



Organic supplementation in replacement of inorganic sources of Se, Cu and Zn during prepartum on milk yield and metabolic dysfunctions in Holstein-Friesian cows at early lactation fed TMR



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INTRODUCTION



Minerals like Se, Zn, I, Co, Cr, Cu, Mn and Fe, and antioxidants like vitamin E have important roles in MY, reproduction and health in transition cows. Several studies have reported potential benefits of supplementing yeast enriched with one or several micro minerals or vitamin E. It has been observed that supplementation of yeast-enriched with minerals increase MY in early lactation, improved ruminal fermentation and digestion of feed. Other studies have indicated that pre-partum Se supplementation may reduce the incidence of REPL in dairy cows fed diets low in Se. Micro minerals such as Zn, Mn, Cu and Co are required in the formation of numerous structural proteins and vitamin metabolism. Chromium (Cr) supplementation to dairy cows has been shown to increase DMI, increase MY and decrease REPL. However, few studies have investigated the effect of yeast in reducing postpartum uterine diseases such as REPL and MET or metabolic dysfunctions as KET. Therefore, the objectives of this study were to investigate the effect of BOVI-8 (Biotecap, Jalisco, Mexico) supplemented during 28, 21, 18 or 14 d precalving in Holstein-Friesian cows on milk yield, and incidence of REPL, MET, and KET in early lactation.

DATA USED

- 1,558 Holstein-Friesian cows that calved between 10/01/2011 and 11/01/2012 were included in the study.
- Herd sizes were 2500, 900, 400, 2400, and 1800 lactating cows for dairies A, B, C, D and E, respectively.
- Treatments with TMR plus 0.0 or 15.0 g animal⁻¹ d⁻¹ of Bovi-8-Ways™ (Bovi-8) as follows: 1) 0.0 g Bovi-8, Control; 2) Bovi-8 for 14 d (Bovi-8-14d), 3) Bovi-8 for 18 (Bovi-8-18d), 4) Bovi-8 for 21 (Bovi-8-21d), and 5) Bovi-8 for 28 d (Bovi-8-28d) before parturition.

STATISTIC ANALYSIS

Data was analyzed using SAS (SAS, 2014) statistical package. Milk yield and metabolic dysfunctions were analyzed using the Glimmix procedure of SAS in a completely randomized design with repeated measurements over time.

STUDY VARIABLES

- Milk yield
- Milk efficiency
- Metabolic disorders: Retained placenta, metritis and ketosis

RESULTS

Milk yield, kg

Item	Control ¹	SCE-14d	SCE-18d	SCE-21d	SCE-28d	SEM	P-value		
							Trt	Time	Trt X Time
Week 1, (n=1262)	27.76 ^a	24.96 ^b	27.51 ^a	20.97 ^c	22.51 ^c	0.54	< 0.00	< 0.00	< 0.00
Week 3, (n=1233)	37.76 ^a	35.19 ^b	36.63 ^a	33.30 ^c	29.62 ^c	0.52	< 0.00	< 0.00	< 0.00
Week 6, (n=866)	38.40 ^b	40.58 ^a	41.34 ^a	38.31 ^b	38.29 ^b	0.74	< 0.00	< 0.00	< 0.05
Week 1 to 15, (n=1323)	35.38 ^b	37.50 ^a	37.16 ^a	38.47 ^a	37.11 ^{ab}	0.50	< 0.05	< 0.00	< 0.05

Metabolic and reproductive disorders

Treatment	Retained Placenta (%)			Metritis (%)			Ketosis (%)		
	LSM	EE	P	LSM	EE	P	LSM	EE	P
Control ¹	0.91 ^{bc}	0.03	< 0.00	0.95 ^b	0.02	< 0.12	0.87	0.04	< 0.18
SCE-14d	0.97 ^a	0.01		0.98 ^a	0.01		0.92	0.03	
SCE-18d	0.95 ^{ab}	0.02		0.96 ^{ab}	0.01		0.92	0.02	
SCE-21d	0.88 ^c	0.04		0.93 ^b	0.03		0.93	0.03	

CONCLUSIONS

Supplementation with *Saccharomyces cerevisiae* enriched with micro mineralarals and vitamin E in small amounts for a few weeks before parturition increased milk yield by 2.0 to 3.0 kg per animal per day during the first 15 weeks of lactation. In addition, this supplementation reduced the incidence of uterine disease such as retained placenta and metritis in highly producing dairy cows.



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