MERINOSELECT indexes

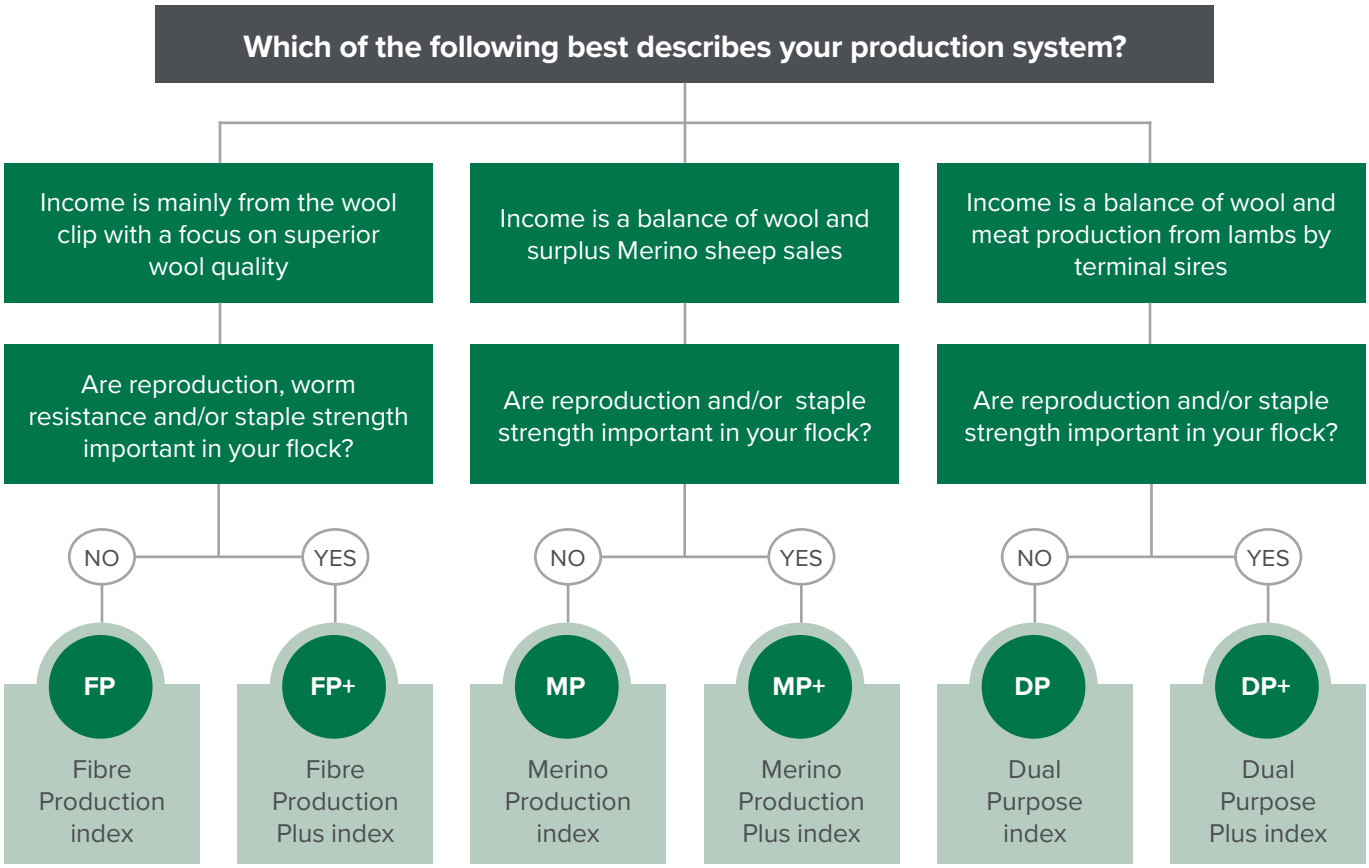
A ram buyer's guide

Indexes help producers select animals for use within a breeding program when there are a range of traits of economic or functional importance, so that genetic gain in one trait is not made in isolation from other traits.

Using indexes in your ram purchasing decisions allows you to make balanced genetic progress towards more profitable sheep for your production system. A ram with a higher index will produce progeny that are more profitable in that production system.

Choosing the right index

The following flowchart helps producers determine the best index for their Merino production system:



How to use the chosen index to assist in purchasing decisions:

Before the sale:

1. Rank animals in the sale on the value of your chosen index.
2. Consider the individual ASBVs which are important to you to create a short list of rams to look at on sale day.

At the sale:

3. Look through your short list of rams to find the ones that meet your structural and type requirements.

To assist in benchmarking sale rams relative to the current year drop of animals in the Sheep Genetics database, use the percentile band tables, which are found on the Sheep Genetics website: www.sheepgenetics.org.au/Getting-started/ASBVs-and-Indexes. The animals in the top 10th percentile rank the highest on the index, and those in the 90th percentile rank the lowest.

A brief overview of each of the indexes is included below. If you would like further information on how these selection indexes are generated, please refer to the *MERINOSELECT Indexes – ram breeder guide* at sheepgenetics.org.au/MERINOSELECT-breeder.

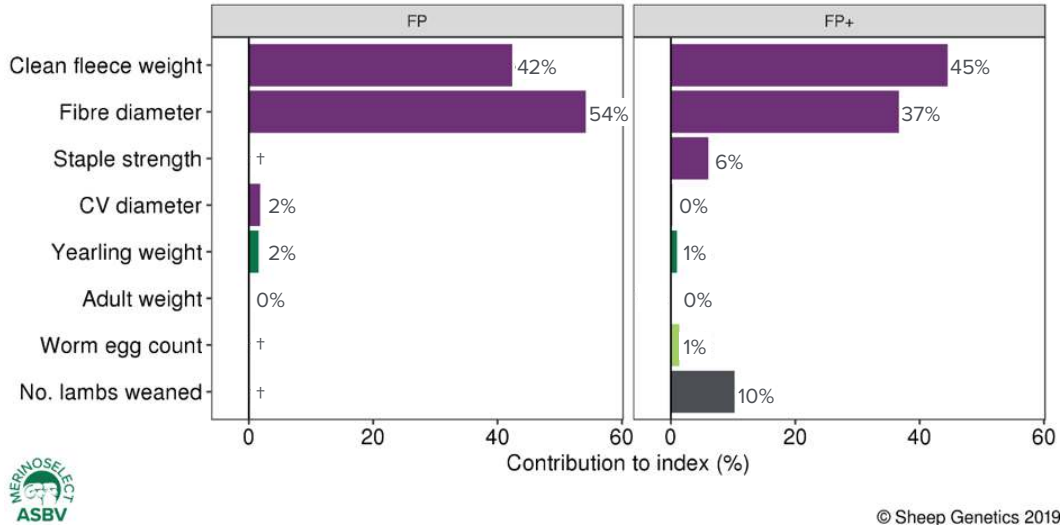
Fibre Production (FP) and Fibre Production Plus (FP+)

The FP and FP+ indexes are for a self-replacing Merino flock where the majority of income is from the wool clip. As this production system is commonly used in high rainfall zones where internal parasites cause significant economic losses, worm egg count is included in the FP+ index. Reproduction and staple strength are also included in the FP+ index.

Typical trait changes with the FP index:	Typical trait changes with the FP+ index:
• increasing clean fleece weight	• increasing clean fleece weight
• reducing fibre diameter	• reducing fibre diameter
• reducing CV of diameter	• reducing CV of diameter
• small increase in yearling weight	• small increase in yearling weight
• maintaining adult weight	• maintaining adult weight
	• increasing worm resistance
	• increasing number of lambs weaned
	• increasing staple strength

Figure 1 illustrates which traits are in each index and how much they contribute to the overall balance of the indexes in the top 10% of current progeny. The longer the bar, the greater the impact on the index, and the greater impact on the profitability of the production system.

Figure 1: The traits in the FP and FP+ indexes and how they contribute to the overall balance of the indexes in the top 10% of current progeny



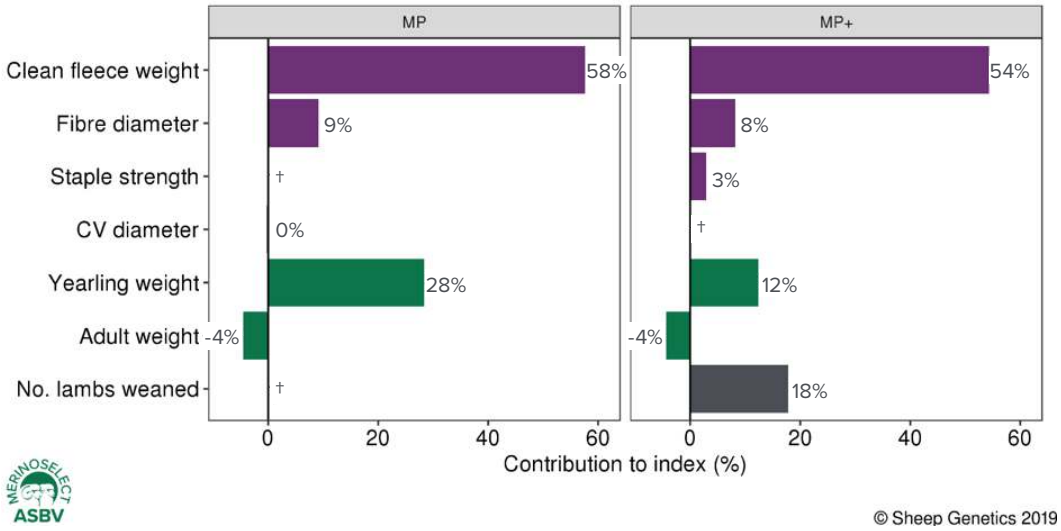
Merino Production (MP) and Merino Production Plus (MP+)

The MP and MP+ indexes are for a self-replacing Merino flock where the income is a combination of wool and surplus Merino sheep sales. Improvement of wool income is focused on a balance of increasing fleece weight and reducing fibre diameter, with a small degree of emphasis on maintaining or slightly increasing staple strength in the MP+ index.

Typical trait changes with the MP index:	Typical trait changes with the MP+ index:
• increasing clean fleece weight	• increasing clean fleece weight
• reducing fibre diameter	• reducing fibre diameter
• maintaining CV	• maintaining CV
• increasing yearling weight	• increasing yearling weight
• increasing adult weight*	• increasing adult weight*
	• increasing number of lambs weaned
	• increasing staple strength

Figure 2 illustrates which traits are in each index and how much they contribute to the overall balance of the indexes in the top 10% of current progeny. The longer the bar, the greater the impact on the index, and the greater impact on the profitability of the production system.

Figure 2: The traits in the MP and MP+ indexes and how they contribute to the overall balance of the indexes in the top 10% of current progeny



* *Adult weight makes a negative contribution to the index when considered on its own because bigger ewes have higher feed costs. However, bigger ewes also produce more lambs which reach sale weight faster, so the index makes a trade-off to achieve an optimal balance across all traits.*

Dual Purpose (DP) and Dual Purpose Plus (DP+)

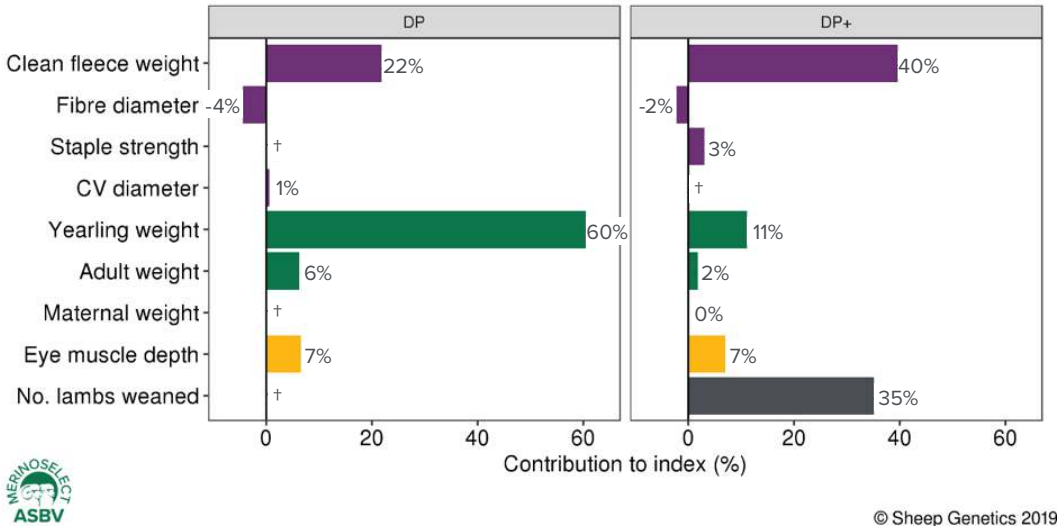
The DP and DP+ indexes are for self-replacing Merino flocks with a greater focus on lamb production, with a portion of the ewe flock mated to terminal sires to generate crossbred lambs for meat production.

This means that there is increased emphasis on growth, carcase performance, and reproduction to capitalise on the high value of lambs and to ensure that flock size is sustainable while joining to terminal sires. Wool production is still important, but the balance is on increasing fleece weight while trying to limit change in fibre diameter and staple strength.

Typical trait changes with the DP index:	Typical trait changes with the DP+ index:
• increasing clean fleece weight	• increasing clean fleece weight
• small increase in fibre diameter*	• small increase in fibre diameter*
• maintaining CV	• increasing staple strength
• increasing yearling weight	• increasing yearling weight
• increasing adult weight	• increasing adult weight
• increasing eye muscle depth	• maintaining maternal weaning weight
	• increasing eye muscle depth
	• increasing number of lambs weaned
	• increasing staple strength

Figure 3 illustrates which traits are in each index and how much they contribute to the overall balance of the index in the top 10% of current progeny. The longer the bar the greater the impact on the index, and the greater impact on the profitability of the production system outlined above.

Figure 3: The traits in the DP and DP+ indexes and how they contribute to the overall balance of the indexes in the top 10% of current progeny



* *The breeding objective for the DP indexes aims to maximise the increase in fleece weight while maintaining fibre diameter at a constant level. In some circumstances, use of the DP indexes leads to small increases in fibre diameter as in the graphs shown above. If this issue is important in your flock, ASBVs for fibre diameter should be considered in conjunction with these indexes.*

Factsheet current as at August 2019

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