The Genetics Of Fleece Weight And Fibre Diameter

Produced for the CRC for Premium Quality Wool undergraduate program by;
Pat Taylor, NSW Agriculture.
Profit

• Merino Breeders need to become more focused on profit

• The fastest way to genetically increase wool profits in Merinos is to increase wool production and quality

• The primary price determining quality of Merino wool is mean fibre diameter
Market Signals

- Micron premiums for fine wool have increased since the late 1970’s
- Market intelligence suggests that this will continue into the future

Wool Price 1975 - 1998

Micron Premiums 1975 - 1998

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Micron Premiums 1975 - 1998
Improving Returns

- CFW and MFD together account for most of the variation between Merino bloodlines in gross margins per DSE from wool.

- In the period 1993 - 1996 CFW and MFD accounted for 87 to 96%.

- The remainder is accounted for by body weight, style, length, strength and colour.
Relative importance of CFW and MFD across a range of micron premiums

• Relative contribution is sensitive to micron premium

• MFD ranged from 81% at MP of 20% to 16% at MP of 4%. Corresponding figures for CFW were 15% and 74% respectively.

Pat Taylor
Source: Coelli et al. (1996)
Breeding Strategies

• Using variation *between* bloodlines.

• Using variation *within* the current flock.
Conclusions

• Fleece weight and fibre diameter are the most important determinants of wool returns and should be given priority in Merino breeding programs.

• The relative importance of each is sensitive to market premiums for fibre diameter.

• Although there is genetic antagonism between these traits there is excellent potential to improve both simultaneously by exploiting genetic variation:
  – between Merino bloodlines
  – between individual sheep within Merino flocks.