

Energy and protein value of white lupin (*Lupinus albus L.*) and its mode of utilization in pig feeding

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Two experiments were made to determine more accurately the energy and protein value as well as the mode of utilization of white lupin (*Lupinus albus L.*) in fattening pigs.

A digestibility experiment was made for assessing the energy and protein value of two types of white lupin: the first one belonging to the variety « LUBLANC » (12 p. 100 bitter seed) containing alkaloids, the second to the variety « KALINA », soft, without alkaloids.

The experiment involved 5 castrated male pigs per type of lupin with a mean body weight of 29.8 kg. They received a semi synthetic diet based on maize starch including 40 p. 100 lupin and were subjected to a 10-day faeces and urine collection period.

The digestible energy values of the varieties « LUBLANC » and « KALINA » were 4 170 and 4 229 Kcal DE respectively per kg dry matter corresponding to an apparent digestibility coefficient of energy (ADCe) of 83.5 p. 100 identical for both types of lupin. The apparent digestibility of nitrogen (ADCn) was 86.5 p. 100 for « LUBLANC » and 85.5 p. 100 for « KALINA ».

Though both types of lupin had similar nutritional characteristics, only the soft one without alkaloids was well ingested by pigs.

Another experiment involving 5 groups of 12 pigs (6 castrated males and 6 females) per diet was carried out between 25 and 100 kg live weight in order to examine the possibilities of replacing partially or totally soybean meal by white soft lupin of the « KALINA » type alone or in association with a lucerne protein concentrate (PX₁), in a diet based on wheat.

As compared to the control diet, wheat soybean meal (20 p. 100) (group 1), lupin incorporated at a level of 15 p. 100 (group 2) may replace half of the soybean meal fraction without changing the performance. On the other hand a total replacement of soybean meal (20 p. 100) by 30 p. 100 lupin properly supplemented with lysine (group 3) and even admixed with antibiotics (group 4) led to significantly lower performance than those of the control group (wheat soybean meal, 20 p. 100). But, total replacement of 20 p. 100 soybean meal by 10 p. 100 lupin associated with 10 p. 100 lucerne protein concentrate (PX₁) adequately supplemented with lysine (group 5) led to the same performance as those obtained with control diet (wheat-soybean meal 20 p. 100).

According to this study the optimum level of soft white lupin as partially replacing soybean meal in a fattening pig diet based on wheat may temporarily be 10-15 p. 100. Moreover, the combination of 10 p. 100 soft white lupin and 10 p. 100 lucerne protein concentrate (PX₁) supplemented with lysine in a diet based on wheat allowed to replace soybean meal totally without modifying the performance. This is therefore an original solution for satisfying the protein requirements of fattening pigs.

Results of two trials concerning substitution of cassava for barley in bacon pig feeding

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Two trials were made in the growing-finishing pig for studying the utilization of poor quality cassava incorporated at increasing levels (15, 30, 40 p. 100) as a substitution for barley into isoenergetic diets.

In the first trial 90 animals were used between 35 and 100 kg live weight to compare three diets: barley-soybean control diet (group 1), 15 p. 100 cassava (group 2), 30 p. 100 cassava (group 3) i.e. 30 pigs per treatment. The animals housed in piggeries fitted with wholly slatted floors were fed collectively in pens of six animals. Pigs were restricted to 2.6 kg/day in the finishing