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Utilization of new types of rapeseed meals in growing-finishing pigs : Influence of glucosinolates and dehulling process

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An experiment was made on groups of growing finishing pigs to determine the utilization conditions of 4 types of rapeseed oil meals as partial substitution for soybean meals :

- a normal commercial rapeseed oil-meal ;
- a normal French low glucosinolate rapeseed meal (normal French Zero-thio) ;
- a low glucosinolate dehulled French rapeseed oil-meal (dehulled French Zero-thio) ;
- a low glucosinolate dehulled Canadian rapeseed oil-meal (variety Regent dehulled Canadian Zero-thio).

The trial involved 60 *Large White* females of 30.1 to 99.2 kg live weight distributed into 6 groups of animals kept in individual pens. They were fed experimental diets in the form of pellets in a single meal according to a feed restriction plan depending on the live weight.

The feeds based on maize exhibited the following characteristics :

The control diet (group 1) contained 21 p. 100 soybean meal as sole supplement of maize. The normal commercial (group 2) and the normal French Zero-thio (group 3) rapeseed oil-meals were incorporated at the level of 10 p. 100 in the place of the 7 p. 100 soybean meals and 3 p. 100 maize. According to the same substitution principle, the normal French Zero-thio (group 4), and the dehulled French Zero-thio (group 5) and the dehulled Canadian Zero-thio « Regent » (group 6) rapeseed oil-meals were incorporated at the level of 20 p. 100. The feeds were formulated so as to obtain isolysine diets which involved the supplementation of diets 4 and 5 with synthetic lysine at the level of 0.13 p. 100 and 0.09 p. 100, respectively.

For a mean daily feed intake of 2.33 kg over the whole fattening period, the growth and feed efficiency results were the following :

Control group 1 : 807 g/d - 2.88 ; group 2 : 775 g/d - 3.07 ; group 3 : 774 g/d - 3.04 ; group 4 : 717 g/d - 3.28 ; group 5 : 785 g/d - 2.94 ; group 6 : 775 g/d - 3.01.

Only a large incorporation of normal Zero-thio rapeseed oil meal (at the level of 20 p. 100) led to a significant deterioration (— 12 p. 100) of the growth rate and to a very significant increase in the feed conversion ratio (+ 14 p. 100).

On the other hand, the carcass quality was the same whatever the diet.

Hypertrophy of the thyroid gland and of the liver was much more marked in groups 2 and 5, but still noticeable in groups 3, 4 and 6 as compared to the control group.

This study showed that an increased utilization (20 p. 100 instead of 10 p. 100) in growing pigs of low glucosinolate rapeseed oil-meals (from genetically improved and dehulled seeds) was possible and compatible with good performance. It also pointed out the interest of dehulling which allows to obtain a rapeseed oil-meal whose crude fibre is reduced by half, while the reduction of the glucosinolate content produced a lower improvement.