

Effects of Different Sources of Alfalfa Hay on Lactation Performance, Ruminal Fermentation & Microflora of Dairy Cows

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To better expand the alfalfa supply market, the study compared the effects of American alfalfa hay (AAH) and Spanish alfalfa hay (SAH) on lactation performance, nutrient digestibility, serum biochemical indices, ruminal fermentation and microflora of dairy cows. Three hundred and sixty healthy mid-lactation Holstein dairy cows with similar body weight, milk yield and parity were randomly divided into 2 groups (4 replicates in each group and 45 cows in each replicate) fed diets based on AAH or SAH. The experimental period lasted for 70 days, during which dry matter intake (DMI) and milk yield was recorded daily, milk samples were collected every 2 weeks. Twelve cows were selected from each group to perform the metabolic experiment for the last 4 days of the trail. Blood and rumen fluid samples were collected on the last day of the trail. The results showed that there was no significant difference in DMI, milk yield, milk composition and nutrient digestibility between the two groups. In addition, there was no significant difference in serum biochemical indices and rumen fermentation parameters between the two groups, except that the isovalerate proportion of SAH-cows was significantly higher than that of AAH-cows. There was no significant difference in the alpha diversity, however β -diversity revealed a significant difference in rumen microbial composition between the two groups. On the genus level, the relative abundance of *Prevotella* was significantly increased while the relative abundance of *Ruminococcus* and *NK4A214_group* was decreased in SAH-cows compared with those fed AAH. In terms of economic benefit, SAH brought in a gross profit of 5.97 yuan per cow per day for dairy farm because of its lower cost and higher daily fresh milk output value than AAH. In conclusion, the feeding effects of SAH was similar to that of AAH, while SAH has better economic benefits. These findings provided reference for the application of alfalfa hay from different sources and the improvement of economic benefit of dairy farm.

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