



Infection due to *Eimeria* spp. in sheep in the municipality of Colinas, state of Tocantins

[Infecção por *Eimeria* spp. em ovinos do município de Colinas, Estado do Tocantins]

"Nota/Note"

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Resumo

O presente trabalho objetivou diagnosticar as espécies do gênero *Eimeria* em ovinos no município de Colinas, Estado do Tocantins, Brasil. Foram examinados 255 ovinos mestiços, machos e fêmeas, jovens e adultos. O parasitismo por *Eimeria* spp. foi observado em 19,6% dos animais examinados, tendo maior prevalência nos animais jovens (7,84%) quando comparados aos animais adultos (11,76%), sendo identificadas as seguintes espécies em 75% das propriedades: *E. ahsata*, *E. ovina*, *E. parva*, *E. faurei*, *E. pallida*, *E. crandallis*, *E. ovinoidalis* e *E. intricata*. Necessita-se de um programa de diagnóstico e controle para que os criadores obtenham um melhor aproveitamento zootécnico do rebanho, maximizando, conseqüentemente, a produção.

Palavras-chave: pequenos ruminantes, coccidiose, epidemiologia.

Abstract

The present study had the aim of diagnosing the species of the genus *Eimeria* in sheep in the municipality of Colinas, state of Tocantins, Brazil. Examinations were performed on 255 mixed-breed sheep (both males and females and both juveniles and adults). Parasitism due to *Eimeria* spp. was observed in 19,6% of the animals examined, with lower prevalence in the young animals (7,84%) than in the adults (11,76%). The following species were identified on 75% of the farms visited: *E. ahsata*, *E. ovina*, *E. parva*, *E. faurei*, *E. pallida*, *E. crandallis*, *E. ovinoidalis* and *E. intricata*. A diagnosis and control program is needed so that breeders can obtain better zootechnical use from their herds and consequently maximize production.

Key words: small ruminants, coccidiosis, epidemiology.

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Despite increasing development, sheep-rearing in the state of Tocantins uses inadequate management practices and technologies because a lack of specialized technical services. This has the direct repercussion of greater health problems, especially of a parasitic origin, and eimeriosis is prominent among these. This disease is caused by protozoa of the genus *Eimeria*, and it is important in relation to sheep-rearing because of the economic losses caused by development of the parasite inside the host's intestine (GJERDE e HELLE, 1991). Occurrences of this disease worsen as rearing becomes intensified (CATCHPOLE et al., 1993).

According to Radostits et al. (2000), infection occurs through ingestion of foods containing sporulated oocysts that subsequently invade and reproduce in the intestinal cells, thereby causing lesions that interfere with the digestive processes. The capacity for absorption of infected mucosa becomes reduced as a result of atrophy of the villi and reduction in the number of cells (MOON, 1980; NIELSEN, 1982). The evolution of the parasite within the host has a set pattern for each species of the genus *Eimeria*, with variations in parasitism local, number of merogonic generation and position within the cell and tissue, giving it specific characteristics of pathogenicity (LIMA, 2004).

For this disease to be controlled in the Tocantins region, a diagnosis is needed so that treatment and control can be done strategically, thereby preventing parasite resistance and economic losses. Thus, the aim of this study was to quantify and diagnose the species of the genus *Eimeria* in sheep in the municipality of Colinas, state of Tocantins, Brazil.

The present study was conducted on eight sheep-rearing farm properties in the municipality of Colinas, which belongs to the Araguaína microregion, state of Tocantins. Those farm properties were chosen randomly. Examinations were performed on 255 mixed-breed animals (both males and females and both juveniles and adults), taking into consideration three

production categories: juveniles (up to 180 days of age), females and male reproducers.

Feces samples were collected randomly from 10% of the total number of animals in each category, directly from the rectal ampulla, in the mornings. Animals that were selected which have been treated previously less than 30 days previously were replaced by others within the same category, in a random manner. The feces samples were packed in plastic bags, labeled and sent to the Hygiene and Public Health Laboratory of the School of Veterinary Medicine and Zootechnics of the Federal University of Tocantins. In the laboratory, they were subjected to the technique of centrifugation and floatation in 30% NaCl solution, in order to obtain oocysts. These were placed in test tubes containing 2,5% potassium dichromate solution ($K_2Cr_2O_7$), for the sporulation process to take place at room temperature (WILLIS, 1921). Observation of the *Eimeria* species was done under a clear-chamber optical microscope from Carl Zeiss mark at a magnification of 1000x. Identification was made in accordance with Levine (1985).

To calculate the frequencies, the number of positive animals was divided by the number of animals sampled. Descriptive statistical analysis was used, consisting of absolute and relative distributions within each category and per farm property.

Parasitism due to *Eimeria* spp. was observed in 19,6% of the animals examined and was fewer occurrences in the young animals (7,84%) than in the adult animals (11,76%). The following species were identified on 75% of the farm properties: *E. ahsata*, *E. ovina*, *E. parva*, *E. faurei*, *E. pallida*, *E. crandallis*, *E. ovinoidalis* and *E. intricata*.

As shown in Table 1, only two farms (E and F) had animals with negative parasitological examinations for species of the genus *Eimeria*. Because of differences in the management and sanitary conditions applied to the animals, the other farms presented prevalences ranging from 8,1% to 66,6%. On the farms on which the animals

presented lower prevalence of parasites, the sheep were confined and distributed according to age group, the sheepfold was cleaned every week and the food and water troughs were maintained under ideal conditions and away from the stalls, thereby avoiding food contamination and infection of the animals.

In Brazil, there are few epidemiological studies relating to species of the genus *Eimeria* parasitizing sheep. Among the more recent investigations, the

study conducted by Silva et al. (2008) in the municipality of Mostardas, Rio Grande do Sul can be highlighted. In this, 59% of the sheep were infected with oocysts of the genus *Eimeria*, with high frequency of *E. parva* (37,2%) and *E. ahsata* (23,7%). In the western region of the state of Rio Grande do Norte, Ahid et al. (2008) observed that 21,8% of the sheep were infected, and a similar result was reported by Silva et al. (2011), among lambs reared extensively in northeastern Brazil.

Table 1 - Occurrence of *Eimeria* spp. among sheep (*Ovis aries*) in the municipality of Colinas, state of Tocantins, Brazil

Farm properties	Prevalence (%)															
	General				Categories											
					Juveniles				Females				Reproducers			
	Positive		Negative		Positive		Negative		Positive		Negative		Positive		Negative	
N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
A	4	8,1	45	91,9	1	3,4	28	96,6	-	-	-	-	3	15,0	17	85,0
B	19	38,0	31	62,0	7	70,0	3	30,0	9	30,0	21	70,0	3	30,0	7	70,0
C	3	23,0	10	77,0	1	33,3	2	66,7	2	25,0	6	75,0	-	-	1	100
D	10	18,1	45	81,9	4	33,3	8	66,7	6	15,4	33	84,6	-	-	4	100
E	-	-	29	100	-	-	10	100	-	-	10	100	-	-	9	100
F	-	-	26	100	-	-	10	100	-	-	14	100	-	-	2	100
G	2	13,3	13	86,7	-	-	4	100	1	16,6	5	83,4	1	25	4	75
H	12	66,6	6	33,4	7	100	-	-	2	25	6	75	3	100	-	-
Total	50	167,1	205	632,9	20	240	65	560	20	112	95	588	10	170	44	630

On most of these farms, it was observed that sheep-rearing was not the primary activity, which resulted in low investment in installations and lack of information on managing sheep, in relation to both nutrition and sanitation. For this reason, a diagnosis and control program is needed so that breeders can obtain better zootechnical use from their herds and consequently maximize production, in view of the high prevalence of *Eimeria* spp. in the animals studied.

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