

## **SURVIVABILITY IN NEW ZEALAND WHITE BREED OF RABBITS UNDER FARMING CONDITION IN TAMILNADU**

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**Abstract:** The data on survivability of rabbits under farming condition of Tamilnadu was assessed using the available records at Rabbit Breeding Unit of Tamil Nadu Veterinary and Animal Sciences University for the period from 2006 to 2010, in order to assess the pre-weaning and post-weaning losses and to formulate suitable strategies for improving the survivability. The average Kits, Grower and adult mortality in New Zealand White breed of rabbits over the years were estimated to be 8.47 (2.34 to 15.23), 9.74 (4.03 to 17.12) and 9.05 (2.48 to 15.38), respectively. In kits the mortality observed mainly due to the weakling which in turn due to inadequate milk secretion from the doe. In growers and adults the major causes of mortality is respiratory diseases followed by enteritis. The suitable precautionary measures to control mortality in rabbits were discussed.

**Keywords:** Rabbit, mortality, kits, grower, adult, causes.

### **INTRODUCTION**

Rabbit farming is gaining momentum in India due to its high production potentials, high mothering ability, adaptability to a wide range of conditions, high genetic variability, high roughage utilization and low cost of production. Rabbit production appears as an attractive proposition for the supply of high quality meat especially in India. The increased livestock production in India can be achieved by rearing animals of short generation interval like rabbits by small scale farmers. In rabbit farming, litter size and litter weight are the important economic traits which are to be genetically improved for obtaining maximum productivity ultimately, increased profit. However, pre and post-weaning mortality in rabbits limits the production potential and lower the income generation through rabbit farming. Therefore, maintaining higher economic efficiency necessitates higher survival rate of rabbits.

Pre-weaning losses in rabbit was estimated to be 16-20% under intensive system of management [1]. It may reach up to 50% at 4-8 weeks of age while mortality older than 3 months is rare [2]. Within the large rabbit litters, there is an intensive competition among

littermates for dam's milk and weak kits of lower birth weight are more likely to die because of starvation [3], [4] & [5].

In India, the study on rabbits is limited and particularly the pre-weaning and post-weaning mortality in rabbits is scanty. Hence, the present study is undertaken to assess the mortality pattern in kits, gower and adults in a New Zealand White rabbit population under standard managerial farming condition in relation to some potential causes of mortality.

## **MATERIAL AND METHODS**

### **A. Animals and study place**

The mortality particulars of New Zealand White breed of rabbits were taken from Rabbit Breeding Unit of Post Graduate Research Institute in Animal Sciences, Kattupakkam, Tamilnadu.

### **B. Management Practices**

The rabbits were maintained in cage system of rearing. The male and females were housed in individual Galvanised Iron cages with the dimension of 2' x 1.5' X 1.5' kept above 3 feet from the ground level. The side walls were constructed up to 1' height and above that 1" weld mesh were placed. Fresh air was circulated in the rabbit house by using exhaust fans. Before kindling, the nest boxes were provided for the pregnant does. After kindling, nest boxes were checked every day for any dead kits. The data on birth weight and weaning weight with along with litter sizes were recorded in the morning before feeding. The weaning was practised on 42<sup>nd</sup> day. The rabbits were fed with concentrate mash feed (16% CP and 2500 kcal DE) every morning and in the evening, *Desmanthus virgatus* was offered. Clean portable water was supplied for drinking and the water availability was ensured all the time.

### **C. Data collection and statistical analysis**

The data on mortality for the period of five years from 2006 to 2010 were collected from the mortality, laboratory results and post-mortem register maintained at Rabbit Breeding Unit. The data comprised of date of birth of the rabbits, sex of the animal, date of death of the animal, previous treatment undertaken, if any, tentative diagnosis, laboratory result including histopathology results and confirmative diagnosis. The data size was 218 mortality reports. The data were analyzed using statistical software package SPSS<sup>17</sup>.

## **RESULTS AND DISCUSSION**

The summarized details of mortality observed are presented in Tables I and II. The numbers of rabbits died are highly variable. Higher incidence of mortality was observed in 2006. The

kits mortality was higher during 2008. There is no pattern of mortality could be observed during the period of study, ie. The mortality pattern is highly variable.

**TABLE I.** NUMBER OF RABBITS DIED AT DIFFERENT STAGES

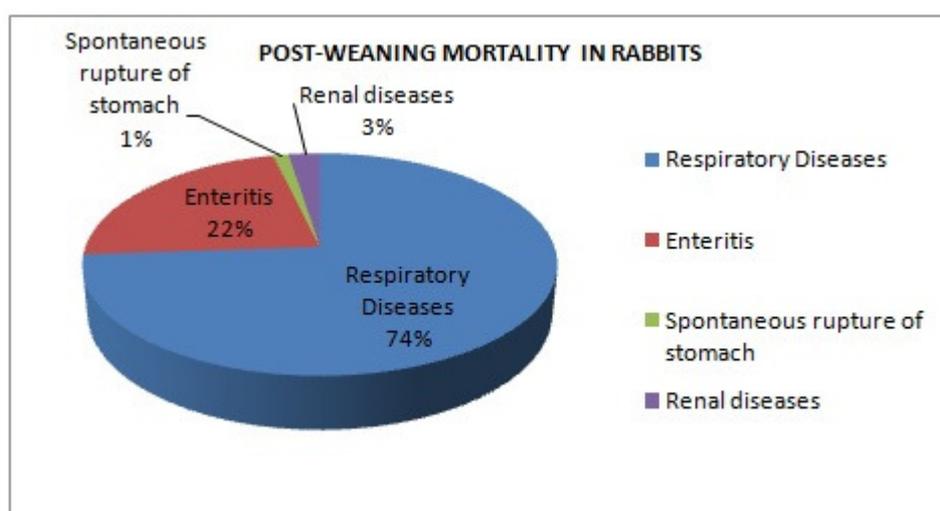
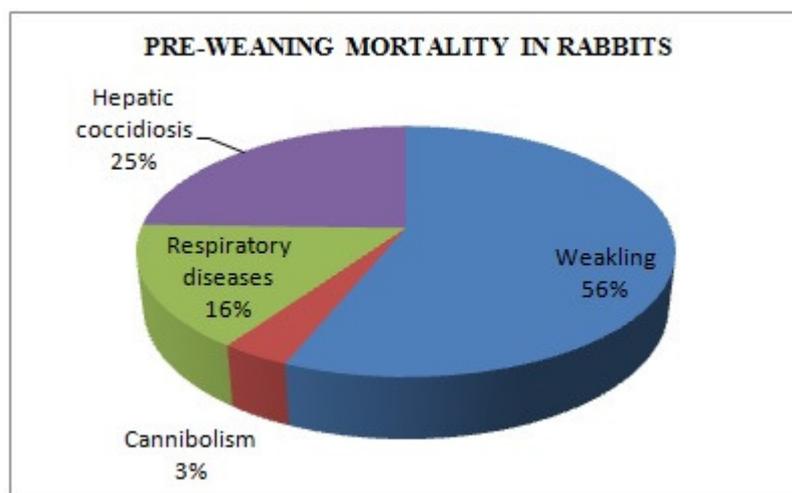
Year	Kits	Grower Male	Grower Female	Adult Male	Adult Female	Total
2006	17	11	12	20	8	68
2007	3	18	13	12	13	59
2008	23	3	3	8	6	43
2009	7	5	8	3	1	24
2010	7	2	8	2	5	24
Total	57	39	44	45	33	218

The percentage of mortality was presented in table II. Overall 9.21(5.41 to 13.36) per cent mortality was observed.

**TABLE II.** PER CENT MORTALITY (YEAR-WISE) IN NEW ZEALAND WHITE RABBITS AT DIFFERENT STAGES

Stage	2006	2007	2008	2009	2010	Mean
Kits	12.69	2.34	15.23	5.11	6.60	8.47
Grower	11.92	17.12	4.03	9.15	6.49	9.74
Adult	15.38	14.62	8.97	2.48	3.80	9.05
Over all	13.36	12.29	9.23	5.58	5.41	9.21

The season of kindling also plays a vital role in survivability of the kits. The kits born during July to December have a higher survivability rate than the others. This may be due to abundant availability of *Desmanthus virgatus* a leguminous fodder during this period to nourish the Kits (young ones).



In kits mortality due to inadequate nutrition (poor mothering ability which in turn due to decreased galactopoeisis) observed between 8<sup>th</sup> to 20 days. The kits died after 21 days are mainly due to pasteurellosis and hepatic coccidiosis. The mortality in New Zealand White kits vary from 2.34 per cent to 15.23 % with a mean value of 8.47. This is accordance with the earlier findings [6], [7], [8], [9], [10] & [11]. But lower than the report of [12], [13] & [14], they observed even 56 % of kits mortality. The mortality pattern varies though some influence of season plays a role. Adequate nutrition to the dam and supplementing the doe with galactogogue will decrease the incidence of mortality in rabbits. The death due to coccidiosis may prevent by administering prophylactic dose of Sulphaquinoxaline with Diaveridine (200 mg/kg bwt.) found effective.

The death incidences in growers were ranged from 4.03 to 17.12 (9.74). The increased mortality is mainly due to pasteurellosis. Even though the shed are kept clean and flame gun

sterilization was done once in a month the occurrence of pasteurellosis could not be controlled. But effective vaccination with autovaccine helps in addition to hygienic maintenance of rabbitry.

The mean adult mortality was 9.05 per cent (2.48 to 15.38) observed. In which, 74 % was due to respiratory diseases predominantly due to pneumonia caused by *Pasteurella multocida*. It Concorde with the findings [15]. Laboratory results (antibiogram) revealed that the pasteurella organism is highly sensitive to oxytetracycline, gentamicin, sulpham drugs, enrofloxacin and ciprofloxacin. Hence, prophylactic medication with any one of these drug will helps in controlling the incidence of disease.

## CONCLUSION

The study revealed that the major cause of mortality in kits is due to weakling before 21 days and hepatic coccidiosis and or respiratory diseases after three weeks of life. In grower and adult the pasteurellosis is the main causative for the death. Hence, autovaccine against pasteurellosis, strict hygienic maintenance of rabbitry and prophylactic medication will helps to increase the survivability in rabbits.

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