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A measure of justice for Western Australian wools

John Stanton

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Western Australian wools are sometimes perceived as inferior to those from eastern States, and this perception has often been reflected in price. For the first time a detailed comparison of the characteristics of our wool with the rest of the country has been undertaken. It shows that Western Australian wools are sometimes different from their eastern counterparts, but not necessarily 'inferior'. Overcoming these industry perceptions of inferiority is probably our biggest challenge, according to JOHN STANTON.

Results show several interesting factors, but that **overall our wool is comparable** with the eastern States.

Sure, the industry in Western Australia lacks the flagship superfine wool sector of the east. But it also has fewer broad crossbred wools which can be an advantage for many buyers who want only Merino wool. The overall range of diameters is smaller and quality is therefore more consistent.

This more even quality is due to a higher proportion of adult Merino fleece, 62.5 per cent of the clip compared with 53.6 per cent for the rest of Australia. Comparative absence of non-Merino breeds used for fat lamb production is a major cause.

Western Australia is a major wool producer, supplying about 23 per cent of the national clip in 1992-93 and increasing since then. Unfortunately, many sections of the wool trade, including overseas buyers, believe that Western Australian wools are poorer in quality than the equivalent grown in the eastern States.

This has been reflected in price received at auction.

In order to try and achieve justice in the marketplace, we felt that the essential first step was to establish the facts. For the first time, we analysed data on wool sold at auction, comparing Fremantle with the rest of Australia from 1988 to 1993. This has never been done before for any selling centre or region.

Changing the perceptions

We calculate that the perceptions about quality of Western Australian wool are costing at least $20 million every year. The same wool selling at Fremantle rather than an eastern selling centre suffers an average 4 per cent price discount. Overcoming this is therefore high priority.

This centre effect could in part reflect higher buyer attendance costs, organisation of sales, composition of the offering, transport and shipping costs, buyer interest and competition or a combination of these issues.

In some markets Western Australian wools have a reputation for tenderness, a perception that causes our wool to be excluded from contracts of some processors, or blended in limited proportions with wool from other
Nature of production

Wool is produced over most of Western Australia except for the south west coastal regions and the arid north. Highest production levels are achieved in the higher rainfall Great Southern region where many properties run a mixture of sheep and grain enterprises (see Figure 2).

Farmer response to market prices for wool and wheat is often more rapid in Western Australia than other States. Between 1988 and 1990 higher wool but lower wheat prices encouraged wool production. Decline in 1991-92 with reduced prices although it remained economic to produce some wool on most farms. Pastoral areas had few alternatives. It is possible that since then wool production has stabilised earlier and at a higher level than the rest of Australia.

The WMI has been consistently lower than the EMI. The depression in the WMI during 1992-93 ranged from about 1 to 9 per cent, averaging 4.59 per cent lower than the EMI (see Figure 1).

The problem is that the EMI and WMI cannot really be compared because they relate to different wool types.

Figure 1. Estimated depression of wool prices caused by selling at Fremantle.

Fleece wool is sold in the White Sale Room in Fremantle. Its wooden benches and jarrah panelling from an older Perth building were brought to the new location in 1980. Mobile phones and computers, combined with television screens in the public gallery showing prices received, bring a modern touch to the traditional selling system.

States. This results in price discounts. Our studies show that a high proportion of Western Australian wool does not deserve separate treatment and has the specification to process equally well.

Currently, both greasy and scoured Western Australian wool is going preferentially into Western Europe. This may be due to a reluctance of Asian mills to take large volumes of our wool plus the possibility that the European millers know the wool is cheaper and have learnt to handle it satisfactorily.

Differences between the Western Market Indicator (WMI) and the Eastern Market Indicator (EMI) are quoted widely as evidence of local differences.
Analysis was restricted to wool sold at auction because the AWC does not collect information on private treaty sales. We have assumed that the characteristics of the total clip are represented by wools sold through auction.

Merino fleece wools were selected for the study as changes in the skirting wools would be closely related to changes in the fleece wools. Prematurely shorn wools and oddments represent only a small proportion of the clip and were not included.

Western Australian wool yields lower than some others because of a higher proportion of dust, as people would expect from a mainly Mediterranean climate rather than summer and winter rainfall. As wool is sold on a clean basis this is really incidental, although there is a tendency to put dusty wool into lower style categories.

Fibre diameter is strongly influenced by seasonal factors, particularly rainfall. In 1992-93 for example the average fibre diameter of Western Australian wool was higher than the rest of Australia because of good seasons compared with extensive poor seasons in the east.

Methods of analysis

The characteristics of Western Australian wool described in this article were obtained from analysis of Australian Wool Corporation (AWC) catalogue and auction information on all sale lots sold at Fremantle between July 1988 and June 1993. Information for the rest of Australia came from all other selling centres for the same period.

This Australian raw wool dataset contained 3.11 million sale lots. Analysis was restricted to wool sold at auction because the AWC does not collect information on private treaty sales. We have assumed that the characteristics of the total clip are represented by wools sold through auction.

Merino fleece wools were selected for the study as changes in the skirting wools would be closely related to changes in the fleece wools. Prematurely shorn wools and oddments represent only a small proportion of the clip and were not included.
Using objective measurements

Test results from a Great Southern and Murchison clip illustrate how objective measurement information can be used by the processing industry.

Significant differences exist in the average fibre diameter of the two samples. The 21.9 micron wool from the Great Southern is appreciably finer, and destined for much lighter yarns and softer fabrics than the Murchison clip.

The Great Southern vegetable matter (VM) of 1.2 per cent is relatively high but could be combed out of the wool before spinning. The 4.3 per cent VM from the pastoral wool is very high, and this wool would need acid treatment (carbonisation) to remove it before carding and combing. The disadvantage of this treatment is that it can leave the wool with a harsh handle.

The hauteur for the fine wool is sufficient for some orders, but a higher hauteur would be expected from broader wools.

The next refinement is to compare the predicted fibre length diagrams, shown below. The fine wool has a higher percentage of fibres around 30 mm which is a disadvantage as these short fibres produce problems in spinning and in fabric quality. The fibre length distribution of the broader wool is much better, and has a desirable flat top to the distribution.

The cause of these differences in fibre length can be seen in the staple measurements of length and strength and the proportion breaking in the middle third of the staple (mid position of the break).

The main differences involve strength and position of the break. The fine wool is sounder (higher strength of 34 N/ktex) but many of these staples broke in the middle (62 per cent). The broader wool is more tender (25 N/ktex) but only a few of these staples (26 per cent) broke in the middle third.

A small portion of the differences in hauteur would be due to the differences in staple length (94 mm compared with 90 mm).

The predicted hauteur for these wools is almost equal, showing the relative importance of each of these raw wool factors.

These differences in wool characteristics are assessed by the buyer and the decision is made as to whether the wool is suitable for a particular order or not. The most important assessment will be centred on the diameter of the wool, and the second will be on the expected hauteur.

The vegetable matter levels are usually expressed as a maximum allowable for the consignment, so the broader wool would be excluded from consignments with an allowable maximum of 1.5 per cent VM.

The next concern is the shape of the fibre length distribution, and here the proportion of short fibres will be a concern in the finer wools.

Similar results can be found for clips within each wool selling region. They do not indicate the differences between high rainfall and pastoral regions.

<table>
<thead>
<tr>
<th>Wool quality comparisons</th>
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</thead>
<tbody>
<tr>
<td>Area grown</td>
</tr>
<tr>
<td>Clean weight sold</td>
</tr>
<tr>
<td>Average fibre diameter</td>
</tr>
<tr>
<td>Estimated hauteur</td>
</tr>
<tr>
<td>Staple length</td>
</tr>
<tr>
<td>Staple strength</td>
</tr>
<tr>
<td>Position of break (% mid)</td>
</tr>
<tr>
<td>Vegetable matter content</td>
</tr>
</tbody>
</table>
Quality of wool

Most Western Australian wool was sold at auction (83.1 per cent) over the years studied, but the proportion was lower than for the rest of the country which sent 88.9 per cent through this selling system. Other wool is sold mostly to private treaty merchants.

On average over this five year period, Western Australian wools had a slightly greater fibre diameter than the rest of Australia (22.17 microns compared with 21.98 microns for the rest), carried less vegetable matter but also yielded less and had lower staple length and strength. See Table 1 and Figure 3.

Staple measurements were taken on fewer Western Australian wools compared with the rest of Australia in the earlier years. To overcome perception of inferiority, staple information on all sale lots is necessary.

Specific characteristics vary considerably between areas within the State. Analysis can be done to show how quality has varied. This information can be broken down further, even to individual clips as demonstrated in the comparison on the previous page.

Wool from similar areas also differs in character reflecting individual management effects – information that could be used to the advantage of both producers and processors.

Profiles on clips have been produced for several groups including the Australian Merino Society, the Merinotech WA Group and the Darkan Group. This service can be provided for other individuals or groups on request.

Table 1. Raw wool characteristics for all sale lots of Merino combing fleece wool from July 1988 to June 1993

<table>
<thead>
<tr>
<th></th>
<th>Western Australia</th>
<th>Rest of Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-sale measurement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diameter</td>
<td>22.17 microns</td>
<td>21.98 microns</td>
</tr>
<tr>
<td>Vegetable matter content</td>
<td>1.97%</td>
<td>1.13%</td>
</tr>
<tr>
<td>Seed and shive</td>
<td>0.63%</td>
<td>0.64%</td>
</tr>
<tr>
<td>Yield</td>
<td>66.55%</td>
<td>70.21%</td>
</tr>
<tr>
<td><strong>Staple measurements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staple length</td>
<td>89.8 mm</td>
<td>92.2 mm</td>
</tr>
<tr>
<td>CV* of staple length</td>
<td>15.3%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Staple strength</td>
<td>33.0 N/ktex</td>
<td>36.4 N/ktex</td>
</tr>
<tr>
<td>Position of break (mid)</td>
<td>57.2%</td>
<td>58.0%</td>
</tr>
<tr>
<td><strong>Predicted top characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hauteur (est.)</td>
<td>67.5 mm</td>
<td>70.4 mm</td>
</tr>
<tr>
<td>CV* (hauteur est.)</td>
<td>51.3%</td>
<td>50.2%</td>
</tr>
</tbody>
</table>

* Coefficient of variation
Hauteur – important dimension for processors

Hauteur is the term used in the wool trade for the average fibre length in the wool top – the loose rope of wool fibres, combed and ready for further processing.

Hauteur comes from the French word for height. It is one of the main price determinants of wool top and influences spinning and weaving performance, yarn and fabric quality.

Seasonal factors as well as breeding and management influence hauteur. Changes in hauteur are brought about by the combined effects of changes in length, strength and the position of break. Therefore staple measurements are essential to estimate hauteur changes.

In general, the greater the hauteur, the better the processing performance and the more valuable the top.

The difference between seasons can be seen when examining the production of various diameter/hauteur combinations. In the poor season of 1991-92 production centred around wool averaging 22 microns fibre diameter and 65 mm estimated hauteur. In 1992-93 it rose to 23 microns and 70 mm. Dry seasonal conditions in 1994-95 may produce finer average diameter and lower hauteur.

Analysis shows that wool with a higher diameter also tends to have a higher hauteur. Orders from buyers seeking the middle of the range for diameter and hauteur are less affected by seasonal changes than those seeking fine and short or broader and longer orders.

Overall, the estimated mean hauteur of Western Australian wool for 1992-93 using the TEAM equation was 69.2 mm compared with 71.1 mm for the rest of Australia. The distribution is shown in the graph below. Fewer western sale lots had an estimated hauteur more than 75 mm.

It is interesting that the buying trade and processors have reservation about using wool in excess of 75 mm as the increased length causes difficulty in spinning.

<table>
<thead>
<tr>
<th>Western Australia</th>
<th>Rest of Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of lots</td>
<td>24,921</td>
</tr>
<tr>
<td>Mean</td>
<td>69.20</td>
</tr>
<tr>
<td>SD</td>
<td>6.37</td>
</tr>
</tbody>
</table>

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Wool tops of different hauteur have different end uses. The woven grey crepe came from worsted, high twist yarns under 65 mm; the woven tartan was made from worsted yarns from tops over 70 mm long; and the pink jersey is a knitted fabric from worsted yarns made from short (less than 55 mm) tops.

Conclusions

The Western Australian wool industry is competing in a very tough market against both interstate and overseas wool supplies, plus man-made fibres in which total quality control standards are high.

The processing capabilities of our wool will satisfy many specialist markets. Our analysis provides the basis for both producers and processors to make firm decisions about wool quality and understand how to use our wool to mutual advantage.

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