PHENOTYPIC MARKERS TO IDENTIFY RESISTANT AND SUSCEPTIBLE CROSSBREED GOATS TO GASTROINTESTINAL NEMATODES INFECTION

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Abstract / Resumo:

Phenotypic markers can be used to determine the response to gastrointestinal nematodes infection. The present study aimed to characterize 60 crossbreed goats (1/2 Anglo-Nubian x 1/2 Saanen) naturally infected by gastrointestinal nematodes using phenotypic markers (parasitological, hematological and production) to identify the most resistant and the most susceptible animals from the herd. Until the beginning of the experimental period the animals were free from worms and kept on pasture (Panicum maximum cv. Tanzania) during 97 days. Each seven days they were weighted, submitted to body conditional score and to Famacha method to worm control and blood samples were collected to determined eosinophil counts (EOS), the packed cell volume (PCV) and total serum protein levels (TSP) and feces to determine the EPG (eggs per gram) counts and the infective larvae. During this period, when the EPG means was 800 eggs / g (42 days), animals were wormed and relocated in the same experimental area until the EPG means reached 800 eggs / g again (90 days). At this time, based on the EPG means, the animals were classified as resistant and susceptible and slaughtered to recover the gastrointestinal nematodes for subsequent count and species identification. The results were submitted to variance analysis and the correlations among variables were obtained by Pearson's correlation. On feces cultures, Haemonchus sp. (67%) was the predominant genus, followed by Trichostrongylus sp. (32.6%) and Oesophagostumun sp. (0,4%). The EPG means of susceptible group was higher than resistant group. (4.8 fold) (3653.5 eggs / g and 758.5 eggs / g; $P < 0.0001$). This one presented higher PCV means (26.4%) and TSP levels (6.32 g / dl) than susceptible animals (24.0% and 6.0 g / dl, respectively; $P < 0.0001$). Differences were observed regarding to Famacha degree (1.8 and 2.2; $P < 0.0001$), body score conditional (2.7 and 2.5; $P < 0.001$) and weight (22.9 kg and 19.7 kg; $P < 0.001$) between resistant and susceptible groups, respectively. The correlation between OPG x VG, VG x Famacha degree, OPG x weight were negatives ($r = -0.57$, $r = -0.35$, $r = -0.22$; $P < 0.0001$), and between VG x PPT and Famacha degree x OPG were positives ($r = 0.53$, $r = 0.28$; $P < 0.001$). It can be inferred that was possible to identify resistant and susceptible goats using phonotypical markers, verifying a better performance of resistant animals when infected by gastrointestinal nematodes.