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Wool yellowing susceptibility: Heritability, genetic and phenotypic correlations with productive traits in Australian Merino, Corriedale and New Zealand Romney sheep

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ABSTRACT

Colour is an important characteristic affecting wool price. Canary yellow wool incidence is low in dry years but individuals can be classified according to their degree of susceptibility to wool yellowing based on results of wool incubation test.

Australian Merino, Corriedale and New Zealand Romney *populations* were tested. A number of 603, 1369 and 476 progenies and 21, 52 and 24 sires *were* used for these populations, respectively. Susceptibility to wool yellowing (YPC), greasy (GFW) and clean fleece weights (CFW), yield (Y) and mean fibre diameter (MFD) were analysed in a sire model.

Heritability values for YPC were 0.21 ± 0.11 , 0.28 ± 0.08 and 0.19 ± 0.07 for Merino, Corriedale and Romney, respectively. Genetic correlations between YPC and other traits were -0.04 ± 0.31 with GFW, -0.10 ± 0.31 with CFW, -0.11 ± 0.29 with Y and 0.51 ± 0.29 with MFD for Merinos; 0.30 ± 0.18 , 0.17 ± 0.19 , -0.12 ± 0.18 and 0.33 ± 0.19 for Corriedale, respectively, and 0.77 ± 0.22 , 0.44 ± 0.31 , -0.70 ± 0.35 and 0.25 ± 0.30 for Romney, respectively. Phenotypic correlations were negligible among these traits for these three populations, except for YPC and Y (-0.33 ± 0.10).

Selection strategies to reduce wool yellowing susceptibility will differ between genotypes. Low frequency of susceptible sheep in Merino population showed little justification for including YPC in genetic programmes for this particular breed only.

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