

Performance, endoparasitary control and blood values of ewes locally adapted in semiarid region



Josiel Borges Ferreira^{a,b,*}, Ana Carla Diógenes Suassuna Bezerra^a, Magda Maria Guilhermino^c, Jacinara Hody Gurgel Morais Leite^{a,b}, Wilma Emanuela da Silva^{a,b}, Renato Diógenes Macedo Paiva^{a,b}, Tallysson Nogueira Barbosa^a, José Ernandes Rufino de Sousa^a, Débora Andréa Evangelista Façanha^a

^a Department of Animal Science, Universidade Federal Rural do Semiárido, Mossoró, RN, Brazil

^b Post graduate in Animal Science, Universidade Federal Rural do Semiárido, Mossoró, RN, Brazil

^c Universidade Federal do Rio Grande do Norte, Natal, RN, Brazil

ARTICLE INFO

Keywords:

Body condition score
Body weight
Faecal eggs counts
Famacha©
Haemonchus

ABSTRACT

This study evaluated the variation in the prevalence of endoparasitoses and their impact on body condition and blood values of sheep of the Morada Nova breed. A total of 138 ewes were examined for their morphology (body weight, BW; body condition score, BCS), parasitology (faecal egg count, FEC; Famacha© score; coproculture), hematology (red blood cell count, RBC; hemoglobin concentration, HE; packet cell volume, PCV; mean corpuscular volume, MCV; mean corpuscular hemoglobin, MCH; mean corpuscular hemoglobin concentration, MCHC; leukocytes, WBC) and serum biochemistry (glucose, cholesterol, triglycerides, urea, creatinine, total protein, albumin, globulin, AST and ALT). Overall the animals presented higher BW and BCS in the months of September and December, however, with high FEC, in addition to a large number of animals with Famacha score 4 and 5. The results showed that the main hematophagous worm affecting the sheep, the genus *Haemonchus* ssp, appeared in a greater proportion (30–71.66%) than the other worms in all months of the study, except in March. About 30% of the hematological values found in the study are outside the reference ranges for suable sheep e 45.50% for serum biochemistry. These findings demonstrate the most healthy period of the year was from March to June for endoparasites control, however, in the months of September and December the animals showed better performance measures.

1. Introduction

In Brazil, the small ruminants population is estimated at about 26 million animals, and of these, 17.614.454 are sheep, corresponding to over 67% of the Brazilian sheep population [1]. There is a trend to livestock practice for countries that are in development [2], such as the Brazilian northeast. Most animal production systems, from the sheep industry in northeast, are inserted into the savanna biome and characterized by the use of animals locally adapted to the warm regions, often making successful the practice of raising small ruminants.

Gastrointestinal parasites, mainly nematodes, are one of the main problems observed in the sheep breeding. The impact translates the situation in economic losses, associated with weight loss, decreased food consumption, decreased fertility rates and some mortality cases

[3,4]. The infection is strongly linked to factors, such as climate, environment, time of year, health management facilities, sanitary control of the flock, parasite resistance to antihelminthic and even factors such as breed and genetic features.

Some researches show that there is a possibility of selecting races or individuals in an animal population using phenotypic markers closely associated to the parasitology, such as eggs per gram of feces, hematocrit, plasma protein and eosinophil account, since they are associated with parasitic resistance or susceptibility [5]. Some studies evaluating the techniques of counting eggs per gram of faeces and the Famacha© score associated with weight gain and body condition score (BCS) in the control of gastrointestinal parasites, showed significant results, in which the biggest weight gain and even higher BCS's were obtained in parasitized animals and non-parasitized animals, so it was

* Corresponding author at: Universidade Federal Rural do Semiárido, Mossoró 59625-900, RN, Brazil.

E-mail addresses: jjosielborges@hotmail.com, josielzootecnista@gmail.com (J.B. Ferreira), acdsuassuna@hotmail.com (A.C.D.S. Bezerra), magdaguilhermino@gmail.com (M.M. Guilhermino), narinahazootecnista@hotmail.com (J.H.G.M. Leite), wilma_manu1@hotmail.com (W.E. da Silva), renatodiogenes@gmail.com (R.D.M. Paiva), tallysson@hotmail.com (T.N. Barbosa), ernandes@ufersa.edu.br (J.E.R. de Sousa), debora_ufersa@hotmail.com (D.A.E. Façanha).

<http://dx.doi.org/10.1016/j.cimid.2017.05.004>

Received 14 December 2016; Received in revised form 2 May 2017; Accepted 9 May 2017
0147-9571/ © 2017 Elsevier Ltd. All rights reserved.

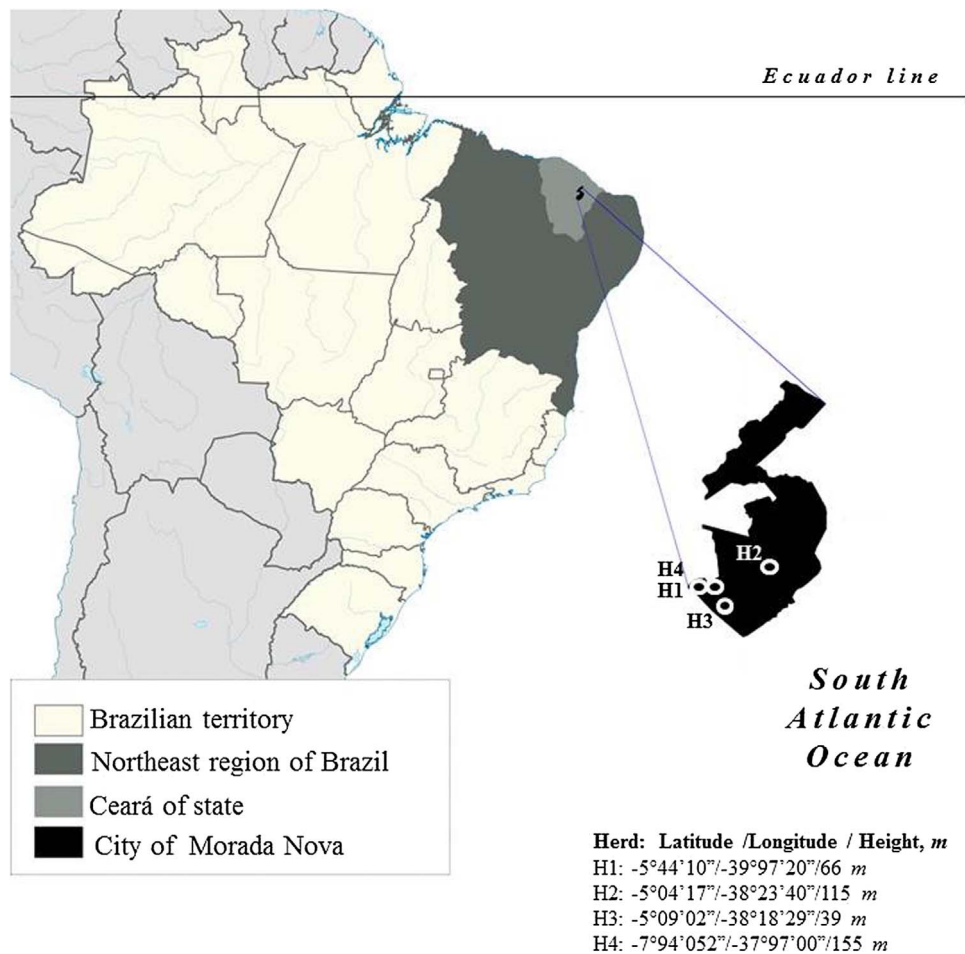


Fig. 1. Geographical location of the experiment and herds. Brazil, northeastern Brazilian, state of Ceará and city of Morada Nova.

Table 1
 Meteorological variables in the Morada Nova city, state of Ceara, Brazil.

Months	Meteorological variables		
	AT, °C	RH, %	P, mm
March	35.5	40.5	56.0
June	33.7	51.1	153.0
September	36.4	38.0	0.0
December	37.1	40.15	19.5

AT = Air temperature; RH = relative humidity; P = precipitation.

not presented loss of performance, thus, this population was considered resilient to parasite infections [6]. Therefore, the selection of animals resistant to gastrointestinal parasites is an effective way for ensuring control and efficiency in the production system. In this context, the objective of this study was to evaluate the annual variation in the prevalence of endoparasites and their impact on body condition and blood values in sheep of the Morada Nova breed.

2. Material and methods

2.1. Animals and experimental design

All procedures used in this work are in accordance with the ethical standards and have been approved by the Ethics Committee on Animal Use at the Universidade Federal Rural do Semi-Árido – UFERSA/Mossoró (Protocol 23091003895/2014-71).

Evaluations were performed during one year in adult sheep of the

Morada Nova breed, from four different herds belonging to a group of conservation of genetic resources (Fig. 1), which from will be selected the best arrays of the Brazilian northeast. A total of 138 sexually mature females were used, of which 36.29% were primiparous and 63.71% multiparous, aged between one and six years old. The authoring system used for all properties was extensive at all times of the year in which the animals spend the day feeding on native caatinga and at night are gathered to a collective corral, where they receive mineral salt and water. The vegetation is predominantly shrub-herbaceous and in more open areas, cacti and bromeliads are used as animal feed during dry periods.

The data were collected in the same animals in each herd, in four different months of the year: March and June, theoretically considered as a rainy season; September and December, theoretically considered as a dry season (Table 1).

2.2. Parasitological examinations

Faecal samples were collected individually, straight from the rectum, chilled and packed to about 10–15° C, until the arrival in Molecular Parasitology Laboratory of the Federal Rural University of semiarid region where the laboratory procedures were performed. The faecal eggs count (FEC) per gram was made by McMaster technique [7]. Later, there were coprological quantitative methods [8] in a composite sample derived from each herd, identifying the infective larvae present.

The determination of Famacha© score was individual, classifying the animals according to the color of the ocular mucosa [9–11].

Download English Version:

<https://daneshyari.com/en/article/5539902>

Download Persian Version:

<https://daneshyari.com/article/5539902>

[Daneshyari.com](https://daneshyari.com)