

VI. — FEEDING

Comparative study of a compound and a simplified diet based on wheat offered to sows in intensive production conditions

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Two types of diets were compared in a «sow» trial carried out between 1980 and 1982. The compound diets used as control contained maize, wheat, barley, bran, soyabean meal, fish meal, minerals and vitamins. The simplified diets contained only wheat, soyabean meal, minerals and vitamins.

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Dietary supplies were almost equivalent :

- During gestation :
300 to 320 g crude protein/day,
11 to 11.5 g lysine/day,
7 750 to 7 800 Kcal/day.
- During lactation :
700 g crude protein/day,
31 to 31.5 g lysine/day,
15,900 to 16,000 Kcal/day.

The trial was made in 156 *Large White* sows (78 per diet) corresponding to 573 litters distributed over more than 5 successive reproductive cycles.

As compared to the compound diet, the simplified diet based on wheat led to the following results :

- a slight decrease in the prolificacy of sows with a high litter order,
- a significant increase in piglet mortality, especially perinatal mortality,
- a significantly lower number of weaned piglets per litter (—0.68),
- a slightly higher sow renewal rate.

In the absence of a physiological explanation of these results, we may conclude that it is not recommended to use wheat as only cereal in sow diets and that a combination with barley seems to be favourable. Likewise, use of fish meal is advisable.

Further studies are required to solve these problems.

Utilization of freshly harvested wheat by the weaned piglet

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In a trial concerning two consecutive crops (1981 and 1982), six batches of wheat of different variety and geographical origin were given to piglets very shortly after the harvest (4 to 18 days according to cases) in second age diets including wheat and

soyabean meal. The lysine/DE ratio of these diets was 3.6 g/1000 Kcal. They were offered *ad libitum* between 11 and 27 kg live weight. Each batch of fresh wheat was compared to a batch of wheat stored for one year. The trial was made on 480 *Large White* piglets weaned at 4 weeks of age.

Freshly harvested wheat — ripe at harvest — did not alter either the appearance, or the health condition, or the piglet behaviour. It led on an average to performance very similar (slightly higher) to those obtained with wheat stored for one year, with nevertheless slight differences in growth and feed intake according to batches.

Accordingly, freshly harvested wheat may be offered without any problem to piglets. It may also be used for bacon pigs which are generally less sensitive than piglets.

Prediction of the energy value of sorghum on the basis of its tannin content

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Two digestibility experiments were made on 16 and 20 *Large White* castrated male pigs, respectively, to study the effect of tannins on the energy and protein value of sorghum varieties. The animals with a mean live weight of 36.6 kg were kept in individual pens, then allotted to groups of 4 or 5 animals and received diets exclusively based on cereals. Total excreta were collected for 10 consecutive days. Six batches of sorghum were tested by comparison with two batches of maize used as controls. The tannin contents of sorghum ranged between 0.21 and 1.57 p. 100 of the dry matter.

A close correlation was found between the energy value (DE) of sorghum varieties and the tannin contents, expressed by the following relation :

$$\text{DE (Kcal/kg DM)} = 3908 - 263 \text{ tannins (p. 100 DM)}$$

$$(r = -0.92, P < 0.01, \text{RSD} = 1.7 \text{ p. 100}).$$

This regression equation allowed a good prediction of the energy value of a batch of sorghum on the basis of a correction of minus 260 Kcal per point of tannins in the grain dry matter.

Sorghum tannins exerted a depressive effect both on the apparent digestibility of energy and nitrogen, i.e. a reduction of the digestibility coefficients of about 6 points per point of tannin :

$$\text{aNDC} = 70.0 - 6.17 \text{ tannins (p. 100 DM)}$$

$$(r = -0.89, P < 0.01, \text{RSD} = 2.7 \text{ p. 100}).$$

Comparison of French sorghum varieties with different tannin contents in bacon pig feeding

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In a first trial, a maize-soyabean diet was compared with three experimental diets containing either a high, a medium or a low tannin sorghum (14, 10 and 2 g tannin, respec-