ACTA VET. BRNO, 53, 1984: 183–192

TRANSMISSION OF COCCIDIA AND HELMINTHS INTO LARGE--CAPACITY CALF-HOUSES

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Received August 17, 1983

Abstract

Bejšovec, J.: *Transmission of Coccidia and Helminths into Large-capacity Calf--houses.* Acta vet. Brno, 53, 1984: 183–192.

A total of 2 787 calves aged 1 to 60 days and reared under various large-scale systems were examined for coccidia and helminths.

In total, 1799 calves were investigated in various cow-houses, calving pens and rearing houses; of these 38.8 % of calves excreted coccidia: 23.8 % *Eimeria zuernii*, 19.3 % *E. bovis*, 8.7 % *E. ellipsoidalis*, 6.7 % *E. subspherica*, 3.1 % *E. alabamensis*, 2.3 % *E. bukidnonensis*, 1.9 % *E. auburnensis*, 0.3 % *E. cylindrica*, 0.1 % *E. wyomingensis*. Helminth eggs were excreted by 3.5 % of calves: 1.3 % excreted *Trichocephalus ovis*, 0.9 % *Capillaria* spp., 0.4 % *Haemonchus contortus*, 0.3 % *Trichostrongylus* spp., 0.3 % *Oesophagostomum* spp., 0.2 % *Strongyloides papillosus*, 0.1 % *Chabertia ovina*. Some calves excreted coccidia oocysts from the first day of life.

In the entry pavilions of the large-capacity calf-houses, 988 calves were examined after the transport of calves; as many as 61.1 % of calves excreted coccidia oocysts: 49.5 % excreted *E. zuernii*, 28.8 % *E. bovis*, 17.8 % *E. alabamensis*, 14.1 % *E. subspherica*, 10.5 % *E. ellipsoidalis*, 10.2 % *E. bukidnonensis*, 2.8 % *E. auburnensis*, 1.6 % *E. cylindrica*, 0.9 % *E. wyomingensis*, 0.2 % *Isospora* spp. Helminth eggs were excreted by 5.3 % of calves: 2.3 % excreted *Trichocephalus ovis*, 1.3 % *Capillaria* spp., 0.8 % *Strongyloides papillosus*, 0.7 % *Chabertia ovina*, 0.4 % *Cooperia* spp., 0.2 % *Haemonchus contortus*.

The present results indicate that if the strict technological discipline is not observed, oocysts accumulate in the environment causing clinical coccidiosis in the enfeebled calves. The arrival of older calves increases the amount of coccidia oocysts and helminth eggs present in the entry pavilions of the large capacity calf-houses.

Age, coccidia, helminths, transfer, shedding.

In recent years, expensive large-capacity barns were built for rearing cattle. A capacity of 1,200 to 1,500 calves is considered to be the minimum (Cvachovec 1975). The rearing of calves concentrated in large numbers is one of the most important problems of modern animal production. As early as in the first month of life, diarrhoea causes death and emergency slaughter. Polák (1982) drew attention to clinical symptoms of coccidiosis in calves in large-capacity calf-houses and proposed a modification of the system of rearing and of zoohygienic conditions. Subclinical coccidioses often escape our attention and along with other losses, they increase feed consumption. The present study is focused on very young calves which are usually not examined from the parasitological point of view.

Materials and Methods

A total of 2,787 calves were examined in cow-houses, calving pens, rearing houses and entry pavilions of large-capacity calf-houses. Faeces were taken from the rectum and investigated using the flotation method according to Breza (1957). In the majority of cases, the amount of coccidia

oocysts and helminth eggs found was small and that is why they were counted or evaluated using a grading system (+). In herds of various sizes it was not possible to investigate the same numbers of animals, the results give the numbers of calves investigated and the percentage of calves excreting different species of endoparasites. To give a better survey, a brief characteristic of the herds investigated is given further in connection with the findings and in Table 1. The transfer of parasites was studied under conditions of normal operation of the agricultural enterprises.

Results

Various types of herds of cattle were investigated:

The large-capacity calf-house Zdětín with a capacity of 1,140 heads — the first large-capacity calf-house in the Czech Socialist Republic — with grates, litterless housing of calves fed milk and fodder. The house was opened in 1973. In 1979, 60 calves were investigated in the entry pavilion after arrival: 3 calves excreted *Eimeria zuernii* coccidia, 2 *E. bovis*, and one *E. ellipsoidalis*, i. e. 10 %, of the calves excreted coccidia oocysts after transportation into the large-scale calf-house. That is why investigations were carried out in calving pens and rearing houses of various farms from which the calves were transported into the large-capacity calf-house Zdětín.

The rearing house in the central first-calver house in Chotětov with a capacity of 800 head was launched in 1977. In 1982, 28 calves were investigated; 4 calves excreted coccidia oocysts and one *Trichocephalus ovis* eggs. Coccidia of the pathogenic species *E. bovis* were found in a calf of only 3 days of age, and a 20-day-old calf excreted three pathogenic coccidia species. After three months, another 31 calves were examined in the above mentioned rearing house and 9 calves excreted coccidia.

Investigated in the same way were other herds from which calves were brought into the large-capacity calf-house Zdětín; results are given in the upper part of Table 1. Coccidia were found in rearing houses of all the investigated farms from which calves were brought to the calf-house. In all the rearing houses (with the exception of the old Bezno cow-shed with no rearing house), two strongly pathogenic species were found at the same time, i. e. *E. bovis* and *E. zuernii*. The pathogenic species *E. ellipsoidalis* was found in three rearing houses. The other species occurred only in some rearing houses of the transport district but they were all found after the transport of calves to the entry pavilion of the large capacity calf-house Zdětín.

During the transport of calves into this calf-house, 52 faecal samples were examined in the zoobus. Coccidia oocysts were found in 71 % of the samples: 62 % *E. zuernii*, 27 % *E. bovis*; in 19 % of the samples both of these strongly pathogenic species were found. In some samples there were even 4 or 5 coccidial species. Six coccidial species were transferred into the large capacity calf-house in the zoobus at the same time.

In the entry pavilion of the large-capacity calf-house Zdětín, 220 calves were examined on arrival in 1982 and 1983. During all the transports, a considerable number of calves were found to excrete coccidia oocysts and sporadically helminth eggs. *E. zuernii* and *E. bovis*, which are the most pathogenic species, were excreted most frequently. Parasite species transferred into the entry pavilion of the large-capacity calf-house Zdětín during transport are given in Table 1.

Other farms were investigated, too:

The rearing house of the large-capacity cow-house for rearing dairy cows in Čelechovice has a capacity of 724 head. In the production barn the cows are housed on grates. The dairy cows carry transmitters connected to a computer which

allocates the appropriate ration of concentrates according to their performance. The rearing house has individual metal cages. The cow-house was launched in 1978. In 1981, 95 calves aged from one to 11 days were examined. Coccidial oocysts were excreted by 30 % of calves, 3 % excreted helminth eggs. The excretion of pathogenic coccidia species was observed as early as from the first day of life. In the large-capacity calf-house, where calves from the investigated rearing house were transported, oocysts of *E. bovis*, *E. zuernii*, *E. ellipsoidalis*, and *E. cylindrica* were found simultaneously in a 17-day-old calf. In 1982 and 1983, another 217 calves were examined in the given rearing house of the large-capacity cow-house Čelechovice. Calves were found to excrete coccidia oocysts and helminth eggs from their second day of life. Endoparasite species excreted by calves from the age of one to 14 days in the rearing house of the large-capacity cow-house Čelechovice are given in Table 2.

The control cow-shed Lány for first-calvers with a capacity of 96 heads. It is a stanchion cow-shed with litter. Calves are housed in pens between the boxes of the mothers and fed colostrum using rubber suckers. The shed was launched in 1950. In 1982, 46 calves were examined, 45 % excreted coccidia oocysts: 37 % *E. zuernii*, 22 % *E. bovis*, 9 % *E. ellipsoidalis*, 4 % *E. alabamensis*, 4 % *E. subspherica*, 2 % *E. auburnensis*, and 2 % eggs of *Cooperia* spp.

The calving pen of the large-capacity cow-house Vtelno with a capacity of 680 head. It is a stanchion house with litter; the calves are housed in the calving pen in individual cages with litter. The calving pen was launched in 1978. In 1983, the calves excreted *E. bovis*, *E. zuernii*, and *E. ellipsoidalis* oocysts. (More details in Table 1.)

The rearing house of the cow-house Bělušice with a capacity of 174 head. It is a stanchion house with litter. The rearing house was launched in 1963. In 1983, the calves excreted *E. bovis*, *E. zuernii*, and *E. alabamensis* oocysts. Calves examined in the calving pen Vtelno and in the rearing house Bělušice were examined after transport in the entry pavilion of the large-capacity calf-house Mariánské Radčice where the capacity was 1,208 heads. The calves excreted 8 coccidia species and 2 helminth species. The percentage of infestation of calves with various species is given in Table 1.

In the pasture land of western Bohemia in the period from 1982 to 1983, calves were examined in 8 farms of the transport district of the large-capacity calf-house Šindelová, the capacity of which is 1336 heads. In all the farms with different rearing technologies, the calves excreted coccidia, most frequently *E. zuernii* and *E. bovis* (Table 1). Findings of helminths were much lower. *Oesophagostomum radiatum* and *Trichostrongylus* spp. occurred sporadically in the rearing house, but they were not found in calves after transport to the large-capacity calf-house.

The large-capacity calf-house Polerady (the largest in the Central Bohemian Region), with a capacity of 2600 heads, for rearing bullocks, to which a fattening station is linked up, with a capacity of 2500 heads. This large-scale calf-house was launched in October 1976. In April 1977, 50 calves of an age around 3 months were examined in the large-capacity calf-house Polerady. Already 92 % of calves were infested with coccidia: 58 % of the calves excreted *E. cylindrica* oocysts, 36 % *E. zuernii*, 34 % *E. ellipsoidalis*, 22 % *E. subspherica*, 16 % *E. auburnensis*. Two calves were infested with all the species mentioned. The widely spread, strongly pathogenic species *E. bovis*, was not found early after the opening of the large-capacity calf-house. Investigated were farms from which calves are transported to the large-capacity calf-house Polerady:

Table 1

	Age of examined calves in days	Day of age when calves began to excrete		Number of examined calves	% of calves excreting	
		coccidia oocysts	helminth eggs		coccidia oocysts	helminth eggs
Rearing house of the central first-calver house in Chotětov, capacity 800 heads	1–25	3	21	59	22	2
Rearing house of the large-capacity cow-house Malé Všelisy, capacity 573 heads	1–30	17	30	16	25	6
Rearing house of the large-capacity cow-house Sedlec, capacity 500 heads	2–18	5	16	20	15	5
Rearing house of the large-capacity cow-house Rokytovec, capacity 500 heads	10–33	23		12	42	
3 old cow-sheds for dairy cows Bezno, capacity 200 heads	2–19	19		11	9	
Entry pavilion of the large-capacity calf-house Zdětín, capacity 1140 heads	22–33	22		20	45	
Entry pavilion of the large-capacity calf-house Zdětín, capacity 1140 heads	12–45	12		69	68	
Entry pavilion of the large-capacity calf-house Zdětín, capacity 1140 heads	12–45	12		70	69	
Entry pavilion of the large-capacity calf-house Zdětín, capacity 1140 heads	17–42	21	29	61	47	2
Calving-pen of the large-capacity cow-house Vtelno, capacity 680 heads	9–21	18		6	50	
Rearing house of the cow-house Bělušice, capacity 174 heads	12–33	12		6	50	
Entry pavilion of the large-capacity calf-house Mariánské Radčice, capacity 1208 heads	19–47	20	31	27	93	19
8 farms using pastures of the transport district of large-capacity calf-house Šindelová	1–35	4	3	121	48	10
Entry pavilion of the large-capacity calf-house Šindelová, capacity 1336 heads	16–38	16	30	60	55	8
Cow-house Toušen, capacity 174 heads	1–34	1	5	172	31	3
Old stanchion shed Jenštejn, capacity 44 heads	1–18	6		16	25	
Calving pen and rearing house Vyšehořovice, capacity 65 heads	1–32	20		35	43	
Small-scale stanchion shed Radonice, capacity 40 heads	1–33	6		20	50	
Cow-house Šestajovice, capacity 200 heads	1–35	9		38	71	
Calving pen Zápy, capacity 108 heads, with rearing house	1–60	6		60	47	
Entry pavilion of the large-capacity calf-house Polerady, capacity 2600 heads	19–57	19	28	85	71	5
Entry pavilion of the large-capacity calf-house Polerady capacity 2600 heads	17–50	17	21	80	64	12

The cow-house Toušeň, capacity 174 heads, with stanchions and litter. Calves are individually fed colostrum and mother's milk from a bucket with a rubber teat. The cow-house was opened in 1962. In 1982, 172 calves were examined, 31 % excreted coccidia oocysts and 3 % excreted helminth eggs.

% of calves excreting																		
coccidia species											helminth species							
E. bovis	E. zuernii	E. ellipsoidalis	E. auburnensis	E. alabamensis	E. cylindrica	E. subspherica	E. bukidnonensis	E. wyomingensis	Isospora spp.		Strongyloides papillosus	Oesophagostomum spp.	Chabertia ovina	Trichostrongylus spp.	Haemonchus contortus	Cooperia spp.	Trichuris spp.	Capillaria spp.
5	14	3		5		2											2	
19	6	6		6		6	6										6	
5	5						5										5	
33	8	8						9										
15						10	30	5										
32	38	13		20		16	10											
34	56	13		20		11	10											
18	8	23	2	11	2	8	8	2									2	
33	17	17																
50	50			17														
56	63	26	4	70	22	11	30										7	15
35	34	12	7	2	1	8			1			2		1	2			5
52	48	13	3	5		10		8	3						5		5	2
10	23	5		2		5	2						1	1	1		2	1
13	6	13				6												
9	26	6	6			17	6											
30	15	20				5												
32	55	47		3		5												
23	18	8	8			5	2											
48	63	6	7	12	2	13	26	2			1		2				1	
26	51	20	5	27	2	22	7				1		1			2	5	5

The calving pen and rearing house Vyšehořovice with a capacity of 65 heads, with stanchions and litter. The building was launched in 1977. In 1982, 43 % of calves excreted coccidia oocysts, mostly stronly pathogenic species.

The small-scale house Radonice, with a capacity of 40 heads, with stanchions

Table 2

Excretion of coccidia oocysts and herminth eggs by calves in the rearing house of the large-capacity cow-house in Čelechovice with a capacity of 724 heads, in the period 1981—1983

Age of calves in days	% of calves excreting		% of calves excreting											Number of examined calves
			coccidia species								helminth species			
	coccidia oocysts	helminth eggs	E. bovis	E. zuernii	E. ellipsoidalis	E. auburnensis	E. alabamensis	E. cylindrica	E. subspherica	E. bukidnonensis	Strongyloides papillosus	Trichostrongylus spp.	Trichocephalus ovis	
1	7		2	2	2		2							43
2	6	3		3	3							3		31
3	29		11	9	11				6	3				35
4	26		24	18	9									34
5	42	3	18	24	5				3				3	38
6	40	3	20	27	3		3	3					3	30
7	50		22	28		3			9					32
8	78	11	22	56									11	9
9	62	8	38	46						8	8			13
10	71		43	14	29				29					7
11	60		20	40	60				20	20				5
12	40		20	40						20				5
13	27		27	9										11
14	75		50	25			25		50					4

and litter. The cow-house was opened in about 1950. In 1983, the calves excreted *E. bovis* and *E. zuernii* oocysts from the age of six and seven days, resp.

The cow-house Šestajovice, with a capacity of 200 heads, with stanchions and litter. The cow-house was opened in 1965. In 1982, in the rearing house with a capacity of 40 heads, 38 calves were examined, 71 % excreted coccidia oocysts from the ninth day of age.

The calving pen Zápy, with a capacity of 108 heads, with stanchions and litter. The shed was built after 1950, in 1980 it was adapted as a calving pen. In 1983, 30 calves were examined in the calving pen, 10 % excreted coccidia oocysts. In the rearing house also 30 calves were examined, as much as 83 % of calves were found to excrete coccidia oocysts from the 6th day of age.

In the entry department of the large-capacity calf-house Polerady, 85 calves were examined in October 1982, 71 % excreted coccidia oocysts and 5 % helminth eggs. In February 1983, another 80 calves were examined immediately after transport; 64 % excreted coccidia oocysts and 12 % helminth eggs. The species are given in the lower part of Table 1. Forty-four days after transport, 82 calves were examined in the large-capacity calf-house Polerady; already 94 % excreted coccidia oocysts and 13 % helminth eggs.

The findings of coccidia and helminths were similar also in other agricultural enterprises. The numbers of calves examined and the excretion of endoparasites are given in the abstract. In the various cow-houses, calving pens, rearing houses and entry pavilions of large-capacity calf-houses, the most frequent was the occurrence of coccidia of the strongly pathogenic *E. zuernii* and *E. bovis* species.

The amount of coccidia oocysts excreted by young calves is mostly very small. Up to the age of about 14 days, only some calves excreted mostly only sporadic oocysts. In 1 g of faeces, usually only one oocyst was found, sometimes even 5 oocysts, only exceptionally more. After the 20th day of age there was a consider-

able increase in numbers of calves shedding oocysts, but the amount of excreted oocysts mostly increased only slightly, in 1 g of faeces about 5, sometimes about 10 oocysts. Many calves excreted more coccidial species at the same time (3—7 species). In the large-capacity calf-house Polerady, a 28-day-old calf excreted 1916 *E. ellipsoidalis*, 920 *E. zuernii*, 36 *E. cylindrica*, 32 *E. bovis*, 8 *E. subspherica*, 4 *E. alabamensis* oocysts in 1 g of faeces. A calf of the age of 32 days excreted 3656 *E. bovis*, 3236 *E. zuernii*, 1088 *E. bukidnonensis*, 554 *E. auburnensis*, 364 *E. subspherica*, 224 *E. ellipsoidalis* oocysts in 1 g of faeces. The amounts of oocysts mentioned in the large-capacity calf-house Polerady are exceptional, but they occur also in other large-capacity calf-houses.

Calves excreted helminth eggs much less than coccidia oocysts. In 1 g of faeces frequently only one egg was found in calves of about 30 days of age.

The coccidia oocysts and helminth eggs passed through the digestive tract of the very young calves — sometimes even one day after birth. The originators of parasitisms are transferred by young calves much earlier than they can finish endogenous development in their specific hosts. During transport of older calves, the amount of coccidia oocysts considerably increased, to a lesser extent also of helminth eggs transferred into large-capacity calf-houses.

Discussion

Results of many authors in different countries show that calves are infested with coccidia very frequently. In Czechoslovakia, Chroust (1966) found coccidia in 64 % of calves of the age from one to 3 months. Zajíček et al. (1977) found *E. bovis* in 19.88 % of a large herd, *E. zuernii* in 2.49 % of calves. Lax (1977) found predominantly *E. zuernii* on pastures in all the herds examined. In a new large-capacity calf-house Prokopič and Pavlásek (1977) found *E. bovis* in 74.0 % and *E. zuernii* in 64 % of calves. In the central rearing house for calves and heifers, coccidia were found in the youngest group of weaned calves after the 21st day of age (Bejšovec and Donát 1982). Nillo (1970) drew attention to the fact that calves reared in houses are exposed to coccidia as early as in the first week of life.

In calving pens and rearing houses investigated in the present study, coccidia were found in single calves as early as on the first day after birth. The oocysts excreted by calves in the first days of life cannot come from a finished endogenous development because, with regard to present knowledge, the prepatent period of cattle coccidia lasts 6 to 22 days according to various authors. The passage of endoparasites through the digestive tract was proved by different authors. In the conditions of Czechoslovakia (Bejšovec 1960), the passage of oocysts of 10 species of coccidia of the genus *Eimeria* by various animals was proved.

Hojovec et al. (1973) drew attention to the fact that „... No other calves may be transported to the calf-house, only calves from ascribed herds of the transport district.... the epizootiological situation in each herd of the transport district immediately affects the health condition of the calves and thus also the prosperity of the large-capacity calf-house." The present results prove that the causative agents of parasitisms penetrate into the large-capacity calf-house from the whole transport district. Coccidia were found even in very young calves in various calving pens and rearing houses, differing considerably in construction

and technology of rearing. Hojovec et al. (1973) calls attention to the fact that "Transported into large-capacity calf-houses may be calves of the age of 5—12 days .... Calves selected for the large-capacity calf-houses must have no clinical symptoms of any disorder, namely of the respiratory and digestive organs .... Calves older than 20 days may not be accepted into the large-capacity calf-house." From the present results it is evident that the extensity of infection and the intensity of occurrence of oocysts considerably increase after the 20th day of age. The weaker, scouring calves excrete the most oocysts. However, also the average, sometimes even strong calves, showing no symptoms of any disorder, excrete coccidia oocysts, sometimes also helminth eggs.

Abroad, various measures were carried out against the transfer of oocysts in feed or by the personnel, filtering of ventilated air, but under conditions of operation the measures were too expensive even for poultry houses. When introducing large-scale rearing of poultry, some veterinarians were convinced about ubiquity — the omnipresence of oocysts. The oocysts found in the present study in very young calves were only passaged through the digestive tract but they prove that calves are infested with coccidia and, to a lesser extent, also with helminths in calving pens and rearing houses very early after birth. During the prepatent period no endogenous stages were found in the intestines of calves using coprological examinations. After the prepatent period, there is only a very slight positivity in the young calves, the finding of an imperceptible amount of oocysts is too pretentious. It seems to be evident that at the present the penetration of coccidia cannot be prevented, to a lower extent of helminths also, into large-capacity calf-houses.

In the great majority, the amount of coccidia oocysts is too small to evoke clinical symptoms, but enables the calves to acquire natural resistance early after birth. In the pavilions of large-capacity calf-houses where the calves are fed milk and fodder, the amount of excreted oocysts increases and the extensity of infestation considerably grows. As the coccidia have a great reproducing ability, we must take into account the possibility of a strong infestation of the environment, especially when the technological discipline is not observed. In the large-capacity calf-houses there are favourable conditions for the ability of infestation and persistence of the oocysts. Especially when the defense mechanism of calves due to various influences is weakened, subclinical and clinical coccidiosis should be taken into account.

Přenos kokcidií a helmintů do velkokapacitních teletníků

Celkem 2787 telat ve stáří 1 až 60 dnů bylo vyšetřeno na kokcidie a vajíčka helmintů trávicího traktu. Telata byla chována v různých velkokapacitních objektech.

V kravínech, porodnách a profylaktoriích bylo vyšetřeno 1799 telat, 38,8 % telat vylučovalo kokcidie: 23,8 % *Eimeria zuernii*, 19,3 % *E. bovis*, 8,7 % *E. ellipsoidalis*, 6,7 % *E. subspherica*, 3,1 % *E. alabamensis*, 2,3 % *E. bukidnonensis*, 1,9 % *E. auburnensis*, 0,3 % *E. cylindrica*, 0,1 % *E. wyomingensis*. Vajíčka helmintů vylučovalo 3,5 % telat: 1,3 % *Trichocephalus ovis*, 0,9 % *Capillaria* spp., 0,4 % *Haemonchus contortus*, 0,3 % *Trichostrongylus* spp., 0,3 % *Oesophagostomum* spp., 0,2 % *Strongyloides papillosus*, 0,1 % *Chabertia ovina*.

V příjmových pavilonech velkokapacitních teletníků bylo po svozech vyšetřeno 988 telat, oocysty kokcidií vylučovalo již 61,1 % telat: 49,5 % *E. zuernii*, 28,8 %

E. bovis, 17,8 % *E. alabamensis*, 14,1 % *E. subspherica*, 10,5 % *E. ellipsoidalis*, 10,2 % *E. bukidnonensis*, 2,8 % *E. auburnensis*, 1,6 % *E. cylindrica*, 0,9 % *E. wyomingensis*, 0,2 % *Isospora* spp. Vajíčka helmintů vylučovalo 5,3 % telat: 2,3 % *Trichocephalus ovis*, 1,3 % *Capillaria* spp., 0,8 % *Strongyloides papillosus*, 0,7 % *Chabertia ovina*, 0,4 % *Cooperia* spp., 0,2 % *Haemonchus contortus*.

Při nedodržování stanovené technologické kázně se hromadí oocysty v prostředí velkochovů a mohou zvláště při oslabení telat působit klinickou kokcidiózu. Převážením starších telat se zvyšuje množství oocyst kokcidií a vajíček helmintů v příjmových pavilonech velkokapacitních teletníků.

Перенос кокцидий и гельминтов в крупные телятники

В разных коровниках, родильных помещениях и профилакториях подвергались исследованию 1799 телят, 38,8 % телят выделяло кокцидии: 23,8 % *Eimeria zuernii*, 19,3 % *E. bovis*, 8,7 % *E. ellipsoidalis*, 6,7 % *E. subspherica*, 3,1 % *E. alabamensis*, 2,3 % *E. bukidnonensis*, 1,9 % *E. auburnensis*, 0,3 % *E. cylindrica*, 0,1 % *E. wyomingensis*. Яички гельминтов выделяли 3,5 % телят: 1,3 % *Trichocephalus ovis*, 0,9 % *Capillaria* spp., 0,4 % *Haemonchus contortus*, 0,3 % *Trichostrongylus* spp., 0,3 % *Oesophagostomum* spp., 0,2 % *Strongyloides papillosus*, 0,1 % *Chabertia ovina*.

В приемных помещениях крупных телятников после свозки было исследовано 988 телят; ооцисты кокцидий выделяло уже 61,1 % телят: 49,5 % *E. zuernii*, 28,8 % *E. bovis*, 17,8 % *E. alabamensis*, 14,1 % *E. subspherica*, 10,5 % *E. ellipsoidalis*, 10,2 % *E. bukidnonensis*, 2,8 % *E. auburnensis*, 1,6 % *E. cylindrica*, 0,9 % *E. wyomingensis*, 0,2 % *Isospora* spp. Яички гельминтов выделяло 5,3 % телят: 2,3 % *Trichocephalus ovis*, 1,3 % *Capillaria* spp., 0,8 % *Strongyloides papillosus*, 0,7 % *Chabertia ovina*, 0,4 % *Cooperia* spp., 0,2 % *Haemonchus contortus*.

При несоблюдении установленной технологической дисциплины накопляются ооцисты, способные в особенности при ослаблении телят вызвать клинический кокцидиоз. Перемещением телят постарше увеличивается количество ооцист кокцидий и яичек гельминтов в приемном отделении крупных телятников.

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