

ALIMENTATION — FEEDING**Biological efficiency of vitamin A in the young pig : dynamics of hepatic storage**

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A.E.C. (Service Développement Alimentation Animale), 03600 Commentry

Vitamins are microelements which do not play a critical role in animal feed formulation, mainly because of their commercial availability in the synthetic form at relatively low prices (the cost of vitamin A in a feed supplemented to 10,000 IU/kg is about 30 centimes per 100 kg). Although real vitamin deficiencies are now overcome, the economic consequences of slight undersupply are not well known.

Two experiments were carried out at the AEC experimental farm to study the hepatic storage of vitamin A in piglets.

The first methodological study enabled to determine the dynamics of hepatic storage of vitamin A in the piglet and to appreciate the hierarchy of depletion. In the second experiment, lobe 3 of the middle lobe was chosen to study the hepatic storage of vitamin A according to the source and dosis.

Supplementation of synthetic vitamin A improved the performance of piglets up to 5 IU/g of diet and led to a linear increase in hepatic storage between 5 and 20 IU/g of diet.

The amount of vitamin A required to stabilise hepatic reserves to the level of 200 IU/g on the conditions of our experiment was 10 IU/g of feed. This value is thus recommended in the formulation of pig diets.

Enhancement of phytate P utilization in growing pigs using diets including high phytase activity by-products : Wheat or rye branAnnie FOURDIN, Pierrette CAMUS, B. CAYRON,
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Some cereal by-products, like bran, exhibit a high phytase activity, which may enhance phytic P digestibility. This was studied in growing pigs given phytate-rich diets containing either wheat (WB) or rye (RB)-bran. Two trials involving 12 animals each (6 treated, 6 controls) were carried out, one (WB trial) with a 15 p. 100 fine WB diet and the other (RB trial), a 20 p. 100 fine RB diet and their respective controls (WC and RC). The four diets (WB, RB, WC and RC) contained the same amounts of energy, protein, Ca (0.7 p. 100) and P (0.4 p. 100) and no organic P was added. Pigs were fed these diets for 3 (WB trial) or 8 weeks (RB trial) during which 10-day balance studies were performed. Then animals were slaughtered and bone samples collected.

WB, WC and RC, in contrast to RB-fed pigs developed a P-deficiency as indicated by hypophosphatemia, hypophosphaturia, hyperhydroxyprolynuria and hypercalcemia. P from RB diet was better adsorbed (55 p. 100) and retained than that of the control diet (36 p. 100), but this « bran effect » was absent with the WB diet (37 p. 100 for both WB and control diets). Ca adsorption was the same for all diets, but Ca was better retained in rye bran-fed than in corresponding controls. Pigs fed both, rye or wheat, bran diets showed a higher bone bending moment (BM) and density than controls, the greatest effect occurring with rye bran (tibial BM