

Age of hogget classification determined by teeth eruption varies between Merino sire groups

S.N. Hancock^{A,B}, B.E. Clarke^A, G.A. Kearney^C, and A.N. Thompson^A

^A College of Science, Health, Engineering and Education, Murdoch University, Murdoch, WA 6150, Australia.

^C36 Payne Street, Hamilton, Vic. 3300, Australia.

^BEmail: s.hancock@murdoch.edu.au

Teeth eruption determines lamb and hogget classification and hence impacts marketing of animals. Previous research has identified that the age of teeth eruption varies across breeds and limited research also suggests variation within breeds. Age of teeth eruption may also be influenced by liveweight, sex, maturity, nutrition and growth path prior to teeth eruption. The study tested the hypothesis that the timing of teeth eruption would differ between Merino sire groups and would occur earlier for wethers that were heavier at 12 months of age.

This study utilised wether progeny born to 29 sires in 2016 ($n = 347$) and 2017 ($n = 553$) from the Merino Lifetime Productivity Project in Pingelly, Western Australia (Clarke *et al.* 2019). Classing of teeth eruption commenced at 10 to 11 months of age and was recorded monthly until 19 months of age. Eruption of central incisors was classed using a scoring system of 1 to 5; (1) only lambs teeth showing, (2) lambs teeth missing or one of either permanent teeth erupting, (3) both permanent teeth erupting, (4) both permanent teeth half erupted and (5) both permanent teeth fully erupted. Traditionally animals with Score 1 were classified as lamb whereas lamb classification now allows for the eruption of permanent incisors providing neither incisor is in wear (Score 1-4). Data for average age of hogget classification were transformed using a square-root transformation and analysed using the method of restricted maximum likelihood in GENSTAT. Liveweight at 12 months was fitted as a fixed effect and sire, date of artificial insemination, dam source and dam identification were fitted as random effects.

There were significant differences in the average age and the distribution of age of teeth eruption between sire groups (Figure 1; $P < 0.001$). There was no evidence of teeth eruption at 12 months of age, but teeth eruption was evident for some progeny in all sire groups at 14 months of age. The proportion of progeny that were still classified as lamb at 15 months of age varied from 0% to 40%. All progeny had reached hogget classification at 19 months of age. The average age of teeth eruption varied between sire groups by up to 2.5 months and teeth eruption of all progeny was completed over three months for some sires but over 6 months for other sires. Teeth eruption occurred earlier for animals that were heavier at 12 months of age ($P < 0.001$). The average age of hogget classification under the traditional system was 14.8 months and under the new system was 15.6 months. The birth type or rear type of individual animals had no influence on the average age at teeth eruption.

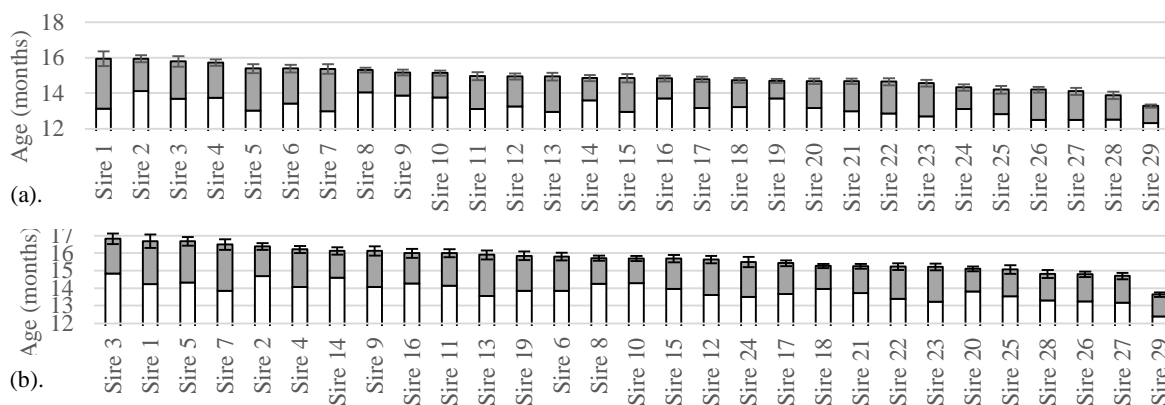


Figure 1. The average age of hogget classification (\pm S.E.) for wethers from different sires according to (a) the traditional and (b) the new system for classifying teeth eruption. White represents the age at which 5% of wethers were classified as hoggets.

Our hypothesis was supported as there were significant differences in age of teeth eruption between sires and teeth eruption occurred earlier for those animals which were heavier at 12 months of age. The new system extended the average age that wethers were classified as a lamb by approximately 3 weeks and there was some re-ranking of sires. This change may provide some flexibility to the farming system by providing more scope to optimise liveweight at turn-off, time of shearing and time of sale for lambs. The value of this variation in age of teeth eruption needs to be quantified to establish whether teeth eruption can be exploited when selecting rams.

References

Clarke BE, Young JM, Hancock SN and Thompson AT (2019) *Proceedings of the 23rd Conference of the Association for the Advancement of Animal Breeding and Genetics*. **23**, 516-519.

We gratefully acknowledge Australian Wool Innovation, Murdoch University, nominating Merino breeders, Pingelly site committee and site host the University of Western Australia Future farm for supporting and funding this work.