

MAIN MORPHO PHYSIOLOGIC INDEX STUDY AND INCIDENCE OF SOME DIGESTIVE ENDOPARASITOSIS IN CATTLE

Marchis Z., O. Negrea, Vioara Miresan, V. Cighi, Adriana Criste

University of Agricultural Sciences and Veterinary Medicine, Faculty of Animal Science and
Biotechnologies, 3-5 Manastur Street, 400372 Cluj-Napoca, Romania
email: o.negrea@yahoo.com

Key words: morpho-productive, oochystis, EPG.

Abstract. Investigation done regarding the main morpho-productive traits and incidence of some digestive endoparasitosis on a 70 cattle livestock, of R.S breed and crossbred in an exploitation family association type, reveals aspects as: milk production, on total lactation, has an average value of $4583,97 \pm 185,23$ kg, with maximal value in the 2nd lactation, of $5254,4 \pm 468,6$ kg and minimal value of $3668,0 \pm 428,7$ kg. Fat percentage with an average of $3,68 \pm 0,07$, is superior to STAS value (3,5%). Mammary repose period of time is framed in normal limits (X 39,9 days), with maximal values in the 5th lactation (48,5 days) and minimal in the 4th one (34,7 days). Incidence of eimeria and trichostrongylidosis presents different values, function of age category. So, in eimeriosis the extent is maximal in dairy cows (30,0%) and minimal in young stock (16,6%), in trichostrongylidosis we have a maximal incidence in pregnant heifer (50,0%) and minimal in young stock (30,0%). Coprology elimination quantum of eimeria oocysts presents maximal values in dairy cows (600 OPG) and minimal in young stock (350 OPG), and in trichostrongylidosis the maximal level of coprology eggs eliminations is in pregnant heifers (900 OPG) and minimal in young stock (450 OPG). In hepatic trematodosis the parasite extent is in fascioliasis with maximal values in pregnant heifers (75%) and minimal values in dairy cows (30%), and in dicrocoeliosis maximal values obtained are in young stock and dairy cows (50%) and minimal, in pregnant heifers (25%).

INTRODUCTION

Investigations begins in the necessity of deep knowledge of morpho-productive traits which characterize biologic material Romanian Spotted bred and exploited into a private micro-farm (Family association). Also it was effected a study of possibilities to copro-parasitosis diagnosis in main digestive endoparasitosis in cattle which can influence some qualitative and quantitative index of milk production.

MATERIAL AND METHODS

Investigations regarding the main morpho-productive traits of biologic material from Romanian Spotted breed and the incidence, were effected in a family association in Cluj county, in March 2007, on 70 heads cattle livestock of Romanian Spotted breed and crossbreds, thus structured: 36 dairy cows, 10 pregnant heifer, 24 young stock 0 – 18 months. Breeding and exploitation technology of cows it's done in bound system, on individual bed, and faeces removal is by hand. Young stock is bred separately, in collective boxes, free stalling. Milking is realized with milking machines in cans Alpha Laval, existing a collection and cooling tank of milk. Dairy cows feeding is done with meals, succulents and concentrates in cold season, respectively green mass pasturing and concentrates in estival season.

Data obtained, regarding production performances were processed statistically from U.A.R.Z. It were effected diagnosis copro-microscopic investigations of some digestive

endoparasitosis on 20 coprology samples individually prevailed (6 – young stock up 6 months; 4 – pregnant heifers; 10 – milking cows) and examined by enrichment coprology methods (Willis and sedimentation).

RESULTS AND DISCUSSIONS

Milk production dynamic and some reproduction traits and also milk quality, in cow livestock taken in study on 5 lactations are gave in Table 1.

From data presented in Table 1, it is ascertained that milk production on total lactation, on farm livestock, has an average value of $4583,9 \pm 185,2$ kg milk, an appreciable production if we keeping in view the technical-material base of farm taken in study now. Concerning the age of obtaining the first product, this is of 34 months, age enough great considered (optimal age 26-27 months), and the age of first mating is realized at 24,5 months, age which surpasses much more the performances of Romanian Spotted breed. Milk quantitative and qualitative production dynamics on normal and lactation is presented in Table 1, respectively graphics 1 and 2, puts in evidence an ascendant character, from first toward second lactation, which represent also the maximal lactation ($5254,4 \pm 468,6$ kg), followed by a flat part, on a period of two lactations, and then decreases. In third lactation it is ascertained the smallest milk quantity of milk recorded, $3668,0 \pm 428,7$ kg.

Table 1

Milk production quantitative and qualitative index, in dynamic

Trait	Lactation						Average on total
	n/M	I	II	III	IV	V	
n	cap	14	10	6	4	2	36
First mating age.	days	747,6 \pm 48,5					747,6 \pm 48,5
Frist parturition age	days	1037,2 \pm 46,8					1037,2 \pm 46,8
Pregnancy period of time	days	283,9 \pm 0,4					283,9 \pm 0,4
Total lactt. period of time	days	379,6 \pm 23,5	405,9 \pm 26,5	332,0 \pm 36,7	346,7	316	370,5 \pm 13,7
Milk quantity	Kg	4717 \pm 214	5254,4 \pm 468,6	3668 \pm 428,7	4124,7	4412,5	4583,9 \pm 185,2
Fat content	%	3,72 \pm 0,04	3,72 \pm 0,05	3,77 \pm 0,04	3,71	3,54	3,72 \pm 0,03
Quantity of fat	kg	175,6 \pm 8,5	195,7 \pm 16,5	137,9 \pm 15,1	152,5	156,1	170,4 \pm 6,7
Normal lact.per. of taime	days	303,7 \pm 1,0	299 \pm 4,1	285 \pm 13,6	303,7	303,5	299,4 \pm 46
Milk quantity	kg	3936,8 \pm 288,2	4046,1 \pm 302,4	3160,1 \pm 240	3617,5	4229,5	3809,7 \pm 148,8
Fat content	%	3,68 \pm 0,05	3,65 \pm 0,06	3,76 \pm 0,05	3,69	3,54	3,68 \pm 0,03
Quantity of fat	kg	145,5 \pm 11,7	146,7 \pm 10,1	118,6	135,2	149,3	140,2 \pm 5,5
Mammary repose	days	40,1 \pm 4,3	41,2 \pm 4,3	40,8 \pm 10,5	34,7	48,5	39,9 \pm 3,2
Service period	days	135,8 \pm 25,7	159,5 \pm 25,7	87,0 \pm 31,1	95,5	79,5	126,5 \pm 15,9
Calving interval	days	419,7 \pm 26,2	447,1 \pm 26,2	372,8 \pm 31,5	381,5	364,5	404,8 \pm 16,1

From data presented in Table 1, it retains attention the period of time between parturitions (C.I.), with an average of $404,8 \pm 16,1$ days facing to $447,1 \pm 26,2$ days (second lactation) and $419,7 \pm 26,2$ days (first lactation). It is ascertained that calving interval (C.I.0 has

not a constant, although the reproduction activity is developed in optimal conditions, obtaining a birth rate index with an average value of 89 %. If it is taken into account the period of time of mammary repose, this one is framed in normal limits, the relationship between lactation period of time and mammary repose being given by the values of period between parturitions.

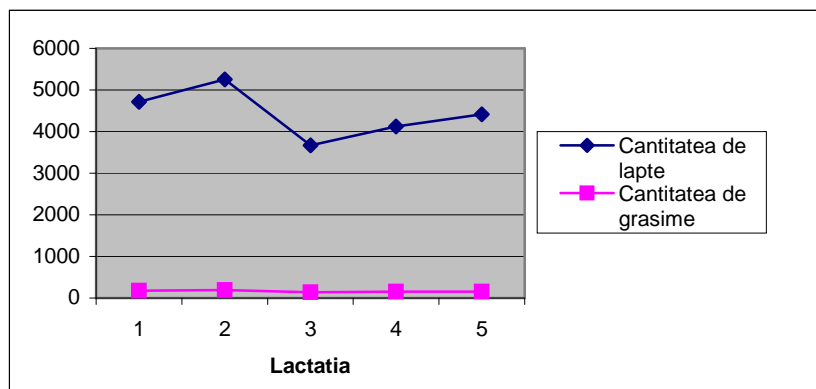


Fig. 1 Milk and fat production dynamics, on total lactation

In picture 2, are presented the main index of reproduction in the farm taken in study.

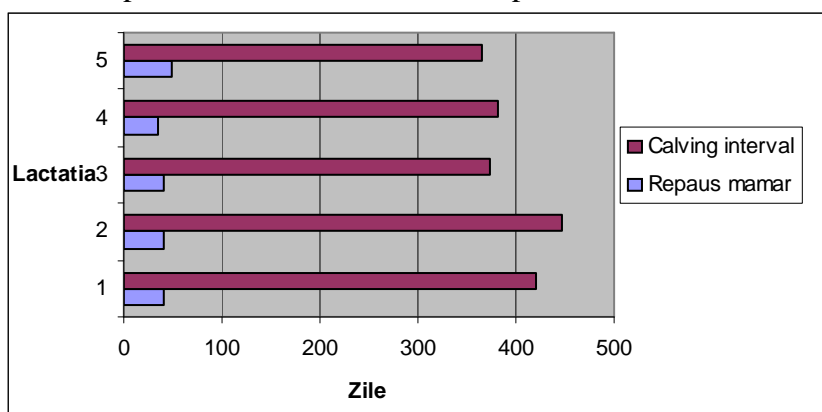


Fig. 2 Main index of reproduction in the farm taken in study

Copro-microscopic investigations effected regarding the incidence of some digestive endoparasytosis in cattle, on age categories, puts in evidence the following aspects:

Incidence of eimeriosis and trichostrongilidosis in cattle, on age categories

Table 2

Category	Numbar of samples analysed	Fram which			
		Eimeriosis		Trichostrongilidosis	
		Positive samples	%	Positive samples	%
Cattle young stock Up 6 months	6	1	16,6	3	30,0
Pregnant heifes	4	1	25,0	2	50,0
Milk cows	10	3	30,0	4	40,0
Total	20	5	25,0	9	45,0

Doing the analysis of data presented in Table 2, we can observe that in eimeriosis maximal extent, of 30,0 %, is met in milk cows and minimal of 16,6 % in young cattle. The presence of eimeriosis in milk cows in a high percent reveals deficit in zoo-hygiene and microclimate, which favors excessive development of coccidiaes in intestinal level. It must mentioned the fact that eimeriosis in adult cattle evolves asymptomatic without implications on health and productive state (passive parasitism state).

Regarding trichostrongilidosis incidence, from data presented it can be observed nobles differences, function of age category. Such in pregnant heifers we have maximal extent (50 %) and in cattle young stock is minimal (30,0 %).

Concerning the level of parasite intensity (level O.P.G.), in eimeriosis and trichostrongilidosis, obtained values (Mac Master method, are presented in the Table 3.

Table 3

Parasite intensity variation in eimeriosis and trichostrongilidosis in cattle, on age categories

Category	Number of analysed samples	Din care			
		Eimeriosis		Trichostrongilidosis	
		Positive samples	O.P.G	Positive samples	O.P.G.
Cattle young stock up 6 months	6	1	350	3	450
Pregnant heifes	4	1	400	2	900
Milk cows	10	3	600	4	530
Total	20	5	450	9	210

Legend: O.P.G.= eggs/g faces

The level of coprologic pollution with oocysts of *Eimeria* sp, from data presented in table 3 presents different values function of age category. So, in cattle young stock this is of 350 O.P.G., in pregnant heifers of 400 O.P.G., and in diary cows of 600 O.P.G. Presence of a high level of eimeria oocyst copro-eliminations rate, in cattle young stock has importance on their health state expressed by a chronic diarrhoea syndrome, with important economic repercussions.

Regarding eggs copro-elimination rate of strongil type (specific to trichostrongilidosis), coprologic pollution level is high in pregnant heifers (900 O.P.G.) and more reduced in diary cows (530 O.P.G.) and cattle young stock (450 O.P.G.). The different obtained values put in evidence different levels of parasite intensity, in gastro-intestinal level, with adult parasites, which influence much health state (lesions of abomasitis and hemorrhagic enteritis).

Results of copro-microscopic exam, regarding the incidence of hepatic trematodosis (Fascioliasis and dicrocoeliasis) in cattle, on age categories, are presented in Table 4.

Table 4

Hepatic trematodosis incidence in cattle, on age categories

Category	Numbers of samples analysed	From wich			
		Fasciolosis		Dicrocoeliosis	
		Positive samples	%	Pozitive samples	%
Cattle young stock up 6 months	6	2	33,3	3	50,0
Pregnant heifes	4	3	75,0	1	25,0
Milk cows	10	3	30,0	5	50,0
Total	20	8	140,0	9	45,0

Parasitism extent with *Fasciola hepatica* and *Dicrocoelium*, presents different values, on age categories. So, in cattle young stock up of 6 months the incidence of the two parasitosis is of 33,3 % respectively 50,0 %, in pregnant heifers, 75,0 % respectively 25,0 % and in diary cows of 30,0 respectively 50,0 %. High level of extent in the two hepatic parasitosis reveals such high level of fibrous fodder pollution with contamination elements (meta-circles) as also un-efficiency of anti parasitism therapy effected.

CONCLUSIONS

Investigations effected regarding the main morpho productive traits and incidence of some digestive endo parasitosis, on 70 cattle livestock of Romanian Spotted breed and crossbreds in an exploitation of family association type, reveals the following aspects:

1. Milk production, on total lactation has an average value of $4583,97 \pm 185,23$ kg, with maximal value in second lactation, of $5254,4 \pm 468,6$ kg, and minimal of $3668,0 \pm 428,7$ kg.
2. Fat percent, in average of $3,68 \pm 0,08$, is superior to STAS value (3,5%).
3. Mammary repose period of time is framed in normal limits (39,9 days), with maximal values in 5 th lactation (48,5 days) and minimal in 4 th lactation (34,7 days).
4. Eimeriosis and trichostrongilidosis incidence presents different values, function of age category. So, in eimeriosis it is maximal in milking cows (30%) and minimal in young livestock (16,6%). In trichostrongilidosis we have a maximal incidence in pregnant heifers (50,0%) and a minimal one in young stock (30,0%).
5. The quantum of eimeria oocysts copro eliminations presents maximal values in diary cows (600 OPG) and minimal in young stock (350 OPG); in trichostrongilidosis the maximal level of eggs copro eliminations is in pregnant heifers (900 OPG) and minimal in young stock (450 OPG).
6. In hepatic trematodosis the parasite extent is found in fasciolosis with maximal values in pregnant heifers (75%) and minimal values in diary cows (30%) and in young stock and diary cows (50%) and minimal in pregnant heifers (25%).

BIBLIOGRAPHY

1. Bârzoii D., 1985, Microbiologia produselor alimentare de origine animală. Ed. Ceres. București;
2. Chiș Margareta, Elena Merce, 1999, Agricultura spre economia de piață. Ed. AcademicPres, Cluj-Napoca;
3. Jurcă I., Răducu Camelia, 2005, Tehnologia industrializării produselor animale. Ed. AcademicPres, Cluj-Napoca;
4. Hiepe Gh., 1985, Gh.-Lehrbuch der Parasitologie B.2. Veterinar medizinische. Protozoologie. B₃ Helminthologie, Veb.G.Fisher. Verlag Jeno;
5. Losson B., 1993, Pathologie parasitaire office de cours, Liege;
6. Mireșan Vioara, Adel Ersek, Camelia Răducu, 2003, Fiziologia animalelor domestice. Ed. Risoprint, Cluj-Napoca;
7. Negrea O., 2007, Patologia Animală și Tehnici Sanitar Veterinare. Ed. AcademicPres, Cluj-Napoca;
8. Onaciu G. C. Velea, 2002, Evaluarea performanțelor productive la bovine. Ed. Casa Cărții de Știință, Cluj-Napoca;
9. Șuteu I., V. Cozma, 2004, Parazitologie clinică veterinară. Ed. Risoprint, Cluj-Napoca.