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Research paper (4)

Title	Effect of replacing cottonseed meal with fenugreek seed meal on feed intake, digestibility, growth, blood parameters and economics of fattening lambs
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ABSTRACT

The aim of the present experiment was to evaluate the partial or complete replacement of cotton seed meal (CSM) with fenugreek seed meal (FSM) on chemical composition, in vitro ruminal fermentation, the growth performance and economic efficiency of growing lambs. Thirty-two male Ossimi lambs weighing 42 ± 0.7 kg, and 210 ± 7 d were divided randomly into four experimental groups of eight lambs each. Lambs were fed four diets containing 40% berseem clover and 60% concentrate feed mixture. Cotton seed meal was replaced with FSM at 0% (FSM0; control treatment), 50% (FSM50 treatment), 75% (FSM75 treatment) or 100% (FSM100 treatment). The experiment was lasted for 105 d consisting of 15 d for adaptation and 90 days for measurements. The replacement did not affect crude protein (CP) or gross energy (GE) of the diets. However, the concentrations of individual amino acids and



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polyphenols differed between CSM and FSM. Diets containing FSM reduced the *in vitro* methane production ($P=0.024$) by 30 to 41.1%, and nutrient degradability ($P<0.05$). The highest DM intake was observed (quadratic effect, $P<0.001$) with lambs fed the FSM50 diet (1.68 kg DM), which also showed the highest final body weight (65.5 kg) (quadratic effect, $P=0.045$), total weight gain (22.6 kg) (quadratic effect, $P=0.034$), and daily weight gain (251.1 g) (quadratic effect, $P=0.033$). Higher OM digestibility ($\sim 69.4\%$) was observed (quadratic effect, $P=0.016$) with the lambs of FSM50 treatment ($P<0.05$). Replacing CSM with FSM linearly increased ($P=0.024$) blood antioxidant activity and decreased blood cholesterol ($P=0.022$), triglycerides ($P=0.035$) and high-density lipoprotein ($P=0.034$) compared to the control treatment. The highest relative percentage of net revenue was observed with the FSM50 diet (131%) while the lowest one was observed with the FSM100 diet (92.9%). It is concluded that CSM can be replaced with FSM at 50% in diets of growing lambs for better performance and economic efficiency.

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