

Catyl-Zyme™ Compared to Diamond V Yeast Culture in Newly Weaned Holstein Calves

RESEARCH SUMMARY

A trial was conducted utilizing 78 head of Holstein steer calves that were 56 days old. Steers were previously on the research premises on milk replacer. The purpose of this study was to see if there were any differences between Ralco's new feed additive (**Catyl-Zyme™**) and a leading yeast product (Diamond V Ultra). Catyl-Zyme is a combination of Ralco's proprietary **Microbial Catalyst®** and an industry available brewer's yeast (Emprove). The calves were weaned and immediately started on the trial. Steers were housed in groups of 5 or 6 head per pen with one super hutch available. All pens and hutches were bedded with a layer of rice hulls followed by chopped wheat straw to ensure warm dry clean comfortable bed. Steers were fed 5 lbs. of a complete grain mix which contained the treatments and free choice alfalfa hay. Nutrient compositions for the treatments and hay are summarized in Table 1. Body weights were measured every two weeks and frame size measurements were recorded at 0, 8 and 12 weeks along with fecal samples, rumen fluid and blood samples.

Table 1. Nutrient Composition of Experimental Grain Mixes and Forage Fed to Steers

Nutrient	Control	DV	Catyl-Zyme	Hay
Dry Matter, %	92.1	89.5	90.0	83.9
Crude protein, %	20.6	20.4	20.4	15.6
TDN, %	80.0	82.0	80.8	55.0
NEm, Mcal/cwt	91.9	94.3	92.7	54.6
NEg, Mcal/cwt	62.1	64.1	62.8	29.0

RESULTS

While there were no significant differences in any of the growth parameters of this trial (Table 2), both the yeast and **Catyl-Zyme** treatments tended to out-perform the control. The most likely reason for the increased average daily gain among the treatments was an increase in the forage intake with both the yeast and **Catyl-Zyme** treatments (Table 3). By design the concentrate portion of the diet was not allowed to change so the only opportunity for the treatments to have any affect was to either improve digestibility, VFA ratios or enhance intake of forage portion of the diet that was provided ad libitum. It should be noted that the predominant mode of action for the treatments is in modulating or otherwise improving rumen fermentation. The lack of significant response in this trial is likely due to the age of animals in this trial and the fact that the rumen was not developed enough to benefit from the known ruminal responses of the treatments here. This theory is supported by the fact the biggest response to treatment occurred at the very end of the trial where rumen development would have been at the greatest. There were no differences in any of the rumen or blood parameters measured.



Table 2. Body weight (BW), BW gain, and average daily gains (ADG) for steers fed no yeast (Control). Diamond V yeast (DV) or Catyl-Zyme

Measurement	Treatment			SEM	Contrast, <i>P</i> <	
	Control	DV	Catyl-Zyme		1	2
ADG, g/d/period						
Day 70	854.4	984.1	986.2	159.7	0.53	0.48
Mean ADG, g/d	1037.3	1077.7	1064.3	24.0	0.79	0.18

Table 3. Forage as % of total dry matter intake for steers fed no yeast (Control) Diamond V yeast (DV), or Catyl-Zyme

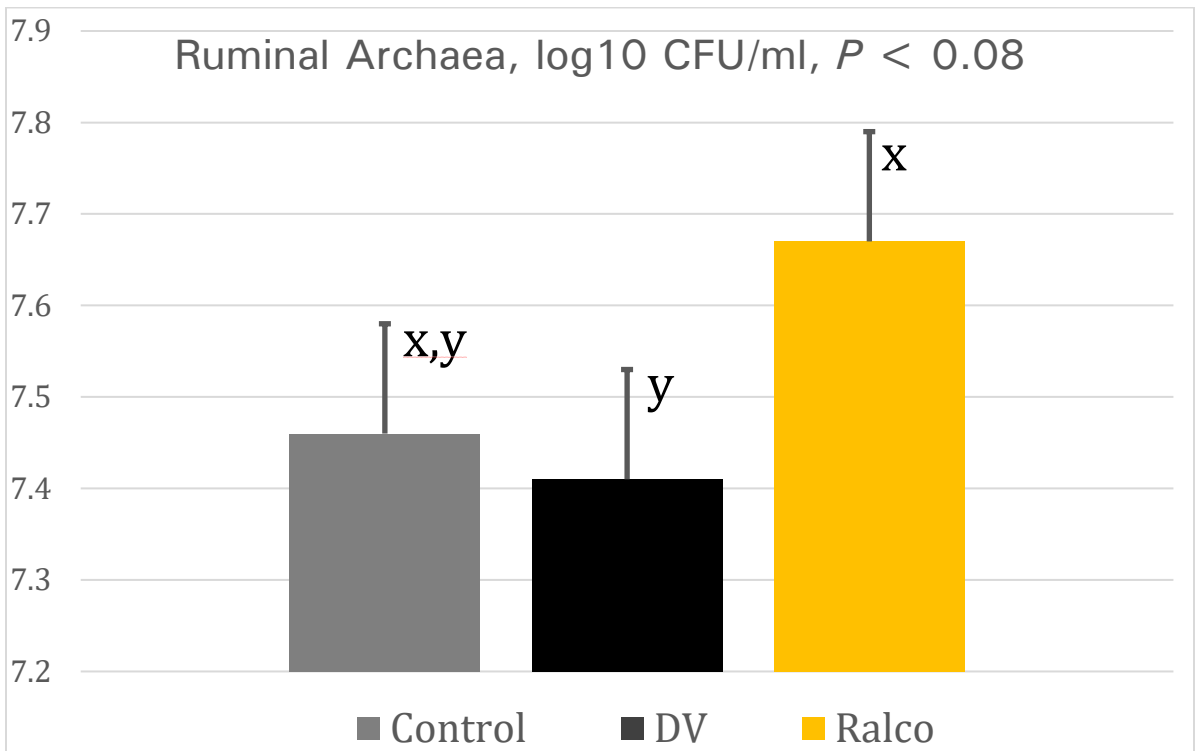
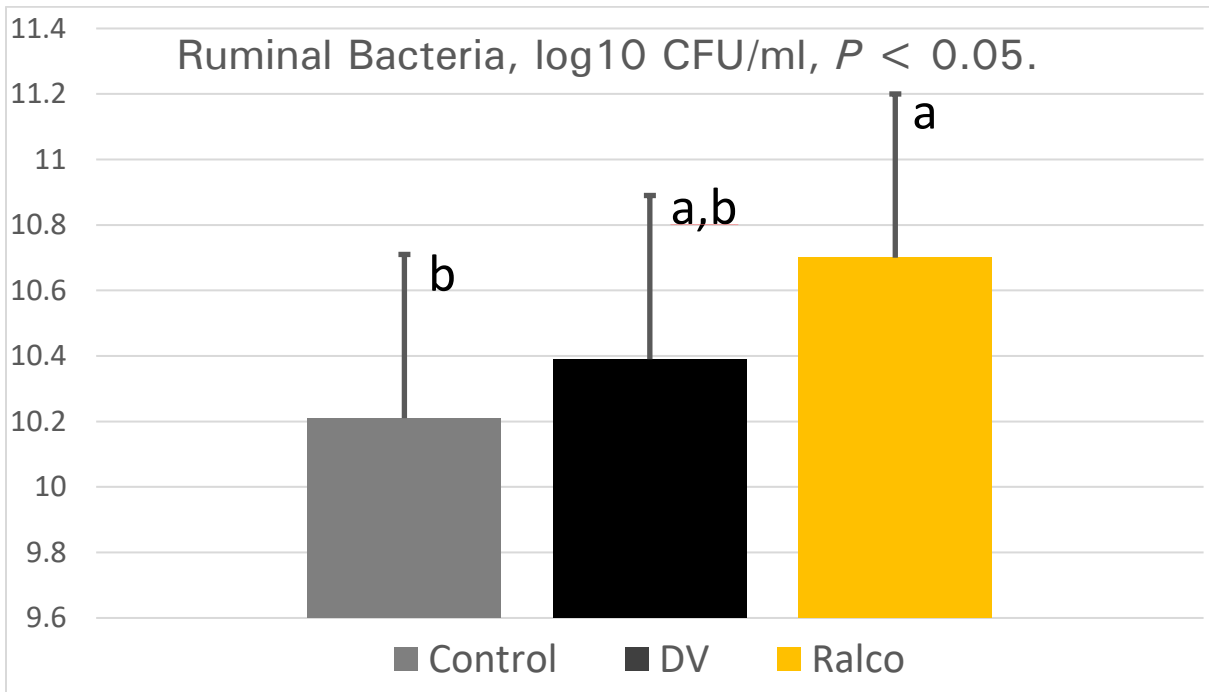
Measurement	Treatment			SEM	Contrast, <i>P</i> <	
	Control	DV	Catyl-Zyme		1	2
Forage, %						
Day 7	5.30	5.98	6.41	2.34	0.01	0.01
Day 14	12.45	12.40	14.31			
Day 21	23.65 ^b	26.48 ^{ab}	27.93 ^a			
Day 28	26.56	27.65	27.54			
Day 35	38.89	37.75	38.57			
Day 42	39.71	41.07	40.18			
Day 49	43.37	45.10	44.66			
Day 56	44.35	46.05	46.17			
Day 63	46.42 ^b	49.12 ^{ab}	50.20 ^a			
Day 70	50.86 ^b	54.06 ^{ab}	54.59 ^a			
Mean Forage, %	33.3 ^b	34.8 ^{ab}	35.1 ^a	1.91	0.01	0.01

^{a,b} Means with unlike superscripts differ, *P* ≤ 0.05.

Contrast 1 = Control versus DV & **Catyl-Zyme**

Contrast 2 = DV versus **Catyl-Zyme**

An interesting observation and support to the hypothesis that **Catyl-Zyme** is having an impact on rumen function is summarized in Figure 1 and Figure 2 below. **Catyl-Zyme** had a significant and meaningful impact on increasing the numbers of rumen bacteria over both the control and Diamond V yeast calves. These measurements were taken toward the end of the trial so again probably at a time when rumen development was starting to take place.



CONCLUSION

Feeding **Catyl-Zyme** reduces feed cost by allowing for more forage in the ration to achieve similar results to other yeast products due to increasing ruminal bacteria concentrations. The data taken all together clearly shows improvement in rumen function and development. Had the trial been continued for more days it is likely that **Catyl-Zyme** would start to show greater and more significant growth responses. Various yeast and yeast fermentation products are widely fed in the industry and well accepted as being beneficial to ruminants. In this trial **Catyl-Zyme** performed as well in some cases better than the yeast and could easily be substituted for yeast in ruminant growing and finishing diets with an equal or greater expected response with minimal increases in overall cost of the ration.