PROCEEDINGS

54ª

REUNIÃO ANUAL
DA SOCIEDADE
BRASILEIRA
DE ZOOTECNIA
FOZ DO IGUAÇU
2 0 1 7

A NEW VIEW
OF ANIMAL SCIENCE:

CHALLENGES AND
PERSPECTIVES

WWW.SBZ.ORG.BR/REUNIAO2017
SBZOFICIAL

FOZ DO IGUAÇU - PR

FOTO:
ROBSON FRANZÓI
umviajante.com.br

A NEW VIEW OF ANIMAL SCIENCE: CHALLENGES AND PERSPECTIVES

Proceedings of the 54th Annual Meeting of the Brazilian Society of Animal Science
Foz do Iguaçu – Brazil
July 24 – 28 2017

Edited by
Marina Parapinski
Maryon Strack Dalle Carbonare
Patrick Schmidt

The authors are responsible for the grammatical and textual review of the manuscripts and abstracts.

THEME 4 | GENETICS, GENOMICS, ANIMAL BREEDING AND REPRODUCTION

Genetic parameters for resistance to parasitism in Santa Ines sheep using animal model Bayesian

Francelino N. Rodrigues*[1], Tânia Maria Leal[2], Adriana M. de Araújo[2], Izabella C. Hassum,
Skarlla de O. Almendra[3], Max B. de Oliveira[4], José Lindenberg R. Sarmento[4]
[1]Teacher of Federal Institute Federal of Piaui Paulistana/PI e Doctorate student Federal
University of Piaui, Teresina/PI, francelino.neiva@ifpi.edu.br ; [2]Researcher Embrapa Middle
North, Teresina/PI ; [3]Veterinarian; [4]Teacher Federal University of Piaui, Teresina/PI.

The selection of sheep genetically resistant to gastrointestinal nematodes is a promising alternative in the control of the disease, because once this characteristic is inheritable, it can be improved in a herd. In this sense, the objective was to estimate genetic parameters for resistance to gastrointestinal nematodes and associated characteristics, using a linear and threshold animal model using Bayesian inference, in a single-trait and multi-trait analysis. The classification of resistance was performed by cluster analysis using the non-hierarchical K-means method, using the number of eggs per gram of faeces (FEC), hematocrit, body condition score (BCS) and Famacha collected from Santa Ines sheep naturally infected. The variance components and the genetic parameters for the characteristics resistance, FEC, hematocrit, BCS and Famacha were estimated by means of Bayesian Inference under linear and threshold animal model, in single-trait and multi-trait analysis. The repeatability of the characteristics associated with gastrointestinal nematode infection was of low magnitude, indicating that it is necessary to perform repeated measurements during the life of the animal in order to estimate the genotypes with the best accuracy. The estimated mean values for heritability presented a low to high magnitude ranging from 0.05 to 0.44. The estimated heritability for the characteristic resistance to gastrointestinal nematodes was high, 0.44 in the single-trait model, increasing to 0.85 in the multi-trait model. No multi-trait model or the increase of the information on the resistance aspect, allowed the rescue of the additive variance embedded in the environmental variant, being the most recommended model for this type of analysis. The resistance characteristic showed high and favorable correlation with the FEC, Famacha, hematocrit and BCS variables, indicating the possible use of any of the characteristics through a correlated response, to improve resistance to nematodes in Santa Ines sheep. Genetic correlations between body weight and the other variables were unfavorable, indicating that breeding for resistance in this herd will cause few changes in the adult body weight of the animals, and if selection is performed for body weight, it will not improve for resistance to nematodes. In view of these results, it is suggested that selection for resistance to nematodes, is performed by the characteristic resistance defined by the multivariate clustering analysis, since this will provide greater genetic gains compared to any of the isolated characteristics.

Keywords: Famacha, Haemonchus contortus, heritability, multivariate analysis, repeatability