GASTROINTESTINAL NEMATODES IN CATTLE ON FOUR FARMS IN NYANDARUA DISTRICT, KENYA

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INTRODUCTION

Gastrointestinal helminth and coccidia infections in domestic ruminants are thought to be widespread in Kenya. The infections are either clinical or subclinical, the latter being the most common and of greatest economic importance. Review of literature however, indicates that only a limited number of studies have been undertaken to provide information on the prevalence, distribution and epidemiology of the various species of parasites in cattle, sheep and goats in different agro-climatic zones in Kenya. The information is important in the formulation of parasite control strategies. This study was therefore undertaken to determine the species of gastrointestinal nematodes and their prevalence in cattle in Siribwet scheme in Nyandarua District.

Materials and Methods

The study was carried out on four dairy farms (referred to as farms A, B, C and D) in July and August, 1990. A total of 116 cattle of all age groups (calves, mature and adult) which had not been drenched for at least 4 weeks were examined. The farms are within a radius of 5 km and are approximately 23 km from Nyahururu town. The area is at an altitude of about 3200 m and has an annual rainfall of 1500-2000 mm. The mean monthly minimum temperature varies between 6°C and 10°C while the mean monthly maximum temperature varies between 21°C and 26°C.

At initiation of the study, faecal samples were collected from all cattle on the four farms, put into labelled plastic containers and kept at 4°C until examined. Examinations were done within 24 hours after the samples were collected. The samples were processed for the determination of number of nematode eggs per gram (EPG) and coccidia oocyst per gram (OPG), using the McMaster technique.

On the second visit to the farms, faecal samples were collected from heavily infected (6-12 months old) cattle and pooled for each farm. The samples were then incubated at 26°C for 7-10 days and larvae recovered using standard procedures. Nematode larvae were then identified using total length and tail cuticular morphology. A minimum of 100 larvae were examined from coprocultures from each farm.

Results

The mean EPG for cattle in farms A, B, C and D were 534, 732, 626 and 804 respectively while mean OPG for the respective farms were 2624, 1528, 1934 and 2305. 6.9% of all cattle examined in the area were infected with gastrointestinal nematodes. Overall, faecal egg counts were highest in the immature cattle, 6-12 months old (mean EPG, 839) and lowest in the adult cattle more than 12 months old (mean EPG, 324). Calves less than 6 months old had mean EPG of 695.

Coccidial oocysts were found in 7.76% of all cattle examined and mainly in calves and immature cattle.

Table 1 gives the genera of nematode larvae identified in coprocultures from each of the four farms. Haemonchus spp. and Trichostrongylus spp. were the most predominant nematodes in the study area, accounting for more than 41% and 32% of all larvae isolated respectively. Haemonchus spp. was the most predominant on farms A (42%), C (40%) and D (55%) followed by Trichostrongylus spp. which accounted for 39%, 31% and 24%
Table 1: Percentage distribution of genera of gastrointestinal nematodes of cattle isolated from faecal cultures from the four farms

<table>
<thead>
<tr>
<th>FARMS</th>
<th>Haemonchus</th>
<th>Trichostr.</th>
<th>Cooperia</th>
<th>Oesophag.</th>
<th>Strongyl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>42.1</td>
<td>39.1</td>
<td>0.0</td>
<td>5.2</td>
<td>4.6</td>
</tr>
<tr>
<td>B</td>
<td>26.5</td>
<td>35.4</td>
<td>22.7</td>
<td>12.0</td>
<td>3.4</td>
</tr>
<tr>
<td>C</td>
<td>40.0</td>
<td>31.0</td>
<td>15.4</td>
<td>10.4</td>
<td>2.6</td>
</tr>
<tr>
<td>D</td>
<td>55.9</td>
<td>24.2</td>
<td>13.6</td>
<td>4.0</td>
<td>2.4</td>
</tr>
<tr>
<td>MEAN</td>
<td>41.27</td>
<td>32.42</td>
<td>15.15</td>
<td>7.90</td>
<td>3.25</td>
</tr>
</tbody>
</table>

Key:  Trichostr. — Trichostrongylus  
       Oesophag. — Oesophagostomum  
       Strongyl. — Strongyloides

of the species in the respective farms. In farm B, *Trichostrongylus* spp. was the most predominant (26%). In all four farms, *Cooperia* spp, *Oesophagostomum* spp. and *Strongyloides* spp. were third, fourth and fifth in abundance and accounted respectively for 15%, 7.9% and 3.2% of all larvae isolated in the area.

**Discussion**

More than 60% of all cattle were positive for gastrointestinal nematodes infections, indicating that the infections are common in the area. The mean EPG for all age groups of cattle in the four farms were moderate\(^{16}\), the infections therefore being subclinical. This has been described as the most economically important form of infection since it occurs in majority of cases leading to retarded growth, reduced productivity and the animals are more susceptible to other infections and continuously contaminate pastures\(^{30}\). Treatment of such animals is therefore indicated to improve productivity and reduce chances of infecting the more susceptible young animals.

The nematode genera found in faecal cultures were *Haemonchus*, *Trichostrongylus*, *Cooperia*, *Oesophagostomum* and *Strongyloides* in that order of prevalence. This observation is similar to that of other workers in previous studies on helminthiasis in cattle in Kenya\(^{29,30}\), where strongyloid larvae were found to be the most predominant. In the only study where genera of nematodes were identified\(^{31}\), *Cooperia*, *Haemonchus*, *Trichostrongylus*, *Oesophagostomum* and *Strongyloides* spp. were isolated in that order.

of prevalence in Nyeri district. As in the present study, *Strongyloides* spp. were very few.

Coccidial infections were detected in only 7% of all animals and the infections were low. Coccidial infections are therefore probably of little significance in the health of cattle in this area.

Results obtained in this investigation and previous ones\(^{23,36}\) suggest that nematode infections are prevalent in cattle in many parts of the country. Extensive epidemiological studies on the nematode infections in cattle and other ruminants in various agro-climatic regions in the country now need to be undertaken and sound control programmes formulated.

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**References**


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