CRC for Premium Quality Wool

The Genetics Of Fleece Weight And Fibre Diameter

Produced for the CRC for Premium Quality Wool undergraduate program by;
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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

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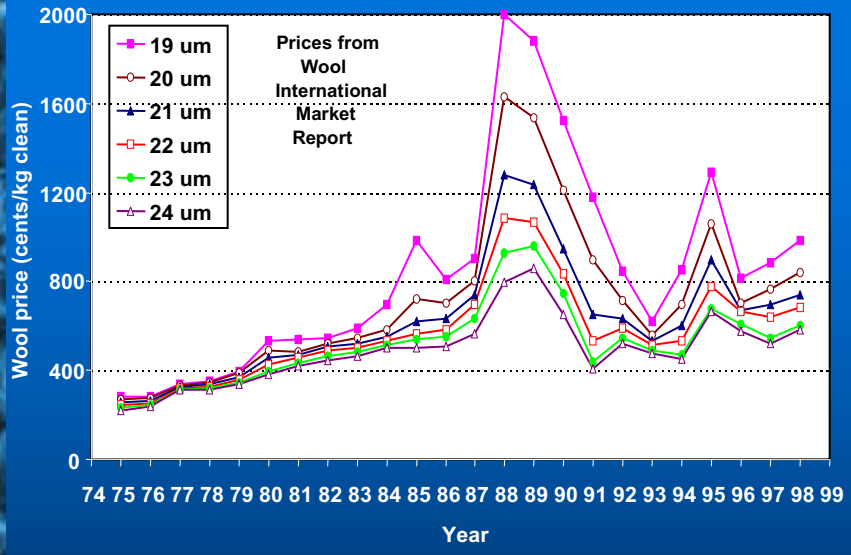
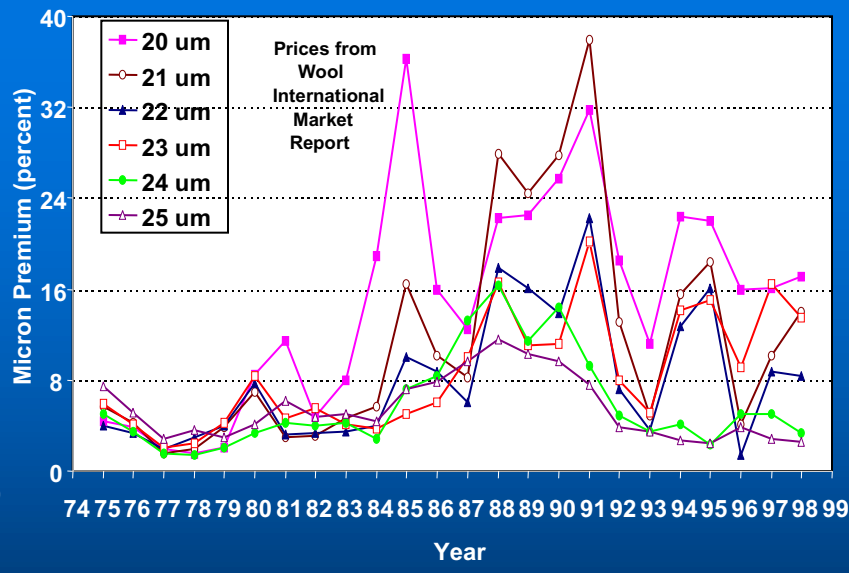
Market Signals

- 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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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

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Source: Coelli et al. (1996)

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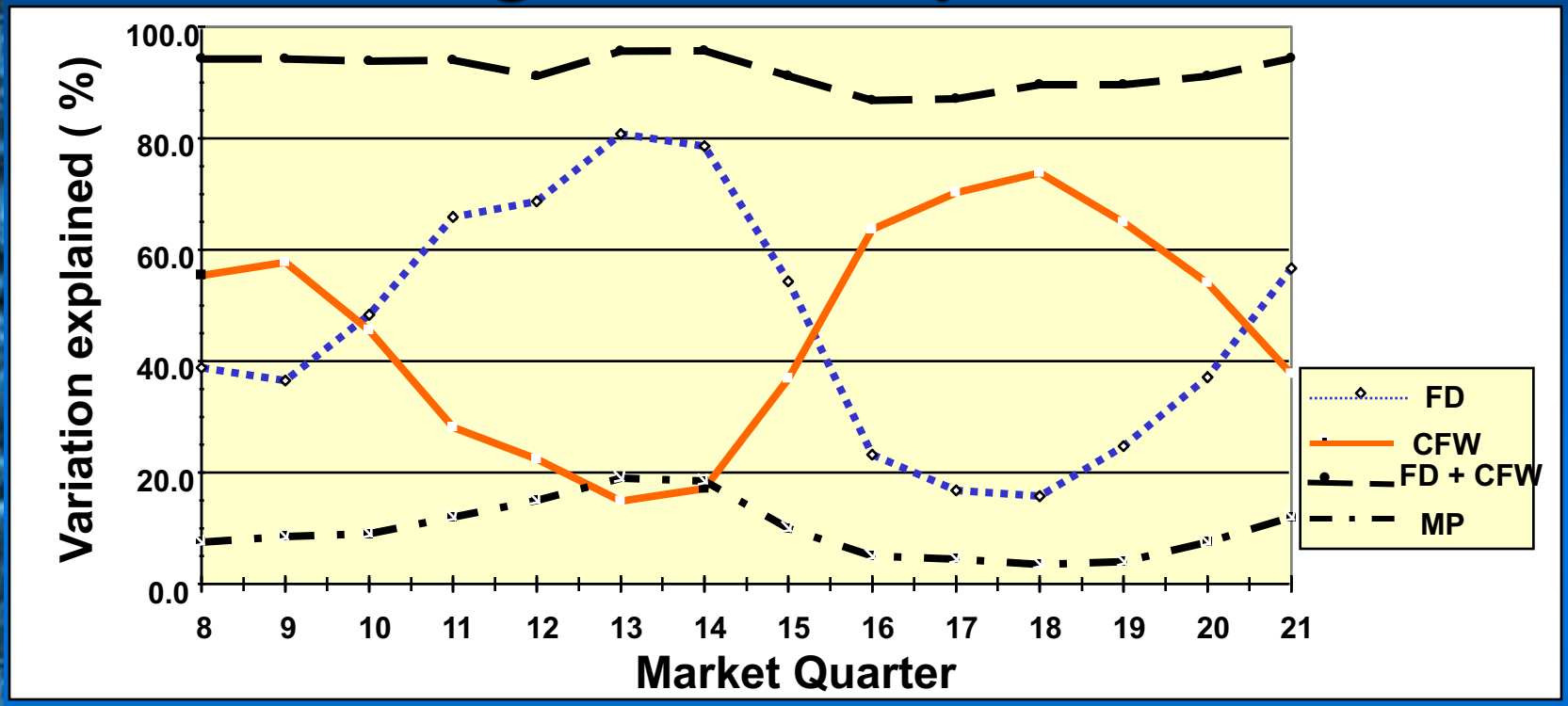
Relative importance of CFW and MFD across a range of micron premiums



- 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.

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Source: Coelli et al. (1996)

Breeding Strategies

- Using variation between bloodlines.
- Using variation between sheep within the current flock.

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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

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