

PRE-FARROWING POSTURE AND BEHAVIOUR OF GILTS SELECTED FOR COMPONENTS OF EFFICIENT LEAN GROWTH

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Selection for components of efficient lean growth rate has generated responses in reproductive performance of gilts (Kerr and Cameron, 1995). Pre-farrowing behaviour of gilts was examined in the current study to determine if particular selection strategies were associated with specific behaviours immediately prior to farrowing which may have contributed to the responses in reproductive performance.

The study included 123 Large White gilts from lines divergently selected over seven generations for daily food intake, lean food conversion efficiency, lean growth rate on *ad libitum* feeding (LGA) and lean growth rate on restricted feeding (LGS) (Cameron and Curran, 1994). Gilts were housed in slatted farrowing crates with no bedding for three days prior to farrowing and video images of gilts' behaviour were recorded for 2 h prior to farrowing. The binomial data were analysed with a generalised linear model and a logit link, with the relationship between the proportion of time (p) exhibiting a behaviour and the logit score (x) equal to $p = e^x / (1 + e^x)$.

The proportions of observations for postures were: lying 0.8, standing 0.1 and sitting 0.1; and for behaviours were: alertness 0.6, restlessness 0.2, nesting 0.1 and sleeping 0.1. High LGS gilts adopted the lying posture earlier than low LGS gilts with a higher ($P < 0.05$) proportion of high LGS gilts observed lying up to 0.5 h before farrowing (0.96 v. 0.72) (logit score: 3.2 v. 0.9, s.e.d. 0.60). High LGS gilts spent a higher proportion of time lying with the udder facing the creep in the period 2-1.5 h before farrowing than gilts in other selection lines (0.77 v. 0.29) (logit score: 1.2 v. -0.9, s.e.d. 0.49).

The most common behaviour of gilts was alertness, which proportionally increased from 0.45 to 0.62 (logit score: -0.18 v. 0.49, s.e.d. 0.12) during the observation period. The proportion of time in alert behaviour was lower (0.38) in the low LGA line 0.5-0 hr before farrowing than in the other selection lines. Nesting behaviour decreased from 0.11 to 0.0 (logit score: -2.1 v. -3.6, s.e.d. 0.24) during the observation period, with high LGS gilts exhibiting a significantly lower level of nesting behaviour than the other lines (0.02 v. 0.08) (logit score: -4.0 v. -2.4, s.e.d. 0.57).

Posture and behaviour of the high LGS gilts suggested that they had completed nesting behaviour earlier and adopted the lying posture earlier than low LGS gilts. Divergent selection on DFI, LFC or LGA was not associated with consistent responses in gilt posture and behaviour traits prior to farrowing, although responses in reproductive performance were detected with selection on DFI and LFC. Either genetic correlations between posture and behaviour traits prior to farrowing and performance test traits in the selection criteria or heritabilities of gilt pre-farrowing posture and behaviour traits were not significantly different from zero. Selection strategies for components of efficient lean growth rate, based on *ad libitum* feeding, can focus on production traits without anticipating correlated responses in pre-farrowing posture and behaviour traits of gilts.

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References

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