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B. PILARCZYK, A. BALICKA-RAMISZ, A. RAMISZ 2000. STUDIES ON COCCIDIOSIS IN CATTLE IN NORTH-WEST POLAND

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STUDIES ON COCCIDIOSIS IN CATTLE IN NORTH-WEST POLAND

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ABSTRACT

The studies were carried out in the North -West part of Poland. The investigation was conducted on 292 specimens of the Holstein cattle with added 50% of HF. The extensity and intensity of the coccidia infection were determined by means of the Willis-Schlaaf's and McMaster's methods. Six species of coccidia were found : *E. bovis*, *E. auburnensis*, *E. zürni*, *E. ellipsoidalis*, *E. subspherica* and *E. cylindrica*. Twenty seven per cent of dairy cows and 49.6 per cent of calves were infected . Number of oocysts per gram of feces in calves ranged from 333 to 2237. Observations on the dynamics of the coccidia invasion in calves during a yearly cycle exhibited the existence of two peaks; a vernal and an autumnal ones.

Key words: Cattle, eimeria, infection rate

INTRODUCTION

The studies on Coccidia infection in cattle in Poland were known in only limited scale (Ramisz et al. 1970; Lipiński 1984). In the North-West Poland, studies on coccidiosis in calves have not been undertaken till now. The coccidia infection in calves is a typical subclinical pathogenic factor and clinical symptoms are rarely observed . However, the economical consequences of the subclinical infections are of importance specially in beef calves production.

The main aims of these studies were to establish the annual dynamics of coccidia infection in cows and calves and to determine the species of *Eimeria* involved.

MATERIALS AND METHODS

The studies were carried out in the North- West part of Poland. A total number of 292 animals (132 cows and 160 calves) were studied .

Fecal examination was performed with the qualitative methods of Willis-Schlaaf and the McMaster, establishing the number of oocysts in 1 g of feces (OPG coefficient) (Thienpont et al., 1986).

The species were determined based on morphology of oocysts (shape, color, form index, presence or absence of micropyle and its cap, presence or absence of residual, polar and Stiedé bodies) and time of sporulation with Coudert's key (Coudert, 1992). Sporulation was performed in wet chamber at 24-26 °C in a 2.5% aqueous solution of potassium dichromate (K₂Cr₂O₇) (Pellérdy, 1974).

RESULTS AND DISCUSSION

The results are presented in the Tables 1-5. Six species - *E. bovis*, *E. auburnensis*, *E. zürni*, *E. ellipsoidalis*, *E. subspherica* and *E. cylindrica* were found (Table 1). The course of the coccidia infection was characterized by two peaks . The same of results are presented by Lipiński (1984) and Ramisz (1970). The first peak was observed in April (E.I. = 68,58%) and the second one in September (E.I.= 65,99%) (Table 2). The lowest infection rate of the coccidia infection in the dairy calves was observed during winter months, namely in November (E.I.26,52%) and in December (E.I.=23,07%) (Table 2). Number of oocysts per gram of feces in calves ranged form 333 to 2237 (Table 3). The infection rate was 27,1% in cows and 49,6% in calves. *E. bovis*, *E. auburnensis*, *E. ellipsoidalis* ocured most often in calves (Table 1).The highest infection rate in calves aged five to seven month (Table 4) and in five and seven-years-old cows (Table 5). The same of results were obtained by Lipiński (1984) in North Poland.The studies on coccidia infection rate in otheer countries - Chech Republik (Bejsovec i wsp., 1982; Chroust, 1964; Pavlaska, 1978), Kazakhstan (Svanbajev, 1977) and Japan (Oda, 1990) show, that the highest intensity of oocystes output was established in the age of 3-6 mouths.

Table 1. The infection rate of Eimeria spp. in calves and dairy cows (%)

Species of Eimeria	Cows	Calves
<i>E. bovis</i>	17.34	27.23
<i>E. auburnensis</i>	7.64	12.57
<i>E. zürni</i>	5.41	6.17
<i>E. ellipsoidalis</i>	3.60	9.88
<i>E. subspherica</i>	2.85	2.78
<i>E. cylindrica</i>	0.90	1.51

Table 2. The infection rate of coccidia in cows and in calves during the yearly cycle

Rate of infection (%)												
Months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Cows	10.70	11.03	18.30	23.40	32.6	46.03	44.17	39.60	39.43	23.60	20.53	15.80
Calves	34.82	38.35	54.43	68.58	66.39	62.09	57.34	59.48	65.99	38.03	26.52	23.07

Table 3. OPG of Eimeria spp. in calves during the yearly cycle

OPG (number of oocysts per g of feces)												
Months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Calves	443	627	1377	2237	1997	1710	1250	1323	1947	1317	533	333

Table 4. The Eimeria spp. infection in calves and young cattle in different aged groups

Age of animals (months)	Rate of infection (%)
1	0.00
2	12.45
3	37.66
4	52.81
5	69.98
6	73.09
7	76.47
8	61.92
9	61.58
10	49.96

Table 5. Average annual infection rate of coccidia (%) in cows in different aged groups

Number of cows	Age (years)	Rate of infection (%)
30	3 - 4	38.15
30	5 - 6	44.00
30	7 - 8	36.82
30	above 9	33.02

CONCLUSIONS

Coccidia infection in calves during the annual cycle exhibited the existence of two peaks (April)- 68,58% infected animals and autumnal (September) - 65,99% infected calves.

The highest infection rate with Eimeria spp. was observed in calves aged from five to seven month and in cows five to seven-years-old.

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