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The effect of Enzymatically Hydrolyzed Yeast (EHY, Celmanax™) on production performance in dairy cattle

Introduction: Yeast and yeast products have been used in ruminant nutrition to manipulate rumen fermentation and, therefore, production response. Feeding of derivatives of the yeast cell wall is known to influence the composition and metabolic activity of the intestinal microflora and has shown to have beneficial effects in improving animal health response. In this study a Yeast Culture (YC) and EHY manufactured as a combined supplement called Celmanax™ is tested in dairy cattle for production performance.

Objective: To evaluate the effects of supplementing Celmanax on production performance in dairy cattle.

Materials and Methods: One hundred multiparous cows were balanced to one of two treatment groups (2 pens/trt) according to previous lactation 305 d ME. Cows entered the groups at calving and remained through 14 weeks postpartum. Groups were randomly assigned throughout the barn. Pens were identical in layout and each pen contained an exit alley so that it would not interfere with an adjacent pen when animals were moved for milking. The two treatments were: control; no supplementation, and Celmanax 28 g/d. The model that was utilized was as follows: μ = mean + trt + period + pen (trt) + trt x period + residual.

Results: Mean group dry matter intake (DMI) was similar across treatments. Milk yield variables were affected by treatment ($P<.01$). Cows supplemented with Celmanax produced more milk than control ($P<.01$). These same significant production differences were revealed for 3.5 fat corrected milk (FCM) and energy corrected milk (ECM). Milk fat, SNF, or lactose percentages were not affected by treatment ($P>.01$), however, protein percentage was higher for cows supplemented with Celmanax than control ($P<.01$). Differences in fat, protein, and SNF yields were primarily reflective of milk yield ($P<.01$). There was no effect of treatment on MUN. Somatic cell count was lower for cows supplemented with Celmanax compared to control ($P<.01$).

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Conclusion: Cows supplemented with Celmanax produced more milk, FCM, ECM, and higher milk protein percentage than non-supplemented cows. Fat, protein, and SNF yields were higher for Celmanax supplemented cows compared to control. Somatic cell count was lower for cows supplemented with Celmanax.

Results Tables:

Table 1: Effect of Celmanax on Group DMI and Milk Yield

Treatments				*P*
Parameter	**Control**	**Celmanax**	**SEM**	**Trt**
N (Pen 1+2)[1]	47.00	48.00		
DMI, lb	55.10	55.60		
Milk, lb	89.30[b]	92.70[a]	0.70	0.01
3.5 FCM, lb[2]	91.60[b]	95.70[a]	0.80	0.01
ECM, lb[3]	90.10[b]	94.40[a]	0.70	0.01

[1] Pen (trt) effects for all variables were non significant (P>.05)
[2] 3.5% FCM = .4324 (lb milk) + 16.218 (lb milk fat)
[3] Energy-corrected milk was calculated by the following equation: ECM = (lb milk x .327) + (lb milk fat x 12.95) + (lb protein x 7.2)
[ab] Means within the same row with different superscripts differ (P<.05) by Tukey-Kramer test

Table 2: Effect of Celmanax on Milk Composition and Yield

Treatments				*P*
Parameter	**Control**	**Celmanax**	**SEM**	**Trt**
Composition				
Fat, %	3.67	3.72	0.04	NS
Protein, %	2.91[b]	2.98[a]	0.01	0.01
Lactose, %	4.67	4.66	0.02	NS
SNF, %	7.58	7.64	0.04	NS
Component Yields				
Fat, lb	3.26[b]	3.43[a]	0.03	0.01
Protein, lb	2.58[b]	2.74[a]	0.02	0.01
SNF, lb	6.74[b]	7.06[a]	0.04	0.01
Other				
MUN	11.10	11.20	0.12	NS
SCC, x1000	241.00[a]	178.00[b]	13.00	0.01

[ab] Means within the same row with different superscripts differ (P<.05) by Tukey-Kramer test

Adapted from the data of: J.E. Nocek, Ph.D., M.G. Holt, and J. Oppy (2011) Effects of supplementation with yeast culture and enzymatically hydrolyzed yeast on performance of early lactation dairy cattle. Journal of Dairy Science Vol. 94 No. 8

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