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The relationship between the behaviour of sows and their histories of piglet crushing

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Introduction The crushing of piglets by the sow is the main cause of preweaning mortality and has been reported to be responsible for up to 80 per cent of piglet deaths (Weary *et al.*, 1998). Studies have identified that sows maintain some stable behavioural traits over parities, for example response to a piglet scream test (Grandinson *et al*., 2003), and sows with a history of crushing piglets are more likely to stay inside a farrowing hut whilst housed outdoors (Johnson *et al*., 2007). However, there is little information available regarding previous piglet-crushing history and its association with the behaviour of sows housed in farrowing crates. This study compared the behaviour immediately post-farrowing of sows with a history of piglet crushing and those without a single recorded mortality due to crushing.

Materials and methods After studying previous records of piglet crushing, 28 sows were selected for behavioural observation. Fourteen of these had never crushed a piglet before (mean parity with SEM = 3.1±0.27) and were designated NonCrushers (NC). Fourteen of sows had crushed one or more piglets during one of their previous parities (mean parity with SEM = 3.6±0.39, mean piglets crushed per litter = 0.9±0.29) and were designated Crushers (C). The sows were kept in standard farrowing crates with a piglet creep area and straw provided during the hours of farrowing. The behaviour of each sow was recorded for four hours after the birth of the first piglet with the use of time lapse videos. The frequency and duration of posture changes (lying down on side, shifting while lying on side, lying down ventrally, sitting up, kneeling down and standing up) were recorded. Sow behaviour directed towards the piglets (no reaction, body movement, sits up, stands up, nosing and rooting), particularly after posture changes, was also recorded. Normality of the data was assessed using a Kolmogorov-Smirnov test and data were compared between the two groups using independent sample t-tests in SPSS version 14.

Results Sows with a history of crushing tended to stand up more often (NC *vs*. C = 5.6 vs. 1.9±2.10, mean and SEM, respectively, P = 0.09). They tended to be less restless whilst lying (NC *vs*. C = 36.7 *vs*. 64.6± 1.36, mean and SEM respectively, P= 0.06). Otherwise frequency and duration of postures were similar between groups. There were 29 incidences of piglet trapping, 14 by C sows and 15 by NC sows, but only one fatality (by a C sow). C sows were most likely to trap a piglet by sitting on them, whilst NC sows were more likely to trap piglets after lying down ventrally (Figure 1). More piglets were trapped after a shift in lying position (shifting while lying on side) by C sows than NC sows (5 *vs*. 1 trapped, C *vs*. NC, respectively) There was virtually no reaction towards piglets during posture changes by any sow from either group, whether they were trapped or not.

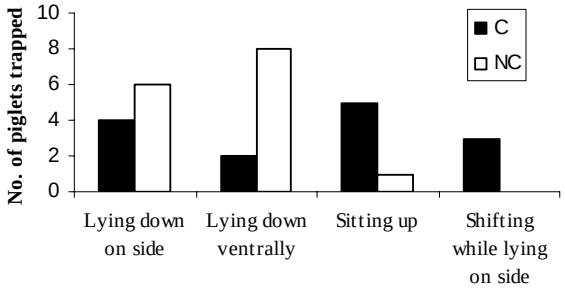

Figure 1 Number of piglets trapped after changes in posture of Crushers (C) and Non-Crushers (NC)

Conclusion Sows with a history of piglet crushing (C) showed different behaviour patterns to those that had never crushed a piglet (NC). Contrary to expectations, the NC sows made more transitions between sitting/lying and standing than the C sows. This has previously been suggested to be the point at which piglets are most at risk from crushing (Weary *et al*.,1998). However, this may depend on other factors, such as how calm the sow is. In the present study C sows were more restless whilst lying compared with NC sows. In fact, sitting up from a lying position was responsible for 24 percent of piglet trappings, which is higher than recorded by other researchers (Weary *et al*., 1998). Although the sow's reactions to her piglets has previously been suggested to be an important factor in piglet survival (Grandinson, 2003), there was very little attention paid by C and NC sows to their litter before or after posture changes, regardless of whether a piglet had been trapped. This might suggest that piglet behaviour might play a more important role in influencing the incidence of piglet crushing.

References

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