

EVALUATION OF PRODUCTION & REPRODUCTION TRAITS IN RABBITS

By

PADMINI RAJADEVAN, B.Sc.(Hons.) Agric. Sri Lanka.

Thesis

Submitted in partial fulfillment of the requirements

for the degree of

MASTER OF PHILOSOPHY

in

Agriculture

in the

POSTGRADUATE INSTITUTE OF AGRICULTURE

of the

UNIVERSITY OF PERADENIYA, SRI LANKA

Approved.

Rajamohan
Rajamohan
Rajamohan

Examination Committee.

June 1984.

C 636.9322

R14



369394

AGRICULTURE LIBRARY
UNIVERSITY OF PERADENIYA

369394

ABSTRACT

Litter and reproductive traits of a population of crossbred rabbits were evaluated for eight parities. In general, does in later parities showed higher mean values for litter size and weight than the animals in the earlier parities. But all litter traits were associated with a high % of coefficient of variation, suggesting the non-uniformity of the traits among individuals.

The litter size and weight at weaning were linearly correlated suggesting a positive correlated response of one trait when the selection pressure is applied on the other. The correlations between litter size at weaning and individual weaning weights were negative.

Pre-weaning mortality was estimated to be 51% and highest incidence was observed during the fourth week. The associated coefficient of variation was high with low mortality in some litters and high in others.

Post-weaning deaths was higher than the pre-weaning deaths and the highest mortality was noted during the fifth and sixth weeks of age. This could be attributed to the outbreak of coccidiosis in the rabbitry. There was a sharp decline in mortality after the 6th week. The highest mortality rate was among the litters from the does kindled for the first time.

Does were observed for gestation length, feed intake and association of these traits with litter and production traits. About 50% of the litters were kindled on the thirtieth or thirty-first day, with few does kindling as late as the thirty-third day. A longer gestation period tended to decrease the litter size at birth.

Does gained steadily during the gestation period. Does in later parities were heavier than the ones in earlier parities. Litter size at birth increased with a higher body weight gain during gestation, exhibiting a positive correlation between the two traits.

The power model was the best fit to predict the body weight gains during gestation. The exponential model proved to be the second best.

Pre and post weaning growth traits were evaluated using the Average Daily Gain (ADG) as the parameter. These traits were associated with a high % of coefficient of variation throughout the course of growth suggesting that selection could be practiced as a tool for improvement.

The association between age and body weights are significant at all ages. The correlations established among body weights at different ages were positive. Thus heavier the animal at birth faster will be its growth. The power model fitted the pre-weaning growth pattern, whereas exponential was the second and linear was the least fitting.

Heritability estimates of litter traits were calculated using Nested Analysis of Variance. Most of the litter traits showed medium to high heritability values, suggesting that these traits, could be improved through selection. The exceptions being the litter size at weaning and litter weight at ten days which showed low heritability values. The pre-weaning body weights showed medium to high heritability, whereas post weaning growth was of low heritability. In general, these heritability estimates suggest that a good selective cross breeding program in conjunction with good feeding and management practices will improve the performance of rabbits and will make rabbits a cheaper alternate source of meat to alleviate protein malnutrition in Sri Lanka.

