Department of Primary Industries

primefact

Choosing a bloodline source

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The performance of Merino bloodlines is reported in Primefact 1472, *Merino bloodlines: a comparison based on wether trial results 2006 – 2016.* Throughout this publication it will be referred to as Primefact 1472

Introduction

The following five steps, in conjunction with the latest Merino bloodline comparison results reported in Primefact 1472, will help a commercial wool producer to efficiently identify a ram source that will maximise profitability.

Step 1: Your flock breeding objective

Firstly, set your commercial flock's long-term breeding objective. Fleece weight, fibre diameter and liveweight commonly dominate the emphasis that is placed on the range of traits in a breeding objective, due to their influence on profitability.

Fleece weight, fibre diameter and liveweight components of the objective can be a production target or an economic statement.

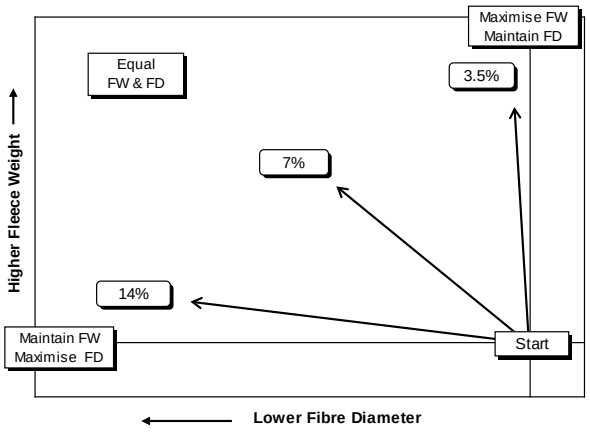
- **Production target**: for example, *'I wish to increase fleece weight by 10 per cent while maintaining my flock's current fibre diameter and liveweight'*.
- **Economic statement:** for example, *'based on a 7% micron premium, I will place equal emphasis on reducing fibre diameter and increasing fleece weight, while maintaining liveweight, reproduction and staple strength'*.

Understanding the relationships between the two forms of objectives is critical if the breeding objective is going to accurately reflect your aspirations.

The production and market relationship

The general relationship between a production target objective and an economic statement objective or index is shown in Figure 1. The three options shown are examples of the continuous range of objectives that breeders commonly choose. An index is a summary of the performance of a sheep for a number of traits expressed as a single value.

Figure 1 Basic breeding objective options



Each option describes both a production direction that a breeder may feel is the 'way to go' and an economic statement of the relative market value for fleece weight and fibre diameter (micron premium).

For example, in Figure 1, the '3.5%' option describes the target breeding objective, *'I want to maximise the production of fleece weight, while maintaining fibre diameter'* and also the economic based breeding objective, *'I feel that the wool market value for 1 kg of my wool at 1000 cents will increase in price by 35 cents (i.e., 3.5% MP) with a 1 micron reduction in fibre diameter'*.

Breeders need to understand the basis for and the outcome of their breeding objective, as opposed to merely having one – often inherited or provided by someone else. Understanding both the performance outcome and the type of market you consider will be in place in the future is critical to this understanding.

What is a micron premium?

A micron premium is a measure of the relative value of fibre diameter and fleece weight in the wool market.

Calculating a micron premium is a simple process. For example, the 20 micron premium is the value of fibre diameter (the difference between the price of 20 µm and 19 µm wool) divided by the value of fleece weight (valued at the 20 µm price) and expressed as a percentage.

When developing a breeding objective for a particular flock it is preferable to use the prices for a wool type relevant to that flock. The prices could be spot prices or average values calculated over a longer period to account for short term market fluctuations or they could be values considered relevant in the future.

The following example sets out how to calculate a micron premium:

Step 1

Obtain the values for the two micron categories needed for the calculation. In this case, 20 µm wool and wool one micron finer.

For example:

- 20 µm value = 1,000 cents per kg
- 19 µm value = 1,150 cents per kg

Step 2

Calculate the value of fibre diameter – that is the difference between the value of 1 kg of wool at the fibre diameter being considered and the value of 1 kg of wool one micron finer.

The difference between 20 µm and 19 µm

= 150 cents per kg

Step 3

Calculate the value of fleece weight – that is the value of 1 kg of wool at the fibre diameter being considered.

The value of 1 kg of 20 µm wool

=1,000 cents

Step 4

Calculate the micron premium – that is the ratio between the value of fibre diameter and the value of fleece weight (the value of fibre diameter divided by the value of fleece weight expressed as a percentage).

20 micron premium = (150/1000) x 100

= 15%

In this example the micron premium is 15%, which means that the producer would be paid 15% more for wool that is one micron finer. To achieve an equivalent increase in income by increasing fleece weight, fleece weight would need to be increased by 15%. Figure 1 in Primefact 1472 indicates the scope for achieving either of these changes for the bloodlines included in the current analysis.

Step 2: Benchmark performance

Establish your current bloodline's performance relative to other bloodlines; that is benchmark its performance. Compare this performance to your flock's breeding objective and identify if there are other bloodlines that match your objective. If there are suitable bloodlines, make a 'short list' of options that will be the basis of your further considerations in steps 3, 4 and 5.

Benchmarking can be effectively carried out for either a production or economic-based breeding objective.

- **Benchmarking a production objective:** Find your current bloodline in Table 2 and use its code to locate the bloodline on Figure 1 (Primefact 1472). **Do not** use your flock's on-farm fleece weight and fibre diameter performance to locate the position of your flock on Figure 1. Your on-farm environment will be different to the 'average' comparison environment used to calculate bloodline performance, which are based on comparisons made across Australia.
- **Benchmarking an economic objective:** To benchmark your bloodline's economic performance, use the calculated financial performance if it matches your objective. A five-year median price (2011 to 2015) was used to calculate the financial performance of the bloodlines in Table 2 and Figures 4 to 7 of Primefact 1472.
- The five-year median prices have been summarised in Table 3 of Primefact 1472.

If your production or economic-based objective is significantly different from the objective described by the financial performance provided in Table 2, you will need to calculate a relevant financial performance using the bloodline performance results for fleece weight, fibre diameter and liveweight in Table 2 of Primefact 1472.

Step 3: Consider all traits

You must consider your flock's long-term breeding objective for all traits if you are to make a sound choice of bloodline. While fleece weight, fibre

diameter and liveweight will dominate many Merino breeding objectives, other traits will also affect your choice of bloodlines. For example, if additional wool quality traits are in your breeding objective and were not included in the benchmarking process, they now need to be considered. It is important that the influence of these traits on choosing a bloodline source takes account of their relative emphasis in the objective.

Economic benchmarking has an advantage when a large number of traits are being considered. The relative economic values given to the traits in the breeding objective allow all traits to be accurately balanced for each bloodline. Variables such as the effects of liveweight on stocking rate are now accounted for in the calculation of bloodline financial performance (see Primefact 1472 for more detail). When all traits are considered, bloodlines that were short-listed in step 2 and are now shown to be significantly poorer performers can be dropped from further consideration.

Traits in your objective not listed in Table 2 of Primefact 1472, such as fleece rot resistance, reproductive rate and conformation will also need to be considered. You need to research the relative performance for these traits for your short-listed bloodlines. Some of these traits are evaluated at **Merino sire evaluation** sites, and site reports can be accessed from the AMSEA website: http://www.merinosuperiorsires.com.au.

If you find that a short-listed bloodline does not have satisfactory performance for a trait, this bloodline may need to be dropped from the list.

It is critical that you keep in mind the relative emphasis of additional traits to strike the correct balance for your breeding objective. For example, do not drop a bloodline from your short list that is a standout performer for all the high emphasis traits in your breeding objective just because the bloodline is a little below the best performers for a low emphasis trait.

Step 4: Performance progress

The short-listed bloodlines that remain after steps 2 and 3 should be investigated further. Their breeding objectives, selection practices, genetic progress in the last 10 years and predicted progress for the coming 10 years may alter their performance relative to the results presented in Primefact 1472. There is a five to 10 year lag between a bloodline's performance in Primefact 1472 and their current performance. This will also be influenced by the origin of the teams entered in the trials. If the teams have originated direct from a bloodlines ram breeding flock there will be less lag than a bloodline whose data has been based solely on client teams.

Discuss, with a representative from each of the bloodlines that remain on your shortlist, the results of their own performance monitoring and their bloodline's likely rate of future progress. Without this information, it will be difficult to adjust the performance of results in Table 2 of Primefact 1472 to account for the breeding progress that some bloodlines will be making.

Each bloodline's performance monitoring system should be able to show their last 10 years' progress. The likely rate of progress defined by each bloodline's breeding objective will detail the change in performance that can be expected in the next 10 years of production. Based on your best estimate of changes in bloodline performance, reposition the short-listed bloodlines and where necessary recalculate economic performance.

Step 5: Constraints

Buying rams from a bloodline identified by the process in steps 2, 3 and 4 must be practical. Therefore, you should choose the best of the bloodlines left on your short list after Step 4, and ensure that they are a practical option.

The following are some of the practical constraints that need to be considered:

- the price of rams
- the availability of rams at the bloodline
- the time of year rams are available relative to your flock's need for the rams
- distance to travel to select rams and/or transport them to your flock
- the availability of relevant information to help you accurately select the rams available for sale

These constraints will often influence the selection of a ram source, particularly when several bloodlines have a similar rank based on the traits in your breeding objective.

The outcome

The five steps above allow the choice of a bloodline to be made efficiently and effectively. They commonly allow the many and varied bloodlines that are available in the marketplace to be reduced to a single best option that a breeder can feel confident in.

The value of a breeder completing or being a part of the five-step process is that they will have a clear understanding of the issues that might cause them to reconsider their bloodline choice.

Further information

To make the best use of this information, producers should consider the details on the inside cover of the bloodline performance folder and the additional information in the folder.

Primefact 1472 contains a comprehensive list of further information (page 18) that should be considered in detail before making your choice of the bloodline you wish to select from and the selection of rams from that bloodline.

If you require further information, contact

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