

**Influence of the dietary crude protein level during gestation
on long term performance
of sows and piglets kept in intensive conditions**

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This trial was made between 1976 and 1979 at the Experimental Pig Farm of « Pouline » in Vendome (S.E.A.P.-I.T.C.F.), in order to compare two crude protein levels during gestation (12 and 14.5 p. 100). The feed restriction level during gestation was 2.3 kg per day and the feed supplies during lactation were the same for both diets : 4.2 kg of feed including 14.5 p. 100 crude protein.

The experiment was made with 219 *Large White* sows corresponding to 309 and 305 litters, respectively distributed over more than 5 successive reproductive cycles.

Weight variation of the sows : the weight of sows at weaning did not exceed 170 kg, which seems to be due to a too severe energy restriction. On the whole, the 14.5 p. 100 diet led to an improvement of the net gain during gestation (+ 5 kg), particularly noticeable during the first two cycles. Weight losses during lactation were high (more than 25 kg) and slightly higher with the 14.5 p. 100 diet than with the 12 p. 100 diet.

The litter size at birth and the mean weight of piglets at birth were not affected by the sow diet during gestation. Total mortality of piglets during suckling was not affected by the crude protein level during gestation. However, the mortality of piglets occurred sooner with the 12 p. 100 diet than with the 14.5 p. 100 diet during gestation. Variation in the daily mean gain of the litter from birth to weaning seemed to indicate an effect of the crude protein level during gestation from the third cycle on in favour of the 14.5 p. 100 diet. It was not possible to point out any significant difference in sow cullings (number and cause) between both diets.

Comparison between two crude protein levels during gestation showed relatively small differences in sow weight and piglet performance. Moreover, all the experimental results suggest a too severe energy restriction as well as an insufficient crude protein supply during gestation.

**Energy value of two types of cassava and comparative utilization
in growing pig and piglet diets :
results of a joint study by I.N.R.A.-I.T.C.F.-I.T.P.**

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Four coordinated trials were made to assess the feeding value of 2 types of cassava of different quality (cassava 1 : 65 p. 100 starch, 3.3 p. 100 crude fibre, 4.5 p. 100 ash ; cassava 2 : 74 p. 100 starch, 1.5 p. 100 crude fibre, 2.1 p. 100 ash) :

The digestibility study (*trial A*) was made on 20 castrated male pigs (5 groups) placed in individual pens with total collection of the excreta for 10 consecutive days. The energy value of 2 types of cassava was assessed by the substitution method using diets including 25 or 50 p. 100 cassava (1 or 2) in the place of a diet containing maize-soybean meal (control group). The digestible energy values of cassava 1 and 2 were 3 640 and 3 930 Kcal (per kg D.M.), respectively, corresponding to apparent energy digestibility coefficients of 92.4 and 97 p. 100.

In *trial B* 80 fattening pigs were used to compare four diets : the control diet maize-soybean meal (group 1), a diet with 15 p. 100 cassava 1 (group 2), a diet with 30 p. 100 cassava 1 (group 3), a diet with 30 p. 100 cassava 2 (group 4). All of them exhibited the same lysine/digestible energy ratio and the different energy supply according to sex was similar in each group. During the whole fattening period (23 to 103 kg) the performance of castrated males (daily weight gain, feed conversion ratio) did not change according to the diet (702 g, 3.04 on an average). For the females, contrary to the excellent results obtained with the control group (805 g - 2.77), addition of cassava (1 or 2) led to a significant decrease in the performance (about 5 p. 100) : 749 g - 2.98 (group 2), 759 g - 2.91 (group 3), 777 g - 2.90 (group 4). The carcass quality was the same in all groups.

In *trial C* concerning 72 fattening pigs the experimental conditions were strictly identical to those of trial B, but only three diets were compared : a control diet maize-soybean (group 1), a diet with 30 p. 100 cassava 1 (group 2), a diet with 30 p. 100 cassava 2 (group 3). Over the whole period, they all led to comparable results : 682 g - 3.34 (group 1), 696 g - 3.25 (group 2), 697 g - 3.28 (group 3). Addition of 30 p. 100 cassava to the diets did not affect the carcass and meat quality.

In *trial D*, 384 piglets were used between 8.6 and 27.7 kg live weight to compare 4 diets : a control diet maize-soybean meal (group 1) a diet with 10 p. 100 cassava 1 (group 2), a diet with 20 p. 100 cassava 1 (group 3), a diet with 20 p. 100 cassava 2 (group 4). Diets including cassava were rebalanced with nitrogen by means of soybean meal and D.L. methionine. There was no significant difference in the feed intake (984 g/d), the weight gain (544 g/d) and the feed conversion ratio (1.81) according to diet.

These trials showed the possibilities of replacing maize by cassava of satisfactory quality (cassava 1) or of excellent quality (cassava 2) at the level of 20 p. 100 in the 2nd age piglet diet and until 30 p. 100 in growing pig diets provided that these diets are rebalanced with nitrogen.

They also showed the variability in the energy value of cassava (*trial A*), the possible amino acid imbalances, when replacing a large proportion of more protein rich cereals by cassava (*trial B*). However, it is not possible to draw conclusions on the real effects of fungal and bacterial contaminations (cassava 1) on health and overall performance.

Influence of the fineness of ground barley on the performance of growing pig

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Fine grinding of barley currently practised in pig feeding is compared to some other more energy sparing processes.

These processes include not only a coarse grinding but also a sieving for recycling the largest particles.

Growth and nitrogen balance trials made on 35 to 70 kg pigs fed a ground barley diet (97 p. 100) showed that :