

The behaviour of finisher pigs of three genotypes during routine handling using standard or modified weighing apparatus

H Clarke¹, R B D'Eath², H M Miller¹

¹University of Leeds, Leeds, United Kingdom, ²Scottish Agricultural College, Edinburgh, United Kingdom

Email: bgy4hc@leeds.ac.uk

Introduction The effect of stress on pigs prior to slaughter is of welfare and economic importance, and can negatively impact on meat quality. Strategies to reduce the stress of finishing pigs have previously tended to concentrate on a single breed. This research aims to target this lack of knowledge by assessing differences between genotypes when being handled.

Materials and methods In Trial one (T1), 478 slaughter weight pigs (103 ± 0.39 kg) were weighed 24h prior to slaughter (n= Hampshire :172, Large White:161, Pietrain:145) using a standard electronic metal pig crate surrounded by metal hurdles. Pigs were herded to the weighing area and individually weighed. Pigs were timed for the duration of the weighing process, from the selection of a pig to its exit from the crate. The pig was restrained in the crate whilst its ear tag was read and a new tag inserted. The crate was then opened and the pig allowed to leave voluntarily. If the pig did not start to move immediately, it was encouraged by research staff. Behavioural reactions of the pigs were scored 1 (easy/calm) to 5 (difficult/fearful) over four stages of the weighing process: Loading; Behaviour in the Crate; Tagging and Exiting. Vocalisations were also recorded.

Trial two (T2): 210 pigs were used; the pigs were balanced for genotype. The hurdles immediately surrounding the weigh crate were painted brilliant white. This aimed to reduce the fearful response of pigs and increase their willingness to enter the crate by brightening target areas (Tanida *et al.*, 1996). The scoring system remained the same. Analysis was performed using General Linear Model ANOVA procedures in Minitab 15.0.

Results T1: Significant effects were apparent between genotypes in loading ease ($P < 0.01$), time taken to weigh ($P < 0.001$), and exit from the weigher ($P < 0.05$). A sex and genotype interaction was evident in the behaviour in the weigher (Table 1 $P < 0.05$).

Table 1 Mean behaviour score in weigher and SE.

| | Hampshire Mean SE | Large White Mean SE | Pietrain Mean SE |
|--------|----------------------|------------------------|---------------------|
| Male | 1.58±0.06 | 1.71±0.09 | 1.63±0.08 |
| Female | 1.83±0.06 | 1.58±0.07 | 1.60±0.08 |

T2: Loading ease differed between the genotypes in this trial ($P < 0.001$), as did exit from the weigher ($P < 0.05$) and the time taken to weigh ($P < 0.01$). Tagging of females was harder than males ($P < 0.05$, 1.59 ± 0.07 , 1.45 ± 0.07). Pietrain pigs vocalised more frequently than Hampshires or Large Whites and the number of vocalisations differed between genotypes ($P < 0.05$, 1.93 ± 0.03 , versus 1.82 ± 0.07 and 1.75 ± 0.06 , respectively).

T1 vs T2: Genotypic differences were again evident in loading ease ($P < 0.001$). Hampshire pigs were more difficult in T2 whilst Pietrains were easier. Large White showed no significant change.

Tagging of pigs in T2 tended to be easier ($P = 0.065$; T1: 1.65 ± 0.03 ; T2: 1.51 ± 0.05), particularly in male pigs ($P = 0.051$, 1.45 ± 0.07 , 1.59 ± 0.07). The time taken to weigh pigs altered between trials ($P < 0.05$). No genotype specific patterns were found however. Exit from the weigher showed Hampshires as being most difficult in T2, whilst Pietrains were easiest ($P < 0.05$) (Table 2).

Table 2 Genotypic Differences in Handling Scores and Time Taken

| Genotype | Trial | Loading | | Exiting | | Time Taken(s) | |
|-------------|-------|---------|------|---------|------|---------------|------|
| | | Mean | SE | Mean | SE | Mean | SE |
| Hampshire | 1 | 1.42 | 0.04 | 1.17 | 0.03 | 46.7 | 0.80 |
| | 2 | 2.09 | 0.02 | 1.36 | 0.10 | 51.6 | 3.38 |
| Large White | 1 | 1.44 | 0.05 | 1.16 | 0.03 | 41.3 | 0.74 |
| | 2 | 1.31 | 0.07 | 1.17 | 0.05 | 42.6 | 0.95 |
| Pietrain | 1 | 1.67 | 0.01 | 1.19 | 0.04 | 47.0 | 1.77 |
| | 2 | 1.21 | 0.01 | 1.07 | 0.06 | 42.5 | 2.21 |

Conclusions There were significant behavioural differences between genotypes during routine handling. This could have an impact on further management strategies, as genotype-specific schemes may need to be implemented. The provision of white painted handling races could improve handling ease, depending on the genotype of pig being produced.

Acknowledgements The authors gratefully acknowledge funding from BPEX

References Tanida, H., Miura, A., Tanaka, T., Yoshimoto, T. 1996. Applied Animal Behaviour Science 49