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Sire and sire breed variation in neonatal lamb behaviour and vigour

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SUMMARY

Phenotypic variation in neonatal lamb vigour has been assessed in the Sheep Cooperative Research Centre's Information Nucleus Flock. Preliminary results indicate that sire breed variation in lamb vigour score exists and that vigour score is favourably correlated with lamb survival to 3 days of age (Brien *et al.* 2010). To understand this association further, a more detailed assessment of neonatal lamb behaviour, including a novel behaviour test for assessing vigour, was conducted in lambs from two sire breeds.

Thirty-seven twin- and triplet-bearing Merino ewes, pregnant to one of three Merino (M) or three Border Leicester (BL) sires lambled in individual pens. The ASBV for vigour score for each sire was known. Video records from birth to 3 h after birth were used to measure the time taken to stand and suckle for each lamb. A vigour score was also assigned to each lamb based on its behaviour until 3 h after birth. Lambs underwent a behavioural test (6–9 hours post partum) in which they were placed in an arena behind a wire mesh barrier and allowed 90 s to move past the barrier to a model of a ewe where an audio cue of a bleating ewe was played. Movement and overall responsiveness scores were recorded. Data were analysed using SAS PROC GLM and a nested model including the fixed effects, breed, sire nested within breed and litter size were fitted and birth weight was included as a covariate.

Overall score in the behaviour test was the only measure to differ significantly between sire breeds (2.8 ± 0.2 and 2.4 ± 0.2 for BL and M, respectively). Time to suckle and vigour score differed significantly between sires within breed (Fig. 1). Significant sire differences were also found for movement and overall responsiveness scores in the behaviour test (Fig. 1). Litter size had no effect on any behavioural trait. Moderately high correlations were found between vigour score ASBV and time to suckle (0.77) and vigour score (–0.68). Lower correlations were observed for movement and overall score (–0.28) during the behavioural test. This study confirms that there is phenotypic variation in neonatal lamb behaviour and vigour. Furthermore, there appears to be more variation due to sire within breed rather than to sire breed alone. These results also validate the utility of the field-based measure of lamb vigour.

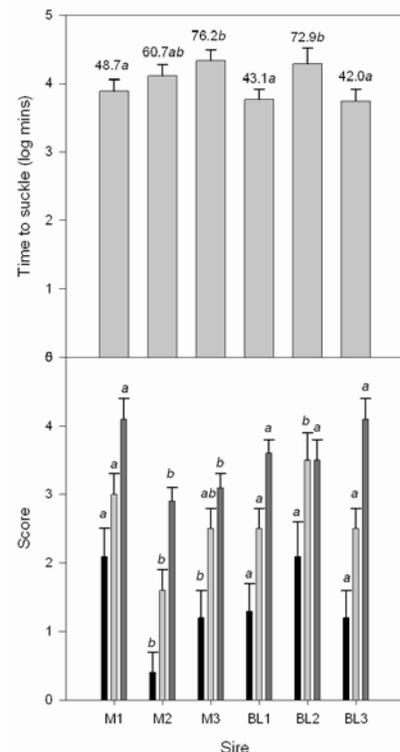


Fig. 1. Mean sire values for time to suckle (upper) and movement, overall responsiveness and vigour scores (black, light-grey and dark-grey bars, respectively, lower).

REFERENCE

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