

## SOME FACTORS AFFECTING MORTALITY OF SUCKLING AND GROWING RABBITS

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During suckling, growing and fattening periods, mortality causes a great loss to breeders when it comes to their flocks. Concerning diseases prevention and curing, breeders usually use medical treatments. It's very important to study the reasons which may be cause rabbit diseases.

The present work was carried out to study the effect of following factors on viability of rabbits:

- birth weight
- litter size
- age of doe
- frequency of parturition
- age at weaning
- pregnancy status of the doe at weaning
- weight at weaning
- and sex

### Materials and Methods

The observations were conducted at the rabbit experimental farm of the Research Centre for Animal Breeding and Nutrition with New Zealand White rabbits. Litters were divided into two groups:

- 1 - litters completely died before 21 days age
  - 2 - litters had some alive individuals at 21 days of age
- After weaning at 28 or 38 days of age youngs were housed fattening cages. During the growing period, the digestive system diseases contributed to 84,3 to 92,3 % dead rabbits.

## Results

### 1. Mortality at suckling period

#### - Birth weight

Average birth weight of offspring was  $60,5 \pm 11,8$  g. At two weeks of age all offsprings under 35 g body weight were died, but about 30 % of those weighed between 35-45 g were alive.

Mortality rate reduced to less than 10 % for those youngs of 55-80 g body weight. From these results, it seems that viability is improved with increasing of birth weight. /Table 1./

#### - Litter size

When litter size was 3-6 youngs it was observed that more than 20 % of the litters were completely died meanwhile this value reduced to 15-20 % with litter size of 7-10. The complete litter mortality was reduced parallel with increasing the size of litters.

The mortality during suckling period indicated reversed tendency. Up to 21 days of age, mortality rate was 10-15 % for litters smaller than 8 offspring, 20 % for those of 10 youngs and over than 30 % for those of 12 youngs.

#### - Age of dam

For does had 12 litters average mortality rate was 11,3 %. The smaller rate of mortality /6 and 2 %/ was obtained for the 6th and 7th litters while the first and 12th litter had the greatest rate /28 and 20 %/. Mortality rate for the stock studied was 24-9 %. This value was found to be favourable during the period from the second to the sixth litter, but that for older does was greater where it reached 30 % for does had 9-12 litters.

#### - Frequency of parturition

For the G-line the mortality of complete litter was equal to 7,5-10,5 %, but for the H-line it was noted that

increasing the period between parturition and new mating reduced complete litter mortality. When the does had three successive parturition, smaller mortality rate /22 - 17 %/ of their youngs was observed.

1. Mortality at growing period

- Weaning age

Youngs were weaned at 28 or 38 days of age. Mortality increased after weaning in the two groups. Maximum mortality rate occurred after weaning by 10 days in the first group while after 14 days for the second group, respectively, and then the daily mortality reduced. During the growing period, mortality of 28 days weaning age group was higher than that of the other group.

From all results it was noted that from weaning up to 10 weeks of age mortality rate was 24,38 % and 11,76 % of first and second group, respectively.

- Pregnancy status during suckling

When the new pregnancy start directly after parturition, the milk production stops at 28-30 days after parturition, meanwhile it stops after 35 days when the pregnancy starts after 10 days from parturition. The weaning time of youngs from barren doe correlates with its production of milk. This study indicated that pregnancy status of the doe not affected mortality rate of their youngs.

- Body weight at weaning

The weaning of rabbits is one of the important factors in their life. Condition or health of individuals is greatly correlated to the success of its adaptation with the new environment.

For rabbits weaned at 28 days old, mortality rate was more than 30 % for rabbits weighed 200-300 g, 25 % for those weighed 400-600 g and lower than 20 % for those weighed more than 600 g. Mortality rate of youngs had the normal average weight was lower than 20 %. /Table 1./

On the other hand, for rabbits weaned at 38 days of age mortality rate was approximately 50 % for those weighed 300-500 g and 20-25 % for those weighed 500-700 g. Mortality rate of youngs had the normal average weight was about 10 %.

- Sex

During the period from 5-10 weeks of age, mortality rate of males was 13-8 % and that of females was 12,1 %.

Discussion and conclusions

Viability of rabbits at suckling and growing period greatly correlated to their health and environmental changes.

Results of the experiments are summarized as follows:

- Complete litter death was higher in the small litters. This finding led us to say that unhealthy or sick does produce small litters at parturition, and that may be as a result of ovulating small numbers of ova, abnormal fertilization of ova or of high mortality of embryos. Thus, it must be examined all does usually in view of this concern.
- As regards the does give litters more than 9-10, the mean body weight of their youngs reduce and the milk supporting to one offspring reduces simultaneously. In order to suckling, the struggle between youngs continued to reach mother's breast. The smaller youngs at birth are usually in bad condition, so that, the good ten youngs must be remained with the mother to nurse them.
- Mortality rate was higher between youngs from the first litter as well as between those bore after the first productive year. This observation must be taken into account determination the doe value in breeding. The age of the doe must be taken into consideration at comparison between several does.

Parturition intensity not affected adversely mortality at suckling period. The best results was obtained from does of more frequencies of parturition. This indicated that these does were in good health or condition. So that it can be selected the best does by using the method of increasing intensity of parturition.

Weaning age and weight at weaning are very correlated. Younger rabbits probably don't finish their physiological changes which are important for life. Similarly, the youngs of smaller weight usually don't bear weaning stress as the heavier youngs of the same age. Thus, it is suitable to wean the smaller youngs one week after the heavier youngs. The breeder has to wean the youngs at 28 days of age if the new pregnancy was started immediately after parturition. On the other cases youngs must be weaned not before 35 days.

- Pregnancy status /pregnant or barren/ had no effect on mortality of youngs weaned at 28 or 38 days of age.
- At the same age, males were affected by the environmental conditions more than females.

#### Summary

Mortality rate was 100 % for rabbits weighed 35 g at birth, about 50 % of those weighed 35-40 g and less than 10 % for those had 50-80 g birth weight.

- More than 20 % of the small litters /3-6/ completely died, but it reduced to less than 10 % for big litters /10/.
- During suckling, mortality rate was 10-15 % for litters of less than 8 individuals, 20 % for those of 10 individuals, and more than 30 % for litters of 12 individuals.
- Mortality rate was very high for the first and the twelfth litters of the does.
- Increasing the frequency of parturition didn't affect mortality at suckling.

- Up to 10 weeks of age mortality rate was 24,4 and 11,8 % for youngs weaned at 28 or 38 days of age.
- Mortality rate of rabbits weaned at 28 days of age was more than 30 % for those weighed 200-400 g, about 25 % for those weighed 400-600 g and less than 20 % for those of the normal average weight of the breed studied.
- As regards youngs weaned at 38 days of age, mortality rate was about 30 % for those weighed 300-500 g, 20-25 % for rabbits weighed 500-700 g, meanwhile it was less than 10 % for rabbits surpassed the average weight of the breed at weaning.
- Mortality rate of the males was higher than that of the females by 1,7 %.
- Pregnancy status had not any effect on mortality rate of the youngs after weaning.

### Resume

Parmi le lapins nouveau-nés 100 p.c. de ceux au dessous de g. 35, et pres de 50 % entre g. 35-40 ont été périss. Chez le petits lapins situés entre g. 50-80 la mortalité de la première semaine a diminué au dessous de 10 p.c. Chez les femelles faisant des petits qui sont moins nombreuses /3-6/ la totalité de la mortalité litière a atteint plus de 20 p.c., et chez les femelles qui produisaient 10 petits de plus, celle-ci ne passait pas le 10 %.

La mortalité pendant la lactation chez les litières moindre de huit s'est accru au delà de 10-15 p.c., chez les 10 au delà de 20 % et les litières composant 12 la mortalité a atteint plus de 30 p.c. Selon l'âge de la femelle la majorité des petits a été périé pendant la première et la 12<sup>e</sup> mise bas, et la mortalité de lactation s'est formée de la meme facon. La fréquence de mise bas n'avait aucune influence sur la mortalité de lactation.

Parmi les petits lapins qui ont été séparés dans l'âge de 28 et 38 jours respectivement 24,4 et 11,8 p.c. fut péri. Plus de 30 % est devenu mort parmi les élèves âgés de 28

jours séparé de g. 200-400, et ceux de g. 400-600 presque 25 % sont disparus et seulement ceux qui ont été séparés avec d'un poids plus élevé, la mortalité a diminué au dessous de 20 p.c. La moitié des petits séparés par g. 300-500 à l'âge 38 jours est périé et ceux qui avaient g. 500-700, leur mortalité a augmenté respectivement à 20 et 25 p.c. Des lapins de masse plus grande que moyenne près de 10 p.c. a été péri. Après la séparation parmi les lapins-male à l'ordre de 1,7 % de plus sont mourus en comparaison des femelles. La gestation de la femelle n'avait pas de l'influence sur la mortalité après la séparation.

Table 1.

The effect of body weight on the mortality of suckling and young rabbits

Suckling mortality			Mortality after weaning				
Birth weight	Mortality at first week		Individual body weight at weaning	Weaning at 28 days of age Mortality rate		Weaning at 38 days of age Mortality rate	
g	n	% $\bar{X}$	g	n	% $\bar{X}$	n	% $\bar{X}$
25-29	1	100,0	200- 299	34	32,4		
30-34	13	100,0	300- 399	153	31,4	18	44,4
<b>35-39</b>	20	68,8	400- 499	277	22,7		
40-44	39	48,6	500- 599	273	24,5	49	24,5
45-49	41	36,8	600- 699	128	18,0	101	20,8
50-54	93	16,3	700- 799	61	18,0	213	11,3
50-59	122	10,7	800- 899	21	14,3	272	11,4
60-64	145	8,9	900- 999			274	8,0
65-69	89	6,7	1000-1099			166	8,4
70-74	70	4,2	1100-1199			94	10,6
75-79	41	9,8	1200-1299			44	13,6
80-84	26	0,0	1300-1399			26	3,8
85-89	13	0,0	1400-1499				
90-94	3	0,0					
95-99	1	0,0					