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GROWTH OF RABBITS UNDER A HIGH AMBIENT TEMPERATURE

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SUMMARY

Forty-two crossbred rabbits reared at a constant temperature (30°C), were divided at weaning in two groups. The first group remained at 30°C and the second was housed in a conventional building with an average temperature of 20°C. The rabbits were kept until they were 280 days old, when they were slaughtered. Liveweight of the animals at high temperature was very low throughout the experiment.

Key words: temperature, rabbits.

INTRODUCTION

Studies on growth have been reported for periods shorter than 26 weeks (Poujardieu and Matheron, 1984), at which adult size has not been established. Besides, the influence of the high temperature on growth has not been studied for longer than the usual fattening period, where it is known to be impaired (Simplicio *et al.* 1988, Stephan 1980), because of a reduced feed intake.

For this reason we have tried to evaluate the growth of rabbits reared at high temperature, from birth to 280 days of age, as Blasco and Gomez (1993) considered 210 days to be a suitable period for establishing liveweight growth curves.

MATERIALS AND METHODS

Forty-two rabbits coming from a three way-cross, born and kept in a climatic chamber at a constant temperature of 30°C, were weaned at 35 days of age, half of them were then removed to a conventional building.

Animals, fed *ad libitum* on a commercial diet, were weighed at 70, 100, 150, 200, 250 and 280 days of age, when they were slaughtered: 17 animals from the climatic chamber (6 males and 11 females) and 17 from the building (4 males and 13 females).

All recorded data were analysed by variance analysis, using the SAS package (SAS, 1990), with environment and sex as factors of variation using the weaning weight as a covariate.

RESULTS AND DISCUSSION

Temperature had a significant effect on liveweight gain, and the results did not change when the weaning weight was introduced as a covariate (table 1). The high temperature impaired growth

for the period studied, up to maturity. We have observed in our conditions that replacement does reared at 30°C seldom reach 3.5-4 Kg at 4.5 months of age and before maturity. This is a well known effect in many species, in rabbits only it has only been demonstrated up to an early age (Stephan 1980, Simplicio et al. 1988, Chiericato et al., 1993, Centoducati et al., 1990).

Table 1. Liveweight of rabbits (Kg) according to environment (climatic chamber at constant 30°C or conventional building) and sex.

Age d	ENVIRONMENT					SEX				
	30°C		BUILDING		Sig	MALES		FEMALES		sig
	LSM	SE	LSM	SE		LSM	SE	LSM	SE	
70	1.795	.047	2.116	.049	***	1.904	.059	2.007	.038	NS
100	2.394	.051	2.935	.054	***	2.594	.065	2.734	.042	NS
150	3.033	.091	3.844	.086	***	3.314	.108	3.562	.073	NS
200	3.391	.102	4.358	.101	***	3.626	.119	4.122	.084	**
250	3.668	.124	4.817	.119	***	3.930	.146	4.555	.099	**
280	3.845	.134	5.075	.143	***	4.150	.166	4.770	.114	**

***:p<0.001, **:p<0.01, *:p<0.05, NS: non significant.
 WW, Weaning Weight; LSM, Least Square Mean;SE, Standard Error

Females were heavier than males from 150 days of age, but the number of controlled males does not permit any general conclusions, although this difference between sexes is usually accepted and occasionally reported (Blasco and Gomez, 1993). Interaction between environment-sex was not significant at any age.

Carcass weight followed the trend of liveweight, but there were no differences in the commercial dressing percentage between groups (66.6% at 30°C and 67.6% in the building) Some of the differences in weight could be due, as some works have already reported, to the carcass fat content. Chiericato et al., (1992) found higher values for fat deposits in rabbits reared at a low temperature (12°C) with respect to high temperature (30°C), however they studied rabbits of commercial weight, which are substantially different from the values of adults. Fat tissue should be established at 300 days of age (Nougués and Vezinhet, 1976).

Adult weight could be established almost at 5 kg for females; for males it could be about 4.2, although the standard error (0.166) reflects the low size of the sample. This line, resulting from New Zealand and Californian crosses could be defined as a medium format.

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