

(550 g). The animals from these 3 treatments showed absolutely comparable growth performances between 28 and 79 days. As regards the time required to reach the same mean weight, there was a difference of 3-4 1/2 days according to groups but in favour of the control group. Thus, a delay at weaning is not compensated (in absolute value) at the moment of slaughter.

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#### IV. — Genetics

### REPEATABILITIES OF BREEDING PERFORMANCES AND CULLING THRESHOLDS IN FEMALE RABBITS

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The variability in the numerical productivity of the doe is very high (number of rabbits weaned per doe and year). We tried to estimate levels of production under which it is economically interesting to cull a doe in a meat production farm.

The levels depend on the repeatability of the components of the numerical productivity. Repeatabilities of « interval between two parturitions » and « litter size at weaning » are discussed. Culling thresholds for litter size are given. It depends on mean litter size of the flock, number of order of the litter and cost of replacement.

The results are not directly applicable if crossbreeding or « all in-all out » system is realized. If such systems are used the culling thresholds are lower. We do not consider the case of sick females which have to be culled whatever their production level.

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### STUDY OF GENETIC VARIATION IN RABBIT MUSCLE pH MEASURED AFTER SLAUGHTER

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The growth of 590 rabbits (41 sires and 117 dams) was studied in the performance testing Station, Toulouse, from December 1972 to March 1973.

The observations recorded were :

1. Live body weight at 4, 10 and 11 weeks of age ;
2. Hot carcass weight at 11 weeks of age ;
3. Shrinkage of carcass during 24 h storage at + 4°C ;
4. pH of biceps femoris muscle 30 mn and 24 hours after slaughter.

The estimates of heritability and genetic correlation were obtained using sire variance and covariance components.

The following conclusions were drawn :

- The heritability estimates of muscle pH were quite high at both times (table 2).
- Moderately high negative genetic correlations were observed on the one hand between muscle pH at 24 hours and average daily gain (4-10 weeks), and on the other between live weight at 10, 11 weeks and hot carcass weight (table 3).

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## A STUDY OF MUSCULAR GROWTH IN RABBITS OF THREE GENOTYPES : ROLE OF NUCLEAR MULTIPLICATION AND CELL-SIZE INCREASE

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The relative effects of nuclear multiplication (hyperplasia) and cell-size increase (hypertrophy) on overall muscular growth of hind legs of rabbits from three lines (pure and cross-bred) were estimated. These lines : *New-Zealand*, *Petit Russe* and *New-Zealand* × *Petit Russe*, differed in their adult weight (4.1-2.5 and 3.3 kg, respectively). Six rabbits per genotype were studied at five stages of growth : 30, 42, 70, 84 and 182 days.

Until 182 days, hyperplasia played a predominant role in influencing muscular growth, except for the *Petit Russe* line between 30 and 42 days. During the whole period of growth studied, the average weights of muscle cells, as estimated by the ratio :

$$\frac{\text{total muscle weight}}{\text{total weight of DNA}}$$

did not differ between genotypes. In fact the three lines differed mainly by their intrinsic ability to synthesise DNA, the latter being higher in individuals of larger adult size.

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