ROTATIONAL GRAZING FOR HELMINTH CONTROL OF BUFFALOES IN WET TROPICAL ENVIRONMENT – BRAZIL

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ABSTRACT

This paper examines relationships between intensive rotational grazing and buffalo gastrointestinal helmintoses. The preliminary results indicated that a rotational grazing system consisting of 6 paddocks grazed in sequence for 5 days at a time may permit a control of gastrointestinal parasites in this animal species. The effects of management on helminth control seen insufficiently understood not only by farmers, but by their professional advisers. Because of the expense of anthelmintic treatment and anthelmintic-resistance nematodes, rotational grazing deserves further investigation as a buffalo nematode control in wet tropical environment.

Key words: Amazon, ecopathology, grazing management, helminth control, ,.

INTRODUCTION

The effects of gastrointestinal nematodes on the productivity of buffaloes raised in wet tropical environment have been recorded many times (6, 7). Presently, periodic anthelmintics treatment remain the principal means for the prevention and control of clinical and subclinical parasitism of these animals. However, the use of anthelmintic alone is extremely expensive and rapidly result in some degree of parasite resistance. Moreover, control methods which involve chemical drugs are felt very undesirable in recent years. Thus others methods of gastrointestinal nematodes control in buffalo are urgently necessary. The objective of this study was to evaluate the efficacy of buffalo helminth control by intensive rotational grazing.

MATERIAL AND METHODS

The site

The experimental area (6 paddocks of 5.4 ha each) is situate at the "Álvaro Adolpho" Experimental Station of Embrapa Amazônia Oriental (1° 28' S and 48° 27' W), in Belém County, Pará, Brazil. The climate has an mean annual rainfall of around 2.800 mm. Rain can be expected in any month of the year, but there is a well defined wet season from December to June. Mean monthly maximum air temperatures range from 25° C. Pastures is consisted mainly of "star grass" (*Cynodon nlemsuensis*).

The management.

In May 2002, twenty five Mediterranean male buffaloes approximately 12 months of age were placed on the pasture. The animal grazing during 5 days in each plots over 1 year (May 2002 to May 2003). Fifteen days before the buffaloes entered the pasture, rectal fecal samples were collected from all animals for counts of eggs per gram of feces (EPG) using the modified McMaster technique. Thereafter subcutaneous injection of 200μg/kg of ivermectin was given to these animals. All animal were vaccinated against foot-and-mouth disease from six to six months. Each animal was identified by a numbered ear tag. Pasture sample are collected at 2 month interval for trichostrongylid larval count (TLC) using the Weybridge method. The pasture had not been grazed

by animals for the previous 6 months. The rotationally grazed flock was subdivided using electric fencing.

RESULTS AND DISCUSSION

Preliminary results showed lower number of EPG (10 to 20) and no infective third-stage recovered from the pasture. This results suggest no significantly infestation of animals and there is evidence that rotational grazing shown effective advantage in buffalo parasite control. Similar results are recorded in cattle by (3, 8, 10). This results while encouraging, must be regarded with caution, because the experiment was not finalized, it was not possible to reach a firm conclusion.

The literature concerning the effects of grazing management practices on parasite load of beef cattle is conflicting. Studies realized in temperate climates (2, 5, 9) have shown no difference in parasitism or weight gain between rotational and continuous grazing. A possible reason for this was the climatic condition. In temperate climates rotational grazing systems generally have been found to be ineffective for control of parasitic nematodes because of the long survival times of infective larvae on pastures (4). In wet tropical climates, however, the warm wet conditions that favour rapid and continuous egg hatching and larval development also result in extremely high death rates of infective larvae on pasture (1)

The theory of the control by rotational grazing is that a major part of the life cycle of helminth parasite is passed in the external environment and this is the source of larval input into the host. Consequently, the temporary removal of animals from a grazing area for several weeks will break the life cycle of parasite. Fencing of rotational grazed pastures, as practiced in the present study is therefore not essential, although subdivisional electric fencing is less expensive than traditional permanent perimeter fencing.

Rotational grazing in wet tropical environment is a specialized form of pasture spelling for helminth control. Although this method has been recommended for many years as a means of control of nematode infections a satisfactory systems has not yet been developed. Pasture utilization dictates in temperate climates that the grazing interval cannot be longer have shown that procedure not convey any benefit in parasite control. Further research is needed to investigate more detailed the theme.

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