

عنوان مقاله:

Performance, growth status, rumen fermentation and some blood metabolites in blood of Holstein bull calves fed starch or fermented fiber based diets

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خلاصه مقاله:

Starch (SS) and fermented fiber (FFS), as energy sources were included in Holstein bull calf diets to evaluate their growth performance, rumen fermentation pattern and concentration of insulin and selected blood metabolites. Fourteen Holstein bull calves (BW=94.5±2.1 kg; age 87±9 d) were allocated to treatments (n=7 calves per treatment) and the study lasted 10 weeks. The diets were based on barley grain and corn silage in SS and FFS treatments, respectively. Dry matter intake was decreased ($P < 0.05$) in SS compared to FFS treatment (7.83 vs. 8.21 kg/d), with SS treatment causing a lower feed conversion ratio (FCR). Growth indices (body length, withers height and heart girth) did not differ between two treatments ($P > 0.05$). Fecal score was more watery (= 3.1) in SS compared to FFS (= 2.4) treatment ($P < 0.05$). The SS diet increased propionate concentration but FFS increased acetate concentration in the rumen fluid. Blood glucose was increased, but beta-hydroxybutyrate (BHB) decreased in SS fed calves. Insulin concentration was greater by 2.1 $\mu\text{U ml}^{-1}$ in SS compared to FFS fed calves. Results showed that although the high starch diet decreased the feed intake and caused feces to contain more water, it improved energy status of the calves via decreasing BHB, increasing propionate concentration and improving glucose concentrations. The SS-based diet showed greater efficiency compared to FFS in bull calves.

کلمات کلیدی:

Holstein bull calves, blood metabolites, energy source, Insulin

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