Evaluation of inoculated corn silage in primiparous Holstein cow milk production

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Introduction Improvement in dairy food resources leads to achieving more efficient production with the need to get more responses with the same amount of food, thus the seeking of helpful technologies. A trial was performed to assess the level of milk production (MP) and individual dry matter intake (DMI) of primiparous Holsteins cows fed corn silage treated with enzyme-bacterial homofermentative inoculant (EBHoI) in partially mixed ration.

Materials and Methods We employed 28 Holstein primiparous cows in 4 homogeneous herds (2 herds in each treatment) with 7 cows each**.** The animals were fed with isoenergetic and isoproteic PMR (Partial Mix Ration), changing only the corn silo between treatments**.** Each PMR was formulated, on dry basis, with: 6.50 Kg corn silage (inoculated with EBHoI LactoSilo ® and non inoculated), 1.70 kg rye grass silage, 2.00 kg soybean expeller, 2.00 kg soybean meal, 0.80 kg corn grain, 3.20 kg wheat middlings, 2.80 kg commercial feed, 1.00 kg whey permeate, 0.07 kg urea and 0.40 kg vitamin-mineral complex.

The measurements were made by milk production (MP) controls in the 2 milking per day by herd, every 20 days. PMR consumption was determined on the day prior to each production control. Milk production was analyzed as 4% fat-corrected milk (FCM; Gaines and Davidson, 1923). Additional information was conversion efficiency and body condition score.
Statistics were carried out in Infostat 2011 using ANOVA considering of time effects, using time-sequence analysis.

Results and Discussion Table 1 shows the response variables analyzed for this study, the MP day values 5.4% higher for inoculated treatment than the control and the corrected for 4%FCM showed 5% higher for the inoculated treatment, this difference was significant ($p < 0.10$). These data are consistent compared to that reported by Moran and Owen (1994), who showed in 14 studies of lactating cows, that the inoculant (*L. plantarum*) increased dry matter intake by 4.8%, and milk production was increased 4.6% when the inoculant was applied to pasture grasses, corn or alfalfa.

Table 1 Average milk production and consumption by treatment

	Treatment		
Item	Inoculated	Control	p-values
Milk production per day, L cow^{-1}	28.42	26.96	.1642
Milk production per day 4%FCM, L cow^{-1}	25.27	24.06	.0833
Individual intake, Kg DM day^{-1}	17.27	17.18	.9401

There were no statistically significant differences ($p > 0.10$) in the PMR intake, being 17.27 kg DM day^{-1} and 17.18 kg DM day^{-1} (+0.52%) for inoculated treatment and control respectively. The conversion efficiency to 4% FCM (liters of milk by kg PMR), was better in the inoculated treatment, 1.46 L of milk by kg of PMR and the control was 1.40 L of milk by kg of

PMR. The body condition score (BCS), at the beginning was in the average values of 3.50 and 3.59 BCS for the inoculated treatment and control respectively. At the end of the trial, the values were 3.37 BCS for the inoculated treatment and 3.21 BCS for the Control.

Conclusions: The inoculated treatment was 5.4% and 5% higher in MP and 4% fat-corrected milk respectively. Similar results were obtained by Kung and Muck (1997) with a 3% increase in MP (Contreras-Govea et al., 2009). PMR intake was 0.52% higher for the inoculated treatment, not significant. Kung and Muck (1997) showed that in a total of 67 studies, 19 had increased intake response. The conversion efficiency to 4% FCM (liters of milk by kg PMR), was better in the inoculated treatment (+4.2%).

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