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Title

Effect of different levels of starter energy and amount of forage on performance, blood parameters and health of Holstein calves fed with large amounts of milk

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Abstract

The Second experiment was conducted with the The aim of this study was to investigate the effect of increasing the amount of alfalfa hay in the starter diet on performance, blood parameters and health of Holstein dairy calves based on milk feeding pattern by Step down method. For this purpose, 24 female Holstein calves 4±1 day of age (average birth weight = 41.2 ±3 kg) were used in a completely randomized design with 3 treatments (8 calves per treatment) with a 56-days experimental period until weaning. Experimental treatments include: 1) feeding of milk (20% of body weight) without alfalfa hay, 2) feeding milk (20% of body weight) with 5% of alfalfa hay (based on dry matter of the diet) and 3) feeding of milk (20% of body weight) with 10% of alfalfa hay (based on dry matter of the diet). The results showed that no significant difference was observed between experimental treatments in terms of body weight, dry matter consumption, feed efficiency, daily weight gain, Fecal score and skeletal growth indices. The amount of propionate and the ratio of acetate to propionate were significantly different among the treatments ($P<0.05$). The plasma beta-hydroxybutyrate concentration in calves fed with the starter diet containing 5% dry alfalfa was significantly higher than the calves of other treatments ($P<0.05$). The results of this research showed that replacing a part of the starter diet with forage in the diet of calves can improve the development of the rumen of calves fed with high amounts of milk. The results of this study showed that replacing part of the starter diet with forage in the diet of dairy calves can beneficial effects in improving the rumen development of calves fed high amounts of milk.

Keywords: Blood beta-hydroxybutyrate, Milk feeding pattern, Milking calves, Forage and energy level.