

## **ROLE OF CLASSING COMMENTS IN MERINO SIRE EVALUATION SCHEMES**

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### **SUMMARY**

Repeatability of classing comments between classers within a central progeny test site is low (0.0-0.4). The repeatability of their comments improved, but was still low, following more rigorous briefing prior to the sheep classing. The low repeatability of classer comments indicates that this data is not providing accurate information to the wool industry. It is suggested that more systematic data collection may improve the repeatability of some traits and this should be pursued. However, other measures are unlikely to improve through systematic data collection and the collection of these data should be reexamined.

**Keywords:** Visual assessment, central progeny test schemes, Merino sheep

### **INTRODUCTION**

Central progeny test schemes are commonly conducted for Merino sheep throughout Australia. These are providing woolgrowers with information that allows informed decision making regarding use of semen from elite rams within the wool industry. Both subjective and objective data are collected as part of these schemes. The collection of objective data pertaining to traits of economic importance has been shown to be straightforward and repeatable. The subjective information collected in central progeny test is made by recognised sheep classers. The collection, analysis and reporting of classing comments comprise a large amount of the total time required for the conduct of central progeny test schemes. Unlike the measured data, repeatability of classers both within a site and between years, has not been quantified. Therefore, the value of this data to the wool industry has not been assessed.

To examine the utility of classing comments to the wool industry, a study was conducted which determined the repeatability of classing comments between classers and the repeatability of classing comments within a classer. Data collected from a survey of ram breeders was then used to brief classers on the factors breeders thought were important in visual assessment of superfine sheep in an attempt to improve the value of the information to farmers. The data was then examined to determine whether or not the repeatability of classers' comments had changed, following this more detailed briefing.

### **METHOD**

The data used for this analysis are from the 1995, 1996, and 1997 fine wool central progeny test managed at South Roxby, in southern Victoria. This central progeny test is managed using the guidelines provided by the Australian Association of Stud Merino Breeders (AASMB) (Casey 1999), as part of the national scheme for Merino sheep. All central progeny test schemes are required to have the sheep independently classed by two recognised classers. In the case of the South Roxby

central progeny test, the classers were nominated by the Victorian Stud Merino Breeders Association and were selected on the basis of their ability to class superfine wool Merino sheep. For the 1995 drop sheep, the same classers were used both times the sheep were classed. Due to a change in classers for the 1998 drop sheep, the 1996 drop sheep were classed by one classer twice and by two different classers for their first and second classing.

All sheep in this study were classed at 14 months of age and again at 26 months of age except the 1997 drop of animals which were only classed at 14 months.

The classing procedure used strictly followed the requirements of the AASMB for central progeny testing. At classing, the sheep were assessed by the classers who were unaware of the sire of each animal, thereby removing potential bias. Each classer was asked to give his overall opinion regarding the merit of each sheep, by grading each sheep as a "top", "flock" or "cull". As a guideline, each classer was told there should be roughly equal numbers of sheep in each grade. Reasons for the grading were also collected. The classer was also advised to comment if any sheep was unusually good or bad for any particular characteristic. These comments were recorded and then amalgamated into the following larger categories, following AASMB guidelines:

*Body conformation* (including comments on body size, body length, jaw, horns, shoulder, back, feet/legs, face cover, body and neck development)

*Quantity of wool produced* (including comments on coverage, staple length, and density)

*Wool quality* (including comment on nourishment, colour, character, evenness, handle, staple structure, tip hair, fleece rot and richness).

During the evolution of sire evaluation in Australia, comments regarding each of these aspects of visual assessment have been reported by individual sites.

Statistical analyses were conducted using REG (Gilmour 1986) to determine the presence of interactions between sires and classers and the repeatability of the classing comments within a year-site and within classer between years. The data were treated as binomial traits.

**Follow-up classing.** The classers used in the 1998 classing of the South Roxby central progeny test were given more detailed guidelines about the classing process they were to use. This detailed the traits considered important to ram breeders with emphasis to be placed on selection for trueness to type. It also highlighted the requirement for descriptions of conformational soundness, especially characters such as feet, shoulder faults and pigmentation. The guidelines were developed from a survey of ram breeders who had entered rams into the trial, describing their opinion about the subjective characters important in their breeding objective.

## RESULTS

**Assessment of classing uniformity.** There were no significant interactions between classers and sire groups, however, in all cases, there were significant differences ( $P < 0.01$ ) between the classers in the total number of sheep they graded as "top" or "cull". Table 1 shows the low repeatability between the classers within a year for any of the combined traits. The repeatability gives an estimate of the degree of agreement between two or more measurements of a parameter. The purpose of providing

classer information is to give an independent, accurate assessment of important subjective characters to the wool industry. The low repeatability of classer comments indicates that this data is not providing accurate information to the wool industry.

**Table 1. Repeatability of classing comments (between classers within a year)**

	Destination		Conformation		Wool Quality		Wool Production	
	Tops	Culls	Positive Comment	Negative Comment	Positive Comment	Negative Comment	Positive Comment	Negative Comment
1995, year 1	0.31	0.32	0.24	0.15	0.19	0.15	0.13	0.08
1995, year 2	0.14	0.24	-0.01	0.17	-0.01	0.02	0.00	0.04
1996, year 1	0.13	0.18	0.01	0.18	0.01	-0.01	0.03	-0.04
1996, year 2*	0.31	0.44	0.27	0.25	0.32	-0.08	0.24	0.35
1997, year 1*	0.36	0.40	0.13	0.17	0.23	0.26	0.17	0.08

\* results following briefing of classers after survey results

**Repeatability of classers across years.** The within-classer between year repeatability estimates are given in Table 2. The very low repeatabilities between years suggest the visual assessment as a 14 month old sheep gives little indication of its visual assessment one year later. Consequently, the utility of this data must be questioned.

Table 2 also indicates there may be variability in the individual classer repeatability, with one classer recording a repeatability of approximately 0 for the combined traits, whilst the other consistently recorded higher repeatabilities.

**Table 2. Repeatability of classers between years**

	Destination		Conformation		Wool Quality		Wool Production	
	Tops	Culls	Positive Comment	Negative Comment	Positive Comment	Negative Comment	Positive Comment	Negative Comment
1995 drop**	0.24	0.28	0.13	0.08	0.09	0.04	0.14	0.08
Classer 1, 1995 drop	0.32	0.33	0.26	0.17	0.14	0.16	0.22	0.14
Classer 2, 1995 drop	0.17	0.28	0.00	0.07	-0.02	0.04	-0.02	0.02

\*\* Average of two classers across both years

**Repeatability of classing comments following briefing.** Although the repeatability of classing comments increased following this extended briefing of the classers, it was still low and particularly low for the grouped traits (see Table 1).

## DISCUSSION

The low repeatability of classer's comments (both between classers within a year and within a classer between years) suggests this information is inaccurate and therefore of low value to the wool industry. What was particularly surprising was the low repeatability for structural faults in the sheep, such as feet/legs (0.05), shoulder (0.14), and pigmentation (0.23). An increase in repeatability of this assessment is required. One method of increasing accuracy of assessments with low repeatability is to increase the number of assessments. However, in this case, increasing the number of classer assessments would be prohibitively expensive and time consuming. A more efficient method to

improve repeatability of some traits, particularly conformational and wool quality characters, may be to improve the systematic collection of data. Under the current procedure a comment is only made if the classer notices exceptional differences from the norm. There is no systematic procedure to routinely collect information on these traits on all sheep. This procedure implies that a "no comment" sheep is normal for the trait. However, it is possible that many with sheep with faults are being overlooked in the assessment procedure. Evidence that systematic data collection may improve some traits was found in this study. Classers were asked to estimate the Bradford Count on every sheep they examined. The repeatability of this estimate was 0.72 and 0.65 for the 1996 drop animals and the 1997 drop animals, respectively, far higher than the repeatability of any other character assessed.

The repeatability of the combined trait of destination, although low, was higher than most other traits. This is currently collected in a systematic manner and further changes to recording procedures are unlikely to improve its repeatability.

Collection of visual assessment data is one of the most time consuming and costly parts of running a sire evaluation scheme. This study highlights the poor utility of the visual data collected. Therefore, one must question the worthiness of the time and resources spent on its collection, analysis and reporting.

The *ad hoc* nature of the collection of classing data is quite possibly part of the problem, with a more systematic approach recommended. Systems to score sheep for a multitude of conformation and wool quality characteristics have been established and used by many ram breeders and research organisations. These methods could easily be incorporated into central progeny test schemes to give more accurate data for use across the industry.

Teaching and accreditation of scorers for visual assessment of central progeny test data, could form the basis of "new age" sheep classing techniques, allowing entry of enthusiastic individuals into the industry to begin sheep classing. The dairy industry utilises trained assessors to score animals for a range of subjective characters, for which Australian Breeding Values are annually estimated. It is proposed a similar system could work for the Australian Merino industry.

## REFERENCES

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