

Inside

The rams are out!
Wool buyers and western fine wool
Processing western fine wool

Highlights

Fine wools generate higher returns
Fibre curvature
Western fine wool style

Finewool Outwest

The Newsletter of The Condobolin Fine Wool Project

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Fine wools generate higher returns

You can make money from growing wool.

Can you claim to have averaged 899 c/kg clean for the fleece lines from your last shearing?

The Condobolin Fine Wool Flock can. This was the average clean price received for the 4,705 kgs of fleece wool from the wethers shorn in August 1999 and sold in November/December at sales in Goulburn (R01) and Sydney (S15). This represents an average of \$30.57 per head for the wether flock.

The wool from the wethers had an average fibre diameter of 19.3 μm , a yield of 67.4%, 1.7% vegetable matter, 88 mm staple length and was 31 N/ktex in strength with 92% midbreaks.

Condobolin district (WSA N35) in the 1998/99 wool selling season was 22.0 μm and the average clean price was 481 c/kg.

But the average returns from the wether flock do not tell the whole story. When the fleece lines are grouped into micron categories (superfine $\leq 18.5 \mu\text{m}$; fine 18.6 - 20.5 μm and medium $\geq 20.6 \mu\text{m}$), further price differences were evident (Figure 1).

The superfine wool was 18.3 μm and averaged 1,112 c/kg clean, the fine wool was 18.9 μm and made 966 c/kg clean, while the medium wool was 21.5 μm and not surprisingly fetched the lowest price at 452 c/kg clean.

The wool from the breeding flock followed the same trends as the wether flock. It had an average fibre diameter of 20.3 μm , a yield of 69%, 1.5% vegetable matter, 79 mm staple length and was 34 N/ktex in strength with 66% midbreaks.

The average clean price received for the ewes in the breeding flock was flock 652 c/kg. Again there was a substantial variation in the prices received for each micron group (Figure 2).

The superfine wool averaged 1,051 c/clean kg, the fine wool 605 c/clean kg and the medium wool 451 c/clean kg. The hogget wool, which includes fleeces from both the wethers and ewes born in 1998, was 18.3 μm and sold for 1,189 c/clean kg.

Is your bloodline giving you returns like these?

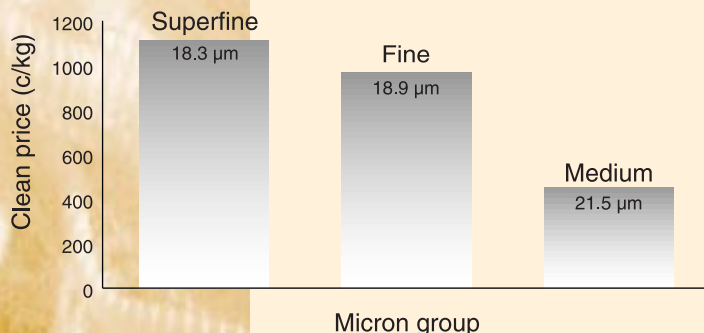


Figure 1: Superfine wool from the wether flock made the highest price.

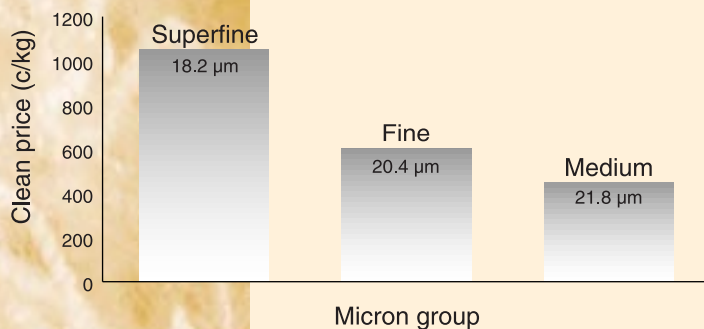


Figure 2: Superfine and fine ewes' wool produced higher returns.

How does this compare to your returns from your wool clip? As an example, the average fibre diameter of Merino fleece wool grown in the



NSW Agriculture



Fibre curvature

Do you need to include it in your breeding objective?

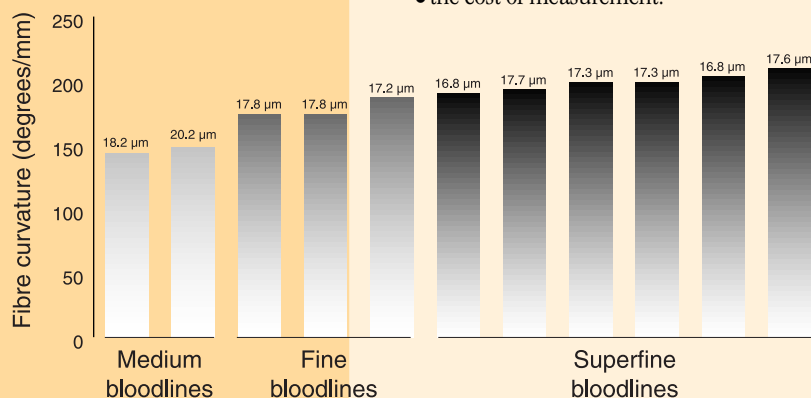


Figure 3. Fibre curvature increases as the average fibre diameter of the flock decreases.

Fleece test results from the wethers in the Condobolin Fine Wool Flock were used to find out more about each of these areas and to determine whether any extra benefit will result from selecting for fibre curvature in a breeding program.

Heritability

For the Condobolin flock, the heritability of fibre curvature was 0.35. This is similar to that of fibre diameter (0.39) and fleece weight (0.32), which are the two major wool traits which drive profit in a Merino wool growing enterprise. Therefore, fibre curvature is under a similar degree of genetic control as these two important traits and will respond to single trait selection in much the same manner.

Variation in fibre curvature

There was a large amount of between bloodline variation in fibre curvature (Figure 3). In fact, the separation of the bloodlines on fibre

curvature was more pronounced than the separation on fibre diameter.

The fibres of the superfine bloodlines were the most highly curved with flock averages ranging from 190 to 209 degrees per mm. The fine bloodlines had slightly lower fibre curvature, ranging from 174 to 187 degrees per mm. The medium wool bloodlines had the least curved fibres of the three micron groups, with values of about 145 degrees per mm.

This indicates that it is possible to make significant changes in fibre curvature by changing bloodlines. But, the value of doing so depends upon relationships between fibre curvature and other wool traits of importance in the breeding objective.

Relationships with other traits

The relationships between fibre curvature and the major traits influencing the value of wool in this flock were generally favourable.

Selection to improve fibre curvature (i.e. decrease fibre curvature leading to smaller degrees of curve per mm) will lead to increased greasy and clean fleece weights, while only slightly increasing fibre diameter and decreasing bodyweight.

As a result there would be no real need to include fibre curvature into a breeding objective. A breeding objective which has emphasis on decreasing fibre diameter and increasing fleece weight, will lead to a decrease in fibre curvature as required.

Why is it desirable to decrease fibre curvature? Research into fibre curvature and wool processing performance has identified that high fibre curvature results in poor processing performance.

Wool with high fibre curvature produces higher processing wastes, shorter hauteur, poor spinning performance and increased yarn faults during spinning.

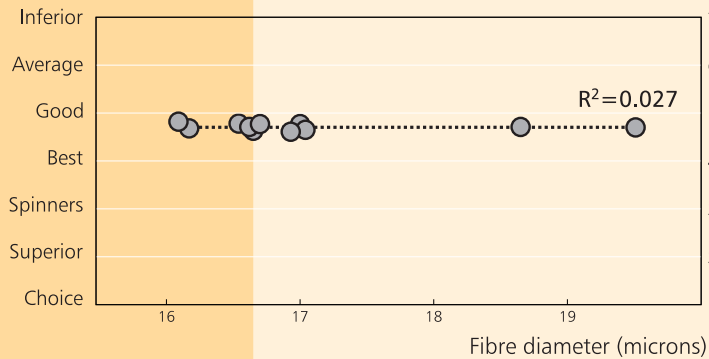
Cost of measurement

The cost of fibre curvature measurement will not impact on your decision to include it in your breeding objective as fibre curvature is reported for no extra charge when fibre diameter is measured on either the Laserscan or OFDA.

In conclusion, it is not necessary to include fibre curvature into your breeding objective if you are currently selecting for decreased fibre diameter and increased fleece weight. By doing this, the genetic relationships between fibre curvature, fibre diameter and fleece weight will ensure that fibre curvature will be decreased

Western fine wool style

Does the environment adversely affect the style of fine wool?



‘Style’ is used by the wool industry to describe the visual and tactile properties of wool. Assessed style, whether based on the old AWC wool typing system or its successor AWEX-ID, is a composite trait influenced by a number of other traits including crimp definition and frequency, greasy wool colour, brightness, handle and fleece structure.

deteriorate in ‘non-traditional’ fine wool environments.

A recent analysis of the style of the wool grown by the wethers in the Condobolin Fine Wool Project found that there was only a weak positive relationship between assessed style and fibre diameter (Figure 4).

Each of the bloodlines were assessed as having wool in the range of MF4 to MF5, or good to best topmaking.

This demonstrates that the environment affects the style of the bloodlines comprising the wether flock at Condobolin equally. There was no evidence to suggest that the style of the superfine or fine bloodlines was any worse than the style of the medium bloodlines.

Our research with sheep coats will tell us whether they will adequately protect the fleeces of superfine and fine bloodlines in western environments. Sheep coats may become a viable management tool to add value to a portion of your wool clip and take advantage of the premiums which exist for style in fine wool.

Figure 4: Assessed style and fibre diameter are not strongly related.

There is a strong belief among wool growers that the style of fine and superfine wool will

Are western fine wools discounted by wool buyers?

Fine wools grown in ‘non-traditional’ fine wool environments are not discounted by wool buyers at auction.

This is one important result from a recently completed analysis into the prices received for fine (18.5 - 20.5 µm) wool grown in NSW. We used actual wool sale data from the past 10 wool selling seasons (i.e. 1989/90 - 1998/99).

The aim of the analysis was to determine whether fine wool produced in western areas was discounted by buyers because of the area in which it was grown.

(fibre diameter, staple length, staple strength, vegetable matter - burr, seed & shive, hardheads, style and assessed colour).

We found that when the variation in each of these traits was included in the analysis, we could explain 92% of the total variation in the clean price of fine Merino wool grown in NSW.

The map of NSW shows the price differential between different WSA’s remaining after the variation in each of those factors was accounted for (Figure 5).

Each of the numbers on the map represent the price difference (in cents) from an average price of 951 c/kg clean.

This map proves that ‘traditional’ and ‘non-traditional’ fine wool environments do exist.

There was a general trend for the tablelands (northern, central and southern) and western Riverina areas of NSW to receive above average prices with other regions receiving below average prices.

But more importantly, it shows that when sale lots of fine wool are fully specified the price differential between areas in which the wool was grown is unimportant. The range of price differentials was only 27c / kg clean which is less than 3% of the average price paid for NSW fine wool over the 10 year period.

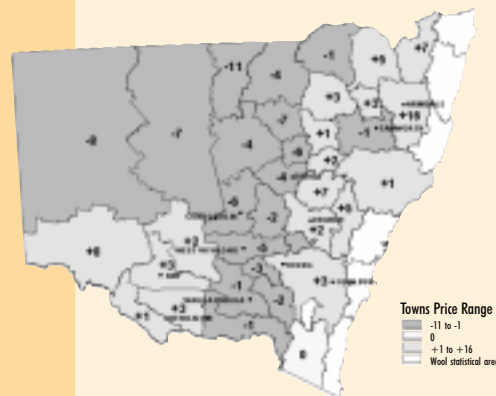


Figure 5: Price differences between WSA’s are small.

When we analysed the data we took account of the year of sale, week of sale, where the wool was sold, where the wool was grown, the weight of each sale lot and the wool traits of each lot

The rams are out!

The establishment of a fine wool breeding flock at Condobolin Agricultural Research and Advisory Station (ARAS) has been completed.

Rams and ewes have been sourced from two superfine (Europambela and Ledgerton), two fine (Mirani and Merryville) bloodlines as well as two local bloodlines (Centre Plus and Roseville Park). The superfine and fine bloodlines were based on their performance in the wether flock and industry significance.

We now have at least approximately 120 ewes from each bloodline which will be mated to two rams.

The ewes were split into their bloodline groups for mating and the rams put out on 19th January. After a six week joining period the rams will be taken away from the ewes in early March and the ewes run together as one mob until lambing in July/August.

The ewes will be scanned for pregnancy in April/May. These results will be reported in a future edition of **'Finewool Outwest'**.

The processing performance of western fine wools

The most important factors which determine the value of a wool top are fibre diameter and hauteur (the average fibre length in the top). Other factors of significance are the fibre length distribution (CV(H) and short fibre content), contamination and the efficiency at which the wool is processed.

The aim of the game is to maximise the amount of top produced and minimise the amount of processing wastes from the raw wool input.

We have done a preliminary comparison of the processing performance of fine wool from fleeces grown in Armidale and Condobolin. We matched the batches as closely as possible for diameter, length, strength, midbreaks and crimp and processed them using the CSIRO Division of Textile and Fibre Technology mini-topmaking mill.

Tops produced from Condobolin grown wool were shorter, more variable in length and had more short fibre in the 15 and 30 mm classes

compared to the Armidale grown wool (Figure 6).

In addition, the processing efficiency of the Condobolin wools was less than that of the Armidale wools. From the same amount of raw wool input, Condobolin grown wools produced less top and more card waste.

The differences in processing performance can be partly explained by the raw wool inputs from both Armidale and Condobolin. Despite trying to match the characteristics of the fleeces selected, the Condobolin grown wools had slightly lower staple strength, a higher percentage of midbreaks and higher VM content than the Armidale wools.

Low staple strength combined with high midbreaks results in a high number of fibres breaking in the middle during carding. This produces high card waste, shorter hauteur, higher short fibre content and lower top yield. High VM content, particularly if it is predominantly burr, also contributes to increased fibre breakage during carding.

The Condobolin grown wools were more weathered by ultra-violet (UV) light than those from Armidale (4% compared with 0.1%) and had a higher dust content. Weathering increases the short fibre content and thus also contributed to the difference in processing yields.

Further details of the processing performance of western fine wools will appear in a future issue of **'Finewool Outwest'**.

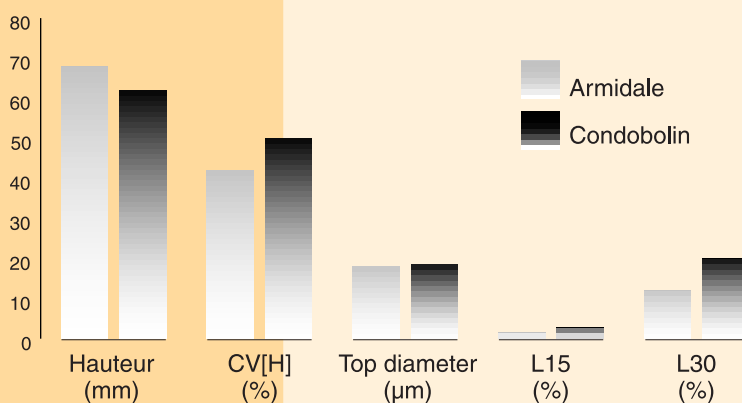


Figure 6: Condobolin wool tops were shorter and more variable in length

For more information...

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