# Maternal indexes
A ram buyer's guide

Indexes help you select animals for use within a breeding program when there are many traits of importance.

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.

Choosing the right index

The following flowchart helps producers determine the best index for their maternal production system:
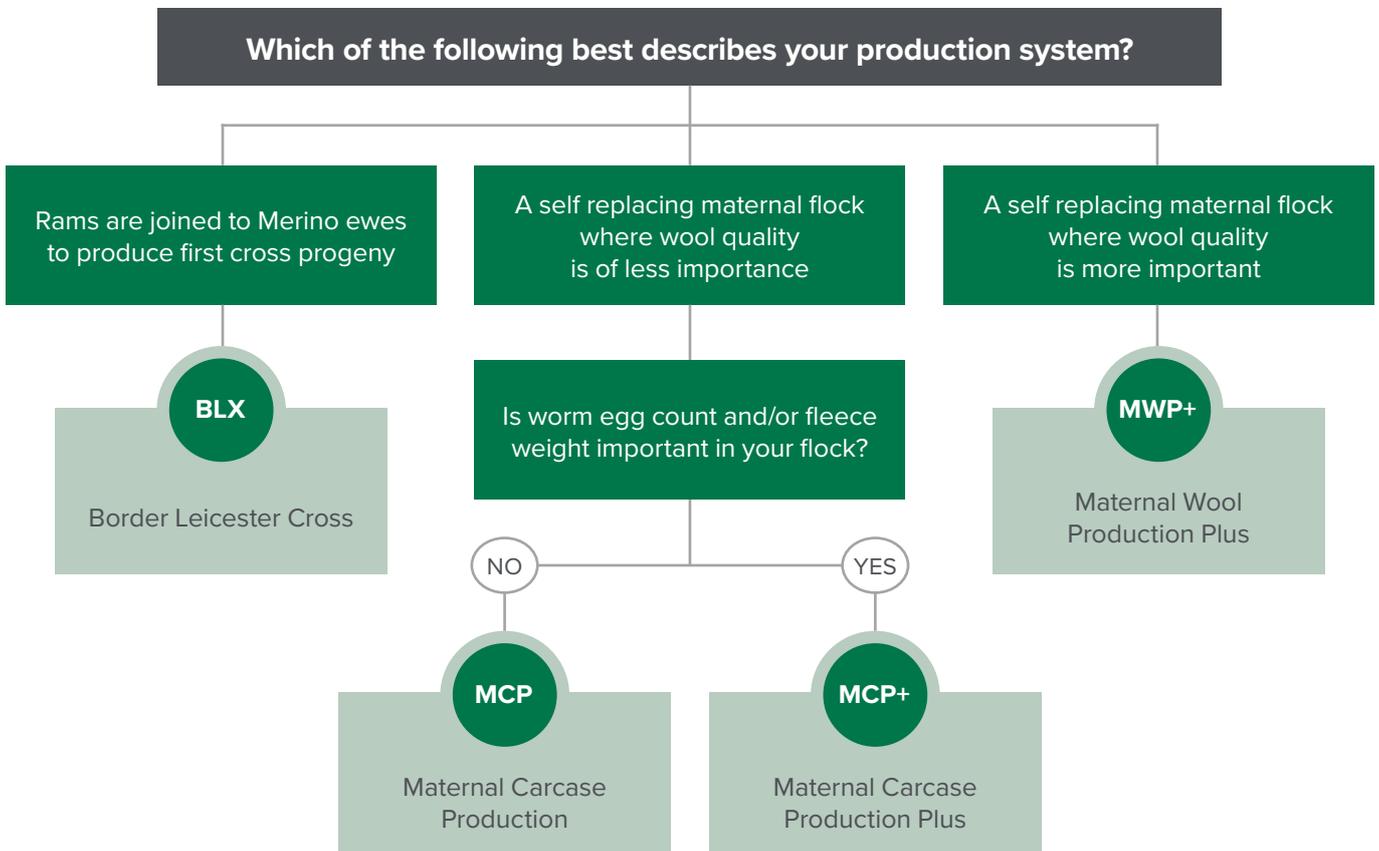
How to use the chosen index to assist in purchasing decisions:

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: search. sheepgenetics.org.au/search/dashboard 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 *Maternal Indexes (breeder)* at sheepgenetics.org.au/ Getting-started/ASBVs-and-Indexes.

Border Leicester Cross (BLX)

The BLX index is for a first cross operation where maternal sires are joined to Merino dams, with the first cross female offspring then used in prime lamb systems joined to terminal sire rams.

The index favours high early growth animals with good reproduction.

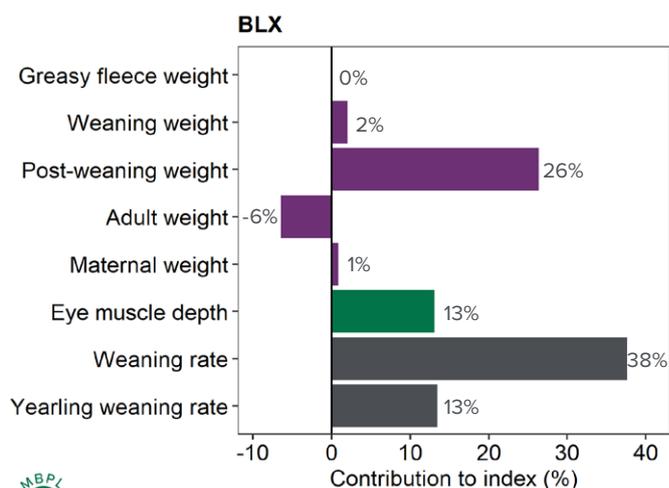Typical trait changes with the BLX index include:

- maintaining fleece weight
- increasing growth
- increasing adult weight
- increasing maternal weaning weight
- improving carcase traits
- increasing number of lambs weaned

Figure 1 illustrates which traits are in the BLX index and how much they contribute to the overall balance of the index. The longer the bar, the greater the impact on the index, and the greater impact on the profitability of the production system.

BLX aims to maintain adult weight at current levels because bigger ewes have higher feed and animal handling costs. However, this is difficult to achieve in practice because 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.

Figure 1 shows that increasing adult weight has a negative contribution on the index. However, individual ram breeders who measure early growth, adult weight and reproduction will have greater control over this balance.

Figure 1: The traits in the BLX index and how they contribute to the overall balance of the index

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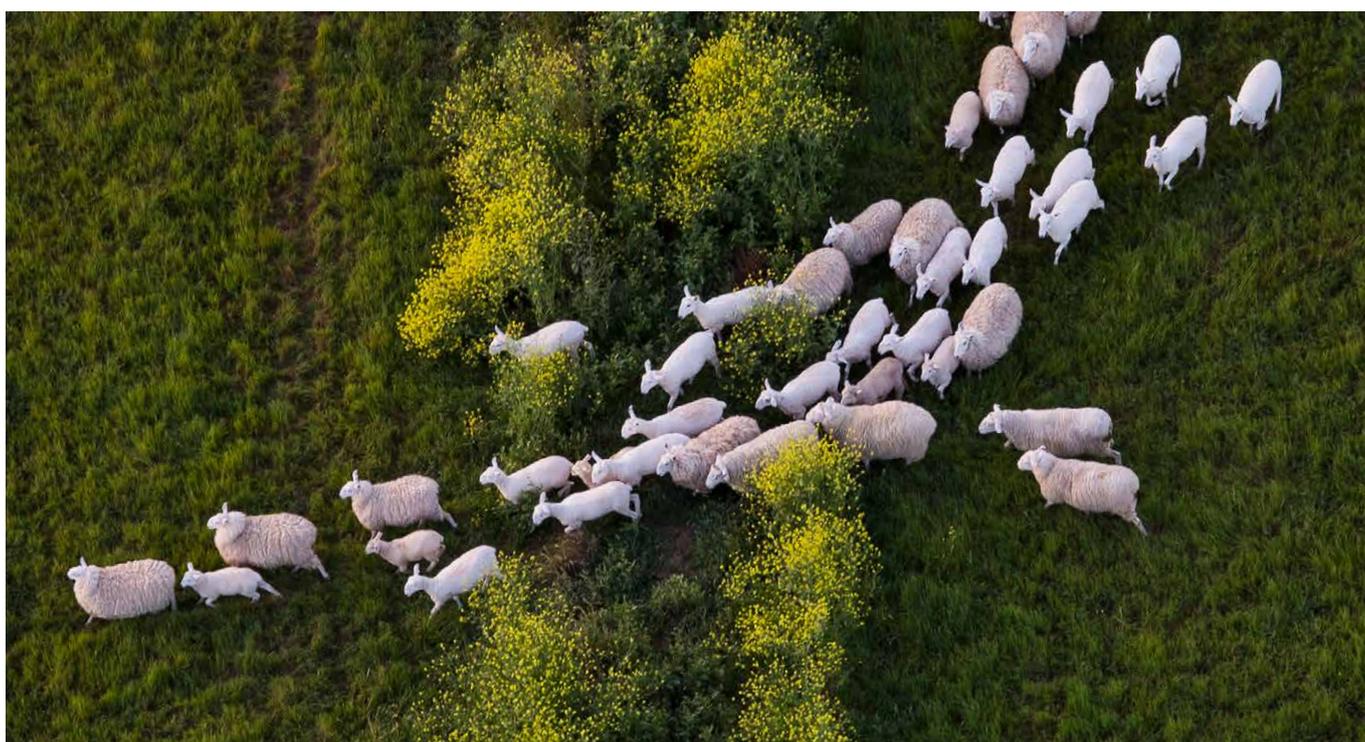
Maternal Carcase Production (MCP)

The MCP index is for a self-replacing maternal operation with a carcase production focus where there is no mating to terminal sires. Consequently, MCP favours high early growth animals with good carcase and reproductive performance.

Typical trait changes with the MCP index include:

- increasing growth
- increasing adult weight
- increasing maternal weaning weight
- improving carcase traits
- increasing number of lambs weaned.

Figure 2 illustrates which traits are in the MCP index and how much they contribute to the overall balance of the index. The longer the bar, the greater the impact on the index, and the greater the impact on profitability.

A key feature of MCP is that is aims to maintain adult weight at current levels because bigger ewes have higher feed and animal handling costs. However it is difficult to achieve this in practice because bigger ewes also produce more lambs, which reach sale weight faster, so MCP makes a trade-off to achieve an optimal balance across all of these traits.

Consequently, figure 2 shows increasing adult weight making a negative contribution on the index. However, individual ram breeders who measure early growth, adult weight and reproduction will have greater control over the balance between these traits.

Maternal Carcase Production Plus (MCP+)

MCP+ is also for a self-replacing maternal operation but differs from MCP in that some joining to terminal sires is allowed for. MCP is also suited to operations in high rainfall and/or high input management systems where internal parasites may cause significant economic losses.

Typical trait changes with the MCP+ index include:

- maintaining fleece weight
- increasing growth
- increasing adult weight
- increasing maternal weaning weight
- improving carcase traits
- reducing worm egg count
- increasing number of lambs weaned.

Figure 3 illustrates that trait contributions to the MCP+ index. MCP+ also aims to maintain adult weight at current levels to limit increasing ewe size. The trade-off seen with MCP in balancing early growth, mature size and reproduction is again evident. Furthermore, like MCP, ram breeders that have good measurement programs for all three traits will achieve greater control.

Figure 2: The traits in the MCP and MCP+ indexes and how they contribute to the overall balance of the indexes in the top 10% of current maternal breed and composite progeny
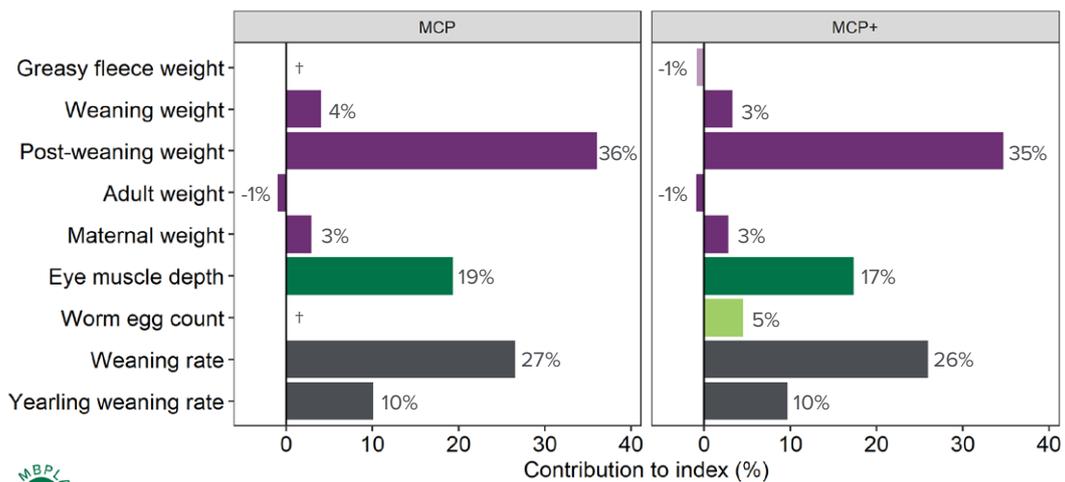
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Maternal Wool Production Plus (MWP+)

The MWP+ index is for a self-replacing maternal operation where improving wool production and quality are important.

For wool traits, the balance is weighted more towards quality than production, with a greater emphasis on fibre diameter than fleece weight.

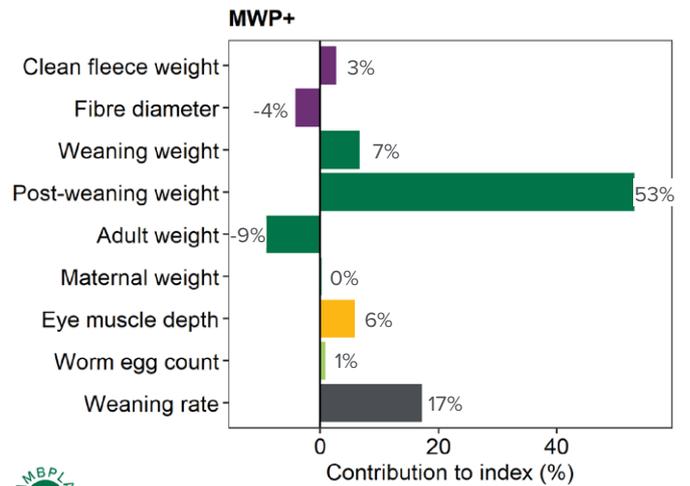Typical trait changes with the MWP+ index include:

- limited change in clean fleece weight
- reducing fibre diameter
- increasing growth
- increasing adult weight
- improving carcase traits
- small reduction in worm egg count
- increasing number of lambs weaned.

Figure 4 illustrates which traits are considered within MWP+ and how much they contribute to the overall balance of the index. The longer the bar, the greater the impact on the index, and the greater impact on the profitability of the production system.

The graph shows that wool quality and production are balanced between fibre diamter and fleece weight. The graph shows a small contribution from worm egg count.

Ram breeders who more actively measure worm egg count will achieve greater emphasis on the trait. 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

Figure 4: The traits in the MWP+ index and how they contribute to the overall balance of the index

MWP+

Trait	Contribution to index (%)
Clean fleece weight	3%
Fibre diameter	-4%
Weaning weight	7%
Post-weaning weight	53%
Adult weight	-9%
Maternal weight	0%
Eye muscle depth	6%
Worm egg count	1%
Weaning rate	17%

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