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**CLAYTON LIVESTOCK RESEARCH CENTER**

*PROGRESS REPORT*

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Effects of Wyoming Leonardite on Performance by Yearling Steers<sup>1</sup>

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Leonardite is a naturally occurring product that has a high humic acid content. Such products are typically used as soil additives and conditioners, but they may have value as agents for odor and moisture control in feedlots. Before such products are used for these purposes, however, data are needed relative to their effects on animal performance. Our objective was to determine the effects of Greenbelt 44, a leonardite mined in Wyoming, on performance by yearling steers fed a high-concentrate diet.

Forty-six, mixed breed (British x Continental) steers were used in the experiment. The steers had been used in grazing experiments at the Tucumcari Agricultural Science Center before shipment to the Clayton Livestock Research Center in mid-December, 1991. Each steer was implanted with Synovex S approximately 1 month before the experiment began and had been adapted to an 85% concentrate diet for at least 2 weeks before starting the experiment. Initial body weights were the average of weights taken on two consecutive days (January 21 and 22, 1992). Steers were stratified by initial body weight and assigned randomly to one of two pens per treatment (11 or 12 steers per pen). Treatments were a 90% concentrate, control diet and the same diet with 1% (dry matter basis) of the grain portion replaced by Greenbelt 44 (Table 1). Steers were fed once daily in quantities sufficient to ensure free-choice consumption. Body weights were measured after 28 days, and the final body weight was the average of weights taken on days 55 and 56 of the experiment. Samples of the two diets were taken at weekly intervals, and feed remaining in the bunks was weighed on days 28 and 56. Data were analyzed as a completely random design with pen as the experimental unit.

Performance data for the experiment are shown in Table 2. Replacing 1% of the grain portion of the control diet with Greenbelt 44 did not affect daily gain, feed intake or performance during the 56-day trial. Steers in both treatment groups performed in a manner typical of what would be expected for compensating yearlings.

The present experiment was not designed to quantify the effects of Greenbelt 44 on feedlot odors and consistency of feedlot manure. If Greenbelt 44 is efficacious for odor control and/or altering properties of manure, our results indicate that at 1% of the dietary dry matter, it would not affect performance by steers fed a high-concentrate diet.

Table 1. Composition of the diets (dry matter basis)

Ingredient	Control		Greenbelt 44	
	%			
Sudangrass hay	5.05		5.05	
Alfalfa	5.20		5.20	
Whole-shelled corn	15.40		14.90	
Steam-flaked milo	62.15		61.65	
Molasses	5.00		5.00	
Fat	2.05		2.05	
Limestone	1.00		1.00	
Dicalcium phosphate	.65		.65	
Salt	.50		.50	
Urea	.50		.50	
Ammonium sulfate	.50		.50	
Green Belt 44	-		1.00	
Premix <sup>a</sup>	2.00		2.00	

<sup>a</sup>Hominy feed-based premix. Consisted of (dry matter basis): .42% vitamin A (30,000 USP units/g); .15% vitamin E (500,000 IU/kg); 5% trace mineral (4.4% Mn, .30% I, .20% Co, 6.6% Fe, 1.3% Cu, 12.0% Zn and 20.0% Mg); 1.16% monensin (132 g/kg) and .70% tylosin (88 g/kg).

Table 2. Performance by yearling steers fed a 90% concentrate diet with or without a Wyoming leonardite (Greenbelt 44) for 56 days

Item	Control	Greenbelt 44	SE
Initial weight, lb	965.9	969.1	3.8
Final weight, lb	1,216.6	1,211.7	5.4
Daily gain, lb	4.48	4.33	.13
Dry matter intake, lb/steer	23.3	23.4	.39
Feed-to-gain	5.21	5.43	.25

<sup>a</sup>Standard error of treatment means, n = two pens per treatment.

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