

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.).

The five variables considered were subjected to an analysis of variance taking into account the herd effects (18 levels), the litter order (3 levels), the genotype (2 levels) and interaction effects between these factors. The interaction herd  $\times$  genotype was significant ( $P < 0.01$ ) for numbers of piglets born and weaned per litter. The effect of genotype was significant ( $P < 0.01$ ) for the other three variables. In « 1/2 Chinese » sows, the number of piglets born, born alive and weaned per litter was improved by 2.9, 2.9 and 2.0 units, respectively and the weaning-fertilization and farrowing intervals were reduced by 5.4 and 4.1 days as compared to European contemporaries. This leads to an average of weaned piglets/sow/year of reproductive life of 5.4 units, with nevertheless large variations between herds (— 2 to + 10 piglets/sow/year).

Fattening and carcass performance of 76 « 1/4 Chinese » and 77 control pigs sired by 36 terminal boars in the previous herds were then compared in central progeny testing stations. The analysis of variance took into consideration the control batch (6 levels), the genotype (2 levels), the sire (36 levels) as well as the slaughter weight for the cutting criteria and the slaughter date for the meat quality criteria. Daily mean gain of « 1/4 Chinese » pigs was reduced by 22 g and food conversion ratio was increased by 0.07 kg feed/kg gain. These differences were not significant. On the other hand, carcass weight was reduced by 0.7 kg, muscle percentage by 4.2 p. 100 and fat percentage increased by 4.6 p. 100 in « 1/4 Chinese » pigs. Those differences were significant ( $P < 0.01$ ). On the whole, meat quality criteria were in favour of « 1/4 Chinese » and showed an improvement in the meat quality index (MQI) of 0.8 point ( $P < 0.05$ ).

A total of 73 hams (34 controls and 39 « 1/4 Chinese ») were processed into « Paris ham ». The handicap of 3.7 p. 100 ( $P < 0.01$ ) concerning the anatomical yield of « 1/4 Chinese » hams was only partly compensated by a higher technological yield (+ 1.1 p. 100) so that the final yield was reduced by 2.5 p. 100 ( $P < 0.01$ ).

An approximate economic balance showed that a minimum productivity gain of 6 piglets weaned per year in « 1/2 Chinese » sows is required to compensate for the reduction in the gross margin recorded in a « 1/4 Chinese » terminal product.

### **Polymorphism of the major histocompatibility complex SLA in several pig breeds in France**

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The major histocompatibility complex SLA was tested in several breeds including highly selected breeds and local breeds. The influence of the founding effect, mutation and putative selection upon the frequency of SLA alleles in all these breeds was observed. The genetic drift was also investigated in small populations corresponding to local breeds. Because of its high polymorphism, SLA complex seemed well fitted for these observations.

Preliminary results showed significant correlations between some SLA alleles and production traits such as growth rate and backfat thickness. The frequency of SLA alleles associated to unfavourable production traits decreased during the 6-year testing period. By contrast, favourable SLA haplotypes increased significantly.

Massive introduction of English and Dutch breeding animals also contributed to modify SLA distribution.

Comparison of the SLA haplotypes between the different breeds showed, unexpectedly, that *Pietrain* are closer to *Large White* than to *Landrace*. In local breeds, there is a rather large polymorphism in spite of the small number of animals available. As compared to selected breeds, no gametic association was observed in the local breeds.