Effect of organic chromium supplementation on lactation performance and blood parameters of Holstein cows during hot season [1]

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Received: Aug. 6, 2015; Accepted: Jan. 19, 2016

Abstract

The purpose of this study was to evaluate the effects of dietary supplementation of organic chromium on lactation performance and blood traits of Holstein lactating cows during hot season (June 1st and July 31st). A total of 24 Holstein dairy cows (average of days in milking 187 ± 41 days) were randomly assigned into two groups according to their body weight, milk yield, parity and days in milk. The cows fed the diets containing 0 (control) and 0.5 ppm of organic chromium. During the experimental period, the average temperature-humidity index (THI) was 82.8 that mean the cows were suffering from severe stress. The results showed that Holstein lactating cow added chromium did not affect their dry matter intakes, milk yield, body weight and milk efficiency (milk/intake). Added 0.5 ppm chromium had a trend to increased milk lactose ($p = 0.09$) and solid-not-fat concentration ($p = 0.14$), however in the milk fat, milk protein, total solid and somatic cell count were not significantly different. There was significantly lower blood insulin concentration when added chromium ($p < 0.05$), but in the glucose concentration and insulin ratio ($p = 0.13$) had tends increased. The blood GOT ($p = 0.06$) content had a trend decrease when chromium added. Other enzyme activities of creatine kinase, glutamate-pyruvate transaminase and lactate dehydrogenase were not different by added chromium. In conclusion, 0.5 ppm chromium supplementation in Holstein lactating cow diet during the hot season, did not affect in dry matter intake and milk production, but there was a trend of increase milk lactose, solid-not-fat concentration and the ratio of glucose and insulin and decreased blood insulin and GOT.

Key words: Holstein lactating cows, Lactation performance, Organic chromium.

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