

There is an even chance of the difference being statistically significant if C.V. =  $\frac{1}{2}$  and a 90% chance if C.V. =  $\frac{1}{3}$ . The precision can be increased by replicating over years or over properties.

If genotype - environment interactions are not negligible, the variance is increased by the addition of further variance components. For the design discussed above, these terms are  $\sigma^2_{sy/k}$  where  $\sigma^2$  is the variance due to interactions between ram sources and years, and  $\sigma^2_{y/sk}$  where  $\sigma^2$  is the variance due to interactions between years and genotypes from the same source. These components of error are reduced by sampling more years. These components are not reduced more rapidly by replacing sires or progeny each year. The essential limit to accuracy from these sources is the number of years sampled.

Thus the virtue of some procedures, such as annual sire replacement, is dependent on the importance of genotype-environment interactions. Since these practices always increase precision they should normally be recommended, but could be discarded if an assessment showed extra costs were unlikely to be repaid by a sufficient increase in precision.

\* \* \* \*

## ON-FARM COMPARISONS BETWEEN SOURCES OF MERINO RAMS:

### PRACTICAL ASPECTS

E.M. Roberts

School of Wool & Pastoral Sciences, University of New South Wales,  
Kensington, NSW, 2033

### INTRODUCTION

*"For over ten years I have procrastinated in word and deed regarding the improvement of my flock. During that time there were trials with Fairview rams, Collinsville rams, Cooinbil rams, participation in a co-operative breeding group and breeding-own-rams as well as much discussion with many learned and experienced people, all of which have resulted in no positive course of action over that prolonged period. It is a well established fact that "bull baffles brains" and so the resultant confusion which has arisen from the 5 schools of thought (each sincere in it's own philosophy) has resulted in the above mentioned ten years of indecision.*

*From a number of reasons it is felt that improvement can be made to my flock which has been mated to rams from a daughter stud of Haddon Rig for nearly 30 years. With this background I am to compare 5 Merino blood-lines with that of my Haddon Rig daughter stud to establish if any are more profitable under my system of management..."*

### COMPARING BLOOD LINES

The above introduction is extracted, with minor alteration, from a paper by a commercial wool producer, Mr. Ian Hamilton of Illabo near Cootamundra. Ian intends to carry out the appropriate management to provide answers to his question of "where is the best source of Merino rams for me?"

## GUIDELINES FOR COMPARISON OF BLOODLINES

In order to establish guidelines for others who may wish to make comparisons, the following set of guidelines has been evolved by a working party of officers of the N.S.W. Department of Agriculture, Messrs. M. Tucker, N. Bennett, B. Baille, D. Harris, Dr. B. McGuirk and the author.

1. On each property a minimum of five rams of each blood-line should be joined with a minimum of 250-300 ewes.
2. The rams will come from studs which are using the Trangie Fleece Measurement Service or where comparable production information can be provided.
3. The actual rams will be selected by the District Sheep Officer, plus the co-operating producer subject to the following conditions:-
  - (i) the rams will come from comparable flock ram grades in the studs being compared.
  - (ii) all rams will have a Greasy Fleece Weight Percentage of from 100 to 110% and will come from fibre diameter grades of -1, 0 or +1.
4. The ewes in the comparison should be either of one age group, or of mixed ages, but should preferably not include maidens for reason of their lower fertility. The ewe flocks being compared will be selected at random.
5. The groups of rams being compared will be syndicate-joined to their respective ewe flocks. The ewe flocks will also lamb down separately, but at all times other than joining and lambing, the ewe flocks will run together and be managed identically.
6. The lambs will be tagged at marking and the ewes and their lambs in the flocks being compared will then be boxed.
7. No progeny should be culled before production information is recorded.
8. The following production will be obtained:

Greasy fleece weight.

Yield.

Clean fleece weight.

Diameter.

Body weight off-shears.

Fly-strike and fleece rot incidence

Dust penetration

AWC type classification.

Fly-strike and fleece rot incidence and the degree of dust penetration will be scored at a classing prior to hogget shearing.

## PUBLICATION OF THE RESULTS

All the breeding information resulting from these comparisons must be available for every wool producer and stud breeder to inspect.

## REFERENCE FLOCKS

In order to allow comparisons in one commercial flock to be made with comparisons from another flock a Reference flock list is suggested.

If two commercial flocks comparing Merino bloodlines are to have their results compared it would be desirable for them to have one common bloodline in their respective trials.

For example, if they are comparing 3 bloodlines each, and if one bloodline on each property is Collinsville, Collinsville then becomes the reference flock. The reference flock system (compare with reference Sire System in Cattle, Morris et al., 1978) is a means of publicly comparing the breeding value of ram breeding flocks for fleece weight, bodyweight, fleece rot and dust resistance.

Most importantly, the trials take place on commercial wool producers' properties, where costs of trials are reduced and the results are most likely to be read and acted on.

## REFERENCE

MORRIS, C., GIBSON, E., JOHNSON, D., and BAKER, L.; May 1978 - Angus Progeny Tests - Mimeo; Ruakura Agricultural Research Station, Hamilton, New Zealand.

\* \* \* \*