LAMBPLAN
Maternal Indexes

Outlined in this document are the three indexes for the maternal, dual purpose and self-replacing breeds.

The LAMBPLAN $indexes for maternal breeds are;

Maternal $Index (MAT$)

This index is aimed at maternal breeds in place of the breed specific indexes such as Border$ and Coopworth$

The **MAT$** index balances the key economic traits relevant to most maternal breeds. These traits and their relative emphasis are explained further in this document.

Dual Purpose $Index (DP$)

This index is aimed at self-replacing maternal flocks with additional focus on wool quality, such as Corriedales, SAMMs and Dohnes

The **DP$** index has the same breeding objectives as the Maternal$ index, with an additional moderate emphasis on improving greasy fleece weight and a small emphasis on reducing micron.

Self-Replacing Carcase $Index (SRC$)

This index is for use by breeds included in the terminal analysis with the intention of producing a self-replacing flock with a strong emphasis on carcase traits, for example Dorper, Wiltshire Horn, Wiltipoll and Boer Goats

The **SRC$** index has the same breeding objectives as the Maternal$ index, except for the removal of economic values for fleece traits. The removal of selection pressure for fleece traits allows higher gains to be made for growth and carcase traits.

Key Index traits
These indexes put selection pressure on key traits important to maternal breeds. These include;

Growth rate (WWT + PWT), there is high emphasis on improving growth rates and with more producers targeting earlier turn-off ages, the relative value for growth rate is split 40:60 between weaning weight (WWT) and post weaning weight (PWT).

Carcase, the aim is to increase muscle **(PEMD)** while maintaining fat **(PFAT)** rather than reducing it. This is so that maternal breeds will have reasonable levels of body fat in order to maintain reproductive fitness and adaptability.

Birth weight (BWT), negative $ emphasis is placed on birth weight to counter the undesirable increase that comes with higher growth.

Maternal weaning weight (MWWT), selection for sires that produce daughters with better milking ability and that can provide a better maternal environment.

Number of Lambs Weaned (NLW), increasing weaning percentages is of course a major profit driver for any animal production system.

Worm egg count, selection for lower PWEC ASBVs is one of the strategies that producers can put in place to assist with worm management.

Fleece traits for fleece weight and fibre diameter (YGFW and YFD) for selection of animals able to produce a higher value fleece.

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So how is selection balanced for traits within these indexes?

The following table shows the relative selection emphasis and predicted changes over 10 years for the Maternal$, Dual Purpose$ and Self-Replacing Carcase$ indexes.

Trait	Maternal $ Index		DP $ Index		SRC $ Index	
	Relative Emphasis	Gain over 10 years	Relative Emphasis	Gain over 10 years	Relative Emphasis	Gain over 10 years
BWT (Kg)	11%	0.2	14%	0.2	11%	0.2
WWT (Kg)	23%	2.7	20%	2.2	23%	3
MWWT (Kg)	5%	0.4	3%	0.2	5%	0.4
PWT (Kg)	25%	4	28%	3.8	26%	4.3
PFAT (mm)	4%	0.1	4%	0.1	5%	0.1
PEMD (mm)	5%	0.3	9%	0.4	10%	0.6
NLW (%)	16%	10	7%	4	14%	9
PWEC (%)	8%	-24	2%	-17	6%	-13
YGFW (%)	3%	0	10%	6.1	----	----
YFD (μ)	----	----	3%	-0.2	----	----

This table highlights several important points:

Despite a negative economic value on birth weight, birth weight still increases by 0.20kg over 10 years. This is due to the very high positive correlations that exist between growth and birth weight.

Despite no economic value on PFAT, it increases slightly by 0.1 mm over 10 years. This is a direct result of the emphasis on muscle and the correlation that exists between muscle and fat. These indexes are expressed in dollar values.

A dollar index of 105 indicates that a ram will produce $5 extra value for every ewe joined compared to a ram with an index of 100. Therefore over four years, if a ram produces 200 progeny, the extra value produced by that ram will be $5 x 200 = $1000.

These indexes serve the needs of maternal, dual purpose and self-replacing sheep. They balance growth, muscle and fertility characteristics, while maintaining or improving fat cover and the survival traits of birth weight and worm egg count.