

treatment : it was lower on treatment N for daily gain on test (24 vs 27 p. 100), food conversion ratio (21 vs 26 p. 100) and backfat thickness (24 vs 29 p. 100). As the genetic portion of these variance components is expected to be similar in both treatments, it is suggested that the reduction in age at the entry into the station can result in some decrease in the environmental portion of the between-herd variance for traits recorded in central boar testing stations.

### Analysis of boar buying policies in a commercial herd

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The results of a previous theoretical study (JAMES J.W., 1980. *Ann. Génét. Sél. anim.*, 12, 33-47) are here applied to the case of boar purchases in a commercial herd. An expression is derived for the net present value of a boar from the expected gains in productivity of its progeny, as a function of purchase price and relative breeding value. But the producer must also consider the genetic gains made by the breeding nucleus providing him with boars. This leads to define an optimum length of time for which a boar should be used, which depends on price, breeding value, and rate of genetic gain in the nucleus. It is also shown that net present value and optimum length of use depend on the crossbreeding system which the boar enters as well as the way in which it is used, i.e. artificial insemination (A.I.) or natural service. A numerical application is provided by the boars auctioned from French performance test stations (C.I.). Very highly significant relationships between boar price and breeding value (estimated by the selection index) have been established, for each category of buyers, on 4566 boards sold in 1981-1983 at those stations. The price paid by producers and A.I. centers may be approximated by a linear function of the index, whereas a curved relation is obtained for breeders. On the basis of those relationships, the buying of C.I. boars by a producer appears to be a very profitable operation, the overall annual benefit being around 2.3 millions F.F. for the French producers using such boars. Boars used in A.I. contribute to nearly 75 percent of that global profit, as a result of their high genetic value as well as of the diffusion allowed by the reproduction technique. With the observed price function, the best policy for the producer is to buy the best available sires. Furthermore, a quick renewal is economically justified for A.I. boars. These should indeed be used, for the best of them, less than one year.

### A note on genetic parameters of on-the-farm control in France (1981-1984)

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This analysis deals with performance records collected in the years 1981-1984 in 104 breeding farms participating in the French on-farm testing programme. Data were obtained from 142,218 purebred gilts or boars from *Large White* (LW) or *French Landrace* (FL) breed. Traits are age (AGE) and ultrasonic backfat thickness (BT) at 10 kg live weight. Deviations from batch average were used for analysis, the batch being a group of about 30 contemporary pigs from the same herd-breed-sex combination and born within the same

2-week period. Heritabilities ( $h^2$ ) and genetic correlations ( $r_A$ ) were estimated from sire components of variance and covariance in the total sample as well as by breed and by sex. Estimates of  $h^2$  of  $0.13 \pm 0.01$  and  $0.27 \pm 0.01$  were obtained for AGE and BT respectively in the total sample. The LW breed showed larger estimates of  $h^2$  than the FL breed ( $0.15$  vs  $0.10$  in AGE,  $0.32$  vs  $0.19$  in BT). This breed difference has also been found for similar traits in central testing stations. The estimate of  $h^2$  in BT was higher in gilts than in boars ( $0.30$  vs  $0.22$ ), and this may be partly due to the larger average batch size for gilts than for boars ( $31$  vs  $26$ ). Genetic correlation between AGE and BT was surprisingly found to be positive ( $0.16 \pm 0.03$ ) and therefore favourable in terms of the breeding objective. A number of points are discussed in search for possible means allowing to increase the accuracy of breeding value estimation in on-farm testing.

**A contribution to the study of the genetic control of pig meat quality.  
Heritability of the « Napole » technological yield**

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The « Napole » technological yield (NTY) was measured on meat samples of 100 g collected on 2469 pigs from the P 66 *Penshire* and P 77 *Pen Ar Lan* synthetic lines. Estimate of heritability was  $h^2 = 0.36$ . However, data available on the progeny of 70 boars showed that a major dominant gene would be responsible for the appearance of the « acid meat » syndrome. The dominant allele  $RN^-$  would maintain NTY below 90 p. 100. The allele  $rn^+$ , when it is at the homozygote state, induces a NTY higher than 90 p. 100. This gene would be involved in muscle carbohydrate metabolism and might be assimilated to the « Hampshire effect » already demonstrated by MONIN *et al.* in 1984 (Journées de la Recherche Porcine en France, **16**, 59-64).

**Evaluation of Chinese  $\times$  European crosses in French herds :  
first results obtained in the Poitou-Charentes area**

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The characteristics of 322 litters born from 132 *Large White*  $\times$  *Meishan* or *Jiaying* sows born at Le Magneraud and distributed at about 105 kg into 18 herds of the Poitou-Charentes area were compared to those of 2287 litters born from 1321 herd contemporaries (whose 4/5 were issued from the *Large White*  $\times$  *French Landrace* cross.).