NZ MERINO AND CORRIEDALE CENTRAL TEST SIRE EVALUATION SCHEMES

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SUMMARY

Corriedale and Merino central test, sire evaluation sites were re-established in New Zealand in 1998. The operation of the Corriedale scheme is described in detail. The dual-purpose nature of this breed has required the recording of meat and reproductive traits of progeny in addition to the wool traits routinely measured in Merino schemes and has raised a number of management and data analysis issues. The operation of the scheme will serve as a model for establishing a central test site for the other major NZ sheep breeds, ie. Romney, Coopworth and Perendale.

Keywords: Central test sire evaluation, New Zealand, Merino, Corriedale

INTRODUCTION

In 1997 there were no central test sire evaluation schemes for dual purpose or wool sheep breeds in New Zealand. Sire referencing mainly existed in group breeding schemes (GBS) that have been breeder driven, with little industry funding and tend to consist of breeders living close to each other, sharing common breeding objectives.

In the late 1980s central test schemes were established in Canterbury for the Corriedale and Merino breeds (Cottle and MacDonald 1988, 1990). These sites only ran for a few years. The Corriedale scheme was run using University stud ewes, with male progeny left entire, and this discouraged ram entrants from providing their best rams. The breeders continued to place most emphasis on the appearance of test rams rather than the performance of their progeny. This tendency still exists with some of the ram entrants. The Merino scheme finished mainly because of lack of financial support. Industry funding, obtained by WRONZ in 1998, initiated the re-establishment of central test sites for the Merino and Corriedale breeds and their continued success will depend on their ability to become self-funding by ram entry fees, semen levies and commercial sponsorship.

The management of the Corriedale scheme is of particular interest because there are few, if any, dual-purpose sheep central test schemes in the world. The maternal sire central progeny test scheme in Australia started in 1997 (Fogarty and Lees 1997). The objective of the scheme is to assess maternal and crossing sires, eg. Border Leicester, Coopworth, East Friesian, White Suffolk and Poll Dorsets, on the performance and value of their first cross (after mating to Merino or Corriedale ewes) wether slaughter lambs and their first cross ewe progeny for production of wool and second cross slaughter lambs (after mating at 7-18 months to terminal sire rams). It is planned to measure the second cross progeny for survival, growth, carcass weight, fat depth, eye muscle area, pH, colour and pelt value at slaughter age.

This paper outlines the operations of the New Zealand sire evaluation schemes.

MERINO SCHEME

The rams entering the fine wool Merino scheme (in South Canterbury) in 1998 were Forest Range 94-0-360, Malvern Downs A1-234, Armidale D186-95, Bendigo Commander 1 5912, Earnscleugh GY972-96, Earnscleugh S515-96, Moutere North 613-93 Robert, Cleardale Y782-96, Flaxton Goldfinger GY18, Benmore R2-76-96, Roxby Park Sensuwool 30201 (Australian link). 1999 rams were to come from Benmore, Forest Range, Armidale, Malvern Downs, Earnscleugh, Flaxton, Moutere, Glenthorne, Mirani (Australian link) and Bendigo studs, however drought prevented insemination proceeding.

The operation of the scheme was described by Cottle (1998) with the major emphasis on wool production. The main difference from Australian schemes is that 80 ewes were inseminated per sire compared to 50-60 resulting in an average of 79 weaners / ram. Batches of fleeces will be processed from progeny groups and classing procedures may be simplified from those operating in Australia.

CORRIEDALE SCHEME

The rams entering the Corriedale scheme in 1998 (Canterbury Plains) were naturally mated for 6 weeks to 80 ewes each. The rams were Glenovis H163-95, Eudunda 348-95, Glenrock 89-95, Bainsfield 24-94, Mairangi 244-95, Strathblane 431-96, Clifton H783-96, Wilfield 214-96, Longfield DJ 176-96, Strathblane 235-93 (referencing link) and Clifton CH15-93 (referencing link). The rams, naturally mat
ed for 3 weeks to 100 ewes each, in 1999 were Glenovis A7-97, Strathblane 235-93 (link), Lockerbie 502-96, Longfield E269-95, Glenrock 389-96, Ballindalloch JK 493-97, Wattlebank 428-95, Eudunda 348-95 (link), Wilfield 214-96 (link), Leamington Downs 17-95, and Wilfield 43-93. Fresh semen collected from Clifton WG728-96 was used to inseminate 100 ewes so the ram could be used for mating at Clifton during the same mating period.

Because the Corriedale is a dual-purpose breed, the operation of the scheme is different from Merino schemes. The current management plan for each ram intake is as follows:

- **Year 1, late March** - ram delivery to shearing shed with the following protocol:
  - Rams are to be completely sound in the feet and all hooves are to be trimmed free of any excess horn on delivery day.
  - Breeders on properties, which experience feet problems, must quarantine their ram for at least one month prior to delivery, to ensure safety to the central test flock.
  - Rams are foot-bathed on delivery.
  - Rams must have been treated for lice control and have at least one month's fly protection.
  - Rams must be free of scrotal mange and have no pizzle infections.
  - Rams will have passed an individual brucellosis blood test within the last 4 months. All studs participating should have current Brucellosis accreditation.
- Rams withdrawn from ewes in late **April**.
- Dams shorn in **May/June**,
- Pregnancy scanned in **June**.

- In late **August** multiple bearing ewes lambed in separate paddocks for each sire. Single bearers from different sire groups were boxed and daily lambing rounds done for tagging to sire group. The birth/rear rank of all progeny recorded against tag number/colour.
- **December** – all lambs weaned and weighed at 3 months of age.
- **Year 2, January** – all male lambs weighed at 4 months and scanned for fat depth and eye muscle dimensions before the first batch go to the works. All progeny classed by 2-3 independent classers, working together, into 4 grades: A:Top stud type (15 %), B: acceptable stud type (40 %), C: acceptable flock type (30 %), D: culls (15 %). The percentage of culls due to frame size, dark spots, conformation, pigmentation, woolly heads, poor wool quality and necks/shoulders recorded. Ewe lambs shorn and presence of dark fibres recorded.
- **Late April** - Field Day. All ewe progeny classed, weighed and scanned for fat depth and eye muscle dimensions. Those weighing 40 kg or more and classed as culls mated to terminal sires. Those weighing over 40 kg and classed as acceptable, mated to a syndicate of Corriedale rams.
- **July** – ewe progeny pregnancy scanned.
- **September** – ewe hoggets shorn (pre-lamb if mated) and midside sampled. Pregnancy status recorded.
- **September/October** – ewe hoggets lamb, if mated previously in April. Number of lambs born and subsequently weaned recorded to sire group.
- **Year 3, January** - all grand progeny weighed at 3 months of age

RESULTS

The estimated breeding values for measured traits in 1998 rams are given in Table 1.

CURRENT ISSUES

This protocol is constantly under revision at regular site committee meetings. The greater importance of reproductive performance in dual-purpose breeds creates the need to mate ewe progeny and follow lambing performance. However accurate EBVs are difficult to obtain with reproductive traits?

Some issues that remain under discussion are:

- When there is a mixture of artificial insemination and natural mating of rams due to the use of international sires or sires needed on home studs how will the mating ability of rams be compared?
- Some rams mate poorly when wearing a ram harness or with younger ewes, how important is this?
- Given the protocol of hogget mating of ewe progeny based on their liveweight, with some mated to Corriedale rams and some to terminal sires, what is the best way of correcting ewe hogget wool traits for reproductive status and for comparing their reproductive performance?
- Are weaning weights of lamb grand progeny a worthwhile additional indicator of weaning weight EBV to the direct weaning weight of progeny, ie. what is the relative importance of the dam's milking ability on weaning weight?
- At what age and in which sex is it best to class sheep for dark fibres?
- What is the best age to meat/fat score ewe progeny?
- Should wool performance in adult ewes be measured, as in the Merino schemes?

- What selection index should be used to rank rams in an internationally linked scheme when Australian indices, eg. Lambplan, use different traits, genetic parameters and economic values than NZ indices, eg. Animalplan and SIL?
- What combination of measured traits, classing results, mating and reproductive performance of a ram is best for choosing link sires and when should this be done?
- Should young, unproven rams be given preferential entry?

A proposal has been developed to initiate a central test site in the south island of New Zealand for Romney, Coopworth, Perendale and crossbred rams, which will follow a similar protocol to the Corriedale scheme using Romney and Coopworth ewes. It is hoped that rams from different GBS and flocks throughout New Zealand will be entered to link the various schemes via a central site.

Table 1 Corriedale Ram Estimated Breeding Values (expressed as deviations). Post weaning data obtained at 4 months of age for male progeny and 8 months for females. Link sires chosen in February in bold

Ram Name	Male and female progeny combined				
	Number of progeny	Weaning weight (kg)	Post weaning weight (kg)	Post weaning fat depth (mm)	Post weaning eye muscle depth (mm)
Bainsfield 24-94	110	1.5	3.5	-0.65	-2.3
Clifton CH15-93	104	-0.7	-0.7	0.32	-0.8
Clifton H783-96	77	1.4	2.9	0.78	1.5
Eudunda 348-95	103	2.1	4.7	0.15	-1.3
Glenovis H163-95	104	-1.7	-2.4	-0.87	-1.7
Glenrock 89-95	54	-0.9	-1.3	0.51	1.6
Longfield DJ 176-96	92	-0.1	-1.6	-0.23	-0.7
Mairangi 244-95	93	-1.9	-3.7	-0.06	0.5
Strathblane 235-93	111	-0.3	-0.6	0.02	2.4
Strathblane 431-96	116	-0.1	-0.7	0.41	-0.5
Wilfield 214-96	71	0.7	-0.1	-0.38	1.4
Average/no. male progeny	468	32.2	38.2	22.1	2.8
Average/no. female progeny	559	30.2	42.0	23.3	3.5

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REFERENCES

Cottle, D.J. and MacDonald, I.H. (1988) Proc. Aust. Assoc. Anim. Breed. Genet. 7:402-5
Cottle, D.J. and MacDonald, I.H. (1990) *Proc. Aust. Assoc. Anim. Breed. Genet.* **8**:307
Cottle, D.J. (1998) *Proc. World Merino Conf.* **5**:17
Fogarty, N. and Lees, K. (ed.) (1997) Dynamic Dams – Ewe genetics for the future. No. 2 Sept. 1997