

Biological Organic or Inorganic Sulfur Sources Feeding Effects on Intake and Some Blood Metabolites of Close-Up Holstein Cows

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Abstract : This study was carried out to investigate the effects of increased level of sulfur by supplementing magnesium sulfate with or without biologically organic source in dairy cow close-up diets on dry matter intake (DMI) and some blood metabolites. The 24 multiparous close-up Holstein cows averaging body weight 687.94 kg and days until expected calving date 21.89 d were allocated in three different treatments (8 cows per each) in a completely randomized design. The first treatment (T1) has contained 0.21% sulfur (DM basis), the second treatment (T2) has contained 0.41% sulfur which entirely supplied through magnesium sulfate and the third treatment (T3) has contained 0.41% sulfur which supplied through combination of magnesium sulfate and an organic source of sulfur. All the cows were fed same diet after parturition until 21 d. The DMI for both pre-calving ($P < 0.001$) and post-calving was affected by treatments ($P < 0.004$) and T2 showed the lowest DMI among treatments. Among the blood metabolites, glucose, calcium, and copper were decreased in T2 ($P < 0.05$). However, blood concentrations of BHBA, NEFA, urea, CPK, and AST were increased in T2 ($P < 0.05$). The results of the present study indicate that although magnesium sulfate has negative effect on dairy cow health and performance, a combination of magnesium sulfate and biological organic source of sulfur in close-up diets could have positive effects on DMI and performance of Holstein dairy cows.

Keywords : organic sulfur, dairy cow, intake, blood metabolites

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