longer. The division of total cost into lag cost and sire purchase cost would be different for the two cases.

Prices paid by producers for boars sold from performance test stations in France were studied in relation to their breeding value indexes, scaled to average 100. For both Large White and French Landrace, the relation between price and index value (I) was approximately:

$$price = 1500 + 5(1 - 100) + 0.5(I - 100)^2 \quad francs.$$

Using estimates of the rate of genetic gain in the French pig population and the value of an extra index point, the theoretical analysis led to a curve of the form

$$price = 60(I - 95)^2.$$

This would give much greater prices than observed for high index boars. If the estimates on which the theory is based are correct, French producers should buy the highest index boars available, and at their current prices, these should be used about 15 months before being replaced.

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VARIATION BETWEEN STRAINS AND BETWEEN FLOCKS WITHIN STRAINS OF MERINO SHEEP

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The Australian Merino population consists of a number of distinct strains. Within these strains there are studs, or bloodlines, that have been kept separate from each other and have had different selection programs for a long time. It is reasonable then to presume that those stud flocks may differ appreciably in genetic merit.

At Trangie Agricultural Research Station, 15 flocks representing all strains and some of the major studs within these strains are run together and production information collected. While the aim of the work is not to compare individual studs, the results do provide an insight into the variation that exists between strains and between studs within strains for wool, body and reproductive characters and susceptibility to fleece rot and body strike.

The sample of bloodlines represents the relative importance of the strains in New South Wales. They can be classified as:-

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 2 Fine-wool non-Peppin flocks
 2 Medium-wool non-Peppin flocks
10 Medium-wool Peppin flocks
 1 Strong-wool non-Peppin flock
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Each bloodline is maintained as a breeding flock of 100 ewes. The ewes were originally purchased in 1974 from stud and commercial flocks representing the bloodlines, and in each year since then three rams have been purchased from a major stud within each bloodline. Performance information on these flocks is

collected each year on the progeny which have been born and raised together at Trangie and managed as a single group of animals.

Data so far collected is summarised in Table 1 for the characters of major economic importance in the Merino. For each character, the overall flock mean, the average within-flock standard deviation (where appropriate), the maximum difference between strains and the maximum difference between the 10 flocks within the medium-wool Peppin strain are presented.

TABLE 1

Character	Mean Standard Deviation		Between strain difference	Between flock difference
Greasy fleece weight (kg)	4.72	0.57	1.35	0.98
Yeild (%)	70.1	4.2	6.9	4.0
Clean fleece weight (kg)	3.27	0.44	1.43	0.78
Fibre diameter (μ)	20.5	1.2	3.2	1.5
Body weight-15 months (kg)	42.3	3.9	8.1	5.8
Wrinkle score	4.8	1.6	1.3	3.5
Face cover score	2.3	0.8	0.8	1.0
Litter size at birth	1.35	–	0.17	0.42
Lamb mortality				
- singles (%)	21	–	10	14
- multiples (%)	37	–	19	26
Fleece rot incidence (%)	20	–	27	22
Body strike incidence (%)	6	–	10	10

Differences between strains were most obvious for wool production characters and body weight. Large differences still existed between flocks within strains for these characters when the between flock difference was compared with the within-flock standard deviation. Fleece rot and body strike incidence were characters that showed both large between strain and between flock differences as compared with the mean incidence. Reproductive characters generally showed relatively smaller between strain differences as compared with the large between flock variation.

The results indicate that there are large amounts of genetic variation between bloodlines of Merinos for all important economic characters. Because of the scope for improvement by between-flock selection, further information is required on the performance of individual bloodlines in a range of environments so that a commercial producer can make a rational choice of strain and bloodlines according to his economic objectives.

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