Rumensin benefits new feedlot calves

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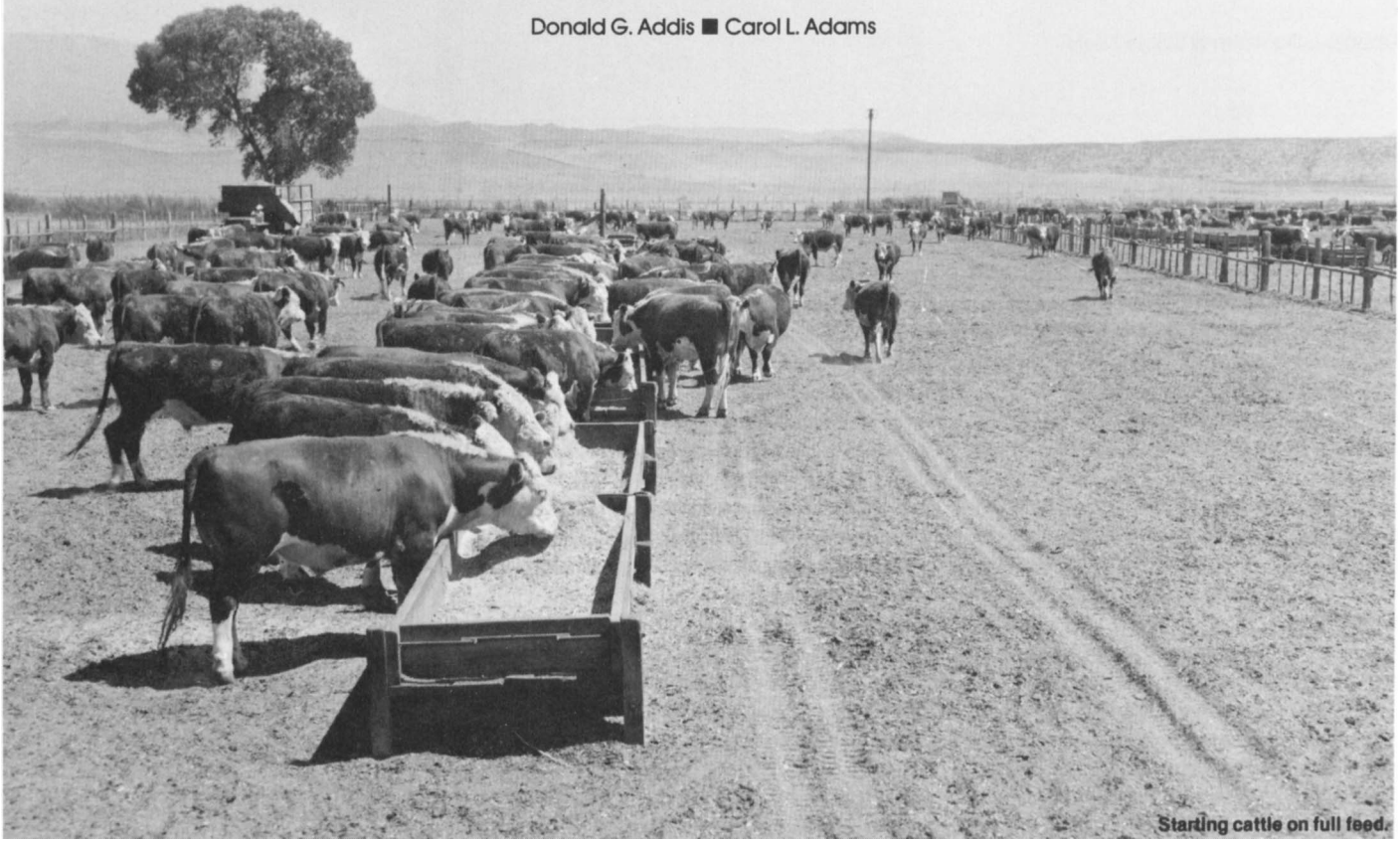

Starting cattle on full feed.

It has been commonly observed that feed consumption in calves decreases when Rumensin is added to a 72-percent-concentrate ration. However, efficiency of feed utilization is usually improved. Rumensin is a biologically active feed additive produced by Eli Lilly & Company, which changes proportions of the various volatile fatty acids (VFA) commonly found in the rumen. This change in VFA in part explains the commonly observed improvement in feed efficiency. Studies at the Imperial Valley Field Station were conducted to determine the effects of starting newly arrived, stressed calves on various levels of Rumensin.

Upon arrival, 445 test calves—ranging in body weight from 236 to 401 pounds—were processed and randomly assigned to one of four Rumensin regimes: (1) a control group to which no Rumensin was fed; (2) feeding no Rumensin the first two weeks, then 30 g Rumensin per ton of feed the third through eighth weeks; (3) feeding 10 g Rumensin per ton of feed the first two weeks and 30 g per ton the last six weeks; and (4) feeding 30 g Rumensin per ton all eight weeks.

Feed consumption

Average daily feed consumption for the first two weeks was significantly lower (33 percent less the first week and 14 percent less the second week) for the cattle consuming the 72 percent concentrate ration containing 30 g per ton Rumensin than it was for the cattle assigned the control ration.

At the end of the second week, when one-half of the calves on the control rations were switched from the 0- to the 30-g-per-ton Rumensin level, feed consumption was 6.1 percent more for the controls. Average daily feed intake was reduced to a lesser extent (3.6 percent) for calves being changed from the 10 g/ton level to the 30 g/ton level. From the fourth through the eighth week of the trials, feed consumption was insignificantly different among groups. The lowest 56-day cumulative average daily consumption was observed in calves that had been assigned to the 30-30 treatment (2.7 percent less than controls). The differences observed in average daily feed intake for the 56-day testing period were not significant between treatments.

Body-weight gain

Average daily gains the first week were significantly lower (28 percent) for calves receiving the 72 percent concentrate ration containing 30 g of Rumensin per ton than for those animals receiving the control ration. This is as expected in view of the 33 percent lower feed consumption. Calves receiving Rumensin in their ration at the rate of 10 g/ton had average daily gains similar to controls (2 percent less gain). During the second week, average daily gain (4.42 pounds) was highest for the calves on the 10 g Rumensin level and lowest (3.84 pounds) for the control calves, with the 30-g-per-ton treatment being intermediate (3.91 pounds).

It was not until the fifth through the eighth weeks of the trial that significant differences in gain again occurred. Control cattle during the last 28 days

gained significantly less (9.6 percent less gain) than did the 10-30 or 30-30 treatments (9.3 percent less gain). For the entire 56 days, average daily gains were not significantly higher for calves consuming the 10-30 ration (2.71 pounds) and were lowest for the control animals that received no Rumensin at any time (2.52 pounds).

Feed efficiency

The greatest improvement in feed efficiency occurred during the fifth through the eighth weeks, when the calves fed the 30 g/ton Rumensin ration required an average of 7 percent less feed to produce a pound of body-weight gain than did the control calves. For the entire 56 days, calves receiving all levels of Rumensin consumed an average of 1 percent less feed than controls, but had increased feed efficiencies averaging 6.7 percent.

Animal health

Calves assigned to the 30-30 treatment ate the least amount of feed the first two weeks after arrival. This may have contributed to 12 percent more sick animals in that group than among the controls (table 2). Those animals that became sick a second or third time and required additional medication did so during the second and third weeks after arrival. This corresponds to the time period when the Rumensin levels in the rations of calves assigned to the 0-30 or 10-30 treatments were increased. This may, in part, explain why the 0-30 and 10-30 calves had the highest percent of return. All calves responded well to medication as indicated by the lower average number of days treated. There was little difference among groups. The medication costs per pound of gain were similar for all groups, averaging 2.35¢ per pound.

The total cost per pound of gain—including feed, processing, and medication—was lowest for calves on the Rumensin treatments (table 3), averaging 25.3¢, and highest for controls, averaging 26.4¢.

Conclusions

A significant reduction in feed consumption was observed in calves assigned the 30-30 Rumensin treatment during the first two weeks after arrival. From the third through the eighth weeks, average daily feed consumption for the 30-30 treatment calves was equal to or greater than that observed in animals consuming the control ration.

For the entire 56-day period, no significant difference in average daily feed consumption was observed among any of the Rumensin treatments or control. Calves assigned to the 10-30 or 0-0 treatment had similar weekly and 56-day consumption patterns. At the beginning of the third week, calves on the 0-30 treatment were switched from a ration containing no Rumensin to one containing 30 g/ton. Feed consumption dropped to 6 percent less than for controls during the third week and 4 percent less feed was consumed during the fourth week. However, from the fifth through the eighth weeks, the 0-30 animals consumed .12 pound more per head per day than did the controls.

One of the major goals in restoring newly-received stressed calves to normal health is to have them consume as rapidly as possible a maximum amount of energy. This was best accomplished by the calves on the 0-30 or 10-30 treatments. Feed efficiency was significantly improved by the addition of Rumensin to the ration regardless of the method used. The highest rate of gain and the lowest feed requirement to produce a pound of gain was registered by calves assigned to the 10-30 treatment. The least cost per pound of gain was observed in calves assigned the Rumensin treatments.

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TABLE 1. Rumensin in Ration for Newly Received Cattle

Item	Rumensin, g/ton 0	10	30
First week			
No calves	235*	110	110
Mean off-truck weight, lb	293	290	288
Daily feed intake, lb	6.19	5.81	4.77b
Daily weight gain, lb	2.65a†	2.60a	1.90b
Feed/lb gain, lb	3.99a	3.37a	27.55b
Second week			
Daily feed intake, lb	9.73a	9.94a	8.41b
Daily weight gain, lb	3.84a	4.42b	3.91a
Feed/lb gain, lb	2.56a	2.23bc	2.14c

	Rumensin, g/ton 0	0-30	10-30	30
Third week				
Daily feed intake, lb	11.51	10.81	11.10	10.81
Daily weight gain, lb	3.11	3.05	2.96	3.52
Feed/lb gain, lb	3.78	3.76	3.77	3.20
Fourth week				
Daily feed intake, lb	12.92	12.37	12.39	12.37
Daily weight gain, lb	2.79	2.94	2.46	2.68
Feed/lb gain, lb	5.03	4.55	5.61	5.19
Fifth through eighth week				
Daily feed intake, lb	14.22	14.34	14.34	14.47
Daily weight gain, lb	3.11b	3.36ab	3.41a	3.40a
Feed/lb gain, lb	4.57a	4.27b	4.20b	4.28b
Entire 56 days				
Daily feed intake, lb	12.09	12.09	12.06	11.76
Daily weight gain, lb	2.52	2.69	2.71	2.64
Feed/lb. gain, lb	4.79a	4.50ab	4.42b	4.49ab

TABLE 2. Animal Health Data

Treatment	Rumensin, g/ton 0-0	0-30	10-30	30-30
% treated	65	65	63	73
% treated off-truck	32	36	37	32
% returns	20	38	32	20
Avg. no. days treated	4.1	4.2	4.1	3.8
Med. cost/hd treated	2.82	2.80	3.19	2.65
Med. cost/lb gain	0.024	0.023	0.025	0.022

TABLE 3. Summary Cost Data

Rumensin level g/ton	Rumensin, g/ton 0-0	0-30	10-30	30-30
Feed/head, lb	677	677	676	659
Feed costs @ $115/ton, $	38.93	38.93	38.91	37.88
Rumensin costs @ $1.50/lb, $	—	0.42	0.46	0.49
Gain per head, lb	161	171	169	168
Feed costs/lb gain, $	0.24	0.23	0.23	0.23
Processing costs/head, $	1.09	1.09	1.09	1.09
Medical costs/head, $	2.82	2.80	3.19	2.65
Medical & processing costs/lb gain $	0.024	0.023	0.025	0.022
Total costs/lb gain, $	0.264	0.253	0.255	0.252

*Means with no letters at all are not significantly different.
†Means with no letter(s) in common are significantly different on Duncan's Multiple Range Test at the 5% level.