Effect of Rumensin on the Growth and Sexual Development of Beef Bulls

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Summary

Fifty percentage Simmental bull calves were fed either with or without Rumensin. Although Rumensin improved gain by 9.2%, it had no effect on sexual development.

Introduction

Feeding Rumensin to stocker and feedlot cattle has improved gains and feed utilization, but information is scant on feeding Rumensin to bulls. We carried out this experiment to see if Rumensin would affect sexual development.

Experimental Procedure

Thirty-seven percentage Simmental bull calves were early weaned (average age, 52 days) and allotted by weight, age, and Simmental percentage to two groups. They were all fed a high-grain ration ad lib. for 11 days, then 18 head were fed an average of 96.5 mg Rumensin per day for 126 days. Nineteen head, fed similarly, did not receive Rumensin. Then 13 bulls, first calves from heifers, weaned at an average of 190 days, were added. After the bulls had been on an adjustment high-grain, growing diet 32 days, Rumensin was added to one group (now containing 25 head) at 236.8 mg/day for 126 days.

Sexual development was estimated from scrotal circumference (taken every 28 days), LH and testosterone concentrations (blood collected at an average age of 231 and 339 days), sexual aggressiveness (libido tests for 10 minutes at an average age of 231, 258, 287, 318, and 362 days) and sperm production (semen collected by electro-ejaculation at an average age of 263 and 351 days).

Results

Rumensin improved gain 9.2% but had no effect on any of the characteristics measured, except Rumensin-fed bulls had higher testosterone levels than controls at day 339. Results are shown in table 16.1.

Table 16.1. Effects of Rumensin on gain, sperm production, hormone concentration, and libido score.

	Treatment	
	Control	Rumensin
Early Weaned Period		
No. bulls	19	18
Average birth date	March 26	March 26
Initial weight	227.2	226.3
Daily gain	2.6	2.66
Growing Period		
No. bulls	25	25
Final Weight	902.9	935.9
Daily gain	2.58[a]	2.79[b]
Feed/gain ratio	6.89	6.31
Semen Measures		
% motility		
- day 263	8.3	5.0
- day 351	12.6	12.0
Sperm concentration		
- day 263	1.1×10^7	2.1×10^7
- day 351	7.5×10^7	7.9×10^7
% live sperm cells		
- day 263	37.4	43.2
- day 351	47.0	54.6
Hormone concentration		
Testosterone (ng/ml)		
- day 231	3.25	3.19
- day 339	6.71[a]	10.04[b]
LH (ng/ml)		
- day 231	1.49	2.58
- day 339	1.30	1.22
Libido Score		
- day 231	4.68	3.96
- day 258	5.12	5.64
- day 287	7.16	6.36
- day 318	6.36	5.72
- day 352	6.26	6.20

[a,b] Means on the same line with different superscripts differ significantly ($P<.05$).