

## **4B-120: Commercial validation study for sulphur amino acid (SAA) requirement in finisher pigs**

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### **Aims and Objectives**

The aim of this study was to validate the hypothesis that finisher pigs raised in a commercial facility will have a 26% higher SAA requirement for minimum FCR than the current dietary recommendation of 0.58 SID SAA:Lys ratio.

### **Key Findings**

The previous endotoxin model study (4B-109) demonstrated that pigs whose immune system is activated require approximately 26% more sulphur amino acids than healthy pigs (SID SAA:Lys ratio of 0.73 in comparison to NRC recommendation of 0.59) due to decreased protein utilization efficiency. To validate this finding in commercial farms, two independent commercial validation experiments were conducted (4B-109 and present study) using a range of diets containing varying levels of SID SAA:Lys ratios. A combined data set, which was statistically adjusted for differences in the two experimental batches, was fitted in a quadratic-plateau prediction model to estimate SAA requirement in commercially-housed finisher pigs.

The results are similar to the previous finding and the optimum SID SAA content for maximum feed utilization efficiency was 71% of the SID lysine in a finisher diet for commercially reared pigs. Considering current NRC recommendations of 56% of lysine for 50kg pigs to 59% of lysine for 100kg pigs, it is a 27% to 20% greater SID SAA requirement to negate the chronic exposure to stressors and bacterial/viral pathogens.

From the results of this research, a recommendation is made to formulate diets for finisher pigs to contain more than 70% of standardised ileal digestible sulphur amino acids in relation to standardised ileal digestible lysine content.

### **Application to Industry**

It is concluded that under the experimental condition where pigs are continuously exposed to chronic immune system activation, SID SAA requirement for finisher pigs should be 20-27% higher than current NRC recommendations of 56% of lysine for 50kg pigs to 59% of lysine for 100kg pigs, (i.e., SID SAA:Lys ratio of 0.71).

Increasing SID SAA may not improve daily gain or feed intake, however, it will ensure maximum feed conversion efficiency in immune system compromised pigs.