EFFECTS OF SUPEROXYGENATION OF DRINKING WATER ON PERFORMANCE AND CARCASS CHARACTERISTICS OF FEEDLOT STEERS

C.A. Strasia[1], C.P. Foutz[2], C.L. Nick[2], H.G. Dolezal[3], D.R. Gill[4], R.P. Lake[5], G.D. Rupe[5] and R.E. Heitschmidt[5]

Story in Brief

Three hundred seventy five number one Okie steers (840 pounds) were used to compare the effects of superoxygenation of drinking water on feedlot performance and carcass characteristics. The steers received standard feedlot processing on arrival and were individually weighed and tagged. The steers were fed the standard 62 Mcals/cwt NEg feedlot diet. Average daily dry matter feed consumption, average daily gain, feed conversion and cost of gain favored the control pens. The control pens also consumed less water. Cattle receiving ozone treated water had more outside fat cover; however fewer of these animals graded choice.

(Key Words: Ozonized Water, Feedlot Steers, Feedlot Performance.)

Introduction

Recently, there has been renewed interest in the superoxygenation of the drinking water of feedlot steers. In a recent trial, Lee (1989, unpublished data) showed improvement in feedlot rate of gain and a concomitant improvement in feed efficiency of a magnitude comparable to that seen by the addition of an ionophore to the diet of feedlot steers. This study was designed to study the efficacy of the superoxygenation system in the commercial feedlot environment.

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[1]Area Livestock Specialist [2]Graduate Assistant [3]Associate Professor [4]Regents Professor [5]Hitch I Feeders

animals consumed more feed (21.04 vs 20.14 lb/hd/day), had a higher ADG (3.59 vs 3.39 lb/hd/day), and had a more efficient F/G (5.87 vs 5.94 lb feed/lb gain). The ADG and F/G data are in contrast with the findings of Lee (1989). The feedlot cost of gain favored the control animals (43.96 vs 46.36 $/cwt). The calculated metabolizable energy of the diet (Table 2), as determined from animal performance indicates a slight numerical advantage for the control animals. This result is expected considering the ADG and ADF data (Table 1)

When comparing carcass parameters (Table 2), the animals on the ozone treatment had a numerically greater dressing percentage, superior marbling score and yield grade. The KPH% of the treated animals averaged higher than the controls ($P<.09$). The ozone treated animals had more outside fat cover, which is similar to the findings of Lee (1989, unpublished data); however, there were 8% fewer animals grading choice in the treated group than for the controls. This is an apparent contradiction, recognizing that the treated animals averaged a higher marbling score. These anomalies may be attributed to biological variability within the treatment groups.

The data in Table 3 reflecting average daily air temperature depict an abnormally warm situation during the course of the experiment. The efficiency of superoxygenation of the drinking water may have been hampered by the high environmental temperatures. Other experiments cited were conducted during the winter months and environment may have contributed to conflicting results.

Superoxygenation of drinking water for feedlot steers had no significant impact on either performance or carcass parameters considered in this study.

Table 2. Carcass characteristics of feedlot steers.

	Control	Ozone	SE
Hot carcass wt., lb	779	762	5.89
Rib eye area, sq. in.	13.0	12.7	.09
KHP, %	2.18[a]	2.21[b]	.01
Fat thickness, in.	.57	.63	.02
Marbling score	443	447	9.43
Yield grade	3.36	3.17	.09
Choice, %	64	56	.008
Dressing percent	63.4	63.5	

[a,b]Means with different superscripts are different ($P<.09$).

Table 3. Average air temperature.

	Degrees Fahrenheit		
	High	Low	Mean
May	75.7	47.2	60.8
June	95.1	61.4	77.9
July	93.3	64.6	78.5
August	93.3	63.4	77.0
September	86.0	59.8	73.1