

## Communication

### Note on an epidemic of coccidiosis in domestic rabbits in the Plateau and Bauchi states, Nigeria

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Au cours d'une épidémie de coccidiose intestinale, 1 128 jeunes lapins domestiques sur 2 385 sont morts. Neuf espèces de *Coccidia* ont été identifiées avec un minimum de cinq espèces différentes par lapin. Les découvertes cliniques et celles de l'autopsie, tout comme le traitement et les mesures de contrôle sont décrits. L'épidémiologie et la pathogénie sont discutées. *Mots clés* : Lapin - Coccidiose - Épidémiologie - Nigeria.

#### Introduction

One major limiting factor affecting rabbit rearing at cheap cost meeting the minimum protein requirement is coccidiosis in the Plateau and Bauchi states environmental and farming conditions.

#### Case report

Young rabbits between the ages of 4-16 weeks were purchased between July and October 1989 from local farmers in different regions of the Plateau and Bauchi states and pooled together. The animals were received in batches without any between-state differentiation. The number received per month is shown in table I. The rabbits were raised on floor pens and fed on green vegetables prior to purchase.

Animals exhibited the following clinical signs (observed also in the different areas of purchase) : diarrhoea, anorexia, emaciation, enlarged abdomen, starry coat, torticollis and death. There was no history of previous treatment by the local farmers except culling and disposal of moribond or dead rabbits.

Necropsy was performed on all the 1 128 animals that died either in transit or during quarantine (table I).

Microbiological examination of the intestinal and hepatic samples was carried out using standard routine methods (5).

Parasitological examination of the intestinal content was made by the standard flotation techniques using a saturated salt solution (6). The count of ova was done using MacMaster egg-counting technique (8). Specific identification was performed on eggs that were sporulated in a shallow layer of a 2.5 % potassium bichromate solution at 27 °C (9). The sporulating oocysts were examined routinely for sporulating time and the presence or absence of residual body and micropyles.

Treatment of the rabbits using sulphaquinoxaline (Embazin 25 %, May & Baker, Ikeja, Nigeria) at the rate of 1.0 g of soluble powder to 1 l of water was applied for 3 days followed by 2 days of plain water. The treatment was immediately repeated according to the same schedule.

#### Results

Out of the 2 385 rabbits purchased between July and October 1989, a total of 1128 (47.3 %) died during the outbreak (table I).

TABLE I Cause and pattern of mortality among local rabbits in Plateau and Bauchi State, Nigeria.

Month	No. newly received	No. remaining	Sub total	No. dead	% mortality	No. of necropsy	No. of coproscopy	Species of <i>Eimeria</i> seen
July	435	—	435	21	4.8	21	8	<i>Magna, perforans media, piriformis coecicola, irresidua, nagpurensis, intestinalis</i> and <i>stiedai</i> .
August	763	414	1 177	215	18.3	215	3	All above except <i>nagpurensis</i> and <i>intestinalis</i> .
September	653	962	1 615	428	26.5	428	114	All the 9 species above.
October	534	1 187	1 721	464	27.0	464	62	All the 9 species above.
Total	2 385	1 257	—	1 128	47.3	1 128	187 (16.6 %)	

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*Post mortem* findings included haemorrhagic gastroenteritis, mucoid enteritis, whitish nodules (0.5-3 mm or coalescent) in the liver, hepatomegaly, enlarged gall bladder and bloated. According to bacteriological examination, no pathogenic bacteria were isolated.

Coproscopic examination was carried out in 187 (16.6%) animals and their intestines were heavily infested with coccidia, 70% of them exhibiting counts between 6 000-600 000 oocysts per gram of faeces (table II).

**TABLE II** Coproscopic values showing rate of infection with coccidia.

Oocysts/g of faeces	No. positive	% positive
0-5 999	56	29.9
6 000-18 000	20	10.7
> 18 000-54 000	30	16.0
> 54 000-162 000	54	28.9
> 162 000-500 000	20	10.7
> 500 000 +	7	3.7
Total	187	16.6 %

Identification of coccidia was based on size, shape and morphology. *Eimeria* species identified most commonly during the outbreak were *Eimeria magna*, *E. perforans*, *E. media*, *E. piriformis* and *E. coecicola*. Others were *E. irresidua*, *E. nagpurensis*, *E. intestinalis* and *E. stiedai*.

### Discussion

There is paucity of reports on coccidiosis in rabbits from Nigeria. Apart from the annual reports of the Federal Veterinary Department 1966-1970 and 1979-1980 (1, 2), the report of an outbreak in a closed colony of breeding rabbits at the National Veterinary Research Institute, Vom Plateau state in 1986 (3) and a report of intussusception in a rabbit associated with coccidiosis (7) the authors are not aware of more information on the subject. Five different species of coccidia were incriminated from the above reports. They were *Eimeria stiedai*, *E. perforans*, *E. magna*, *E. media* and *E. irresidua*. The present outbreak which spread in almost every part of the Plateau and Bauchi states also involved four species of coccidia not reported in the previous Nigerian outbreaks (1, 2, 3, 7). They were *E. piriformis*, *E. coecicola*, *E. intestinalis* and *E. nagpurensis*. Two of these, *E. nagpurensis*, *E. coecicola* are rare species (1, 3, 6). *E. piriformis* is very pathogenic while *E. intestinalis* is only pathogenic for month-old rabbits (6). As to *E. coecicola*, some authors believe with SOULSBY (9) that it has a minor pathogenicity while others who carried out pure infections with this parasite in Dutch rabbits showed that it

was moderately pathogenic (4). However, in the present case we could not ascertain its specific pathogenicity since it occurred together with other pathogenic species.

### Conclusion

According to the high prevalence rate (47.3%) observed during this outbreak, coccidiosis is a serious threat or a limiting factor to backyard rabbit rearing in Nigeria. The economic loss was at least over 22 000 Naira (\$ 2770.8 = CFA 797101.5) for this epidemic alone. Individual farmer losses could not be judged.

Nevertheless a treatment using sulfaquinoxaline at a dose of 13.2 mg/kg body weight in the drinking water, together with a strict hygiene and a good management are the best responses to such epidemics.

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During an epidemic of intestinal coccidiosis, 1128 young domestic rabbits died out of 2385 animals examined. Nine species of *Coccidia* were identified with a minimum of five different species per rabbit. Clinical and necropsy findings as well as treatment and control measures are described, epidemiology and pathogeny are discussed. *Key words*: Rabbit - Coccidiosis - Epidemiology - Nigeria.

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