

PARASITOLOGICAL STATUS OF DAIRY CATTLE IN VOTUPORANGA AND VALENTIM GENTIL, SÃO PAULO STATE, BRAZIL¹

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ABSTRACT: Given the importance of nematode parasites in cattle herds, this study aimed to assess the parasitological status of dairy cattle from small producers in Votuporanga and Valentim Gentil, SP. During technical visits to 45 farms in the region, interviews and stool sample collections were performed. It was observed that the producers of the area follow different treatment programs and did not follow specific recommendations of any official institution or organ. It is noteworthy that the producers choose the medication according to their own guidance or at the shop counter, and use mainly ivermectin and doramectin to treat animals. Results of fecal examinations revealed higher values of EPG in lactating animals, followed by weaned animals. The stool cultures showed that infection was caused mainly by *Haemonchus* sp and *Cooperia* sp., and also that cattle of all farms were positive for *Eimeria* spp., while the most infected were lactating and weaned animals.

Key words: parasitological status, cattle, helminths.

ESTATUS PARASITOLÓGICO DA BOVINOCULTURA LEITEIRA EM VOTUPORANGA E VALENTIM GENTIL, ESTADO DE SÃO PAULO, BRASIL

RESUMO: Dada a importância da verminose em bovinos, o presente trabalho teve por objetivo avaliar o status parasitológico da bovinocultura de leite desenvolvida por pequenos produtores dos municípios de Votuporanga e de Valentim Gentil, SP. Foram empregadas visitas técnicas, entrevistas e colheita de fezes de animais em 45 propriedades. Observou-se que os produtores dos dois municípios utilizam diferentes programas de tratamento das helmintoses, não seguindo recomendações específicas de nenhum órgão de assistência técnica. Destaca-se a informação de que os produtores escolhem o medicamento segundo sua própria orientação ou no balcão de estabelecimentos comerciais, sendo empregados, principalmente, a ivermectina e a doramectina no tratamento dos animais. Resultados de exames coproparasitológicos revelaram maiores valores de OPG em animais em fase de amamentação, seguida por animais desmamados. As coproculturas realizadas revelaram infecção, principalmente, por *Haemonchus* sp e *Cooperia* sp., mostrando também animais positivos para *Eimeria* spp. em todas as propriedades, sendo os bezerros em fase de amamentação e desmamados as categorias mais infectadas.

Palavras-chave: status parasitológico, bovinos, helmintos.

INTRODUCTION

Dairy cattle is an important sector of the agribusiness with an important social role as well, since it is responsible for establishing thousands of families in the country, generating direct and indirect jobs.

According to data from the last survey carried out by Levantamento Censitário das Unidades de Produção Agropecuária (LUPA) of São Paulo (LUPA 07/2008) of the Coordenadoria de Assistência Técnica Integral - CATI (São Paulo, 2011a), the cattle herd in Votuporanga, northwest of São Paulo state, is present in 68.2% of UPA's (Agricultural Production Units) and it is represented mainly by dairy and mixed cattle herds. In Valentim Gentil, in the same region, the data from LUPA 07/2008 indicate the presence of cattle in 88.1% of UPA's, and in most cases, it is also dairy and mixed cattle herds.

The success of animal production is based on genetics, nutrition and health management techniques coupled with detailed feasibility analysis. With regard to sanitary conditions of dairy farms, helminths have been pointed out as one of the major bottlenecks in production systems.

The losses caused to the herds range from direct to indirect (subclinical). It causes decreased feed intake, reduced weight gain (15 to 20%), poor carcass yield, declining production, higher mortality rate of young animals mainly, as well as spending on pesticides and labor (HAWKINS, 1993; STROMBERG *et al.*, 2012). Economical losses in Brazil could reach 1.4 billion reais per year (BOLETIM TÉCNICO, 2006).

The control of helminths has been conducted almost exclusively with anthelmintics, often inappropriately, without taking into account animal type, epidemiological data, accurate diagnosis of helminth genera and anthelmintic efficacy. Therefore, the widespread use of anthelmintic has allowed the parasite population to develop resistance against the majority of the drugs available on the market (STROMBERG *et al.*, 2012).

According to KATE (1965), when the biotic potential of ruminant helminths of a particular region is studied and known, the disease can then be better controlled and treated. STROMBERG *et al.* (2012) recommends that farmers and veterinarians should monitor the

effectiveness of anthelmintic treatments adopted and that programs to control nematodes should be adapted to the local parasite fauna.

Thus, this study aimed to assess the parasitological status of dairy cattle reared by small farmers in Votuporanga and Valentim Gentil, in the northwest region of São Paulo, Brazil.

MATERIAL AND METHODS

Were visited 21 farms between 3.5 and 46 acres, and 24 farms between 1.5 and 30 acres in the counties of Votuporanga and Valentim Gentil, respectively, in the northwestern of state of Sao Paulo (geographic coordinate 20°25'06" south latitude and 49°58'39" west longitude with mild relief and altitude of 525 m). According to Koeppen, this region presents Aw climate, with summer rainy season followed by mild and dry weather in winter, the average annual rainfall is close to 1,500 mm.

During the technical visits, questionnaires were applied in a semi-structured way that allowed the interviewee to report freely during the interview. The data recorded in the standard questionnaires were allocated into spreadsheets suitable for the analysis of the parasitological status.

Stool samples were collected from the animals in each farm, considering three categories: cows, calves suckling (1-7/10 months) and weaned animals (>7/10 months). For each stool sample, it was determined the number of eggs per gram of feces (EPG), according to the modified technique of GORDON and WHITLOCK (1939). Stool cultures were performed in the positive samples and the resulting larvae identified according to KEITH (1953).

RESULTS AND DISCUSSION

When observing the evolution of agriculture in municipalities focused in this research, the data from LUPA 95/96 (São Paulo, 2011b) and LUPA 07/08 (São Paulo (2011a) show that dairy cattle is still relevant for the agribusiness in the studied counties, and this fact should be considered when implementing incentive and support policies for its maintenance.

The health data obtained specifically for the control of endoparasites showed that the producers in both

areas follow different treatment programs, and do not follow recommendations of any specific institution or organ. This procedure is commonly adopted in other regions of the country, as it can be seen in a study conducted in 555 towns of Minas Gerais, by DELGADO *et al.* (2009), who reported that 55.9% of the farmers treated simultaneously all the animals of the herd. Of those who treated lactating cows, 45% treated them twice a year, a percentage higher than that found in this study.

We highlight the information that 48% and 67% of the producers in Votuporanga and Valentim Gentil, respectively, chose the product according to their own guidance or at the counter of the commercial establishments. These results are similar to those reported by Charles and FURLONG (1996), who found that 58.2% of anthelmintic treatments are adopted without any technical criteria.

It was further observed that different drugs are used to treat cattle worms, and among them, ivermectin and doramectin are the most common. The use of the avermectin group has also been reported by BIANCHIN and HONER (1987), Charles and FURLONG (1996), DELGADO (2009), among others.

Figures 1 and 2 shows the combined results of fecal exams (EPG and stool cultures) for both areas, Votuporanga and Valentim Gentil. It was observed that lactating animals displayed the highest values of EPG with values as high as 11,300 EPG, followed by weaned animals (5,450 EPG). The average EPG value for adult cows was 1,500 (Figure 1). Younger animals are more susceptible to heminthiasis compared to adults, since adult animals suffer less from the effects of worms. According to CATTO *et al.* (2005), pre-weaning calf development can be impaired by subclinical gastrointestinal parasitism, but the recommended treatment cannot be generalized for all different production systems, and therefore, should be adapted to the region characteristics.

The cultures (Figure 2) showed infection mainly by *Haemonchus* sp (50.4%), followed by *Cooperia* sp (35.5%). In this same line of research, studies by CATTO and UENO (1981), in the Pantanal Mato-Grossense region, showed that the genera *Haemonchus*, *Oesophagostomum* and *Cooperia* were highly prevalent and the infection rate high.

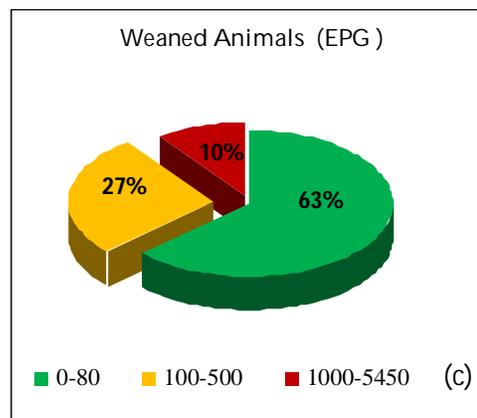
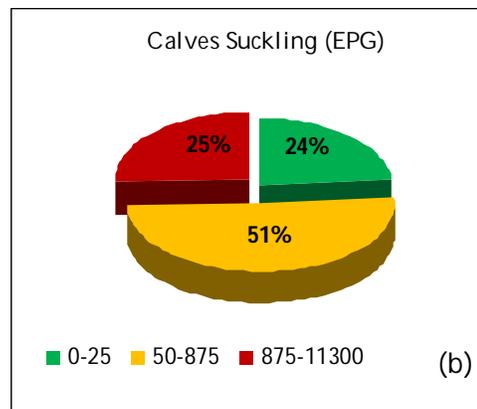
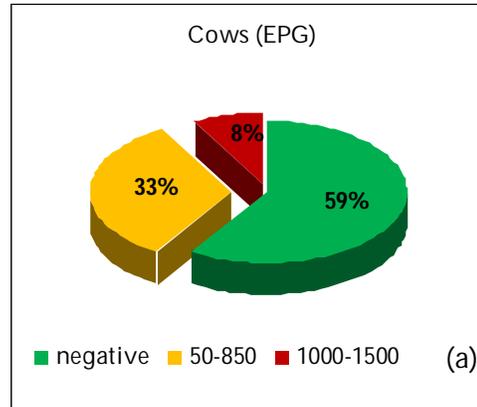


Figure 1. EPG values and percentage of animals in their respective categories and variations ((a)cows, (b) calves suckling and (c) weaned animals) in dairy cattle in Votuporanga and Valentim Gentil, São Paulo, Brazil

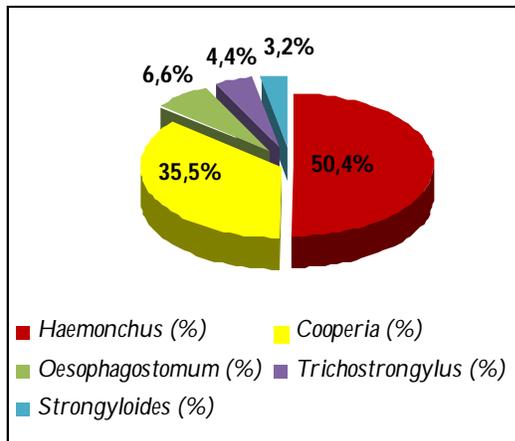


Figure 2. Results of stool cultures in dairy cattle of Votuporanga and Valentim Gentil, São Paulo, Brazil

STROMBERG *et al.* (2012) recommends that the nematode control program adopted should be adapted to the local parasitic fauna. According to technical recommendations (MSD Saúde Animal, 2009), the EPG test results, when properly interpreted, are a good option to determine how long the anthelmintic treatment should be performed.

The results of the parasitological tests also showed animals positive to *Eimeria* spp. in all farms, with the highest infection rates observed in lactating and weaned calves (45% and 22%, respectively). According to DUTRA (2001) and DAUGSCHIES and NAJDROWSKI (2005), the eimeriosis is a health problem of increasing economic importance in Brazilian cattle herds. Although the disease is more significant for calves between one month and two years old, the disease can affect animals at any age. The subclinical form is more important from the economical point of view, often leading to low animal performance, even under ideal management conditions.

CONCLUSION

The knowledge of parasitological status, especially treatment and control strategy employed by the producers, as well as, the diagnosis regarding helminth genera that parasites animals at different ages are of fundamental importance to recommend and implement effective helminth control strategies in cattle herds of the studied areas.

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