Effects of Different Roughages on Growth Performance, Meat Quality, & Economic Benefits of Simmental Cattle

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This study aimed to evaluate the effects of four roughages on growth performance, meat quality and economic efficiency of Simmental cattle. One hundred healthy Simmental cattle (body weight 400.76±0.98 kg) aged 12-14 months were randomly divided into peanut vine group (PV), alfalfa hay group (AH), alfalfa silage group (AS) and *broussonetia papyrifera* silage group (BS), with 5 replicates of 5 cattle each. The pre-test period lasted for 10 days and the trial period lasted for 90 days. The results showed that: (1) feed intake was highest in AS group, followed by BS group, both of which were significantly higher than that in PV and AH group; the average daily weight gain of AH group was significantly higher than that of PV and BS group ($P< 0.05$), but no differences were observed between AS and BS group ($P> 0.05$); the feed-to-weight ratio was highest in BS group, followed by AS, PV and AH group ($P< 0.05$), so the AH group had the highest feed utilization rate; the gross profit of AH group was as high as 1356.97 yuan, and the economic benefit of adding alfalfa hay to beef cattle diet was the best. (2) The organ index of beef cattle had no significant difference among the four treatment groups ($P> 0.05$). (3) The net meat percentage and marbling score of AH group were significantly higher than those of PV group ($P<0.05$); the muscle tethering power of AS group was significantly higher than those of other 3 groups ($P<0.05$). (4) The alanine content in BS group was significantly higher than that in PV group ($P<0.05$), and there was no significant difference between BS, AH group and AS group ($P>0.05$). (5) Among monounsaturated fatty acids, only the palmitoleic acid content in AH group was significantly higher than that in PV group ($P<0.05$); among polyunsaturated fatty acids, arachidonic acid and α-linolenic acid content in AH group and AS group was significantly higher than that of PV group and BS group ($P<0.05$), and the linoleic acid content in AH group was significantly higher than that of two silage groups ($P<0.05$); the total content of monounsaturated fatty acids in AH group was the highest among the four groups ($P<0.05$); the content of ω-3 polyunsaturated fatty acid in AH group and AS group was significantly higher than in PV and BS group ($P<0.05$). Therefore, feeding alfalfa hay has the best effect on improving growth performance, meat quality and economic benefits of Simmental cattle.

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