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## *Summary only*

# AMINO ACID SUPPLEMENTATION OF NORMAL HYBRID AND OPAQUE-2 MAIZE-BASED DIETS FOR GROWING PIGS

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Sixty-four pigs were individually fed rations based on maize and meat and bone meal over a growth period from 23 to 50 kg liveweight. A 2<sup>4</sup> factorial design was used with incomplete blocks. The four factors were maize type (normal *v.* opaque-2), lysine, methionine and tryptophan supplementation. Synthetic amino acids were added to raise the level of dietary lysine by 0.4%, methionine by 0.3% and tryptophan by 0.1%. Rations contained 90% maize and 10% meat and bone meal. Calcium, phosphorus, salt, trace minerals and vitamins including nicotinic acid were added to all rations. The daily amount of feed offered to each animal represented approximately 4% of liveweight and was altered weekly.

For all amino acid combinations, the substitution of opaque-2 for normal maize produced superior liveweight gains although the differences were not always statistically significant. Additions of tryptophan only to rations based on either type of maize increased growth rate, with a greater response from normal maize-based diets. Supplementation with tryptophan and lysine together resulted in a further increase in growth rate. Along with the main effects of maize type and tryptophan, the following interactions were significant: maize type  $\times$  tryptophan, lysine  $\times$  tryptophan, maize type  $\times$  lysine  $\times$  tryptophan and maize type  $\times$  methionine  $\times$  tryptophan. Supplementing diets based on normal maize with either lysine or methionine in the absence of added tryptophan depressed feed intake and consequently growth rate. However, with diets containing opaque-2 maize and no supplemental tryptophan, very little depression in growth rate resulted from additional lysine and in the case of added methionine only there was no depression in growth rate.

It was concluded that the inclusion of 10% meat and bone meal in maize-based diets was inadequate for growing pigs of between 23 and 50 kg liveweight. Diets based on opaque-2 maize produced faster growth rates in the growing pigs than did diets based on normal maize and the results indicated that tryptophan was the first limiting amino acid for a satisfactory growth rate, followed by lysine. Pronounced amino acid imbalance effects were induced by supplements of amino acids not first limiting for growth.