EFFECT OF GRAIN SPECIES ON PURINE DERIVATIVE EXCRETION VIA URINE IN FEEDING LEGUMINOUS SILAGE TO RAMS

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Abstract. Alfalfa and clover silage protein is highly degradable in the rumen. Previous experiments have indicated that micro-organisms did not use leguminous protein effectively for protein synthesis. The aim of the present study was to find out, feeding on alfalfa and clover silage, the best grain species to increase purine derivative excretion via urine and thereby maximize the ruminal microbial protein synthesis. For that purpose, two trials were carried out with rams on the principle of 4 x 4 Latin square design in special metabolic cages. In the first trial the rams were fed on alfalfa silage, and in the second trial – on clover silage. The crude protein content in dry matter of silages was 20.3 % and 19.7%, respectively. Considering energy requirement, the leguminous silage and concentrates were fed as follows: 1) silage + barley (50:50), 2) silage + barley + oats (50:25:25), 3) silage + barley + wheat (50:25:25) 4) silage + barley + maize (50:25:25). Animals were fed twice a day on a maintenance level. Purine derivatives were determined and microbial protein synthesis was calculated according to Chen and Gomes (1992). In the present trial conditions the grain species did not affect purine derivative excretion. However, a significantly higher allontoin content in rams urine was observed when clover silage with barley was fed, compared with the ration containing alfalfa silage and barley ($P < 0.05$). We can not confirm the statement that rams use clover silage protein more effectively for microbial protein synthesis than that of alfalfa silage.

Keywords: leguminous silage, purine derivative, microbial protein synthesis, sheep.