

## ECONOMIC ANALYSIS OF STOCKERS GRAZING TIFTON 85 BERMUDAGRASS AND RECEIVING DIFFERENT LEVELS OF PROTEIN SUPPLEMENTATION

G.M. Clary, S. A. Woods, G.E. Carstens, J.L. Kerby, G.H. Nimr, T.D.A. Forbes, W.C. Ellis, and F. M. Rouquette, Jr.

**Background.** Grazing studies at TAMU-Overton have shown improved gains with Tifton 85 bermudagrass (TIF85) and protein supplementation (SUP). Several treatments were outlined in a companion report (Woods, et al.). The relevant economic questions related to supplementation were: 1) does supplementing stockers on TIF85 increase net returns?; and 2) what is the most profitable level of supplementation? The answer to both questions may be found by comparing supplementation costs at various levels with the value of additional gain observed during the grazing period.

**Research Findings.** The three levels of supplementation resulted in increased ADG of .24, .47 and .89 lb/hd/da, respectively (Table 1). These additional gains from supplementation were valued at selected sale prices for cattle coming off pasture and were compared to daily cost of supplementation. A sale price of \$70/cwt with supplementation at .8BW was the only scenario where the value of the additional gain failed to cover the daily cost of supplement fed (\$-0.21/hd/da). All other scenarios indicated that the value of additional gain exceeded the cost of supplementation. Results implied that supplementation at levels even higher than .8BW may be profitable with increasing cattle prices; however, levels shown here were not sufficiently high to demonstrate the point of diminishing returns to supplementation. Additions in gain were actually increasing at an increasing rate in the range of this trial. Supplementation strategies were all profitable under the prices assumed (which included a \$10/cwt price rollback), and by including only fertilizer and supplement costs (Table 2).

**Application.** Supplementation of stockers grazing TIF85 may be profitable as long as the value of the additional weight resulting from feeding supplement rations is greater than ration cost. Therefore, producers must take into account the additional ADG being generated as well as the expected prices to be received at time of sale. If prices are relatively low, then supplementation, if used, should likely not exceed .8BW. As higher prices are expected, supplementation could occur to the point where additional gains in ADG begin to increase at a decreasing rate due to physiological limitations. Examples shown here demonstrate the potential positive impact on net returns above selected costs (fertilizer and supplement) that can be realized. Producers should prepare a similar analysis incorporating their total actual costs, and anticipated prices prior to each grazing season to decide whether or not to supplement or to select

a proper supplementation level. In some years, such an analysis might show that expected price roll-backs all but eliminate profits regardless of whether or not supplementation is utilized. Protein supplementation of stockers grazing TIF85 can be a profitable management tool when used to increase gains for sale or retained ownership, or in periods in which stocking rates may be too great to allow animals the opportunity to optimize daily gains.

**Table 1.** Comparison of the value of additional gain with supplement cost for alternative supplementation strategies for steers on Tifton 85 (TIF85) bermudagrass.

TRT <sup>2</sup>	ADG --- (lb/hd/da) ---	SUPPL GAIN	VALUE OF ADD'L GAIN OVER TIF85			SUPPL COST	VALUE OF ADD'L GAIN MINUS SUPPL COST		
			Sale Prices <sup>1</sup>				Sale Prices <sup>1</sup>		
			\$70	\$80	\$90		\$70	\$80	\$90
TIF85	1.55					0			
TIF85 + 0.2%BW	1.79	0.24	0.17	0.19	0.22	.164	.004	.028	.052
TIF85 + 0.4%BW	2.02	0.47	0.33	0.38	0.42	.322	.007	.054	.101
TIF85 + 0.8%BW	2.44	0.89	0.62	0.71	0.80	.644	-.021	.068	.157

<sup>1</sup>Sale prices are \$/cwt.

<sup>2</sup>Pasture and supplement treatments.

**Table 2.** Effect on net revenue of alternative supplementation strategies on net revenue for steers grazing Tifton85 (TIF85) bermudagrass.

TRT <sup>1</sup>	BW GAIN	SUPPL FED	FERT COST	ADD'L GAIN SUPPL COST	FERT & SUPPL COST	TOT <sup>2</sup> COST OF GAIN	STKR COST @ \$75/cwt	REVENUE	
								TOT @ \$65/cwt	NET
	lb/hd	lb/hd	\$/hd	\$/hd	\$/hd	\$/cwt	\$/hd	\$/hd	\$/hd
TIF85	139	--	13.15	0	13.14	9.45	569.25	583.70	14.45
TIF85 + 0.2% BW	161	150.26	13.15	17.28	30.42	18.89	579.75	607.10	27.35
TIF85 + 0.4% BW	182	294.55	13.15	33.87	60.44	33.20	570.00	612.30	42.30
TIF85 + 0.8% BW	220	586.44	13.15	67.44	94.01	42.73	561.00	629.20	68.20

<sup>1</sup>Pasture and supplement treatments.

<sup>2</sup>Total cost of supplement + fertilizer.