Litter weight and litter size at birth and at weaning were significantly better in the *Large White* sows.

Maternal abilities of the local sow must be underlined (8.5 p. 100 mortality v 21.3 for the *Large White*) and as a result sow productivity was almost the same for both the *Large White* and the local pig : 13.82 and 14.6 piglets per sow and per year respectively.

Growth and tissue composition results of the progeny of the two breeds were the following :

1) The average daily gain was significantly higher in the *Large White* breed (514 g v 440 for the local pig).

2) The food conversion ratio was higher ($p < 0.01$) in the *Creole* breed (4.03 v 3.33 for the *Large White* pigs).

3) The main characteristics of the carcass quality was a significantly ($p < 0.01$) higher muscle percentage in the *Large White* (46.96 p. 100 v 38.97 for the local pigs).

A good relationship between cut and physical dissection results on the one hand linear and ponderal carcass characteristics on the other hand was observed in both the *Creole* and the *Large White* breed.

Ham weight and growth performance was independent of the body composition.

## Utilization of roughage to produce heavy pigs. Interactions between genotype, sex and management system

## 1. - Growth performance and carcass characteristics

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Growth performance and carcass characteristics of 119 pigs, females and castrated males, were studied using a 2 × 2 factorial design : two genotypes, *Large White* (LW) and *Corsican* × *Large White* (C × LW) crossbred pigs ; two management systems, in pens with an *ad libitum* concentrated diet, and in open-air with a restricted concentrated diet and forage given *ad libitum*. The analysis of variance showed a favourable effect of pen-housing on food conversion ratio (— 10 p. 100 compared to pigs in open-air), daily gain (+ 20 p. 100), dressing percentage of carcass (+ 2.6 p. 100), but an unfavourable effect upon carcass characteristics (— 24 p. 100 for loin/backfat ratio) more pronounced for castrated males than for females. Growth performance of the crossbred pigs were 4 to 8 p. 100 poorer than those of LW pigs ; the carcasses of LW pigs showed a poorer dressing percentage than those of C × LW, but a higher meat content (+ 36 p. 100 for loin/backfat ratio) ; there were no significant genotype × management interactions, as the responses of the two genotypes to the management systems were similar.

## V. - Carcass and meat quality

## The effect of an excess of tryptophan and of rearing conditions on the incidence of boar taint in young *Large White* boars : relationship with male reproductive tract development

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Twenty eight board of the *Large White* breed were reared between 25 and 100 kg live weight according to a 2 × 2 factorial design : two rearing conditions (with or without

visual and olfactive contact with sows) and two diets (R1 balanced control and R2 with an excess of tryptophan) were compared. Neither rearing conditions nor diets had a significant effect on growing performance or male genital tract development. A tendency to lower incidence of boar taint in pigs fed with diet R2 (32 to 40 p. 100 of opinions vs 47 to 58 p. 100 for diet R1 ; $p < 0.10$). This result is contrary to the hypothesis according to which an excess of tryptophan could lead to higher synthesis and storage of skatole (compound having a faecal odour) in fat. In other respects, there was a significant relationship between boar taint intensity and weight of bulbourethral glands ($r = + 0.59$ ; $p < 0.01$). The weight of these glands could be a simple criterion to be used on the slaughter line for an easy detection of suspect carcasses needing further testing.

## Consumer testing of fresh meat from young boars : relationships with androstenone content in fats

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Consumer testing of roasts and ribs was made in 55 French families from the area of Paris. *Large White* young boars were raised according to different rearing conditions either with or without females in adjacent pens and either in individual or collective boxes. The animals were slaughtered at 95 kg and 167 days or 105 kg and 185 days, on an average. Results concerning the storage of androstenone in backfat have been published previously (BONNEAU and DESMOULIN, 1980). The results of 229 consumption tests are reported in table 1 for boar meat and control meat from castrates and females according to cuts and main criteria, i.e. cooking odours or taste at the family table.

1) The main cooking odour difference ($\Delta_{HT}$) corresponded to the unpleasant odours recorded in boar meat (37-39 p. 100) as compared with control meat (3-9 p. 100). There was tendency to a greater number of unpleasant assessements for boars reared with females. However, the largest differences were registered according to slaughter weights, especially for taste of boar meats : 34 p. 100 unpleasant rating at 105 kg versus 18 at 95 kg.

2) According to androstenone content in fats, a clear *threshold* of *unacceptable cooking odours* was noticed for meats above 1 ppm androstenone : 18 p. 100 of the total boar production is involved in this refusal by the consumers. On the other hand, there were tendencies for an *increase in critical notations for meat taste* above 0.5 ppm androstenone ; 45 p. 100 of the total boar production may be concerned. The strong taste was generally registered, but the criticism was less marked as for cooking odours.

The role of androstenone is discussed on account of the different off flavours of boar meat during the cooking procedure.