

WOOL PRODUCTION BY WETHERS OF DIFFERENT GENOTYPES

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Production characteristics of eighteen genotypes of wool-producing (that is, Merino and Merino-derived strains) wethers are being measured at Hamilton in the high-rainfall zone of western Victoria. The genotypes were selected from a wide range throughout Victoria, New South Wales, and South Australia.

On each property, forty wethers were selected at random from the entire 1980 drop wether weaners (usually in excess of 400). The owner was asked to reject eight and the remaining thirty-two were transported to the Institute.

The genotypes were grazed together on mixed pasture of annual and perennial grasses and subterranean clover. The treatments imposed were two stocking-rates (fourteen or twenty sheep/ha) and two shearing times (March or October); each treatment was replicated once.

Supplementary feeding was given to maintain body condition scores above 2 minus (Jefferies 1961). In 1982 the high stocking-rate treatments were fed up to 400 g per head daily of a 3 : 1 oats and hay ration for six weeks during winter. Complete drought feeding commenced in January 1983 and all treatments were fed a wheat ration of up to 450 g per head daily for six months. As a result of fire and drought all sheep were run together for two months during 1983.

Some initial results for wool production are presented in Table 1. Least squares analysis of greasy fleeceweight, yield, clean fleeceweight, and fibre diameter indicated that genotype and shearing time were significant ($P < 0.05$) sources of variation for all these characteristics. Stocking-rate and the genotype x stocking-rate interaction were not significant ($P > 0.05$) in this analysis.

Table 1: Least squares means for selected wool production characteristics in 1982

| <i>Strain</i> | <i>No. *</i> | <i>Clean fleeceweight</i> (kg) | <i>Fibre diameter</i> (μ) |
|--------------------------|--------------|-----------------------------------|------------------------------------|
| Saxon Peppin | 1 | 2.9 | 18.3 |
| Saxon | 1 | 2.9 | 18.5 |
| West. District (Vic.) | 2 | 3.1, 3.1 | 19.4, 19.2 |
| Peppin | 2 | 3.6, 3.5 | 19.6, 19.4 |
| Spanish | 1 | 3.3 | 19.7 |
| SA/Medium | 1 | 3.7 | 20.8 |
| SA/Peppin | 1 | 3.7 | 20.9 |
| SA Strong | 4 | 3.4, 3.5, 3.4, 3.7 | 23.2, 23.0, 22.1, 23.1 |
| Comeback | 2 | 3.0, 3.0 | 20.0, 22.6 |
| Polwarth | 3 | 3.5, 3.2, 3.0 | 23.2, 22.9, 23.0 |
| <i>Shearing Time</i> | | | |
| March | | 3.2 | 20.6 |
| October | | 3.5 | 21.6 |
| Error Standard Deviation | | 0.5 | 1.5 |

* No. = number of properties represented

The ranking of different genotypes for fibre diameter and fleeceweight was approximately in the expected order but the differences between genotypes, particularly for fleeceweight, were not as large as expected from the industry estimates provided by Hogan *et al.* (1979).

Data for the March shearing of the same sheep in 1982 and 1983 gave overall means as follows: greasy fleeceweight 4.3 and 5.1 kg; yield 72.8 and 69.7 per cent; clean fleeceweight 3.2 and 3.6 kg; and fibre diameter 20.6 and 23.0 μ . Pooled repeatability estimates from these sheep were 0.71, 0.72, 0.68, and 0.75 for greasy fleeceweight, yield, clean fleeceweight, and fibre diameter, respectively.

More complete data collection and analyses involving additional wool and other characteristics (for example, liveweight) measured over several years are still in progress.

REFERENCES

- HOGAN, J. P., ELLIOTT, N. M., & HUGHES, A. D. (1979). In J. L. Black and P. J. Reis (edd.), *Physiological and Environmental Limitations to Wool Growth*. pp. 43-59. (Univ. New England Publ. Unit.)
- JEFFERIES, B. C. (1961). *Tas. J. Agric.* 32, 19-21.