Donkeys are known to harbour a wide variety of gastrointestinal helminths. Although the epidemiological aspects of some important worms in most domestic animals have been studied, the situation in donkeys is rather different. To facilitate formulation and implementation of strategic control measures of donkey internal parasites, there is a need to study the epidemiology of such parasites in donkeys. The purpose of this study was to investigate the influence of season and age on the occurrence of gastrointestinal helminths in donkeys in Kiambu District of Kenya.

The study was conducted over a one-year period (August, 1994 to August, 1995) in various parts of Kiambu District where 331 donkeys were examined for gastrointestinal helminth infestations by means of faecal egg counts. The climatic data for the area during the study period were obtained from Kiirita Forest Meteorological Station. The sex and age of each donkey were recorded. To estimate the age of each donkey, the method described by Donald and Tutt was used. On this basis, the donkeys were classified as either young (<4 years), medium aged (4-8 years) or adults (>8 years).

Nematode eggs in faecal samples were enumerated using the modified McMaster egg counting technique, and the number expressed as eggs per gram (EPG) of faeces. The mean monthly counts were calculated for each donkey and was recorded. The mean egg counts were compared either among sexes, ages or seasons using the student's t-test.

The climate of the study area was characterized by a short rainy period (September to November, 1994), a short dry period (December and January, 1995), a long rainy period (February and March, 1995) and a long dry period (June to August, 1995), as illustrated in Figure 1 below.

Figure 1: The trend of mean strongyle EPG counts in relation to rainfall in donkeys in Kiambu District (August, 1994 – August, 1995)

Of the 331 donkeys examined, 280 (85%) were infected. Out of the 238 male and 93 female donkeys examined, 202 (85%) and 78 (84%) were positive for gastrointestinal helminths, respectively. When age was put into consideration, the infestation rates were as follows: young donkeys, 60 out of 42 (95%); medium-aged donkeys 62 out of 80 (78%) and adult donkeys 195 out of 203 (86%). As regards the seasons, the infestation rates were as follows: short rainy season, 84%; short dry season, 86%; long rainy season 98% and long dry season 66%.

The mean strongyle egg counts showed an increase during the short rainy season (mean = 1,273 ± 71 EPG) and a decrease during the
short dry season (mean = 882 ± 54 EPG). Another increase was noted during the long rainy season (mean = 1,177 ± 203 EPG) followed by a decrease during the long dry period with a mean EPG of 519 ± 86 (Fig. 1). The mean egg counts were significantly higher (p<0.05) during the short dry season compared to the long dry season. There was no significant difference in egg counts between the short rainy season and long rainy season.

On average, the male donkeys had significantly higher (p<0.05) counts (mean = 906 ± 415 EPG) compared to the female donkeys (mean = 763 ± 471 EPG). As regards age, the young donkeys had significantly higher egg counts (mean = 1,469 ± 622 EPG) than either the medium aged (mean = 544 ± 347 EPG) or the adult donkeys (mean = 988 ± 454 EPG) and the adult donkeys had higher counts than the medium aged donkeys.

In the present study, the infestation rate of donkeys with gastrointestinal helminths (on the basis of faecal egg counts) was found to be quite high (85%). There was no difference in the infestation rates between male and female donkeys. However, there was a higher infestation rate in the young donkeys compared to both the medium aged and adult donkeys. This was also reflected in the level of infection, where the young donkeys had higher egg counts. This phenomenon can be attributed to the fact that the more mature the animal, the more resistant it becomes to helminth infection. Egg counts in the donkeys were higher during the rainy seasons than in the dry seasons. The increase in egg counts started at the beginning of the rains and peaked towards the end of the rains. Like in the observations made by other authors, the increase can be attributed to the increase in the number of worms and accumulation of adult strongyles. This is primarily from newly acquired larvae, which accumulate on pasture during the wet periods. Furthermore, the occurrence of most adult strongyles towards the end of the dry season brings about heavy pasture contamination at the beginning of the wet season, particularly because this coincides with the peak egg output.

Climatic factors and age of host had a significant influence on the prevalence and levels of infection with helminths in the donkeys. These factors should be considered in the design and any strategic or integrated control strategies.

Acknowledgments
The authors wish to thank the Director of Veterinary Services (DVS), the Chief Veterinary Investigation Officer (CVIO) and the Assistant DVS, Kenya, the Central Veterinary Laboratories, Kenya for their assistance when carrying out this study. A vote of thanks is also extended to staff of the Department of Veterinary Pathology and Microbiology, University of Nairobi for their assistance. This project was funded by the Dean's Committee, University of Nairobi and the DANIDA-funded Ruminant Helminth Research Project at the University of Nairobi through the Royal Danish Embassy, Nairobi.

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Received for publication on 12th April, 1999.