

### Comparison of Large White pigs with crossbred pigs sired by French or German Pietrain boars in fattening and carcass traits

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Crossbred slaughter pigs issued from French Pietrain (FP) or German Pietrain (GP) boars and Large White × French Landrace sows were compared for fattening and carcass traits with control Large White « Poitou » (LWP) purebreds. Three or four females or castrated males were sampled per litter. A total of 91 half-FP, 100 half-GP and 109 LWP pigs, fed ad libitum from 30 to 100 kg liveweight, completed the test. The 8 FP and the 9 LWP sires had been chosen among the upper 20 % of boars performance-tested in central stations, in accordance with the current French regulations for A.I. boars. The 8 GP boars had been bought in West Germany on the basis of combined on-the-farm testing. The comparison between half-FP and half-GP pigs did not reveal any significant difference, except for meat quality (1.5 percentage points in favour of half-GP pigs for the predicted technological yield of Paris ham processing). Half-FP and LWP pigs did not significantly differ in the latter trait. Though no significant difference was found in average daily gain on test, food conversion ratio was improved by .17 and .26 kg feed/kg gain in half-FP and half-GP pigs respectively, as compared to LWP pigs. This is to be related to the lower daily feed intake (about - .2 kg) in half-Pietrain pigs. Regarding carcass traits, the differences found between LWP and half-Pietrain pigs favoured the latter in a highly significant manner. Half-Pietrain pigs gave heavier and shorter carcasses (+ 1.7 points in killing out percentage and - 34 mm in carcass length) and exhibited a higher lean content and a lower fat content (4.4 and - 4.6 percentage points, respectively). The advantage of half-Pietrain over LWP pigs in terms of gross margin per pig amounted to about 50 FF.

### A general report on the evaluation of crossbred European Chinese sows under field conditions in France

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A total of 234 Meishan × Large White and 219 « 1/4 Meishan-3/4 Large White » sows used in 65 commercial herds were compared to crossbred Large White × French Landrace contemporary sows for reproductive traits. In addition, samples of fattening pigs from this design were sent to central progeny test stations. A within-sire comparison for production traits was made, involving respectively 86 « 1/4 Chinese » vs 77 control pigs, (from 36 common sires) and 101 « 1/8 Chinese » vs 100 control pigs (from 54 common sires).

« Half-Chinese » sows proved to produce markedly larger litters : about 3 total born and 2 weaned piglets above European contemporaries. The superiority of « 1/4 Chinese sows » was only 1 piglet at birth and 0.5 at weaning.

Fattening performance of « 1/4 Chinese » or « 1/8 Chinese » pigs did not significantly differ from that of control pigs though in both cases, growth and food conversion were poorer (approx. - 25/g/day in A.D.G. and + 0.06 pt in F.C.R.). Differences in carcass merit were highly significant and coherent : lean tissue percentage decreased by 4.2 % for « 1/4 Chinese » pigs and 2.5 % for « 1/8 Chinese » pigs. There was also a decrease in killing-out percentage (- 0.5 to - 1.0 %). The « 1/4 Chinese » pigs had a slightly better meat quality but no superiority was shown by « 1/8 Chinese » pigs in this respect.

The overall evaluation of the use of crossbred Chinese dams resulted in negative economic balance : the increase in sow productivity was not large enough to compensate for the poorer carcass merit of progeny. These results were discussed considering the present evolution in the system of carcass payment in France due to the use of grading machines.

### **Genetic relationships between fat androstenone level in males and development of male and female genital tract in the pig**

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A one-generation selection experiment was performed in order to assess the extent to which it is possible to select for reduced fat androstenone level (A) in boars while maintaining normal sexual maturity in boars and gilts. In Large White boars of around 114 kg liveweight, A was determined on a biopsy of fat, and testes size (TS) was estimated from live measurements of testes width and scrotal area. Three groups of sires (4 per group) were kept for breeding by A.I. : 1) group S showing low A (intensity of selection  $i = -1.50$  unit of phenotypic standard deviation) and small TS ( $i = -2.74$ ), 2) group L with low A ( $i = -1.32$ ) and large TS ( $i = +.50$ ), and 3) group C (« control »). Records for A and TS at 104 kg and for A and genital tract development at slaughter (124 kg) were collected on 236 male offspring from these boars. Percentage of puberal gilts and genital tract development at slaughter (124 kg) were recorded on 187 female offspring. A highly significant response to selection « against » A was observed in both group S and L. A result of particular interest is that a normal development of testes and Cowper's glands was preserved in the sons from L sires, at least at 124 kg, though they exhibited a large decrease in A at the usual slaughter weight (104 kg). However, a highly significant delay in puberty was found in gilts from both groups S and L : only 35-37 % of those gilts reached puberty at 124 kg, as compared to 79 % in the « control » group. Estimates of realized genetic parameters for A and TS were derived from the coefficients of 2-trait indexes in retrospect and selection responses in the groups S and L. Realized heritability estimates are  $.89 \pm .39$  and  $.48 \pm .24$  for A and TS, respectively. The genetic correlation between A and TS was found to be positive (around .55) showing that decreasing androstenone content in fat and increasing testes size are genetically antagonistic.

### **Note on the age and replacement policy of boars in the French breeding herds**

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An analysis is presented of 37,339 matings declared by the French pedigree breeders (breeding companies excluded) over the period July 1st 1985-June 30th 1986. In those matings, 11.5 percent of which are artificial (A.I.), 62 % are by boars selected on performance-test, either on-farm (CF) or in station (CI). The results show that the French breeders are now aware of the need for a quick renewal of their boars. The age at mating of these boars is indeed 15.6 months on average, which is 7 months below the figure of 15 years ago, and 5.4 months below the present situation for commercial boars. Replacement is particularly fast for CF boars, 13 month-old on average. The favourable consequences of this policy, in terms of genetic gain and dissemination of genetic