Merino Breeding and Genetics
Research:
Past to Present

Produced for the CRC for Premium Quality Wool undergraduate program by;
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1930’s and 1940’s

- Skin wrinkles
- Crimp frequency
- Accuracy of visual selection
1950’s and 1960’s

- Sheep breed comparisons
- Merino strain and bloodline comparisons
- Stud industry structure
- Parameter estimates & selection experiments
- Inheritance of horns in Merinos
  - development of Poll Merino
- Genetic basis of pigmentation patterns

Source: Ponzoni (1995)
1970’s

- Survey of stud breeding practices
  - rates of adoption of objective measurement
    - ~15% of studs using measurements and only on a small proportion of rams

- Measurements of skin follicle traits
  - early-age criteria for wool production potential?
    - not strong enough to be of practical use

- Nucleus (group) breeding schemes
1980’s

- Genetic improvement in reproductive rate
  - discovery of major (Booroola) gene

- Genetic improvement in disease resistance
  - fleece rot, flystrike and internal parasites

- Formal definition of breeding objectives and index-based selection

- Establishment of large research (resource) flocks

Source: Ponzoni (1995)
1990’s

• Integration of visual assessment and index selection

• Selection experiments
  – validation of alternative selection strategies / breeding systems

• Across-flock comparisons:
  – combined wether trials
  – sire evaluation schemes

• Personalised breeding services
  – RAMPOWER Wool Breeding Services
  – Advanced Breeding Services (NSW Ag.)
  – SELECT Breeding Services (CSIRO)