

Developing Phase Feeding Programs Using AUSPIG

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The reduction in the concentration of dietary protein required to support maximum growth in the pig as it matures was identified by Campbell *et al* (1988). They suggested that it would be possible to improve the efficiency of production if dietary protein and amino acid concentrations were adjusted more frequently than at present. This practice known as phase feeding presents two main benefits to the pig industry. Firstly it reduces feed costs in line with the reduction in dietary protein of the introduced diets, and secondly it presents a means of minimising the amount of surplus nutrients excreted from the animal into the environment. AUSPIG, a computer simulation program which models pig growth and determines protein requirements for given levels of growth and performance will facilitate the formulation of these diets.

As a part of ongoing research into phase feeding at Bunge Meats Industries, an AUSPIG simulation was conducted to determine the modelled response of pigs to a variety of dietary protein concentrations. Previous research had identified a protein level of 0.75 g available lysine/MJ DE as optimum for pigs from 9 to 12 weeks of age. Five levels of dietary protein were modelled in the second stage grower (12 to 16 weeks)

between 0.38 and 0.70 g available lysine /MJ DE A common finisher diet was then supplied up to slaughter (21 weeks). Results of the simulation are presented in Table 1.

It can be seen that there is no simulated growth response above 0.46 g available lysine /MJ DE in the period 13 to 16 weeks of age. Using this diet during the second half of the grower period (ie. phase feeding) rather than the present single grower diet would allow diet costs to be reduced by \$31/tonne during the 13 to 16 week period.

The results indicate the potential for phase feeding to provide significant cost savings for the pig industry without compromising growth rates or carcass quality. Experiments are presently being conducted to validate the simulated growth responses and investigate the potential of phase feeding to lower the cost of pig meat production.

References

- CAMPBELL, R.G., TAVERNER, M.R. and CURIC, D.M. (1988). The effects of sex and live weight on the growing pig's response to dietary protein. *Animal Production* 46: 123-130.

Table 1
AUSPIG simulated live weights and P2 measurements for commercial male pigs offered diets varying in protein concentration as a part of a 3 phase feeding program between 12 and 16 weeks and subsequent finisher performance.

Dietary protein 6-12 wk. g avail. Lys./MJ DE	16 Week		21 Week	
	weight kg.	P2 mm	weight kg	P2 mm
.38	52	10.7	84	13
.46	58	9.5	92	12.3
.54	58	.5	92	12.3
.70	58	9.4	92	12.3