

Does increased space allowance during late stage gestation improve lambing ease and reduce rates of intervention at lambing

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Introduction

With farming set to intensify due to the rise in population and urbanisation (Krebs, 2015), it is imperative to focus attention on the impacts farm systems have on the behaviour and welfare of livestock. Space availability has been considered to have both welfare and health benefits (Averós, *et al.*, 2014; Centoducati, *et al.*, 2014; Boe, *et al.*, 2006). In the sheep sector it has been observed that granting a greater space allowance increases the expression of natural behaviours, which is one of the five freedoms (Averós, *et al.*, 2014). Both Dwyer and Lawrence (2005) and Lammers, *et al.*, (2007) observed that increasing space allowance increased fitness and therefore muscle tone.

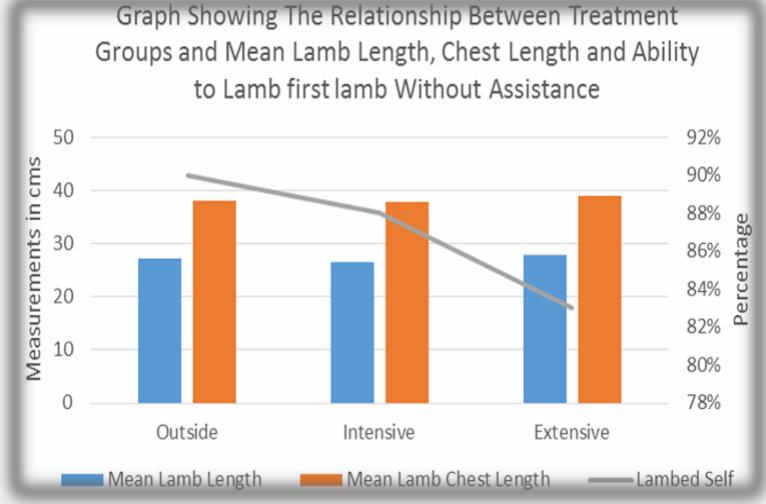
Hypothesis

It is proposed that increasing space allowance during late stage gestation reduces the incidence of intervention at parturition.

Materials and Method

150 twin-bearing Texel cross ewes were separated into three treatment groups:
 Extensive indoor: 2m²/ewe space allowance brought in 6 weeks prior to lambing
 Intensive indoor: 1.2m²/ewe space allowance brought in 6 weeks prior to lambing
 Outside: remained outside up until point of lambing and given 1.2m²/ewe.
 Ewe behaviour, lambing ease and lamb measurements were recorded.

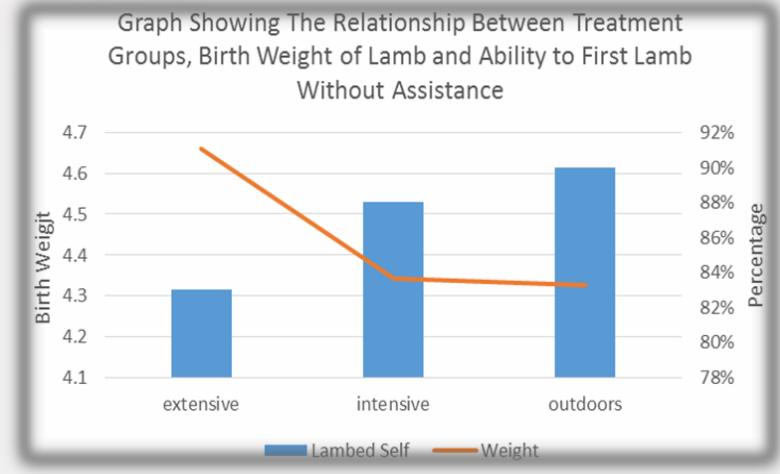
Graph 1: Relationship between Treatment and Mean Lamb Length, Chest Length and Ability to Lamb First Lamb without Assistance



Results and Discussion

The extensive group had significantly higher mean lamb weight (P<0.01), mean lamb length (P<0.02) and mean chest length (P<0.04) when compared to the outside or intensive treatment groups. There was a negative relationship between birth weight and the percentage of ewes lambing their first lamb with no assistance, with the extensive group having significantly more assistance (P<0.05) than either of the other two groups. The results were not as expected and is thought to be a product of ewes feeding more due to less competition and bullying (data not shown) in the extensive treatment giving rise to larger lambs, without the benefit of maintaining muscle tone through greater exercise levels.

Graph 2: Relationship between Treatment Groups, Birth Weight of Lamb and Ability to First Lamb without Assistance



Conclusion

It is clear that welfare and behaviour are intrinsically linked, however this makes management decisions exceptionally hard with the clear risk that when preventing one area of poor welfare it may produce another, as demonstrated in these results. Further work is required to investigate the links between space allowance, muscle tone, feed intake and resultant lambing ease to identify optimum conditions for late gestation ewes.

Averós, X. *et al.*, 2014. Space Availability in Confined Sheep during Pregnancy, Effects in Movement Patterns and use of Space, *s.l.: PLOS ONE* : Boe, K. E., Berg, S. & Andersen, I. L., 2006. Resting behaviour and displacements in ewes - effects of reduced lying space and pen shape. *Applied Animal Behaviour Science*, pp. 249-259.: Centoducati, P. *et al.*, 2014. Semiextensively reared lactating ewes: Effect of season and space allowance reduction on behavioral, productive, and Hematologic parameters. *Journal of Veterinary Behaviour*, pp. 1-5 : Dwyer, C. & Lawrence, A., 2005. A review of the behaviour and physiological adaptations of hill and lowland breeds of sheep that favour lamb survival. *Applied Animal Behaviour Science*, Volume 92, pp. 235-260 : Lammers, P., Honeyman, M., Mabry, J. & Harmon, J., 2007. Performance of gestating sows in bedded hoop barns and confinement stalls. *Journal of Animal Science*, Volume 85, pp. 1311-1317. Krebs, 2015. CLIMATE CHANGE: CHALLENGE OR OPPORTUNITY?. London, Oxford Farming Conference