School of **Veterinary & Life Sciences | RESEARCH FINDINGS**

Age of hogget classification determined by teeth eruption varies according to genotype in Merinos

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Introduction

The Merino Lifetime Productivity (MLP) project has been set up to measure the lifetime productivity of ewes from a diverse range of genetics and Merino types across multiple environments. The research site at Pingelly, Western Australia, is one of five sites across the country. The project commenced in January 2016 with artificial insemination of 1370 Merino ewes to 15 different sires. This was repeated in 2017 with a further 15 sires. The F1 ewe progeny will be run together under the same management and feeding conditions for 6 years and will be visually classed each year in addition to objective measures of liveweight and condition score, wool production and quality and worm egg counts. The ewes will also be naturally mated from hogget age to measure their reproductive performance. The F1 wethers are also being retained at the Pingelly site until 3 years of age to enhance estimates of whole flock value of production for different sire groups. This includes time to reach lamb finishing weights and market specification for shippers, plus prediction of carcass and wool values at various ages. This paper reports differences in age of teeth eruption between sire groups for wethers born in 2016 and 2017.

Methods & Results

Classing of teeth eruption for wethers born in 2016 (*n* = 347) and 2017 (n = 553) commenced at 10-11 months of age and was recorded monthly until 19 months of age. Teeth eruption was classed according to the protocol outlined in Table 1. Traditionally animals with Score 1 have been classified as lamb and animals with score 2 to 5 were classified as hogget. There is now a proposed new system of lamb classification that allows for the eruption of permanent incisors but without either incisor being in wear. Therefore animals scored 1 to 4 in Table 1 will be classified as a lamb. Analysis of teeth eruption data included both the current and proposed system of classification. The proportion of animals in each sire group classified as a hogget at monthly intervals between 13 to 19 months of age were assessed by fitting General Linear Mixed Models and the average age of hogget was assessed using the method of Restricted Maximum Likelihood.

Table 1: Classification of scores for teeth eruption.

Score	Description
1	Only lambs teeth showing
2	Lambs teeth missing or one of either of the permanent teeth starting to be seen
3	Both permanent teeth showing slightly
4	Both permanent teeth half up
5	Both permanent teeth fully up

There were significant differences in the pattern of teeth eruption between sire groups (Figure 1; P < 0.001). At 12 months of age there was no evidence of teeth eruption but at 14 months of age teeth eruption was evident for some progeny in all sire groups in both 2016 and 2017 drop wethers. At 15 months of age the proportion of progeny still classified as lamb varied from 0% to 50%, and at 17-19 months of age all wethers had reached hogget classification.
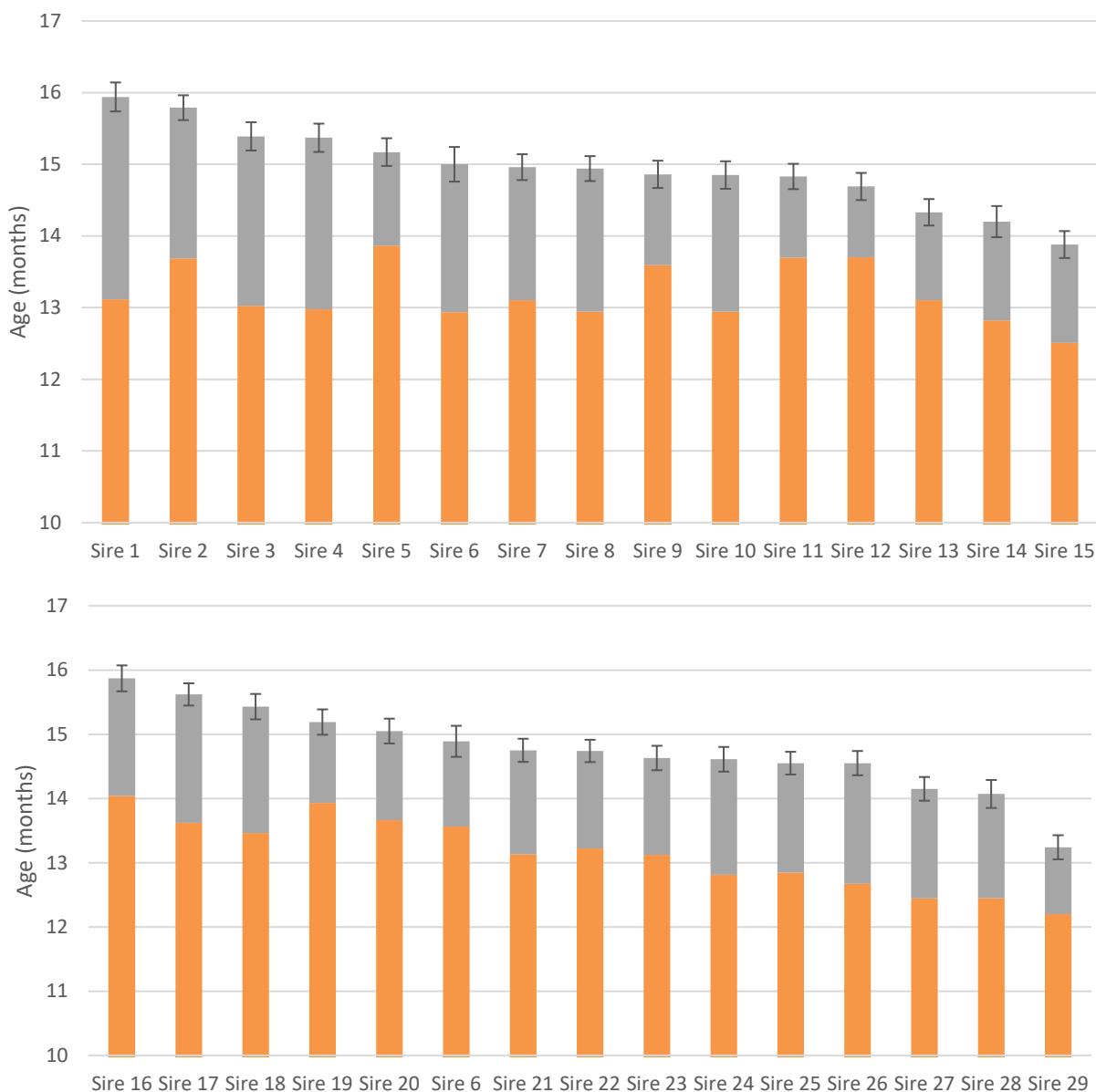

Figure 1. The average age of hogget classification for wethers (a) born in 2016 across 15 sire groups and (b) born in 2017 across 15 sire groups, according to the traditional system as defined by teeth eruption scores at the Merino Lifetime Productivity site in Pingelly, Western Australia. Orange represent the age at which 5% of wethers were classified as hoggets.

The average age of hogget classification defined by teeth eruption varied between sire groups by up to 2 months regardless of the system of classification (Figure 1), and classification of all progeny as hogget was completed over two months for some sires but over 6 months for other sires. The new proposed system extended the average age that wethers were classified as a lamb by about one month (15 vs 16 months; P <0.001) for the 2016 drop but only extended the average age by ½ a month in the 2017 drop. The birth type or rear type of individual animals had no influence on the average age at teeth eruption.

Conclusions & Recommendations

- Teeth eruption data will be combined with similar data from two other MLP sites (Balmoral and Armidale)
- Average age of hogget classification defined by teeth eruption scores, and the variability in age of teeth eruption between progeny within sire groups, was significantly different between some genotypes
- Variability between sires in age of hogget classification has implicatons for flexibility of management, optimising live weight and wool cut and time of sale
- The proposed new teeth eruption system delays hogget classification by 1 month

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