

In 8-week or 6-month stored hams, the taste panel did not notice any important difference according to the cereal either on lean or on fat (no rancid taste).

It may be concluded that monocereal diets (soyabean meal) have little effect on lean. As regards the fat, maize diets lead to a higher unsaturated fatty acid content of fat than wheat or barley diets, although the levels have no effect on the organoleptic qualities according to the taste panel.

### **Meat production from entire male pigs : Performance, meat quality and alternatives to boar taint**

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The chemical composition of meat from entire male pigs is slightly different from that of castrates. The higher unsaturated fatty acid content of boar meat may be a drawback for some processed products. However, the main problem is boar taint. The latter is mainly due to the presence of skatole and androstenone responsible for the odour of faeces and urine, but the respective contribution of these compounds is still poorly understood.

Tainted meat may be used for processing. There is no entirely satisfactory method for sorting tainted meats on the slaughter line. A preliminary screening is possible using the measurement of Cowper's gland development. In some cases, such a screening might enable an increase in boar meat production. At the present time, there is no means of producing boars that could be certified as taint-free. Genetic and immunology offer promising ways of getting rid of the boar taint problem : further research is needed for an adaptation of these methods from the laboratory to the industry scale.

## **GÉNÉTIQUE — GENETICS**

### **Chromosomal abnormalities and « hypoprolificacy »**

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Owing to the great amount of research done in human medicine, the applications of cytogenetics in domestic mammals have spread out in the last decade. Following a brief survey of the methods which allow a more and more precise identification of chromosomes, this review is intended to give an overall presentation of porcine chromosomal abnormalities found in France and in the world, with special emphasis on their economic consequences and the means available for limiting their diffusion. In France, periodical analysis of data from the National Programme for Computerized Sow Herd Management allows to detect the so-called « hypoprolific » boars having sired litters whose average size of at least 6 litters is less than 8 piglets born alive. The proportion of these « suspected » boars among all breeding boars is about 1/1000, and among those subjected

to karyotype determination (either on themselves or on their progeny), nearly 40 p. 100 were revealed carriers of a chromosomal abnormality. Translocations are by far the most frequent chromosomal abnormalities in the pig. A total of 22 different translocations have been so far identified in this species and among them, 6 were described in France. The decrease in size of the litters issued from breeding animals (males or females) carrying a translocation results from the production of gametes with an unbalanced karyotype (either gain or loss of chromosomal material) : these gametes are normally fertile but give non-viable embryos which disappear at the time of implantation. About one half of surviving foetuses are carriers of the translocation.

Among the six new translocations identified in France (some of them have been repeatedly found), three lead to a marked decrease in prolificacy : 49, 45 and 41 p. 100 for the 4-, 14+, 3+, 7- and 4-, 15+ translocations, respectively. The effect on litter size is of smaller magnitude for the others : 31, 28 and 26 p. 100 for the 16+, 17-, 5-, 14+ and 1-, 15+, respectively. Different proposals aiming at increasing precision and quickness of detection are discussed. The economic consequences of a translocation carried by a breeding boar vary according to the type of farm but are anyway of great importance. Finally, chromosomal abnormalities may be a valuable tool in several fields of research, such as genetic mapping (e.g. localization of the SLA complex on chromosome n° 7) and chromosome sorting by means of flux cytometry (creation of DNA banks for studies of molecular biology).

### **Evolution of litter size with the age of the dam at farrowing : Updating adjustment coefficients in the French pig breeds**

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The evolution of litter size with the age of the dam at farrowing was studied from data collected through the French National Litter Recording Programme in 1983-1984 for 5 breeds of sows : Large-White (112,886 litters), French Landrace (28,536 litters), Pietrain (1,189 litters), Belgian Landrace (4,660 litters) and sows used in the commercial units, mostly crossed Large-White × French Landrace sows (over one million litters). Polynomial (3rd degree) regression coefficients on the age of the dam at farrowing were calculated for various dependent variables : litter size at birth (total born or born alive) and at weaning, stillborn and mortality rate. These results were then compared to those from a similar study carried out 12 years before. In the Large-White and French Landrace, litter size increases with the age of the dam up to a plateau, but the curve is plateauing around 150 days earlier than 12 years ago, i.e. at around 850 days for litter size at birth and 650 days at weaning ; moreover this plateau is lower by around 0.75 total born or born alive, or 0.25 weaned piglets. This so-called decrease in litter size potential is to be connected with changes in management practices, particularly with a decrease of the age at weaning (from 42 down to 28 days over this period). We also observed that litter size generally tended to be higher in the Pietrain than in the Belgian Landrace. These results led to improved adjustment coefficients of litter size for the age of the dam. Various possibilities of using this correction were discussed.