EFFECT OF VARIATION IN WOOL AND BODY TRAITS ON RAM PRICES PAID AT AUCTION

P. D. MULLANEY*

Summary

The association between auction prices for stud Merino rams and variation in a number of measured and visually appraised wool and body traits was examined by multiple regression analysis.

Greasy (or clean) wool weight, mean fibre diameter, spinning count (as measured from crimp) and liveweight had significant influences on auction price. These traits were apparently considered about equally by buyers in their assessment of rams. Other factors such as birth type, (single or twin), wool type and yield, showed no relationship with price.

I. INTRODUCTION

Although sheep classing has been traditionally based on visual appraisal, there is a growing interest in the use of measured performance as a criterion of selection, and recommendations for its incorporation into breeding programmes have been made (Turner and Young 1969; Mullaney and Sanderson 1970; Roberts 1970; Barlow and Webb 1970). Some stud breeders are already making performance records available to potential buyers of rams, both on the farm and at auction. It is likely that auction prices reflect the relative economic value of measurable production traits to the commercial sheep producer. These values, which until the present time have not been available, will assist in the definition of breeding goals for all producers and in the assessment of commercial interest in performance recording.

This paper examines the variation in auction prices for stud Merino rams associated with variation in a number of measured and visually appraised traits.

II. MATERIALS AND METHODS

(a) Animals

The data are from 96 rams (68 single-born and 28 twin-born rams) in a medium wool non-Peppin stud flock in the Western District of Victoria. Selection on performance records has been carried out for some years, and an auction sale of selected rams is usually held once a year in October, when the rams are approximately 18 months of age, and carrying six months wool growth.

(b) Records

At shearing, at approximately 12 months of age, greasy fleece weights (G) were recorded and fleeces subjectively graded into wool bin types by an experienced

*Department of Agriculture, S. S. Cameron Laboratory, State Research Farm, Werribee, Victoria, 3030.
wool classer. A mid-side sample of each fleece was taken and objectively measured for the following traits: percent clean scoured yield (Y), clean weight (W), mean fibre diameter (D), count on crimp (COC), and count on diameter (COD). The definition and measurement techniques of each trait have been described previously by Turner et al. (1953).

Just prior to sale, a liveweight (LWT) was recorded for each ram.

(c) Price data

Animals were housed and available for inspection for about 4 hours before sale, and the breeding and production records of each animal were available to buyers by catalogue. Animals were sold by open auction with a previously declared reserve price.

(d) Statistical analyses

Wool bin types (1 = SUP AAA, 2 = SUP COM, 3 = AAA COM, 4 = AA COM) and type of birth (1 = Single, 2 = Twin) were coded and the coded data used in all analyses. Multiple regression and correlation statistics (in which auction price was the dependent variable and the measurements, either those given in the catalogue or the coded values, were the independent variables), were calculated using a stepwise regression programme. Since measurements of both G and W were recorded in the catalogue for each ram, separate analyses were performed for G and W, as independent variables.

III. RESULTS AND DISCUSSION

The average price received for rams was $51.20, with their average measured production as shown in Table 1. This production was similar to that of other medium-wool Merinos, as described by Mullaney et al. (1969).

Table 1 shows the partial regression coefficients of price on each of the measured production traits, when either G or W was fitted, together with the standard partial regression coefficients. Price was dependent (P<0.05) on G (or W), D, COC and LWT, with the effects of birth type (BTY), count on diameter (COD) and wool type (WTP) being small and not significant. With all other factors held constant, price increased by $6.17 for each kg of G ($8.82 for each kg of W) and $1.01 for each kg in liveweight but decreased by $4.60 for each micron increase in diameter. Yield (Y), regarded as desirable by breeders, had no influence on price; however since W, in addition to G, was available to buyers, this was not unexpected.

Multiple regression equations were then recomputed, fitting only those traits that had a significant influence on the determination of prices, when all traits were considered. The relative influence of traits as measured by the magnitude of the standard partial regression coefficients remained unchanged, and the fraction of the variation in price accounted for by the four traits (G (or W), D, COC and LWT) was practically unchanged from that of all traits. The magnitude of the standard partial regression coefficients was similar for each trait, suggesting that buyers regarded these equally in determining auction values for rams.
TABLE 1
Unadjusted means, and partial regression coefficients (PRC) and standard partial regression coefficients (SPRC) for ram auction prices on fleece and body traits

<table>
<thead>
<tr>
<th>Trait</th>
<th>Fitting greasy fleece weight (G)</th>
<th>Fitting clean wool weight (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted means</td>
<td>Fitting all traits significant at 5% level</td>
</tr>
<tr>
<td></td>
<td>PRC</td>
<td>SPRC</td>
</tr>
<tr>
<td>Price (P) ($)</td>
<td>51.20</td>
<td></td>
</tr>
<tr>
<td>Greasy fleece weight (G) (kg)</td>
<td>6.25</td>
<td>6.17</td>
</tr>
<tr>
<td>Yield (Y) (%)</td>
<td>70.94</td>
<td>0.016 n.s.</td>
</tr>
<tr>
<td>Clean wool weight (W) (kg)</td>
<td>4.42</td>
<td></td>
</tr>
<tr>
<td>Mean fibre diameter (D) (Microns)</td>
<td>21.05</td>
<td>-4.60</td>
</tr>
<tr>
<td>Count on diameter (COD)</td>
<td>64*</td>
<td>-0.91 n.s.</td>
</tr>
<tr>
<td>Count on crimp (COC)</td>
<td>64*</td>
<td>1.73</td>
</tr>
<tr>
<td>Wool type* (WTP)</td>
<td>1.84</td>
<td>-2.93 n.s.</td>
</tr>
<tr>
<td>Liveweight (LWT) (kg)</td>
<td>65.2</td>
<td>1.01</td>
</tr>
<tr>
<td>Birth type* (BTY)</td>
<td>1.29</td>
<td>-0.56 n.s.</td>
</tr>
<tr>
<td>Price variation accounted for by fitted traits (%)</td>
<td>45.3</td>
<td>42.6</td>
</tr>
</tbody>
</table>

*see text for coding.  n.s. not significant at 5% level.

IV. CONCLUSION

The selection of animals by measurement is more efficient than by visual appraisal (Mullaney and Sanderson 1970), and there are now performance recording schemes being studied in most States in Australia. The success of performance recording depends on its being accepted not only by the stud breeder, but also by the commercial stock buyers, since most of the animals produced by stud breeders are destined for use by commercial breeders. The results presented here indicate that commercial breeders recognise the economic value of some production traits and are prepared to pay some premium for them.
V. REFERENCES


