GASTRO-INTESTINAL AND EXTERNAL PARASITOSE OF RABBIT IN BENIN

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ABSTRACT

An inventory of rabbit gastro-intestinal and external parasitoses in south-Benin was carried out from February to April 2003 in eight rabbit farms. For the external parasitoses, only the mange was highlighted. On 480 examined rabbits, 76 were carrying lesions of mange. As well ear mange as that of the head and the body were observed with a more important frequency of the first form. Concerning the internal parasitoses, the helminthosis were relatively rare: on 480 samples, only 22 were positive in 4 farms out of the 8 prospected.. Two species of nematodes were revealed : *Graphidium strigosum* (more frequent) and *Trichostrongylus retortaeformis*. All the farms were parasitized by the coccidia with a higher OPG in the fattening rabbits. The eleven *Eimeria* species generally found in rabbit were identified whose more frequent is *E. magna* followed by *E. media*.

Key words: Internal parasite, external parasite, helminth, coccidia, mange, rabbit, Benin.

INTRODUCTION

The rabbit farming (*Oryctolagus cuniculus),* is better known in Benin since the years 1960, Its real development started only with the installation of the Centre Cunicole de Recherche et d'Information (Center for rabbit researche and information) in 1988 (Kpodékon and Coudert, 1993). Since this date, many works were completed as well in the domain of the diet as in f pathology (Djossa, 1995; Goho, 1990; Odjo Cledjo, 1992; Kpodékon and Alogninouwa, 1998). The creation of Béninoise Association of the Rabbit farmer (ABeC) made it possible to better organize the rabbit production and to improve the professionalism of the farmers. Thus the rabbit farming, which was as a majority of

small mange farm type until the middle of the years 1980, tends today towards the types semi-commercial and intensive. The breeding on the floor practically disappeared.
The improvement of the habitat of rabbits thanks to the use of the metal wire cages was accompanied by a better medical situation. The objective of this work is to give a progress report on the internal and external parasites which still remain in spite of the provided efforts these last years by the farmers.

MATERIAL AND METHODS

Animals and sampling. The samples were took in eight farms having more 100 reproducers (Table 1).

Table 1: Characteristics of the farms

Farm	Rabbits	Number of does	Hygiene
[1] (CECURI)	430	104	Good (b)
[2]	317	80	medium ab)
[3]	321	80	Good (b)
[4]	150	45	Good (b)
[5]	301	80	Good (b)
[6]	1000	300	Bad (m)
[7]	213	40	Good (b)
[8]	150	40	medium(ab)

(b): Frequent treatment against parasitism, daily cleaning, frequent disinfection. (ab): Irregular treatment against parasitism, cleaning and disinfecting. (m): Rare treatment, non satisfactory cleaning and daily follow-ups

Search of helminths in each farm: 15 "young reproducers" (especially females) 6 months old; 15 "old reproducers" (male and female) having 8 to 9 months of age; 30 two months old fattening rabbits.

Search of ectoparasites 60 fattening rabbits (2 per cage) were examined in each farm (epidermal sample).

Search of gastro-intestinal parasites two series of samples were carried out:

- the first series (early sample), carried out at the beginning of the investigations, included the young reproducers, the old reproducers and fattening rabbits. This makes it possible to control if there is a difference according to the age.
- the second series (late sample), carried out 45 days after the first one, relates to only fattening rabbits. The objective is to follow the evolution of gastro-intestinal parasitism.

Conservation of the samples . Collected droppings are stored in sachets out of plastic and are preserved at the refrigerator (+ 4° C). The epidermal sample taken are collected in labelled Petri boxes then packed in transparent bags.

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The technique of numeration for the coccidia used is that described by COUDERT (1993). For eggs of helminths the technique of concentration by flotation was used (TIENPONT et al., 1995).

The epidermal samples were initially cleared up by trituration on blade in lactophénol before the microscopic examination.

STATISTICAL ANALYSES

The data collected were recorded on Excel datasheet and analyzed with the software Statview [ND]

RESULTS AND DISCUSSION

External parasites In the eight farm visited, we observed only lesions of mange. The average level of lesions was 15,83 %. (table 2).

Table 2. Frequency of the mange in rabbit in Benin

Farm	Number of positive cases	Site of the lesions	Level of infection (%)
[1]	02/30	Ear	3,33
[2]	12/30	Body, Ear	20,0
[3]	16/30	Ear, Muzzle, Legs	26,66
[4]	02/30	Ear	3,33
[5]	02/30	Head	3,33
[6]	28/30	Ear, Head, Body	46,67
[7]	08/30	Ear, Muzzle	13,33
[8]	06/30	Ear, Head, Muzzle	10,0

Helminths

In the early samples helminths were found only in 4/8 farm (Table 3). In the late samples there is no more than 2 farms contaminated (Table 4) and the level of infection strongly decreased.

Coccidia

No evolution of the parasitic load in fattening rabbits were observed between the two sampling but the results are very constant for each farm (table 5).

We listed 11 species of coccidia (Table 6)

DISCUSSION

THE MANGE

The level of infection total is 15,8%. This level is relatively weak compared to that obtained by KAYO in 1995 in Benin (30,55%). This reduction could be explained by the fact that hygienic measures became globally more rigorous (cages of metal netting). Moreover for a few years the farmers use more frequently acaricides (Ivermectine) forthe reproducers.

Nevertheless, the level of infection varies from a farm to another. We noted that the farm [6] recorded the strongest level (46,67%) while the farms [4] and [5] recorded the lowest rate (3,3 % each one). This confirms the importance of medical and hygienic tools against the mange. With a herd of 1000 rabbits, the farm [6] employs only one workman. Moreover many cages are made with wood.

Among the 76 cases of mange observed, 75 are localised partially or entirely on the level of the ears. these results are similar with those observed by LEBAS and AL (1984), but not with those obtained by KAYO (1995) which had noted that the mange of the head or the body is much more frequent.

Table 3. Helminths in the infested farms

Farm	number of samples	Number positive	Identified species	Level of infection (%)		OPG
				By type of rabbit	Means / Farm	
[1]	30 E	3a	*Graphidium Strigosum*	10	5	300
	15 cJr	0a	Nothing	0		00
	15 cVr	0a	Nothing	0		00
[2]	30 E	1a	*Graphidium Strigosum*	3,33	1,67	10000
	15 cJr	0a	Nothing	0		00
	15 cVr	0a	Nothing	0		00
[4]	30 E	6a	*Graphidium Strigosum*	20	11,67	600
	15 cJr	1a	*Trichostrongylus retortaeformis*	6,67		100
	15 cVr	0a	Nothing	0		00
[6]	30 E	12b	*Graphidium Strigosum* Trichostrongylus retortaeformis	40	25	200
	15 cJr	1a	*Graphidium Strigosum*	6,67		100
	15 cVr	With	*Graphidium Strigosum*	13,33		200

E: Fattening Jr: Young reproducers Vr: Old Reproducers. The positive cases followed by the different letters are significantly different with the threshold from 5%.

Table 4. Helminth: Evolution of parasitic load between the early and late samples

Farm	Date of the sample	positive cases	Identified species	Level of infection (%)
[4]	Early sample	6/30	*G. strigosum , T. retortaeformis*	20a
	Late sample	2/30	*G. strigosum*	6,66c
[6]	Early sample	8/30	*G. strigosum , T. retortaeformis*	26,6a
	Late sample	5/30	*G. strigosum , T. retortaeformis*	16,66b

The level of infection followed by the different letters are significantly different with the threshold from 5%.

Table 5. Coccidia: evolution of the parasitic load

Farms	number of cages	OPG (x10 ^{3})in the early sample	OPG (x10 ^{3})in the late sample
[1]	30^E	44.4a	43.1a
	15^{JR}	7,8b	ND
	15^{VR}	1,5b	ND
[2]	30^E	66a	63,7a
	15^{JR}	6,03b	ND
	15^{VR}	7,1b	ND
[3]	30^E	18a	15,9a
	15^{JR}	1,1b	ND
	15^{VR}	0,6b	ND
[4]	30^E	23a	21,7a
	15^{JR}	0,67b	ND
	15^{VR}	3,4b	ND
[5]	30^E	34a	32a
	15^{JR}	4,5b	ND
	15^{VR}	9,4b	ND
[6]	30^E	22a	20,8a
	15^{JR}	5,4b	ND
	15^{VR}	1,8b	ND
[7]	30^E	3,6a	3,3a
	15^{JR}	1,09b	ND
	15^{VR}	0,86b	ND
[8]	30^E	32a	29,7a
	15^{JR}	2,8b	ND
	15^{VR}	0,64b	ND

E: Fattening Jr: Young reproducers Vr: Old Reproducers ND: not made . OPG followed by the different letters are significantly different with the threshold from 5% on the same column (early sample) and on the same line between the early sample and the late maturing sample on the level of each farm.

Table 6. Species of coccidia identified in the 8 farms

Species	Farms								Average
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
E magna (%)	8	30	25	31	5	38	80	25	30,25
E piriformis (%)	0	4	15	9	0	5	0	4	4,62
E perforans (%)	0	3	0	0	25	0	0	14	5,25
E coecicola (%)	20	4	12	22	11	8	7	15	12,37
E intestinalis (%)	0	5	0	0	2	6	2	2	2,13
E media (%)	46	49	20	36	14	34	6	15	27,5
E exigua (%)	5	0	0	0	4	0	0	7	2
E stiedai (%)	0	0	0	0	18	0	0	8	3,25
E irresidua (%)	0	2	18	2	10	0	5	0	4,63
E vejdovskyi (%)	21	3	10	0	5	9	0	10	7,25
E flavescens (%)	0	0	0	0	6	0	0	0	0,75

HELMINTHS

On 480 examinations of the early sample, 5,4 % were positiv. These results are similar with the observations made by BOUCHER and NOUAILLE (1996) who observed that in the professional farms the gastro-intestinal worms are rare and only induce a disease in exceptional circumstances. This level is lower than the former results of AHOSSI in 1997 (16,22%). This improvement of the sanitary situation is related with the evolution of the management which passes gradually from the small scale type to the semi-intensive and more modern type.

Between farms, the level of infection varies from 1,67 to 25%. Again, the strongest level (25%) is obtained in farm [6]. The second infected farm [4] more infested (11,67%) is lately installed and the hygienic conditions are good but the 2/3 of its rabbits were bought with the farm [6].

The parasites were more frequent in the young animals. In all the infested farms, only fattening rabbits and some young reproducers were concerned. The two identified species were *Graphidium strigosum* and *Trichostrongylus retortaeformis.* These two species were observed in rabbit by many authors: AUDEBERT *et al.* 2002. The analysis of the late sample enabled us to note that the number of eggs significantly fell ($P<0,05$). This could be explained by the progressive autosterilisation of rabbits, phenomenon announced by some authors (BOAG *et al.* 2001, MOLINA *et al.* 1999).

COCCIDIA

The coccidia were present in all the farms and in all examined rabbits. However the parasitic load (OPG) was significantly more higher in fattening rabbits. The differences were significant between fattening rabbits and the old reproducers ($P<0,05$), but non-significant between the reproducers (old and young: $p>0,05$).

From one exploitation to another the values of the OPG vary from 66×10^3 to $3,6 \times 10^3$.

Eleven species of coccidia were identified. *Eimeria magna* and *E.media* were the most frequent (30,25% and 27,25%). *E flavescens* is the least frequent (0,75%). These results are similar with former results AHLINCOU (1987), Houndonougbo and HONGBÉTÉ (1997). Globally the level of infection id relatively low and it explains why in Benin the disease is almost non-existent.

The results of the early sample compared with those of the late sample do not indicated a significant difference. However for the same farm the results were very constant.

CONCLUSION

The survey related to the gastro-intestinal and external parasitose of rabbit in Benin revealed the persistence of the mange but thanks to the improvement of the hygienic and medical conditions in the rabbit farms the frequency and level of infections are lower than observed in the previous studies. Two species of gastro-intestinal nematodes and eleven species of the coccidia were identified. The fattening rabbits seem to be the most susceptible population.

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