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Maternal behaviour in gilts – The effect of genotype, social rearing environment and mixing after weaning.

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Maternal behaviour in pigs is influenced negatively by stress, and may therefore be linked to social behaviour of gilts (first litter) and sows that are kept in group housing during gestation. Gilts and sows in group housing are often aggressive towards each other, which causes stress and possibly injuries or even death. Measures to improve their social skills could lead to more positive social behaviour, which would reduce stress and could lead to better maternal behaviour. Swedish Yorkshire gilts may have better social skills than Dutch Yorkshire gilts, because the Swedish genotype has been kept in and selected for group housing for a longer period of time. Furthermore, additional opportunity to practice social behaviour may improve later social skills. We studied three factors in a 2x2x2 factorial design, being genotype (Swedish versus Dutch Yorkshire), rearing environment (access farrowing pen allowing socialization with another litter versus control in standard farrowing pen) and group mixing (grouping after weaning with unfamiliar gilts or control grouped with sisters only). Sixty gilts were exposed to the treatments from birth and video recorded when their first litter of piglets was separated from them and after their piglets were returned. We analyzed the first three minutes the gilt spent alone and the first three minutes after reunion with the piglets using the 'Qualitative Behaviour Assessment' (QBA) from the Welfare Quality® Assessment Protocol. Furthermore we recorded the occurrence of nursing after reunion, the gilt's responsiveness and piglet growth. Responsiveness associated with the original QBA scores for distressed during alone time ($P=0.007$) and reunion time ($P=0.008$) in two independent samples t-tests. We then analyzed the QBA scores by Principle Component Analysis (PCA), which yielded two components. Neither were significantly affected by any treatment factors. Treatment factors also did not significantly affect piglet growth, responsiveness or the occurrence of nursing, but low responsiveness did associate with a high likelihood of nursing in a Chi-square test ($\chi^2=11.2$, $P=0.001$, $df=1$). No conclusions about our treatment factors affecting maternal behaviour can be drawn, but this study does raise questions on what constitutes good maternal behaviour. High responsiveness is often seen as good maternal behaviour, though the stress that these gilts experience at separation from their piglets may affect their maternal behaviour negatively.

Rearing Yorkshire gilts in different social environments – effects on social interaction and general behaviour.

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There is an ongoing transition from single housed to group housed sows in the European pig production. The aim of this study was therefore to investigate differences in behaviour between two lines of Yorkshire gilts indirectly selected for single (Dutch Yorkshire, DY) or group housed systems (Swedish Yorkshire, SY) and reared with or without the opportunity to socialise from 2 to 5 weeks of age with piglets from another litter. Sows and their litters (n=26) were kept in individual loose housed nursing pens (6 m^2) and half of the litters had access to the neighbouring pen via a pop-hole (access pen, AP). Behaviours were scan and continuous sampled only for the female piglets in the litters (45 SY and 54 DY gilts), who will be recruited into the breeding pool, during the first 10 weeks of their life using direct observations. The results indicated that SY gilts were more active and performed more social nosing behaviours than DY gilts. When SY gilts were the recipients of a social interaction, they were more likely not to respond to the interaction compared to gilts of the DY breed. Regarding different treatments, gilts held in an AP slept less and were more active directly after weaning. It was also found that AP stimulated gilts to perform a larger variety of social behaviours. Therefore, the breed as well as providing opportunities for a varied social environment may shape gilts' social development early in life.