

ABSTRACT

Studies on the utilization of urea-treated rice straw by goats and sheep

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In Trinidad and Tobago there is the need to develop ruminant feeds based on locally available raw materials such as rice straw in order to reduce the heavy dependence on imported feeds and livestock products. Two experiments were conducted to investigate the effect of supplementing 5% urea-treated rice straw with concentrates, monensin, avoparcin and grass on the digestibility, voluntary intake and liveweight performance of sheep and goats. In Experiment 1 (94-d duration), the urea-treated rice straw was offered *ad libitum* with four levels of concentrates (15, 25, 35 and 45 g/M^{0.75}/d) to 36 sheep (9 per treatment) and 24 goats (6 per treatment). In Experiment 2 (80-d duration), a basal diet of urea-treated rice straw (*ad libitum*) and concentrates (35 g/M^{0.75}/d) was supplemented with grass (3% of the initial liveweight on a fresh matter basis) and/or monensin (25ppm) and/or avoparcin (30ppm). All of the diets were offered to 48 sheep (8 per treatment) while 16 goats were fed all of the diets (4 per treatment) except those containing avoparcin. For both experiments, the animals were housed individually in pens with slatted floors and a completely randomized block design was used. For both experiments, it was found that the digestibility of nutrients was higher for goats than sheep but the voluntary intake of dry matter (DMI), organic matter and digestible nutrients and, also, the average daily gain and feed conversion efficiency were higher for sheep than goats. In Experiment 1, it was found that the DMI of the urea-treated rice straw was substituted by the concentrate when its level in the diet changed from approximately 30 to 40% of the total DMI for sheep and from approximately 20 to 30% of the total DMI for goats. Also, in Experiment 1, it was found that when urea-treated rice straw was supplemented with concentrates at the rate of 15, 25,

35 and 45 g/M^{0.75}/d, the average daily gain was 60, 90, 107 and 128 g/d, respectively, for sheep and 38, 55, 76 and 98 g/d, respectively, for goats. In Experiment 2, there was no significant ($p>0.05$) effect of grass nor monensin on the digestibility, DMI or liveweight performance of the sheep or goats. However, avoparcin resulted in a significant ($p<0.05$) decrease in the voluntary DMI of sheep, and both growth promoters caused slight improvements in the feed conversion efficiency. Based on the results of both experiments, it appears that sheep were more efficient than goats in the utilization of the diets studied.

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