

## A COMPARISON OF RUMENSIN AND BOVATEC FED IN WINTERING RATIONS TO BEEF CALVES

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North Dakota produces over one million calves each year, and some over 70,000 head of fed cattle are marketed annually. Therefore, any feed additive that will improve rate of gain and/or feed efficiency should have a very positive effect on the economics of the livestock industry. Currently two products sold under the trade names, Rumensin (monensin sodium) and Bovatec (lasalocid sodium), are reported to improve both rate of gain and feed efficiency.

Past work at this station, reported in the 1979 Annual Report, indicated Rumensin fed steer calves were 6-12% more efficient than control calves, although there was no advantage in rate of gain.

Dr. William Dinusson reported in the 1981 Livestock Research Roundup Report of the Dickinson Station that steers receiving Rumensin gained 6.7% faster than unsupplemented control steers.

J.W. Spears, North Carolina State University, reported in the August 1982 abstracts, American Society of Animal Science, that daily gain was significantly higher and ruminal acetate levels were lower in steers fed Bovatec.

L.W. Lomas, Southeast Branch Experiment Station of Kansas State University, reported in the August, 1982 abstracts of American Society of Animal Science, that steers fed 100 mg Bovatec gained 16.4% faster than control steers, while steers fed 200 mg Bovatec per head daily gained 23.9% faster.

L.B. Embry, South Dakota State University, reported in the 1982 abstracts of American Society of Animal Science, that steers fed Bovatec had improvements in weight gain of 16% and feed efficiency of 13% over controls. Performance of steers fed Rumensin was about equal to controls during these short finishing experiments with cattle unadapted to either Bovatec or Rumensin.

In this trial Hereford and Angus X Hereford (BWF) steer calves raised at the Dickinson Experiment Station were weighed and allotted by breed and weight class into nine lots. The lots consisted of three lots of heavy weight BWF steers, three lots of light weight BWF steers and three lots of light weight Hereford steers, with six steers per lot.

During initial processing, all steers were given a 7-way booster vaccination, were wormed with Rumatel<sup>(R)</sup> and treated for lice with Lysoff<sup>(R)</sup> pour-on. In addition, half the steers in each pen were randomly selected to receive an ear implant called Compudose 200<sup>(R)</sup>.

All steers were self fed a complete mixed ration composed of alfalfa hay, alfalfa-brome hay, barley and supplement, along with salt and di-calcium phosphate.

**Table 1. Rations as Fed during the Trial**

	<b>Bovatec</b>	<b>Control</b>	<b>Monensin</b>
<b>Initial ration- January 12, 1983:</b>			
Barley, lbs.	250	250	250
Mixed Hay, lbs.	600	600	600
Alfalfa, lbs.	93	93	93
Supplement*, lbs.	50 <sup>1/</sup>	50	50 <sup>2/</sup>
Trace Mineral Salt, lbs.	5	5	5
Di-cal Phosphate, lbs.	<u>2</u>	<u>2</u>	<u>2</u>
<b>Total lbs.</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>
<sup>1/</sup> Bovatec supplement provided 12.5 mgs. of lasalocid per lb. of feed. <sup>2/</sup> Monensin supplement provided 10 mgs. of monensin sodium per lb. of feed.			
Barley, lbs.	430	430	440
Mixed Hay, lbs.	400	400	400
Alfalfa, lbs.	93	93	93
Supplement*, lbs.	70 <sup>1/</sup>	70	60 <sup>2/</sup>
Trace Mineral Salt, lbs.	5	5	5
Di-cal Phosphate, lbs.	<u>2</u>	<u>2</u>	<u>2</u>
<b>Total lbs.</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>
<sup>1/</sup> Bovatec supplement provided 17.85 mgs. of lasalocid per lb. of feed. <sup>2/</sup> Monensin supplement provided 12 mgs. of monensin sodium per lb. of feed.			

The steers were on feed from January 12, 1983 until May 3, 1983, a total of 109 days. At the close of the trial, the steers were weighed on two consecutive days with the average weight calculated as the final weight. All steers were sold at auction on May 3 at Western Livestock Market in Dickinson, ND. The average selling price of \$61.70 was used to calculate return over feed costs.

Tables 2, 3 and 4 show the results of this trial.

Table 2. Heavy Weight Black Whiteface Steers

	Bovatec		Control		Rumensin	
Lot Number	2		3		4	
Number Head	6		6		6	
Initial Wt., lbs.	3395		3405		3405	
Avg. Wt., lbs.	565.8		567.5		567.5	
Final Wt., lbs.	5260		5177.5		5300	
Avg. Wt., lbs.	876.7		862.9		883.3	
Total Gain, lbs.	1865.0		1772.5		1895	
Avg. Gain, lbs.	310.8		295.4		315.8	
Days Fed	109		109		109	
Avg. Daily Gain, lbs.	2.85		2.71		2.89	
Avg. Selling Price/Cwt., \$	61.70		61.70		61.70	
Avg. Value/Hd., \$	540.90		532.40		545.01	
<b>Ration Fed/Lot:</b>	<b>Lbs.</b>	<b>Cost</b>	<b>Lbs.</b>	<b>Cost</b>	<b>Lbs.</b>	<b>Cost</b>
Barley	6,115	191.09	6,599	206.23	6,091	190.33
Mixed Hay	6,337	126.74	6,778	135.56	6,191	123.82
Alfalfa Hay	1,391	34.78	1,495	37.38	1,358	33.95
Supplement	1,012	106.26	1,090	97.05	858	89.27
Di-cal Phosphate	29.8	6.26	32.2	6.76	29.1	6.11
Trace Mineral Salt	74.8	4.49	80.4	4.82	73.1	4.39
Grinding		187.00		200.94		182.50
<b>Total</b>	14,960	656.62	16,075	688.74	14,600	630.37
Pounds Feed/Lb. Gain, lbs.	8.02		9.07		7.70	
% Feed Savings	11.5		0		15.1	
Feed Cost/Steer, \$	109.44		114.79		105.06	
Feed Cost/Cwt Gain, \$	35.21		38.86		33.26	
Return Over Feed, \$	431.46		417.61		439.95	
Advantage Over Control, \$	13.85		0		22.34	

**Table 3. Light Weight Black Whiteface Steers**

	<b>Bovatec</b>		<b>Control</b>		<b>Rumensin</b>	
Lot Number	7		6		5	
Number Head	6		6		6	
Initial Wt., lbs.	2980		2985		3000	
Avg. Wt., lbs.	496.7		497.5		500.0	
Final Wt., lbs.	4790		4672.5		4862.5	
Avg. Wt., lbs.	798.3		778.8		810.4	
Total Gain, lbs.	1810		1687.5		1862.5	
Avg. Gain, lbs.	301.7		281.2		310.4	
Days Fed	109		109		109	
Avg. Daily Gain, lbs.	2.77		2.58		2.85	
Avg. Selling Price/Cwt., \$	61.70		61.70		61.70	
Avg. Value/Hd., \$	492.55		480.52		500.02	
<b>Ration Fed/Lot:</b>	<b>Lbs.</b>	<b>Cost</b>	<b>Lbs.</b>	<b>Cost</b>	<b>Lbs.</b>	<b>Cost</b>
Barley	5,529	172.78	5,665	177.04	5,632	176.01
Mixed Hay	5,785	115.70	6,007	120.14	5,780	115.60
Alfalfa Hay	1,264	31.60	1,304	32.59	1,262	31.54
Supplement	916	96.22	941	83.74	796	82.80
Di-cal Phosphate	27.2	5.21	28.1	5.90	27.1	5.69
Trace Mineral Salt	67.9	4.07	70.1	4.21	68.0	4.08
Grinding		<u>169.88</u>		<u>175.19</u>		<u>169.56</u>
<b>Total</b>	<b>13,590</b>	<b>595.46</b>	<b>14,015</b>	<b>598.81</b>	<b>13,565</b>	<b>585.28</b>
Lbs. Feed/Lb. Gain	7.51		8.30		7.28	
% Feed Savings	9.5		0		12.2	
Feed Cost/Steer, \$	99.24		99.80		97.55	
Feed Cost/Cwt. Gain, \$	32.90		35.48		31.42	
Return Over Feed, \$	393.31		380.72		402.47	
Advantage Over Control, \$	13.09		0		21.75	

Table 4. Light Weight Hereford Steers

	Bovatec		Control		Rumensin	
Lot Number	24		23		25	
Number Head	6		6		6	
Initial Wt., lbs.	2865		2905		2900	
Avg. Wt., lbs.	477.5		484.2		483.3	
Final Wt., lbs.	4707.5		4702.5		4732.5	
Avg. Wt., lbs.	784.6		783.8		788.8	
Total Gain, lbs.	1842.5		1797.5		1832.5	
Avg. Gain, lbs.	307.1		299.6		305.4	
Days Fed	109		109		109	
Avg. Daily Gain, lbs.	2.82		2.75		2.80	
Avg. Selling Price/Cwt., \$	61.70		61.70		61.70	
Avg. Value/Hd., \$	484.10		483.60		486.69	
<b>Ration Fed/Lot:</b>	<b>Lbs.</b>	<b>Cost</b>	<b>Lbs.</b>	<b>Cost</b>	<b>Lbs.</b>	<b>Cost</b>
Barley	5,499	171.83	5,794	181.07	5,656	176.75
Mixed Hay	5,859	117.18	6,044	120.88	5,889	117.78
Alfalfa Hay	1,268	31.70	1,322	33.06	1,276	31.90
Supplement	914	95.97	960	85.42	803	83.53
Di-cal Phosphate	27.3	5.73	28.5	5.99	27.4	5.75
Trace Mineral Salt	68.1	4.09	71.0	4.26	68.6	4.11
Grinding		170.44		177.75		171.50
<b>Total</b>	13,635	596.94	14,220	608.43	13,720	591.32
Lbs. Feed/Lb. Gain	7.40		7.91		7.49	
% Feed Savings	6.4		0		5.3	
Feed Cost/Steer, \$	99.49		101.40		98.55	
Feed Cost/Cwt. Gain, \$	32.40		33.85		32.27	
Return Over Feed, \$	384.61		382.19		388.14	
Advantage Over Control, \$	2.42		0		5.95	

**Discussion:**

This trial clearly shows that both Rumensin<sup>(R)</sup> and Bovatec<sup>(R)</sup> will improve feed efficiency and lower overall feed costs. An analysis of variance of animal gains showed that while there appears to be differences in rate of gain, the differences were not large enough to be significant at the 95% probability level.

During the trial no problems with any of the feeds were noticed. There was no bloat or other feedlot related problems with any of the trial steers except for one calf that was treated for a slight case of lameness.

Steers fed Rumensin<sup>(R)</sup> appeared to have the best feed efficiency, averaging 10.86% improvement on all three lots. The Bovatec steers averaged a 9.13% savings in feed over control steers.

Feed cost per steer was lower in the Rumensin fed lots followed by Bovatec and control.

Returns were substantially higher for both the Rumensin and Bovatec steers than for the control steers.

Feeding Rumensin<sup>(R)</sup> improved returns from \$5.95 to \$22.34 over control fed steers, while using Bovatec returned from \$2.42 to \$13.85 over control steers.

In summary, based on this trial, both Rumensin<sup>(R)</sup> and Bovatec<sup>(R)</sup> were beneficial in lowering costs of feeding by improving feed efficiency. Both the improved feed efficiency and the trend toward faster gain gave both products a dollar advantage over control calves.

Rumensin appeared to promote better feed efficiency (10.86% vs. 9.13%) than did Bovatec. Rumensin also showed a net dollar advantage over Bovatec in this trial (\$16.68 vs. \$9.78).

Based upon the kind of rations, the class of cattle and the economic advantage reported in this trial, livestock producers cannot afford to ignore the use of these additives.