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# Causes of Rabbit Mortality at Mankon Research Station, Cameroon (1983-1987)

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Key words: Research - Rabbit Mortality - Diseases - Mankon - Cameroon


## Summary

*A study was carried out to determine the causes of mortality in rabbits raised at the Institute of Zootechnical and Veterinary Research Station (IRZV) Mankon between 1983-1987. Three breeds of rabbits the Californian, the New Zealand White and their crosses with local rabbits were used in the study. Within the period under review, all dead animals were necropsied and faecal and gastro-intestinal tract samples were examined in the laboratory. It was shown that high mortalities in rabbits were due to snuffles, pneumonia, mucoid enteritis, coccidiosis, mange, enterotoxaemia and Tyzzer's disease. 3060 rabbits died of various diseases comprising 1591 (52%) kittens, 1220 (39.7%) fryers and 280 (9.2 % adults). Kitten mortality compared to fryer and adult was highest all through the period of study.*

## Résumé

*Une étude a été menée en vue d'apprécier les causes de mortalité chez les lapins à la Station de Recherches Zootechnique et Vétérinaire de Mankon pendant la période 1983 à 1987. Trois races de lapins ont fait l'objet de cette étude: la race Californienne, la race New Zélande White et les croisées entre les lapins locaux et les races exotiques.*

*Le coryza (snuffles), la pneumonie, l'entérite mucoïde, la coccidiose, la gale, l'entérotoxémie et la maladie de Tyzzer furent les principales causes de mortalité chez les lapins. Des nombreux lapins 3060 sont morts de ces maladies; soient 1591 (52%) lapereaux, 1220 (39.7%) lapins sevrés et 280 (9.2%) adultes. Le taux de mortalité chez les lapereaux était très élevé comparé à celui des sevrés et des adultes.*


## Introduction

One of the most devastating and discouraging aspects in rabbit production is disease. Most diseases in rabbits occur due to management errors or lack of disease knowledge (1,2,3). Disease is always an ominous threat when animals are kept in close confinement and the success of the rabbit breeder is largely determined by his ability to maintain a disease-free herd. The total loss of rabbits due to disease in the United States and Europe averages 20-25% according to Houchot (3), whereas in Cameroon the total loss due to disease has not been determined. The aim of this study is to determine the causes of rabbit mortality in a unit in tropical country.

## Material and Methods

This study was carried out at the Animal and Veterinary Research Station (IRZV) Mankon between the period 1983-1987. Within the period under review, the rabbit population ranged from 950 to 1150 rabbits. The rabbits were housed singly and 3-4 in cages for adults and fryers respectively while the cages were arranged in two tiers (flyers) of three 50 x 80 cm individual cages. On the whole there were 600 cages for breeding. The rabbits are raised intensively and fed mainly grass supplemented with a cottonseed cake and corn based diet compounded on the station. Minerals and vitamins are administered in drinking water. A coccidiostatic level of amprolium is added to the feed at the feed mill. During the period under study, postmortem examinations were carried out on dead adult rabbits and fryers to determine the cause of death. Samples from the gastrointestinal tract and crust from skin lesions were taken to the station laboratory to investigate the cause of mortality and in some cases bacteriological cultures and biochemical tests were carried out for confirmatory diagnosis. Rabbits in the advanced stage of putrefaction were not necropsied.

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Received on 02.08.94 and accepted for publication on 22.05.96.

## Results

The major causes of mortalities were pneumopathies (snuffles and pneumonia) and enteric diseases (enterotoxaemia, coccidiosis, mucoid enteritis and Tyzzer's disease). The mortalities recorded according to ages were as follows 52% kits, 39.7% fryers and 9.2% adults.

Clinical signs like profuse diarrhoea, bloat, dehydration and soiled hindlegs and anal region coupled with postmortem lesion, like enlarged cecum and ileum; empty colon and haemorrhagic cecum were suggestive of enterotoxaemia. Further confirmatory diagnosis was done from culturing of the cecal content on blood agar for causes of enterotoxaemia. On gram stain these showed a gram positive aerobic *Clostridium spiroforme*.

Mucoid enteritis was characterized clinically by polydipsia so much so that when the rabbit was picked up and shaken there was a "water bottle" sound heard and jelly-like stool from sick fryers. The major postmortem lesion usually was impaction of the ileocecal junction.

The diagnosis of Tyzzer's disease was based on symptoms and postmortem lesions. It was mainly a disease of fryers characterized clinically by profuse diarrhoea and high mortality within 12-48 hours. The conclusive lesions were salt grain-like size whitish hepatic spots quite distinguishable from cases of hepatic coccidiosis. Coccidiosis was easily diagnosed by wet mount which microscopically demonstrated various coccidial oocyts.

The other causes of mortalities are shown in Table 2 On the whole 3090 rabbits died due to disease condition comprising 1591 kits (52%), 1220 fryers (39.7%) and 280 adults (9.2%). In 1984 and 1985, many more mortalities were recorded than in the subsequent years. For these two years, mortalities corresponded to 996 (32.2%) and 741 (24%) deaths respectively (Table 1).

**Table 1 : Numbers of dead rabbits of different breeds and ages (1983-1987).**

| Breeds | Type | 1983 | 1984 | 1985 | 1986 | 1987 | Total |
|---|---|---|---|---|---|---|---|
| | Kits | 97 | 195 | 127 | 86 | 63 | 568 |
| New | Fryers | 29 | 162 | 112 | 47 | 30 | 380 |
| Zealand | Adults | 19 | 12 | 26 | 21 | 12 | 90 |
| | Kits | 52 | 78 | 66 | 49 | 37 | 282 |
| Califor | Fryers | 28 | 116 | 55 | 27 | 21 | 247 |
| nian | Adults | 15 | 16 | 15 | 09 | 08 | 63 |
| | Kits | 87 | 253 | 154 | 139 | 108 | 741 |
| Crosses | Fryers | 57 | 156 | 154 | 87 | 139 | 593 |
| | Adults | 26 | 08 | 32 | 28 | 33 | 127 |
| Total | | 410 | 996 | 741 | 493 | 451 | 3060 |

Throughout the period under study, the kits recorded the highest annual mortality rate (Table 1). Rabbit mange was quite devastating with neither a sex, age nor breed preference. Some cases of toxicosis were suspected due to rancid compounded feed given to the rabbits.

## Discussion

This study reveals that 52% of the young rabbits died before weaning confirming earlier studies by Nephi *et al*, (5). Deaths of kits in kindling boxes contributed highly to the mortality figures. Kit mortality could be attributed to kindling box litter material, mismothering and sudden temperature changes.

Rabbits are very susceptible to heat stress since they have few functional sweat glands and find it difficult to eliminate body heat if environmental temperature is high (3). The results of the present study show that a sudden drop in temperature, especially in the rainy season was usually accompanied by an outbreak of enteritis. The explanation could be that with the sudden temperature drop, there is increase in feed intake and carbohydrate overload, leading to proliferation of gut pathogens especially *Clostridium* species with resultant production of lethal toxins and gases. This situation culminating in overeating disease (enterotoxaemia), causes high mortality in rabbits. This study further shows that the sudden introduction of rabbits to a new feed precipitates high mortality due to too much engorgement of the new feed by rabbits as earlier observed by Whitney (10).

During the period under review, the addition of a coccidiostatic level of amprolium in rabbit mash was effective in the control of coccidiosis. Pneumopathies is this study caused considerable economic losses especially in matured rabbits as had been observed by Wellington (9). The observations in the present study also agree with Nephi *et al.* (4), that good ventilation and continuous removal of manure from the rabbitry, reduces ammonia gas level which causes pneumopathies in rabbits.

Enteric diseases were of the highest incidence causing the highest mortalities followed by rabbit mange, pneumopathies and toxicosis (Table 2) confirming earlier observations by Houchot (3) and Peeters *et al.* (8). It was also observed that enterotoxaemia (overeating disease) was common in fryers especially when diets low in fibre and high in energy are fed to rabbits agreeing with Cheeke *et al* (1) and Patton *et al* (7). Rabbit psarcoptic mange caused serious problems in the rabbit colony as Nfi (6) had earlier observed. Mange encrustations gave way to wasting, emaciation and death due to inability to feed especially in cases of muzzle lesions which were common.

Diseases of rabbits, especially pneumopathies, enteritis and coccidiosis are infections connected with the great variations in humidity and temperature coupled with feeding and management. Despite regular prophylactic treatment against major diseases , his study showed that these diseases cause about 50% of rabbit mortality before the age of 6 months.

Rabbit raising is growing into a full-time round the calendar profitable enterprise, disease and mortality not withstanding. Successful producers should employ all devices of practical, profitable operation like good sanitation and management, feed an adequate diet of simple ingredients and give the animals plenty of fresh water.

**Table 2 : Disease incidence encountered at IRZV Mankon from 1983-1987.**

| DISEASE | 1983 | 1984 | 1985 | 1986 | 1987 | TOTAL |
|---|---|---|---|---|---|---|
| Enteric Diseases | 55(5.9) | 57(6.2) | 79(8.5) | 81(8.7) | 127(13.7) | 399(43.0) |
| Psarcoptic Mange | 00(0.0) | 23(2.5) | 30(3.2) | 40(4.3) | 53(5.7) | 164(15.8) |
| Pneumopathies | 24(2.6) | 25(2.7) | 20(2.2) | 28(3.0) | 32(3.5) | 129(13.9) |
| Toxicosis | 04(0.4) | 10(1.1) | 05(0.6) | 02(0.2) | 41(4.4) | 62(6.7) |
| Nervous Syndrome | 06(0.6) | 10(1.1) | 08(0.9) | 14(1.5) | 21(2.3) | 59(6.4) |
| Mycosis | 09(1.1) | 11(1.2) | 08(0.9) | 05(0.5) | 20(2.2) | 53(5.7) |
| Young Doe Syndrome | 00(0.0) | 03(0.3) | 03(0.3) | 05(0.5) | 11(1.2) | 22(2.4) |
| Undiagnosed Cases | 25(2.7) | 10(1.1) | 08(0.9) | 09(1.0) | 15(0.5) | 57(6.2) |

The figures in brackets represent the percentage incidence of various diseases.

## Acknowledgements

The authors express sincere gratitude to the workers of the rabbit unit of IRZV Mankon for their collaboration and to Mr. Tamufor John for the time and patience he took to carry out post-mortem examinations on the rabbit carcasses. The project was carried out with funds made available by the Ministry of Scientific and Technical Research, Cameroon.

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