THE SIGNIFICANCE OF THE GASTROINTESTINAL PARASITES OF ASIAN BUFFALO IN SRI LANKA

J.A. ROBERTS AND S.T. FERNANDO
Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Peradeniya, Sri Lanka
Address for correspondence: Graduate School of Tropical Veterinary Science, James Cook University, Townsville, Queensland 4811, Australia

ABSTRACT


Buffalo aged 3–15 months on institutional farms and in the villages of an irrigation project were monitored for gastrointestinal nematodes by faecal egg counts over two years. Apart from treatment for Toxocara vitulorum at 10–16 days of age, no anthelmints were used. Half of the strongylid egg counts were zero and 90% were less than 500 epg of faeces on the institutional farms, and 67% were zero and 97% less than 500 epg in the villages. No problems arose during four years without anthelmints on the institutional farms and during two years in the villages. Autopsies demonstrated that the eggs which were present were produced by mixed infections of small numbers of Haemonchus spp., Mecistocirrus digitatus, Trichostrongylus spp., Bunostomum phlebotomum and Cooperia spp. High egg counts of Strongyloides papillosus occurred in calves up to six months old, but were not pathogenic.

Keywords: buffalo, gastrointestinal parasites, prophylaxis, Sri Lanka, therapy, trichostrongyle

INTRODUCTION

There is a substantial literature concerned with the prevalence of gastrointestinal nematodes in Asian buffalo (Bubalus bubalis) but, with the exception of Toxocara vitulorum, there is little information on the significance of such infections. T. vitulorum is important (Srivastava and Sharma, 1981) and a preventive treatment procedure giving effective control of the parasite has been developed (Roberts, 1989). In order to determine the prevalence, seasonal incidence, age distribution and significance of other gastrointestinal nematodes in buffalo, all anthelmintic treatments were stopped on three institutional buffalo dairy farms, for calves in the 3–15 months age group, and they were monitored by faecal egg counts for two years. In addition, buffalo calves of the local breed were monitored in the villages of an irrigation area for one year.

The results are presented so that anthelmintic treatment protocols for buffalo may be re-assessed and consideration can be given to buffalo as an alternative to cattle and small ruminants for situations in which nematodes are a problem.
MATERIALS AND METHODS

Buffalo on institutional farms

Three farms with a total of 590 breeding cows were used. Calves aged up to nine months were used to stimulate milk let-down twice a day and were penned in groups at night. During the day they were run in fields of 15–40 ha, each field being grazed for 2–4 weeks and left to recover for 6–10 weeks. Calves aged 9–15 months had some fields reserved for them, but also grazed the same fields as younger calves, or pastures for adults, depending on the availability of feed. For the first two years of the project all calves aged 3–15 months were observed at least every eight weeks and faeces were collected from a random sample of animals. For a further two years, the calves of this age group were observed at approximately three monthly intervals and faecal samples were examined from any animal of any age which the managers thought may have been affected by nematodes. Faecal samples from cows from approximately four weeks before calving to six weeks after calving were also examined. Prior to this study, all farms had anthelmintic treatment schedules with up to five treatments prior to 12 months of age.

Buffalo in villages

The village area had approximately 1500 cows of which about 90% were used for ploughing. Faecal samples were collected from calves aged 3–12 months at 4–8 week intervals for one year. A few calves (<10%) were treated with anthelmintic by their owners.

Faecal samples

Faeces were taken from the rectum into plastic bags. The samples were taken to the laboratory in styrofoam boxes the same day and kept at 5°C for a maximum of three days before examination. Eggs were counted (Whitlock, 1948) and were visually differentiated into *Strongyloides papillosus* and strongylids. In the early stages of the study all eggs were counted, but later only strongylid eggs were counted, *S. papillosus* egg concentrations being classed as heavy, moderate or light.

Autopsies

Five animals with strongylid egg counts of at least 500 epg were selected for autopsy. The animals were killed with intravenous thiopentone and the gastrointestinal tract was removed and processed by standard procedures (Reinecke, 1984). All parasites were collected and counted from at least one fifth of the contents, and the entire contents were examined for nematodes in low numbers.