Effects of glutamine protected on body condition score changes and plasma metabolites of Holstein fresh cows


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Abstract
This study was conducted to evaluate the effects of protected glutamine (Gln) supplementation in the diet of Holstein fresh cows after parturition on dry matter intake (DMI), plasma metabolites, body condition score (BCS) and reproductive performance. Forty Holstein dairy cows (796±58 kg of pre-parturition live weight; 3.25±0.35 BCS) at zero d of parturition were divided to four groups (n=10), including: basal diet (control group: a total mixed ration (TMR) consisting of 49% forage and 51% concentrate mixture on dry matter (DM) basis), basal diet supplemented with 150, 250 or 350 g of Gln protected with formaldehyde/cow per day. Dry matter intake of experimental treatments on 21 d after calving were 12.09, 14.39, 15.40 and 97.15 kg/d respectively. Plasma glucose concentrations of 1 to 4 treatments on 21 d after calving were 48.8, 55.0, 59.2 and 60.5 mg/dl respectively. total protein concentrations of 1 to 4 treatments on 21 d after calving were 5.02, 5.98, 7.10 and 7.20 g/dl respectively. AST concentrations of 1 to 4 treatments on 21 d after calving were 132.5, 82.1, 73.3 and 71.3 U/l respectively. Dietary supplementation with protected Gln had no effect on blood urinary nitrogen. The cows that received Gln changed the BCS less than the control treatment. Dietary supplementation of Gln had no effect on reproductive performance and the number of artificial insemination leading to pregnancy and also the interval between calving to pregnancy were not significant between treatments.

Keywords: Transition period, blood metabolites, Glutamine, Cow

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