III. — GENETICS

Trends observed in the Rouille pig selection experiment (1965-1984)

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An account is given of a pig selection experiment begun in 1965 at the I.N.R.A. artificial insemination center of Rouillé (Vienne). Altogether, 19 successive *Large White* boar generations (1965-1983) have been compared on 5610 progeny tested from 1966 to 1984. The boars were selected on a performance-test index including growth rate and backfat thickness. Selection responses were measured, using a « repeat sire » design, separately in the 2 periods 1965-1975 and 1975-1983, for growth, feed efficiency, body composition, meat quality and development of the nasal turbinates. The results showed an increase in annual genetic gains in the 2nd period. These annual gains were 9 and 13 g/day in growth rate, — 0.044 and — 0.047 in feed conversion ratio, 0.3 and 0.7 in percentage lean tissue, in the 2 periods, respectively. Indirect responses in meat quality were of low magnitude and the tendency towards a paler meat colour in the 1st period was quite reduced in the 2nd. However, the unfavourable trends observed in nasal turbinates development were significant in both periods. Those results are discussed in the light of the genetic parameters of the population and the selection applied to the boars. With regard to this point, the analysis shows an important discrepancy between the index used to rank the boars and the *a posteriori* index, which indicates that among the top ranking boars the leanest ones were preferentially discarded.

Genetic trends for growth and carcass traits in *Large White*, *French Landrace* and *Belgian Landrace* pig breeds

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Annual genetic gains between 1970 and 1980 in *Large White* (LW), *French Landrace* (FL) and *Belgian Landrace* (BL) pig breeds were estimated for growth and carcass traits. Data collected in progeny-testing stations (P) and boar individual testing stations (I) were analysed both by the method of within-sire regression of performance on time (SMITH, 1962) and by means of a mixed linear model including the effects of year of birth of sire and dam. Estimates of genetic trends given below are those obtained by pooling the results of the two methods.