	425 a	455 a	447 a	419 a	432 a
Quality Grade	697 a	693 a	708 a	708 a	698 a	696 a
Yield Grade	2.62 a	2.09 a	2.29 a	2.62 a	2.41 a	2.27 a

¹ Daily supplement group fed at % body weight (BW) included cracked corn (CRN) or corn gluten (GLU)

² Different superscripts in a row of treatments following a number are different at $P < 0.05$.