

Assessing neonatal lamb vigour



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Abstract

Neonatal lamb vigour has been identified as an important trait for the subsequent survival of the lamb. To date, time to perform critical early lamb behaviours, up to time to suckle, has been the most common method of assessing lamb vigour. The aim of this thesis was to identify and evaluate other methods of assessing vigour and assessing it at a time when the ewe would be moving from the birth site because this time is critical for the maintenance of contact between the ewe and the lamb. Improving the ease of assessing lamb vigour may also provide a practical tool for improving lamb survival through genetic selection on lamb vigour traits.

A modified barrier test and the physiological response of lambs to a cold stress between four and six hours of age were used as novel methods for assessing lamb vigour. Cold stress was induced a number of ways including via noradrenaline injections, the use of an ice vest and simulation of cold weather conditions using fans and cold water. Responses to cold stress were measured using changes in rectal temperature collected continuously over the treatment period, the behavioural responses of the lamb during the cold challenge and their performance in the modified barrier test following the cold challenge. Differences in vigour due to variation in late pregnancy nutrition, breed and sire within breed were also assessed. Sires were selected from the Sheep CRCs information nucleus flock (INF) and correlations between the INF sire vigour score and time to suckle were determined.

It was found that sub maintenance nutrition in late pregnancy had no effect on lamb vigour as measured by time to suckle. Sire breed did not account for differences in lamb vigour

however within breed sire differences were found. There were high correlations between INF vigour score and time to suckle and rectal temperature at 10 minutes of age (0.77, -0.67 and -0.71 respectively). It was concluded that a modified barrier test could be used to assess lamb vigour after the lamb has suckled to provide information on the capacity of the lamb to respond to the ewe at a time when she may be moving from the birth site. The use of lamb vigour scoring as used in the INF may be a useful indirect selection criterion for improving lamb survival as it appears to be providing information on critical neonatal behaviours.

Declaration

I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.

I certify that any help received in preparing this thesis and all sources used have been acknowledged in this thesis.

Signature

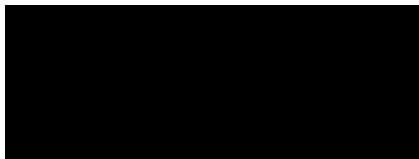


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