



Understanding SIL Information in Ram Sale Catalogues

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SIL measures of genetic merit

SIL breeding value and index information is provided in some sale catalogue listings. This information can assist ram selection by providing the best estimate of genetic merit for an animal in key traits.

The performance and physical appearance of animals are the result of a combination of factors; the genes they get from their parents, management such as feeding, and other effects such as age and rearing rank. To make genetic improvement we need to be able to assess how much of an animal's performance is controlled by the genes alone, as it is only the genetic component of performance that is passed on to the next generation. Visual assessment of animals, or even assessment on an individual animal's performance, can be a poor guide to the genetic merit of the animal.

SIL measures of genetic merit focus on key traits that affect farm profitability e.g. Growth, Meat, Wool, Reproduction, Survival and Animal Health. However, they do not tell us everything about an animal. For example, in order to function as a sire, a ram has to be physically sound. Visual inspection of soundness should be used in conjunction with SIL figures to assess whether an animal will perform well as a sire and will produce productive progeny.

If you are unfamiliar with SIL terms, over the page is a table of common SIL terms and together with their definitions. Before that, here are more extensive explanations of measures of merit from SIL genetic evaluations and how to interpret these.

Key definitions

Breeding value: Breeding values are the best estimate of the animal's genetic merit for traits. They allow rams to be compared with *all rams included in the same analysis*. Usually this means all rams from the same flock, but it can be used to compare animals from different flocks if the analysis has been performed across these flocks (see "Interpretation" below).

Breeding values are expressed in the units the traits are measured, e.g. weight traits are in kilograms, NLB in lambs per ewe lambing.

Indexes: An index provides a summary of overall economic breeding merit for an animal. The economic value of each trait is summed to give a total economic value of the ram's genetics across the traits SIL has analysed. Economic value of a trait depends on the type of farm production system. SIL has a number of indexes to describe different systems. For example, the terminal sire index (TSO) describes a system where all progeny are slaughtered. The dual purpose index (DPO) describes a system where ewe lambs are retained as replacements for breeding.

Sub-indexes are sometimes reported. These refer to the economic value for traits of a particular type – e.g. Body Growth vs. Wool vs. Reproduction vs. Meat (carcass quality).

All SIL indexes are expressed as cents per ewe lambing

Interpretation

EBVs and Indexes are a function of the population in which they are calculated. In most cases they are only comparable within a single flock, although across flock analysis will allow values to be compared between several flocks. ***It is not possible to compare the genetic merit of rams from different flocks unless the flocks have conducted an across- flock analysis.***

For every analysis SIL sets 1995 as the benchmark year and the average genetic merit of lambs born in 1995 is set to zero. Therefore, the BVs are a measure of the merit of a ram compared to the 1995

average for that flock. If two flocks had different average genetic merit in 1995 the BVs would have to be adjusted for the difference to make them comparable.

When selecting a ram for high genetic merit it is important to first select the flock the ram was bred in. The ram should rank highly within that flock for the traits you are interested in. The Index value provides the best guide to overall genetic merit across traits.

In summary, whichever flock you decide to buy from, be sure to select rams that are highly ranked by SIL. This will guarantee improved genetic merit in your flock compared to using rams selected without an accurate assessment of genetic merit.

Table 1. Explanations for commonly used SIL measures of genetic merit.

<i>Abbreviations</i>	<i>Definition</i>
BV	Breeding value
WWT BV	Weaning weight – “lamb growth”
WWT_M BV	Maternal weaning weight – “milking ability”
LW8 BV	Body weight at 8 months or age
EWT BV	Adult ewe body weight
LEAN BV	Weight of lean in carcass
FAT BV	Weight of fat in carcass
EMA BV	Eye muscle area
FD BV	Fat depth ‘C’
NLB BV	Number of lambs born
SUR BV	Lamb survival – “lamb vigour”
SUR_M BV	Maternal survival – “mothering ability”
FW12 BV	Fleece weight at 12 months of age
TSO	Terminal Sire Overall index (sum of merit across traits)
DPO	Dual Purpose Overall index (sum of merit across traits)
DPP	Dual Purpose Production index (sum of merit across all traits EXCEPT health traits)
Sub-indexes	Economic merit for a trait affecting farm profit e.g. Wool (DPW = Dual Purpose Wool) or Reproduction (DPR = Dual Purpose Reproduction)
Within Flock	Ram can only be compared with others from the same flock
Across Flock	Ram can be compared with others from flocks included in the same genetic analysis
Rank	How an animal ranks in the analysis for a named BV or index. This is usually a within flock ranking but it may be noted as an across-flock ranking
Total	Total numbers included in the analysis

If you have any queries about these ideas and terms, please send them by email to silhelp@sheepimprovement.co.nz or telephone 0800-silhelp (0800-745-435)



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