

GENETIC PARAMETERS FOR ULTRASOUND SCAN AND WOOL TRAITS AT YEARLING AND HOGGET AGE IN MERINO SHEEP

A.E. Huisman and D.J. Brown

Animal Genetics and Breeding Unit*, University of New England, Armidale, NSW, 2351, Australia

SUMMARY

The Australian Merino is the most important genetic resource for the wool and the lamb and sheep meat industries of Australia. In this paper estimated genetic parameters for ultrasound scan and wool traits at yearling and hogget age are presented for Merino sheep. Results indicate that it is possible to breed Merino sheep that perform well for both ultrasound scan and wool characteristics when both are measured.

Keywords: Merino, body weight, ultrasound scan, wool, genetic correlation

INTRODUCTION

The Australian Merino is the most important genetic resource for the wool and the lamb and sheep meat (mutton) industries of Australia. More importantly the contribution of wool and meat to the profitability of the Merino flocks is changing, as currently more value is being placed on carcase and reproductive characteristics. Even in traditionally fine wool growing regions in Australia the value of mutton has put extra pressure on the prices that are paid for replacement sheep and on the mix of wethers to ewes. From a total population of 47 million merino ewes approximately 45% are joined to terminal sires for prime lamb production (Connell and Hooper, 2001). In contrast to the numerous scientific studies aimed at understanding the genetics of wool traits in Merinos, there are very few studies that provide accurate information on the relationships between wool and non-wool traits. Specifically, there is a lack of information on the relationships between carcase and wool traits in Merinos. This paper reports results from an investigation into the relationships between carcase and wool traits.

MATERIAL AND METHODS

Data. Pedigree and performance data were extracted from the Merino Genetic Services database. This database consists of pedigree and performance records from Australian and New Zealand Merino studs and is used for genetic evaluation purposes. The database currently holds records on over 500,000 animals. Data for body weight (wt), scanned fat depth (fat), scanned eye muscle depth (emd), greasy fleece weight (gfw), clean fleece weight (cfw), fibre diameter (fd), fibre diameter coefficient of variation (fdcv), staple length (sl), staple strength (ss), and mean fibre curvature (curve), all recorded at yearling and hogget age, were extracted. Only data that met the following criteria were used: 1) date of measurement and current owner were recorded, 2) at least sire or dam was known, 3) date of birth was known, 4) animal was born in or after 1999, 5) the sex was identified as male or female, 6) pure-bred Merino or Poll Merino, and 7) age of dam was less than or equal to 12 years. Observations more than 3 standard deviations outside the mean of their contemporaries were also deleted, and all observations in contemporary groups smaller than 10 animals were

* AGBU is a joint venture of NSW Department of Primary Industries and the University of New England