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Fine wool fleece best at Condo show — again!

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# Finewool Outwest

The Newsletter of The Condobolin Fine Wool Project

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## Strategies for breeding finer wool

*What can a commercial wool producer do?*

Reducing your flock's fibre diameter can give you a major increase in income and profit. The updated Merino Bloodline Comparison analysis shows clearly that the average fine wool bloodline has a 28% higher gross margin/dse than the average medium wool and 38% higher than the average broad wool (Table 1).

*Table 1: You can choose the best bloodline for more income.*

Bloodline/wool type	Income (GM/DSE)	
	Average %	Range %
Fine	+24	+17 to +35
Fine/Medium	+6	-24 to +22
Medium	-4	-25 to +19
Broad	-14	-21 to -7

Clearly, your choice of a bloodline can have a large impact on the profitability of your flock. But, in order to take advantage of the improvement in profitability that can be achieved through changing bloodline you must have a sound strategy for change.

Without a sound strategy in place you can lose money in the process of making a bloodline change. A sound strategy for change will almost certainly result in an increase in income.

To be sure that you will obtain an increase in income you must have:

- A clear understanding of the present performance of your flock relative to the range of industry options;
- A clear breeding objective based on solid commercial information; and
- A strategy to achieve the change targeted, that is cost efficient and can be achieved in the right time frame.

## *Benchmark the performance of your current ram source*

For the majority of commercial woolgrowers the first step is to benchmark the performance of your current bloodline. The best way to do this is to use the information in the Merino Bloodline Performance package. The Bloodline Performance Agnote in the package has recently been updated and now contains a contact list for the breeders of each bloodline.

You will need to identify your ram source in the bloodline list contained in the package and use this information to locate your bloodline on the CFW and FD graph. You can also do this with the GM/dse and FD graph.

Further work can fine tune your benchmark. If you have entered a team in a wether trial, your team's performance can be benchmarked against the Merino Bloodline Performance data. Alternatively you can enter a team into a wether trial or get together with other woolgrowers to establish a trial.

Once you have benchmarked your performance using the Merino Bloodline Comparison data you will need to source further information to update your benchmark. This is because the Merino Bloodline Comparison data represents the performance of the bloodlines over the past 10 years.



NSW Agriculture

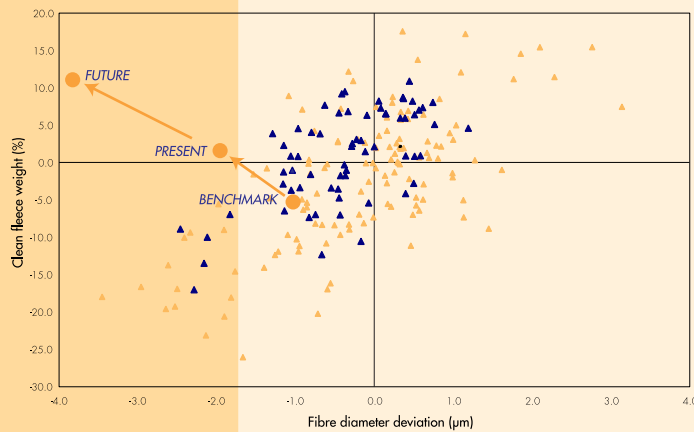
# Strategies for breeding finer wool

*What can a commercial wool producer do?*

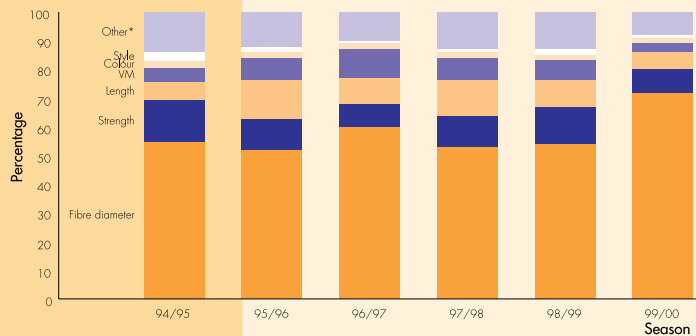
You will need to ask your ram source what genetic progress they have made over the last ten years. Ask your ram source:

- What is their future breeding objective?
- How much change have they made recently and over what time period?
- How are they going to achieve their breeding objective?

Most importantly, ask for proof of their genetic progress. Can your ram source provide you with information about changes in their stud's performance over the past 5 or 10 years?



*Figure 1: An accurate benchmark will identify whether money can be made by changing ram sources.*



*Figure 2: Fibre diameter has the greatest impact on returns for your wool.*

The answers to these questions are very important as once you are using rams from a particular ram source your future progress is largely determined by the progress that the ram source is making.

The information from your current ram source will allow you to update your benchmark. You can now compare this updated benchmark to other ram source options and your breeding objective (Figure 1). Can you make more money by changing ram sources?

If your benchmarking results indicate that you can expect an advantage from introducing a new bloodline it is normally an advantage to monitor the performance of the new bloodline via an on farm ram or ewe evaluation.

## **Develop a breeding objective**

A breeding objective is a description of the performance of your flock at some point in the future. It needs to be:

- Profit driven and have a commercial focus;
- Well defined in terms of the traits included and the emphasis placed on each;
- Measurable in terms of microns and kg (not 'finer' and 'heavier');
- Practical so that you can accurately select for traits;
- Cover a specific time period such as 10 years; and,
- Realistic or achievable.

Make sure that the traits in your breeding objective impact on the profit of your flock, such as fibre diameter and clean fleece weight. If you already have a flock with reasonable performance for traits of lesser economic value, such as wool colour, putting a lot of effort into improving them will not significantly improve your profitability (Figure 2).

## **Choose the right strategy**

Which strategy you choose will depend on how much change you wish to make in your flock's performance. For example:

- **Small change** eg up to 0.5µm finer  
To achieve a small change you can either purchase more productive rams from your current ram source or choose the same grade of rams and rely on your ram source to make progress.
- **Moderate change** eg up to 1.5µm finer  
To make moderate change your current ram source must be making major progress or you should change to a ram source that is finer than your current one.
- **Large change** eg more than 1.5µm decrease  
A large change will always favour a bloodline change, particularly if you want the change to occur now and not later.

## Strategies for breeding finer wool

*What can a commercial wool producer do?*

## Fine wool fleece best at Condo show — again!

## Measurement and profit in commercial flocks

*Commercial flock returns can be increased by a single hogget fibre diameter measurement*

There are also various short term strategies you can use to improve your flock's performance. You can buy in ewes and wethers as well as rams from the new bloodline. But make sure you consider all the relevant issues such as your short term cash flow, the possibility of introducing disease or weeds onto your property and the performance of the animals you are introducing.

The rewards from identifying the most profitable bloodline can be high and immediate. There is no single recipe for all wool growers. However genetic gains can be achieved by all woolgrowers through choosing the right strategy.

*This article was based on a presentation made by Allan Casey at the Condobolin Fine Wool Project's Open Day. For further information, please contact Allan by phone 6391 3812, fax 6391 3922 or email [allan.casey@agric.nsw.gov.au](mailto:allan.casey@agric.nsw.gov.au)*

A number of fleeces were again chosen during this years shearing to be used at field day displays. Some of these were entered in various classes of the Merino fleece competition at this years Condobolin show. For the second year in a row, one of our fine wool fleeces was judged to be the winner of

the "Best Commercial Fleece" section and finished second to the champion fleece of the show. This 4.4kg fleece was estimated to be valued at between \$57 and \$82. Interestingly, the second placed fleece had an estimated value of less than \$30!

For commercial wool producers, using measurement to identify the most productive and profitable sheep in your flock can lead to large increases in productivity. Three options are available:

- Selecting sheep for the length of their productive life according to their genetic merit;
- Accounting for measured performance in the preparation of sale lots of wool; and
- Identifying groups of animals on genetic performance level for differential management according to genetic merit.

### ***Selection for length of productive life according to genetic merit***

Manipulating the age structure of your flock can decrease your average fibre diameter. The reason is simple, all animals tend to get broader with age. Therefore it is reasonable to conclude that having fewer age groups in your flock will lower fibre diameter.

*Table 2: The impact of changing age structure is small.*

No. of age groups	Average fibre diameter
6 (2-7 years)	21.1
5 (2-6 years)	21.0
4 (2-5 years)	20.9
3 (2-4 years)	20.8

But the impact of altering age structure is only small. For an average 21 micron flock, altering the age structure can lead to about a

0.2 micron decrease in the flocks average fibre diameter (Table 2).

A much better strategy to use is to select replacements for your flock based on their measured fibre diameter as hoggets. This strategy can lead to a decrease in your flock's average fibre diameter of up to 0.5µm in adult ewes and up to 1µm in adult wethers. There is also a small spill-over effect in hoggets.

Potential responses for an average 21µm flock can be seen in Figure 3. Remember that these gains are additional to those that might be achieved in the ram source.

This change occurs because fibre diameter varies between animals, and is the most highly repeatable (a single measure is very accurate) and strongly heritable (largely influenced by the animal's genes, not the environment) of all traits in Merino sheep.

Within each flock, there is a range of animals with varying average fibre diameters:

- A 17 micron flock contains individuals ranging from 14 to 20µm.
- A 21 micron flock varies from 17 to 25µm.
- A 24 micron flock varies from 19 to 29µm.

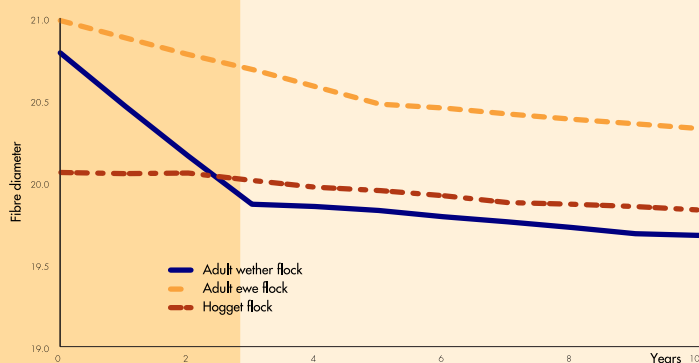
The challenge is to use hogget fibre diameter measurements to select the most profitable replacements for your flock. You want to identify those sheep which are finer than average and keep them for longer in your flock.

## Measurement and profit in commercial flocks

*Commercial flock returns can be increased by a single hogget fibre diameter measurement*

The actual amount of change in average fibre diameter you will achieve as a result of selecting animals based on their hogget fibre diameter measurement will depend on:

- Requiring few animals from many available. You will need to maximise the reproduction rate and optimise the age group structure in your flock to make sure that you have enough hoggets to select your replacements from.
- Minimising classing out on traits that are not related to economic performance. Make sure that your classer is culling animals with obvious structural or conformation defects. If your classer is culling more than 15% of your flock on a visual basis only, your fibre diameter change will be small.
- Matching measured performance with the animal. By tagging each animal and recording its fibre diameter measurement, information from this one hogget wool test (costing about \$1.50) can be used in future decisions about each animal.



*Figure 3. Using hogget fibre diameter to select replacements will improve productivity.*

### **Accounting for measured performance in the preparation of sale lots of wool**

Tagging each hogget and recording their fibre diameter measurement has the added benefit of allowing you to use this information to class fleeces into lines during shearing to maximise price.

The benefits of doing so will depend upon the average fibre diameter of your flock and relies on the substantial micron premiums for finer wool. For example, instead of having

10 bales of 21 micron wool you may now have one bale of 19µm, a couple of bales of 20.5µm and the remainder 21.5µm.

Under current market conditions the average price received for the differentiated lines based on average fibre diameter will be dollars ahead of lumping all your wool into one line.

A computer optimisation program is currently being developed by NSW Agriculture's Merino Breeding Group and can be used to minimise the number of lines created during shearing while maximising the price.

### **Identifying groups of animals on genetic performance level for differential management according to genetic merit**

The third option is to use that same hogget fibre diameter measurement to divide your flock into sub-flocks according to their performance level. You can then manage these groups differently according to their genetic potential.

Some options for sub-flocks are:

- Allocating superior rams to superior ewes at mating;
- Producing wethers to keep as woolgrowers from the most productive sub-flock and selling those from a lower sub-flock as store sheep;
- Differential pasture management for the superior part of the flock by allowing these sheep access to better levels of nutrition or by restricting their exposure to paddocks containing high levels of vegetable matter or dust; and
- Using sheep coats for those animals producing the most valuable fleeces.

Clearly, measurement within the commercial Merino flock can have a large pay-off. Most importantly, the reductions in fibre diameter and improvements in profitability can all be achieved through a single fibre diameter measurement on each hogget in your flock.

At a cost of about \$1.50 per head, can you afford not to make this investment?

*This article was based on a presentation made by Dr Kevin Atkins at the Condobolin Fine Wool Project's Open Day. For further information, please contact Kevin by phone 6391 3816, fax 6391 3922 or email kevin.atkins@agric.nsw.gov.au*

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