Rumensin for Feedlot Steers— A Six-Trial Summary

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Story in brief

Six Rumensin feeding trials involving 716 cattle were summarized to evaluate the effects of Rumensin on performance and carcass characteristics of feedlot cattle in Oklahoma. Rumensin levels studied were 0 and 25 to 30 grams per ton with 16 different rations. Average daily gains were similar for cattle fed control and Rumensin-supplemented rations (3.32 *vs* 3.31 lb). In these trials, addition of Rumensin reduced feed intake a mean of 1.0 lb or 5.2 percent and improved feed efficiency by 4.8 percent (±0.8). This is somewhat lower than the efficiency improvement cited [10.6 percent (±2.0)] from a summary of 19 trials conducted nationwide. Feed efficiency improvements were noted for all portions of the feeding period. This suggests that Rumensin is useful for feedlot cattle fed as short as 28 days. Carcass characteristics were not significantly affected by Rumensin feeding.

Introduction

Six Rumensin feeding trials conducted from 1975 to 1979 by Oklahoma State University were summarized to evaluate the effect of Rumensin on performance and carcass characteristics of feedlot cattle under Oklahoma conditions. The combined trials involved 716 head of cattle. Half were fed a control ration containing no Rumensin, and the other half were fed similar rations with 25 to 30 g per ton of Rumensin added. The 16 rations varied in protein source and level and method of corn processing, but all diets were high-concentrate feedlot rations. Sex, age, breed and weights of cattle differed among trials. Specific trial characteristics are presented in Table 1 with references to previous reports of individual trials. Overall effects of Rumensin on average daily gain, feed intake, and feed conversion efficiency were determined by combining individual trials and by studying summarized performance and carcass data from all six trials. Results from the trials conducted in Oklahoma were compared to results from the national results previously reported by Elanco (1975).

Material and Methods

Details of the experiment design and procedure for the individual trials are presented in the articles referenced for each trial in Table 1.

Results and Discussion

Performance characteristics from individual trials are shown in Figure 1. Average daily gains were similar for both treatments across all trials. The type of ration fed in each trial influenced total feed intake values. Feed conversion efficiency also varied among trials, mainly due to the differences in feed intake.

Table 1. Individual trial specifications.

Trial number	Age & sex	Breed	Initial wt (lb)	Trial days	Cattle/ treatment	Cattle/ pen	Rations[1]	Reference
120	Yearling steers	Hereford	612	168-196	48	8	14, 30 or 75% CS plus HMC & SBM	J. Anim. Sci. 43:363 (1976)
174	Yearling steers	Hereford, Angus, & Hereford-Angus cross	754	117	96	8	77% HMC, 14% CS; SBM or urea, 11% or 12% CP	O.A.E.S. MP-100:87 (1976)
179	Yearling steers	Hereford, Angus & exotic crossbreds	574	155	80	8	90% WSC, SBM; 9.5, 10.3, 11.2, & 12.3% CP	O.A.E.S. MP-101:42 (1977)
200	Steer calves	crossbreds	483	164-196	92	8	75% HMC, 14% CS, SBM; 9, 11, 13% CP	O.A.E.S. MP-103:92 (1978)
243	Yearling heifers	Charolais x Black Baldy	679	137	28	7	89% WSC, 5% CSH; urea	O.A.E.S. MP-104:75 (1979)
251	Heifer calves	Charolais x Black Baldy	508	173	14	7	71% RC, 11% CSH, 8% SBM, 8% ALF	O.A.E.S. (elsewhere in report)

[1]CS = corn silage; HMC = high moisture corn; SBM = soybean meal; CP = crude protein; WSC = whole shelled corn; CSH = cottonseed hulls; RC = rolled corn; ALF = alfalfa pellets.

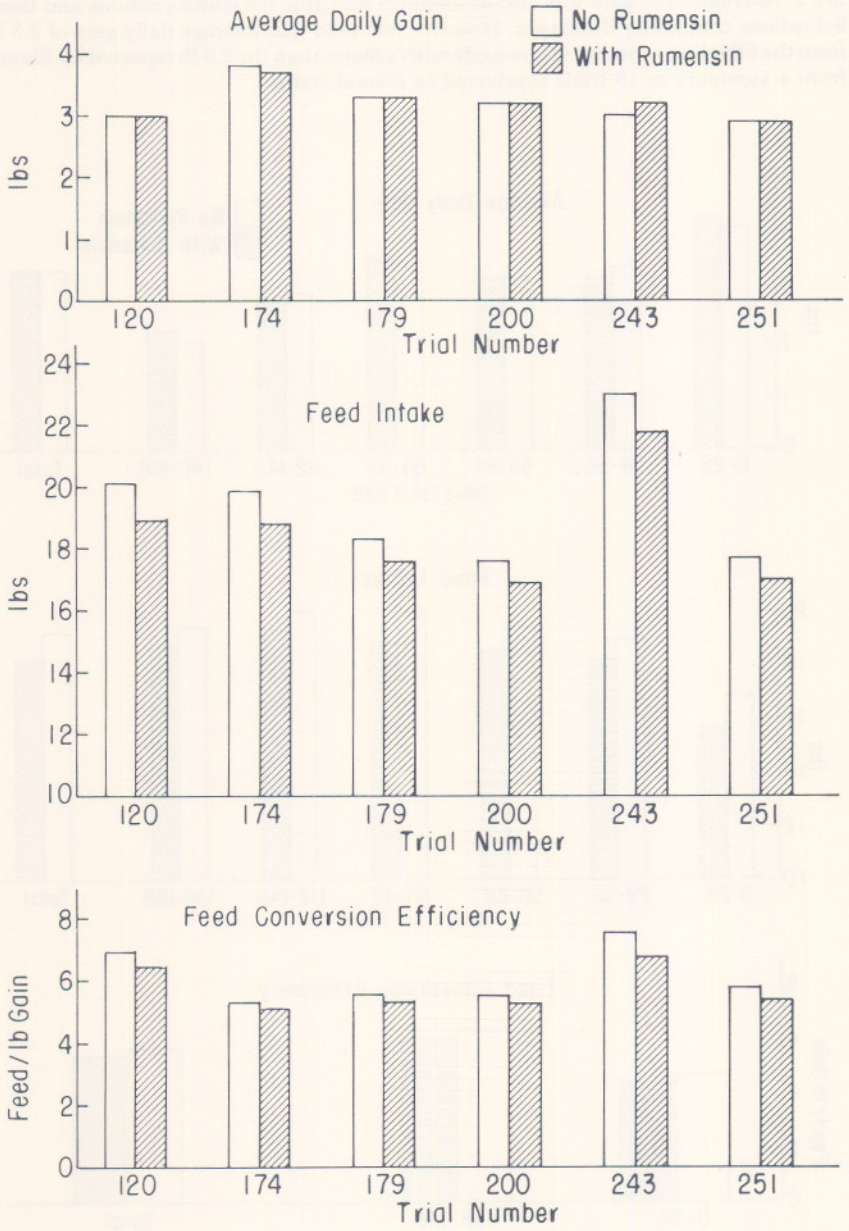

Figure 1. Rumensin and performance characteristics for individual trials.

Performance characteristics combined across feeding trials are presented in Figure 2. Average daily gain was almost identical for cattle fed control rations and those fed rations containing Rumensin. However, the total trial average daily gain of 3.3 lb from the Oklahoma studies was considerably greater than the 2.3 lb reported by Elanco from a summary of 19 trials conducted in several states.

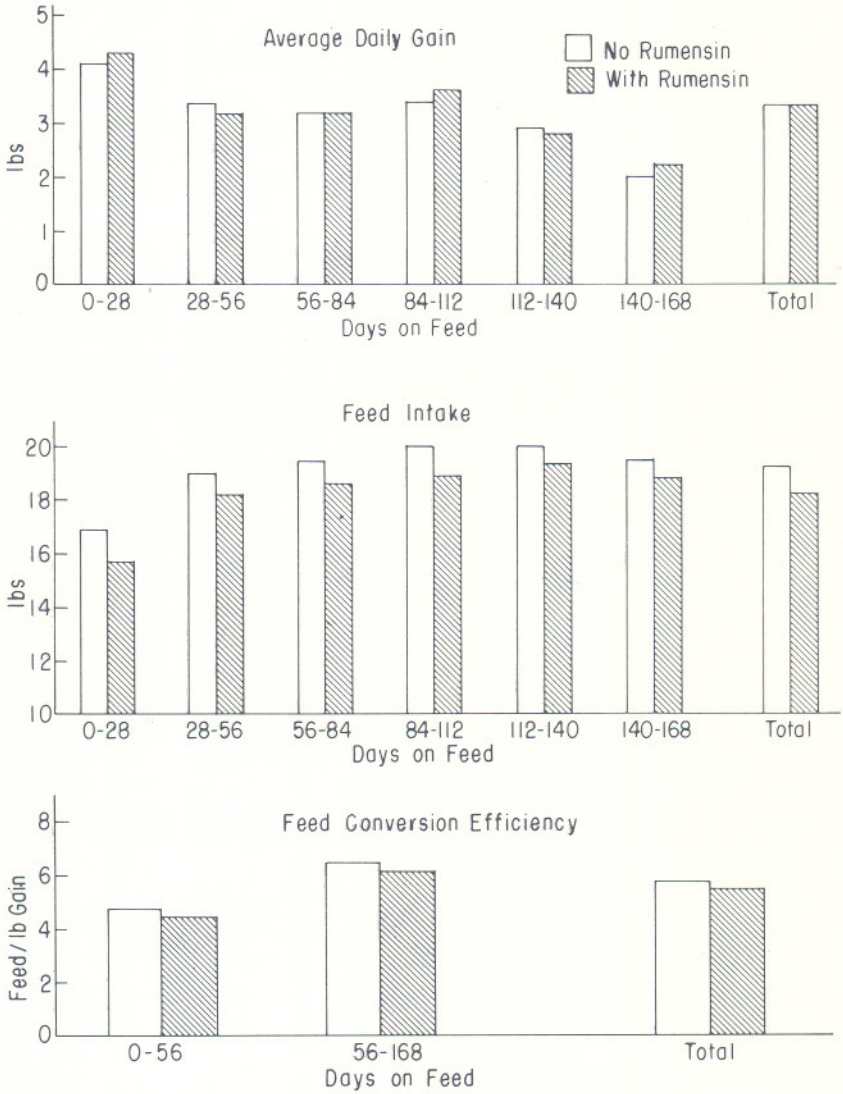

Figure 2. Rumensin and performance characteristics at 28-day intervals.

Elanco (1975) reported a 9.0 percent decrease in average daily gain with Rumensin for the first 28-day period. Our studies showed no depression in gain during the first 28-day period, despite reduced feed intake. Rumensin decreased feed consumption, a characteristic effect of Rumensin feeding. Intake was reduced at each 28-day interval with a mean reduction of 1.0 lb (5.2 percent) of feed dry matter daily. This compares with the mean from national trials of 2.3 lb (10.7 percent) less feed intake. Due to the decrease in feed consumption with equivalent weight gains maintained, feed efficiency

Table 2. Rumensin and performance characteristics.

Item	Rumensin		Probability, %[a]
	0	+	
Daily gain			
First (0-28 days)	4.10	4.25	NS
Second (28-56 days)	3.39	3.22	NS
Third (56-84 days)	3.22	3.18	NS
Fourth (84-112 days)	3.42	3.57	NS
Fifth (112-140 days)	2.93	2.80	NS
Sixth (140-168 days)	1.98	2.23	NS
Early (0-56 days)	3.79	3.81	NS
Late (56-end days)	3.03	3.00	NS
Total (0-end days)	3.32	3.31	NS
Initial wt	609	606	NS
Final wt	1114	1110	NS
Feed intake			
First (0-28 days)	16.9	15.7	0.5
Second (28-56 days)	19.0	18.2	0.9
Third (56-84 days)	19.5	18.6	0.02
Fourth (84-112 days)	20.0	18.9	0.01
Fifth (112-140 days)	20.0	19.3	1.7
Sixth (140-168 days)	19.4	18.8	NS
Early (0-56 days)	17.9	16.9	0.4
Late (56-end days)	19.4	18.6	0.01
Total (0-end days)	19.2	18.2	0.01
Feed conversion efficiency			
First (0-28 days)	4.07	3.65	0.03
Second (28-56 days)	5.49	5.63	NS
Third (56-84 days)	7.69	7.50	NS
Fourth (84-112 days)	3.93	3.55	0.2
Fifth (112-140 days)	6.75	6.80	NS
Sixth (140-168 days)	8.23	8.17	NS
Early (0-56 days)	4.77	4.50	0.03
Late (56-end days)	6.47	6.18	0.12
Total (0-end days)	5.83	5.53	1.5
Total net energy for maintenance, Meg/lb	.99	1.04	1.8

[a]Likelihood of finding treatment differences this large when there truly is no difference. NS = > 5% probability.

was improved with addition of Rumensin. Feed conversion efficiency was improved for the total feeding period as well as early (days 0-56) and late (56 days to slaughter) intervals on feed. In the Oklahoma studies, feed efficiency was improved by 4.8 percent (±0.8) with Rumensin (Table 2). In nationwide trials, feed efficiency was improved a mean of 10.6 percent (±2.0) according to Elanco (1975). Improvement in feed efficiency observed across all periods in the Oklahoma trials suggests that Rumensin is effective for cattle on feed, even for a short period of time. This is contrary to the Elanco Report (1975), which shows that Rumensin feeding at 30 g per ton may not prove useful for cattle fed under 60 days because of depressed rate of gain.

Carcass characteristics were measured on all cattle slaughtered after completion of the feeding trials. Differences between treatments for all of the carcass factors measured were nonsignificant (Table 3).

Oklahoma trials and those reported by Elanco (1975) differ in many factors, such as initial weight and growth rates of the cattle, ration energy content, roughage level and grain processing. Comparing the savings from reduced feed intake with the cost of added Rumensin, savings of only 0.1 lb of feed daily would justify feeding of Rumensin. Consequently, these results do not question the economics of Rumensin feeding, only the extent of such savings.

Literature Cited

Elanco. 1975. Rumensin Technical Manual, Elanco Products Co., Indianapolis, Indiana.

Table 3. Rumensin and carcass characteristics.

Item	Rumensin		Probability, %[a]
	0	+	
Carcass data			
Dressing, %	62.14	61.93	NS
Rib eye area			
Sq in	12.4	12.4	NS
Sq in/cwt	1.80	1.80	
Fat over rib, in	0.63	0.60	NS
KHP, %	3.05	3.02	NS
Marbling score[b]	13.6	13.5	NS
Abscess severity	1.92	1.95	NS
Abscess incidence, %	8.8	12.0	NS
Cutability, %	48.7	48.8	NS
Quality Grade[c]	13.1	13.0	NS
Percent choice, %[d]	71.6	72.6	NS

[a]Likelihood of finding treatment differences this large when there truly is no difference.
[b]small minus = 13; small = 14.
[c]low choice = 13; average choice = 14.
[d]Percentage of carcasses with quality grade above low choice.