

Using data from electronic sow feeders for investigating the effect of lameness on feeding behaviour

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Lameness is a major cause for economic losses in the pig sector and an animal welfare problem in breeding sows. Numerous farms use electronic sow feeders (ESF) which notify the farmer when a sow fails to eat. ESF collects also extra data that is currently not exploited although it may yield information on feeding behaviour. Since there is evidence that lameness status affects feeding behaviour, this study aimed to derive feeding-related variables from ESF-data and to investigate their association with lameness status. Eleven variables relating to feeding behaviour were derived from raw ESF-data and matched with the corresponding sows' gait score, which was assessed using a 150 mm tagged visual analogue scale. Data were analysed with generalized linear mixed models using R 3.3.0, 2016. Increased lameness was associated with less time spent in the ESF (57.56 vs 72.52 min for lame and non-lame respectively, $P=0.026$), particularly for the unrewarded (i.e. no food delivered) ESF-visits (29.50 vs 43.81 min, $P=0.022$). The minimum, median and maximum durations between ESF-visits were higher with increased lameness ($P=0.003$, 0.020 and 0.015 , respectively). Finally, there was a tendency for the feeding rank to differ between lame (11.8 ± 0.74 SEM) and non-lame (9.8 ± 0.61) sows ($P=0.072$). These results indicate that lame sows shorten their visits to the ESF, which suggests that they are less willing or able to stand for prolonged periods. Additionally, lame sows seem to have longer intervals between visits, which may indicate a reluctance to walk, reside or compete for access to the ESF. This study demonstrates that lameness status influences several aspects of feeding behaviour that can be derived routinely from ESF data. Further research is ongoing to integrate ESF data in a lameness monitoring system.