THE EFFECT OF CUSTOM-BLEND YEAST PRODUCT (CBYP) VS DIAMOND V XP ON MILK PRODUCTION PERFORMANCE IN LACTATING DAIRY CATTLE

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Introduction: Yeast and yeast culture additives have been used in ruminant nutrition to manipulate rumen fermentation and, therefore, production response. Many commercial yeast based products are currently being used for this purpose. In this study, two such products are compared.

Objective: To determine the effect of a custom-blend yeast product (CBYP), consisting of both live-cell yeast and A-MAX™ Concentrate compared to Diamond V® XP™ on milk production in lactating dairy cattle.

Materials and Methods: This study was conducted at Spruce Haven Farm and Research Center in Union Springs, NY. Cows housed in a free stall area in the study were balanced by parity (no first-lactation cows were utilized), days in milk, and previous week's milk production average. There were 45 cows for each treatment. The treatments were as follows: A) standard herd mix + Diamond V XP at 2 oz/head/day, and B) standard herd mix + custom-blend yeast product
(CBYP), fed at a rate of 1 oz/head/day. Cows were on a preliminary period of no treatment (only TMR) for 14 days. After 14 days, cows were supplemented with either treat-ment A or B for eight weeks. At the end of the eight week period, treatments were removed and milk production and composition were monitored for an additional 14 days to determine residual effects. Milk production and dry matter intake was monitored on a daily basis. Milk samples con-stituted an AM/PM composite and were analyzed for fat, protein, milk urea nitrogen, and somatic cell. For the preliminary and residual periods, one-way analysis of variance was conducted to determine the effects between groups (student T tests). During the experimental period, parame-ters were evaluated by a split-plot-in-time for repeated measures analysis. *In situ* digestibility was determined on the NDF fraction of corn silage and haylage used in the diet. The study was initi-ated on March 8 and completed on May 31, 2001.

Results: The ingredient composition and chemical analysis of the TMR are listed in Table 1 and *in situ* digestibility profiles for NDF are listed in Table 2. There was no difference in dry matter intakes between groups during the preliminary, treatment, or residual periods (Table 3). During the preliminary period, cows produced 88.4 and 88.3 lb. of milk in groups A and B, respectively. During the trial period, there were no significant differences between treatments for any parameters measured. Although cows in group A were slightly higher in milk fat and protein during the preliminary period, those receiving CBYP during the treatment period had slightly higher milk fat and protein yield, as well as 3.5% PFCM compared to those receiving Diamond V XP; however, no significant differences were detected. There were also no signifi-cant differences during the residual period between treatment groups once the yeast supple-mentation was removed.

Conclusion: Cows supplemented with Diamond V® XP™ and the CBYP produced similar amounts of milk and milk components.

Table 1. Ingredient composition and chemical analysis of TMR[1]

Feedstuff	% of DM Basis
Corn silage	41.7
Haylage	8.0
Corn meal	14.9
Whole cottonseed	8.0
Chocolate mix	3.6
Grain mix (including Min-vit mix)	23.8
	100.0

Nutrients	HCS	Corn silage	TMR
Dry matter	35.7	32.4	49.1
Crude protein	21.5	8.1	18.5
Soluble protein, %CP	57.2	53.8	30.7
NEI (Mcal/lb)	.65	.71	.80
NDF	36.7	49.0	32.8
NSC	30.4	36.5	37.2
Ca	1.53	.41	.89
P	.29	.20	.48
Mg	.30	.18	.39
K	2.62	1.07	1.17

[1]One lb of corn meal was removed from the diet and used as a carrier to deliver either 2 oz of Diamond V XP yeast or 1 oz of A-MAX Concentrate

Table 2. *In situ* NDF digestibility profile for hay crop silage and corn silage

Hay Crop Silage	
Fraction	
A, %	3.1
B, %	51.3
C, %	45.6
KdB, %/h	3.2

Corn Silage	
Fraction	
A, %	4.5
B, %	47.3
C, %	48.2
KdB, %/h	3.9

Table 3. The effect of yeast supplementation on production performance of dairy cows.

Variable	Group A	Group B	SEM	P <
Blocking criteria				
n	44	45		
305d ME	24,231	24,621	138	
Milk (lb, 1 wk aver.)	89.7	89.8	.9	
Lactation No.	2.9	2.9	.7	
Days in milk	61	63	8.4	
Preliminary Period[1]				
Treatment	No Yeast	No Yeast		
DMI (lb)	49.6	49.1	2.0	NS
Milk (lb)	88.4	88.3	1.7	NS
Fat %	3.99	3.91	.09	NS
Protein %	3.06	2.99	.08	NS
Fat (lb)	3.53	3.43	.09	NS
Protein (lb)	2.60	2.64	.05	NS
3.5% PFCM (lb)[4]	92.3	91.3	1.9	NS
MUN	9.6	9.4	.42	NS
Trial Period[2]				
Treatment	Diamond V® XP™	CBYP		
DMI (lb)	50.3	50.6	2.4	NS
Milk (lb)	85.6	85.8	.80	NS
Fat %	3.89	3.93	.04	NS
Protein %	2.97	3.03	.01	NS
Fat (lb)	3.32	3.35	.05	NS
Protein (lb)	2.53	2.61	.02	NS
3.5% PFCM (lb)	88.4	89.8	.91	NS
MUN	10.8	11.0	.22	NS
Residual[3]				
Treatment	No Yeast	No Yeast		
DMI (lb)	49.3	48.9	2.6	NS
Milk (lb)	82.1	81.2	1.7	NS
Fat %	3.96	3.95	.08	NS
Protein %	2.98	3.05	.03	NS
Fat (lb)	3.24	3.20	.09	NS
Protein (lb)	2.44	2.64	.06	NS
3.5% PFCM (lb)	85.3	86.0	2.1	NS
MUN	9.7	8.5	.39	NS

[1]Pre-period: weeks 1-2
[2]Trial period: weeks 3-10
[3]Residual period: weeks 11-12
[4]3.5% PFCM = (12.82 x fat, kg) + (7.13 x protein, kg) + (.323 x milk, kg)

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