

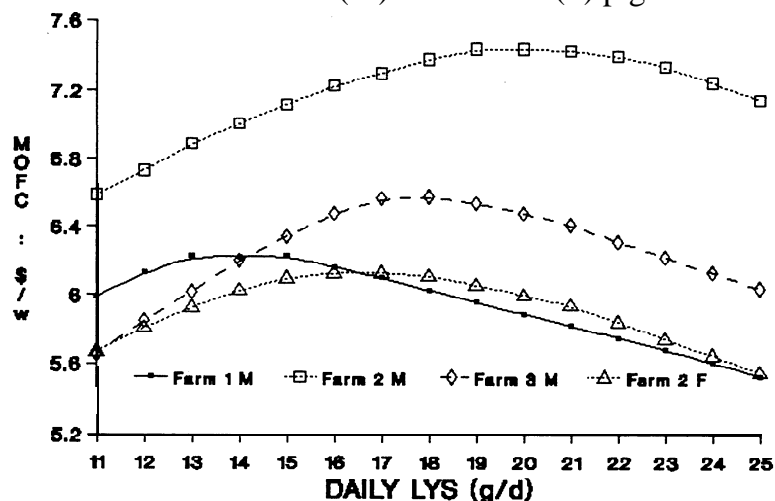
## ON-FARM OPTIMISATION OF DIETARY LYSINE FOR GROWING PIGS

K.C. WILLIAMS , P.W. COOK , L. DANN, S. HAZARD and A. SPENCER

Specifications for pig diets are chosen more or less empirically and farmers seek to maximise profit by using feeding strategies that give the best carcass price. The Auspig model<sup>†</sup> has been developed to simulate pig performance and to assess the economics of alternative feeding strategies but its cost and complexity precludes it being used by many pig producers.

We have used a simple production/profit simulation model (after Stranks *et al.* 1988) to assist pig farmers in optimising diet specifications. Protein deposition rate (PDR) is estimated from liveweight and P<sub>2</sub> backfat measurements as pigs are grown from about 50 to 90 kg on the farm. Pigs are fed a nutritionally generous diet (DE, 14 MJ/kg; available lysine, 9.8 g/kg) *ad libitum*. The optimum diet specification is identified by modelling the effect that diet specification has on margin over feed cost (MOFC).

Figure 1 Predicted effect of daily lysine intake on MOFC of male (M) and female (F) pigs



Three farms (<50, ≈200 and >1000 sows respectively) have been trialled. Daily feed intake (males: 2.06, 2.81 and 2.58; females: 2.33, 2.74 and 2.45 kg/d respectively), daily gain (males: 707, 963 and 840; females: 675, 758 and 749 g/d respectively) and PDR (males: 118, 158 and 132; females: 106, 128 and 121 g/d respectively) differed greatly between farms.

Figure 1 shows the predicted effect on MOFC as daily lysine intake is varied. The effect of a reduced feed intake on MOFC can also be predicted.

The developed model does not have the sophistication of the Auspig model. However, as PDR is measured under existing farm conditions, it gives objective, information about the amino acid and energy allowances needed for maximising profit.

STRANKS, M.H., COOKE, B.C., FAIRBAIRN, C.B., FOWLER, N.G., KIRBY, P.S., McCRACKEN, K.J., MORGAN, C.A., *et al.* (1988). *Res. Devel. Agric.* 5:71.