

TECH TALK

Effect of Protected B Vitamins for beef during the receiving period on performance

Ruminant Technical Team Commercial beef feedlot: 5000 head capacity, Nevada, USA

Article Provided By:

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OBJECTIVE

Evaluate the effect of supplementing a blend of **Protected B Vitamins** (thiamin, folic acid, biotin, pyridoxine and pantothenic acid) for beef during the receiving period in a backgrounding operation in the USA.

MATERIALS AND METHODS

- 737 steers, Black Angus crossed, originating from the USA were split after 2 days of rest, into 2 homogeneous groups. Animals were assigned to either control or a treatment group alternatively according to their individual body weight at start of experiment with 2 pens per treatment, one pen of lighter cattle and one pen of heavier cattle.
- The group shrink loss was between 4-5% and calculated from the (origin weight – arrival weight/origin weight).
- The feeding treatment lasted 33 days.

Table 1. Feeding treatment.

Control	Treatment
No B vitamins	4 g/head/day of Protected B vitamins[1]

[1] Rumen protected thiamin, folic acid, biotin, pyridoxine and pantothenic acid

The rumen protected blend was added directly to the TMR in the morning feeding through a micro mix system using air (Microtechnology).

- The animals were fed a Total Mixed Ration (TMR) (Appendix A)
- Individual weight was measured at start, end of receiving period (33 days) and at 59 days, few days before shipping to another feedlot where cattle were finished.
- Daily pen intakes were measured and dry matter of TMR was analyzed weekly to calculate pen DMI.

Statistical analysis

Average daily gains were determined by steer, and treatments were compared using a two tailed Student's T test. Morbidity and mortality data were analyzed using Chi2 analyses.

RESULTS

Table 2. Performance results during the receiving period (33 days) and at 59 days in feedlots.

	Control	Treatment	Difference, kg (lb)
Length on treatment, days	33	33	
Number of animals	368	369	
Start weight, kg (lbs)	254.5 (561.2)	255.2 (562.7)	
End weight at 33 days, kg (lbs)	300.5 (662.6)	303.3 (668.7)	
Daily gain at 33 days, kg (lbs)	1.41a (3.12) [a]	1.48b (3.26) [b]	0.07 (0.14)
Daily gain at 34-59 days, kg (lbs)[1]	1.67 (3.68)	1.71 (3.77)	0.04 (0.09)
End weight at 59 days, kg (lbs)	343.8 (758.0)	348.0 (767.2)	

[a,b] differs $P < 0.05$.

[1] $P = 0.098$.

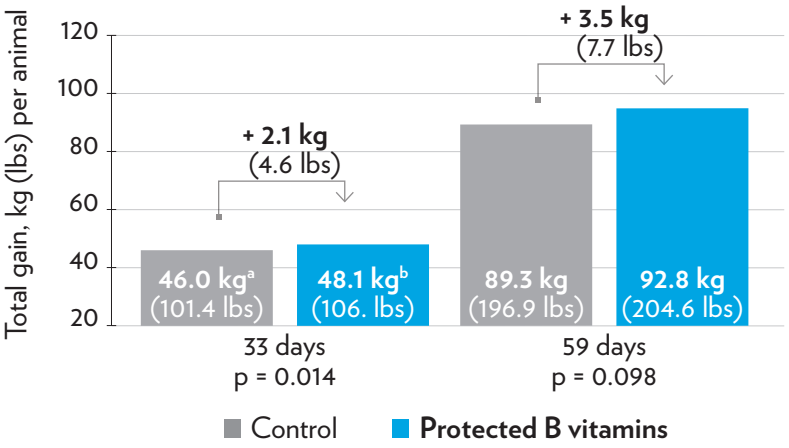


Figure 1. Effect of the **Protected B Vitamins** blend fed during the receiving period (33 days) on the total gain of animals at 33 and 59 days in feedlots.

With the supplementation of **Protected B Vitamins** for the receiving period:

- Daily gain during the receiving period (33 days) increased by 0.07 kg (0.14 lbs), with a 5% improvement
- Total gain at 33 days increased by 2.1 kg (4.6 lbs), with a 4.6% improvement
- Total gain at 59 days increased by 3.5 kg (7.7 lbs), with a 3.9% improvement

The extra gain obtained at 59 days in feedlots indicates a potential carry-over effect (Figure 1).

Table 3. Effect of the **Protected B Vitamins** blend fed during the receiving period on Dry Matter Intake, Feed Conversion and Health status.

	Control	Treatment	Difference (%)
Dry Matter Intake	7.80 (17.2)	7.76 (17.1)	
Feed Conversion at 33 days, DMI/Gain	4.69	4.55	-0.14 (3%)
Feed Conversion from 34-59 days, DMI/Gain	5.74	5.3	-0.44 (7.7%)
Feed Conversion from 1-59 days, DMI/Gain	5.16	4.89	-0.27 (5.2%)
Mortality, no steers (%)[1]	5[a] (1.36%)	1[b] (0.27%)	
Morbidity, no steers (%)[2]	100 (27.5%)	92 (25.0%)	

[a,b] differs $P < 0.05$.
[1] Cattle died due to bloat problems | [2] Steers treated for illness, mainly pneumonia problems

- No difference in Dry Matter Intake
- Feed Conversion was improved by 3.3% during the receiving period (33 days) and after 59 days in feedlot by 5.2%
- Mortality was lower for cattle on **Protected B Vitamins** treatment.

CONCLUSION

Beef cattle supplemented with a specific blend of **Protected B Vitamins** during the receiving period had increased gain and improved feed conversion during the receiving period. Cattle after 59 days in feedlot continued to have an improved feed conversion and gain compared to the non-supplemented cattle; this is demonstrating a carry-over effect. This innovative nutritional tool for the receiving period will increase the profitability of the beef feedlot operation.

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APPENDIX A.

Table 4. Composition of receiving ration (as fed, % of TMR).

Ingredients	Ration
Wheat hay	4.93
Alfalfa hay	10.84
Rolled Corn	31.85
Liquid supplement1	4.76
Corn Gluten Feed (pellet)	14.78
Almond hulls	6.57
TOTAL	100
Average ration dry matter of ration	69.90%

[1] Contains yeast culture.