**Effect of different sources of pectin feedstuffs on milk yield and composition of early lactating**

**Holstein cows**

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**Introduction** The inclusion of high levels of cereal-based concentrates decreases rumen pH and the activity of rumen

cellulolytic bacteria thus depressing rumen cell wall fermentation, digestibility and roughage intake. Citrus pulp has a high

potential rumen degradability and apparent digestibility and, as with other pectin-rich foods such as sugar-beet pulp, causes

a lower production of propionic and lactic acids than starchy foods. As a result, supplementation of roughages with pectinrich

foods generally has a less adverse effect than cereal grains on cell wall fermentation and digestibility and on roughage

intake, thus resulting in similar or even greater total digestible organic matter intake (DOMI).The aim of the present study

was to evaluated effects of different source of pectin feed stuff on milk yield and composition dairy cows.

**Material and methods** Eight primiparous early lactating Holstein cows (60 ± 23 days postpartum, weighing 530 ± 60 kg)

were assigned into a replicated 4 × 4 Latin square design with four 3-wk periods. Cows were allocated into four diets whit

1)10% barely grain, 2)10% sugar beet pulp, 3)10% wheat bran and 4) 10% dried citrus pulp . Each experimental period was

21 days including 14 days adaptation period and 7 days collecting samples. Milk yield recorded daily and milk sample were

taken from each milking times during the last 3 days of each period. Milk samples were subjected to analysis for CP,

lactose, fat and SNF.Blood samples were collected from the jugular vein 2h after the morning feeding. Blood serum was

collected after centrifuged at 1,500 x *g* for 40 min, frozen at – 40°C, and later analyzed for Glucose and urea N. Rumen

samples were taken from each cow on the last days of each experimental period at about 3 hr after the morning

feeding.Ruminal fluid pH was determined immediately. Differences in means were detected using the PROC GLM

procedure of the Statistical Analysis System release 9.1 (SAS, 2004).

**Results** The dry matter intake (DMI), milk yield and composition, ruminal pH and blood metabolites are presented in the

Table 1. DMI (kg/d), milk yield, milk composition, ruminal pH and blood metabolites were not affected by treatments

(P>0/05).

**Table 1** Dry matter intake, milk production, and composition and ruminal pH of dairy cow

Treatment T1 T2 T3 T4 SEM

Item

DMI (kg day-1) 19.34 19.63 19.74 18.69 0.122

Milk yield (kg day -1) 28.68 28.3 28.81 27.37 0.201

Milk composition (%)

Protein 3.1 3.03 3.16 3.12 0.046

Lactose 4.92 5.01 5.15 4.98 0.057

Fat 3.14 3.44 3.36 3.34 0.070

SNF 8.27 8.3 8.56 8.36 0.099

Ruminal pH 6.25 6.36 6. 3 6.26 0.025

The data of blood metabolites are presented in the Table 2. There were no significant differences in blood metabolites

between treatment diets (P>0/05).

**Table 2** Blood metabolites of dairy cow

Treatment T1 T2 T3 T4 SEM

Item

Glucose (mg/dl) 55.8 53.8 54.1 53.5 1.026

Blood urea nitrogen(mg/dl) 24.37 25.62 25.87 26.25 0.278

**Conclusion** The obtained results indicated that substitution of sources of pectin feed stuff by barely grain were not effect

on DMI, milk yield and composition, ruminal pH and blood metabolites. This result in agreement whit (Castel, 1972;

Feregos *et al*., 1995). However, the addition of sources of pectin feed stuff at 10% level (dry matter basis) of the dairy cow

ration instead of cereal grain; can decrease the cost of milk production without any negative effect on animal performance.

**References**

Castle, M.E. 1972. Journal of Agricultural Science 78:371-377.

Feregos, K., Zeras, G., Stamouli, S. and Apostolaki, E.1995. Journal of Dairy Science 78, 1116-1121.