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Effect of Rumensin on performance of finishing steers

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Effect of Rumensin on Performance of Finishing Steers

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Summary

Two hundred ten Hereford x Angus crossbred yearling steers were used in two trials to determine effects of Monensin (trade name Rumensin)[1] on performance and carcass characteristics. Top dressing a protein supplement (crumbles or pellets) containing Rumensin was an acceptable way to feed the compound in trial 1. Rumensin increased gain 2.0%, reduced feed intake 4.3%, and improved feed efficiency 6.1%.

Trial 2 was conducted to determine if Rumensin could be fed to steers after they had been on a high concentrate ration at least 56 days. Four levels (0, 10, 20, and 30 grams per ton) were compared. Ten or 20 grams per ton was most beneficial the final 63 days in the feedlot after a preliminary feeding period of 56 days without Rumensin.

Introduction

Previous studies with Rumensin (including two with growing heifers at Kansas State) showed that it improved efficiency when fed in a complete mixed ration the duration of the experiment. This time we wanted to determine (1) if Rumensin could be fed in a top dress protein supplement as either crumbles or pellets, (2) if daily Rumensin could be provided in ½, 1, or 2 pounds of top dressed supplement, and (3) if less Rumensin (100 or 200 mg) was beneficial during the first 28 days instead of the recommended 300 mg. daily.

In trial 2 we wanted to determine (1) if Rumensin could be added to the ration of steers that had been on a high concentrate ration at least 56 days and (2) if 10, 20, or 30 grams per ton was the most beneficial level of Rumensin to feed under these conditions.

Procedure

Two Hundred ten Hereford x Angus crossbred yearling steers were purchased from one rancher in southwestern Kansas. They were in excellent

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[1] Rumensin is a trade name of Elanco Products Co. Rumensin and partial financial assistance provided by Eli Lilly Co., Greenfield, Ind. Dr. Herman Grueter of Eli Lilly Co. deserves special recognition for his assistance.

health and already adapted to a medium-concentrate ration when purchased. The heaviest 150 were allotted at random to 30 pens of 5 steers each for trial 1. The remaining 60 were divided into 12 pens of 5 each for trial 2. All steers in both studies were fed a 90% concentrate (corn plus appropriate supplement) and 10% corn silage on a dry matter basis. Composition of the supplement is shown in table 22.1.

Steers were fed twice daily ad libitum. Individual weights were taken after approximately 15 hours without access to feed or water at the beginning and end of each study. Weights at 28-day intervals were taken before the morning feed. Slaughter and carcass data were collected at Wilson and Co., Kansas City, Mo.

Rumen samples were taken to determine if Rumensin altered the ratio between acetic and propionic acids.

Results

Performance data for trial 1 are given in table 22.2. Rumensin increased gain 2%, reduced feed intake 4.2% and improved feed efficiency 6.1% (averages from the 3 Rumensin levels fed). There was no apparent advantage to feeding 100 or 200 mg the first 28 days. The supplement containing Rumensin was fed satisfactorily as a top dressing at ½, 1, or 2 pounds daily in either crumble or pellet form. Some sorting, especially by certain steers suggest, that the Rumensin and supplement should be thoroughly mixed into the ration.

Performance data for trial 2 are shown in table 22.3. All steers were fed the same for 56 days and then 3 pens were fed Rumensin at 0, 10, 20, or 30 grams per ton of complete ration during the final 63 days. Daily gain daily feed, and efficiency are shown for the entire 119 days on feed, the first 56 days, and the final 63 days. The most improvement in gain and efficiency was at the 10 grams per ton of complete ration. Rumensin at 20 grams per ton reduced feed intake and improved efficiency compared to the 0 level while 30 grams per ton appeared to depress gain and efficiency when fed at this level the final 63 days before slaughter.

Results of this study suggest that Rumensin can be fed to steers already on a high concentrate ration, however, less than 30 grams (10 or 20) per ton may be necessary during a short feeding period (63 days in this trial).

No apparent differences were observed in carcass characteristics as indicated in Tables 22.2 and 22.3 .

The effect of Rumensin on rumen volatile fatty acid concentrations is shown in Table 22.4. The same 6 steers in each treatment group were sampled on July 21, 1975 before Rumensin feeding began and again on Sept. 11, 1975, after Rumensin had been fed for 51 days. Acetic acid was reduced by 9.3% and propionic acid was increased by 8.3% in steers fed Rumensin.

Table 22.1 Composition of Protein Supplements - Trials 1 & 2

Ingredient	% (Dry matter basis)
Soybean oilmeal	60.0
Corn	8.8
Fat	1.0
Urea	5.0
Limestone	15.6
Salt	5.0
Potassium Chloride	2.6
Premix[1]	2.0

[1]Premix was 7.5% Vitamin A (10,000 I.U./gm), 25% trace minerals and 67.5% ground corn.
Rumensin replaced ground corn to provide the necessary level of additive in the complete supplement

Table 22.2 Effect of Rumensin on Performance and Carcass Characteristics Of Finishing Steers Trial 1 - May 27, 1975 - Sept. 16, 1975

		Daily Rumensin Intake (mg.)			
	0-28 days:	0	100	200	300
Item	29-112 days:	0	300	300	300
No. steers		40	20	20	68
Initial wt., lbs.		721.95	721.25	720.5	720.49
Final wt., lbs.		1106.8	1121.3	1103.5	1116.97
A.D.G., lbs.		3.44	3.57	3.42	3.54
A.D.F., lbs.		24.70	23.95	23.56	23.4
Eff., lbs.		7.18	6.71	6.89	6.62
Dressing %		62.8	62.5	62.4	62.8
Fat, in.		0.69	0.63	0.7	0.67
USDA grade[1]		6.7	6.3	6.6	6.70
Cutability %		48.6	48.8	48.5	48.80

[1] 6=Good +, 7=Choice -

Table 22.3 Effect of Rumensin on Performance and Carcass Characteristics of Finishing Steers Trial 2 - May 27, 1975 - Sept. 23, 1975

	Rumensin Level in Ration (gm/ton)			
0-56 days:	0	0	0	0
Item 57-119 days:	0	10	20	30
No. steers	15	15	15	15
Initial wt., lbs.	633.1	640.4	639.5	627.6
Final wt., lbs.	1040.7	1046.0	1047.2	1009.9
A.D.G., lbs.				
(0-119 days)	3.43	3.41	3.43	3.21
(0-56 days)	3.92	3.75	3.89	3.96
(57-119 days)	2.98	3.11	3.02	2.55
A.D.F., lbs.				
(0-119 days)	22.89	22.09	22.73	22.08
(0-56 days)	22.01	21.85	22.97	22.96
(57-119 days)	23.77	22.32	22.49	21.19
Eff., lbs.				
(0-119 days)	6.67	6.48	6.63	6.88
(0-56 days)	5.63	5.85	5.91	5.82
(57-119 days)	7.98	7.18	7.45	8.31
Dressing %	61.5	61.6	61.7	62.0
Fat, in.	0.64	0.64	0.60	0.65
USDA grade[1]	6.90	6.10	6.50	6.10
Cutability, %	49.7	49.3	49.8	49.4

[1] 6=Good +, 7=Choice -

Table 22.4. Effect of Rumensin on Volatile Fatty Acid Concentration in Rumen - Trial 2

	Rumensin, grams/ton of Complete Feed							
	0-56 days				57-119 days			
Item:	0	0	0	0	0	10	20	30
No. samples[1]	6	6	6	6	6	6	6	6
Acetic, molar %	50.1	50.7	46.4	46.1	46.8	44.2	42.1	43.4
Propionic, molar %	40.0	40.9	45.8	47.1	44.6	46.3	50.5	48.2
Butyric, molar %	9.9	8.4	7.9	6.8	8.8	9.5	7.4	8.3

[1] The same 6 steers in each treatment group were sampled on July 21, 1975 prior to feeding Rumensin and on September 11, 1975, after Rumensin had been fed for 51 days.