

DEMONSTRATION OF VARIATION IN MERINO SIRE PERFORMANCE USING ON-FARM PROGENY TESTING

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Analysis of wether trials on a national basis has shown a huge range in the performance of bloodlines (Coelli *et al.* 2000). The identification and purchase of genetically superior sires depends on the availability of comparative data, and its understanding by commercial producers. The aim of this trial was to demonstrate to woolgrowers the variation which exists between and within bloodlines.

Progeny-testing case studies were conducted on 46 properties between 1997 and 2001. Assistance was provided to commercial wool producers to set up comparisons on their own farms. The case studies involved comparison of individual sires and bloodlines. Ewes were randomly allocated to mating groups, run in separate mobs for joining and lambing and managed as one mob throughout pregnancy. All lambs were identified to their sire group at weaning and subsequently managed as one mob.

Fleece weight of the progeny was recorded at the hogget-shearing with 10-12 months wool growth. Mean fibre diameter was measured using commercial testing laboratory methods on mid-side samples taken pre-shearing. Estimated Breeding Values (EBVs) were calculated using BLUP analysis and standard 'Rampower' genetic parameters. The analysis used sire relationships only with sex as a fixed factor and animal as a random factor. Fleece values are based on AWEX 5-year average wool prices.

The performance of 7,668 progeny of 216 individual sires was measured at 35 on-farm sites. The number of rams compared at each site ranged from 2 to 15. Table 1 presents a summary of results.

Table 1. Mean and maximum differences in sire performance for 35 test sites

	Max. sire difference*	Mean sire difference over all sites
EBV [†] Fibre diameter (microns)	3.9	2.0
EBV Fleece weight (%)	54	21
Fleece value (\$)▲	19.06	7.25

*Site showing the greatest difference in performance between best and poorest rams.

▲ Based on 5-year average wool prices. †Estimated Breeding Value

Eleven properties conducted ram-source comparisons, comparing 23 different bloodlines. A summary of the results is given in Table 2.

Table 2. Mean and maximum differences in bloodline performance for 11 test sites.

	Max. bloodline difference*	Mean bloodline difference over all sites
Fibre Diameter (microns)	1.0	0.5
Fleeceweight (kg)	0.55	0.21
Fleece Value (\$)▲	5.62	2.20

*Site showing the greatest difference in performance between best and poorest bloodlines.

▲ Based on 5-year average wool prices.

The fibre diameter and fleece weight differences among the progeny from individual sires resulted in an average difference in fleece value on any test site of more than \$7 per head of progeny and a maximum difference of nearly \$20 per head. The average difference in fleece value among the progeny groups of different bloodlines was more than \$2 per head. These results demonstrate the large genetic variation within the Merino population and the potential for woolgrowers to effectively exploit it to improve their profitability. This depends on the availability to woolgrowers of useful objective information from the stud sector and its understanding and use in the selection of rams. Objective information such as EBVs can be made available for most of the economically important wool traits.

COELLI, K.A., ATKINS, K.D., CASEY, A.E. and SEMPLE, S.S. (2000) *NSW Agric. Agnote* DA1-52 Second Edition.

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