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Area of work: Ruminant nutrition and production

Gastrointestinal tract characteristics of sheep in crop-livestock system in the Caatinga biome

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Integrated crop-livestock systems have great potential due to their ability to combine agricultural practices that promote soil conservation and recovery. These practices include recovering degraded pastures, implementing a direct planting system, and using legume plants for biological nitrogen fixation in the soil, all in the same area. In some countries, the non-carcass components compete with the production of meat on an economic plane, while the qualitative characteristics of the carcass receive little attention. Thus, the aim of present study was to assess the gastrointestinal tract characteristics of sheep in crop-livestock system in the Caatinga biome. The experiment was conducted at the Federal Rural University of Pernambuco, Serra Talhada Academic Unit, in a thinned Caatinga site composed of Mororó tree (*Bauhinia cheilantha* Steud Bong) and enriched with Buffel grass (*Cenchrus ciliaris* L.) and Urochloa grass (*Urochloa mosambicensis* Salm-Dyck). The treatments were three crop-livestock systems implanted in the Caatinga, comprised of the sheep livestock integrated with (i) bean crop, (ii) maize crop, and (iii) herb-cotton crop. The control treatment was composed of sole Caatinga rangeland. Twenty non-castrated male lambs (Santa Inês × Dorper crossbreed) aged six months old were used in the study, and they had an initial average weight of 24.64 ± 2.95 kg. The experimental period was carried out over two subsequent years (2022 and 2023). The experimental design utilized was a completely randomized with four crop-livestock systems and five animals per treatment were utilized. All variables were subjected to the analysis of variance followed by the Tukey test, using the GLM procedure of Statistical Analysis Systems. The differences were significant at 5% of error probability. After the end-of-season fasting, animals were weighed. The pre-slaughter procedures were performed in accordance with animal welfare practices, and slaughtering was executed according to the Proceedings of Industrial and Sanitary Inspection of Animal Products. The integrated systems did not significantly affect the gastrointestinal tract characteristics of sheep ($P>0.05$). The rumen-reticulum, omasum, abomasum, small intestine, large intestine, and visceral adipose showed average values of 0.917, 0.127, 0.201, 0.520, 0.634, and 0.040 kg, respectively. The gastrointestinal tract characteristics of sheep are influenced by factors such as body weight, gender, type of birth, genetics, age, and diet. In this study, in which the weight of the gastrointestinal tract characteristics did not differ, we can attribute this effect to the similarity between rangelands, resulting in similar nutrient input to all components of the animal's body weight, including organs. The crop-livestock integration system in the Caatinga is recommended because it does not alter the gastrointestinal tract characteristics of sheep.

Palavras-chave: lamb; non-carcass characteristics; semi-arid ecosystem; small ruminants.

Animal Experimentation Ethics Committee of the Federal Rural University of Pernambuco (approval no. 2436310322).

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