

6.0 GLOSSARY OF TERMS

In this manual the meanings of the words and phrases listed below apply throughout the manual.

Across-breed:

Comparison of sheep across different breeds within a breed group.

Across-flock:

Comparison of sheep across different flocks within a breed group.

AGBU:

Animal Genetics and Breeding Unit.

AI:

Artificial insemination.

ASBV:

Australian Sheep Breeding Value - the genetic performance (breeding value) reported by SGA that describes the across-flock, or across-breed (as applicable) performance of a sheep for a trait.

Australian sheep identification system:

This system provides a unique sheep identification (ID) for each sheep across all flocks (4.1).

Base traits:

- a. When a Management Group is evaluated for live weight the Base Trait is:
Weaning (live) weight or an older age live weight.
- b. When a Management Group is evaluated for carcase traits the Base Trait is:
Fat and eye muscle depth at early post weaning or an older age.
- c. When a Management Group is evaluated for Worm egg count the Base Trait is:
Worm egg count at weaning or an older age.
- d. When a Management Group is evaluated for greasy fleece weight the Base Trait is:
Greasy fleece weight at post weaning or older age.
- e. When a Management Group is evaluated for fibre diameter the Base Trait is:
Fibre diameter at post weaning or an older age.
For more detail see 4.8 (v).

BLUP:

Best linear unbiased prediction. The statistical method used to calculate estimated breeding values such as ASBVs and FBVs.

Body weight (WT):

See Live weight

Brand name:

SGA reports sheep under two brand names and their associated logos. The Merino breed group is reported under the MERINOSELECT brand name and logo. All other breeds at this stage are reported under the LAMBPLAN brand name and logo. There is the opportunity for a breed/s to be reported under a unique brand name and logo.

Breeder:

A person who participates in SGA quality assurance procedures and genetic evaluation. In relation to data being submitted to SGA a 'breeder' is the person, organisation or business that is the legal owner of the data.

Breed group:

The breeds of sheep that are combined in an SGA analysis and report. At present there are four segments of the SGA database – Merino, terminal, maternal and SAMM – and within these there are one or more breed groups. The complete list of breeds within a breed group is located on the SGA web site - www.sheepgenetics.org.au.

Merino

All breeds in the Merino segment of the data base are analysed and reported as one breed group. The breeds included are Merino, Poll Merino and Rambouillet. Sheep need to be no less than the 4th cross of these breeds to be reported in the Merino breed group. SAMM and Dohne Merino are not included in the Merino breed group.

Terminal

All breeds in the terminal segment of the database are analysed and reported as one terminal breed group. The breeds include, for example, Dorset Horn, Poll Dorset, Texel, Suffolk and White Suffolk.

Maternal

Each of the breeds in the maternal segment of the database are analysed and reported as a different breed group. The breed groups include, for example, Border Leicester, Coopworth, Corriedale, Australian Finnsheep, and East Friesian.

SAMM

South African Mutton (or Meat) Merinos from different countries are analysed and reported as one SAMM breed group.

Breeding objective:

The goals of the breeding program – a combination of the traits to be selected for and the desired direction.

Breeding value:

A breeding value describes a sheep's genetic performance expressed in terms of the expected genetic performance of its offspring. The breeding value is calculated by a BLUP analysis that can include information on the sheep's own performance and/or its relative's performance. A breeding value is used in this manual as a general term to describe either an ASBV or an FBV.

Clean fleece weight (CFW):

Greasy fleece weight multiplied by the yield of the fleece sample.

Crimp frequency:

Measured crimps per inch at the mid-side along a standard length of the staple using a crimp gauge or as measured by an accredited fleece measurement laboratory.

CTSE:

Central Test Sire Evaluation.

C site:

45 mm from the centre of the spine at the 12th/13th rib, where eye muscle and fat depth is measured by an accredited muscle and fat ultra-sound scanner.

Dam:

A female sheep with progeny data analysed in a particular SGA analysis.

Data Manager:

A person, organisation or business (not defined as a breeder) who provides a service required by a breeder to prepare and submit the breeder's data to SGA in a way that meets QA procedures.

Dataset:

Data provided to SGA for sheep in one or more Management Groups.

Ear tag:

An attachment to the ear of a sheep which, with the assistance of inscriptions on the tag and/or the tag's colour and/or an electronic signal, enable a sheep to be identified within a Management Group and, in some cases, between flocks and breeds.

Ear tag information is readable and/or interrogated electronically. At present, ear tags are the major method used to identify sheep but other devices are also being

used, such as electronic implants or rumen capsules. In this manual the term 'ear tag' covers these alternative identification methods.

Environment:

All non-genetic influences that affect a sheep's performance.

ET:

Embryo transfer

Eye muscle depth (EMD):

The depth of eye muscle (Longissimus dorsi) measured at the 'C' site.

Ewe (or female progeny):

A female sheep that does not have progeny in a particular SGA analysis.

Faecal egg count (FEC):

See Worm egg count (WEC)

Fat depth (FAT):

The depth of subcutaneous fat measured at the 'C' site.

FBV:

Flock Breeding Value. The genetic performance (breeding value) reported by SGA that describes the within-flock performance of a sheep for a trait. FBVs can, but do not necessarily allow comparison of sheep across Management Groups within the flock.

Fibre diameter (FD):

Average fibre diameter of a representative sample of wool from a sheep.

Fibre diameter coefficient of variation (CV):

The standard deviation (SD) of fibre diameter (the distribution of fibre diameter) divided by the mean (average) fibre diameter and expressed as a percentage.

Flock:

All the sheep described by a particular breed and flock section of an ID (Flock Code).

Flock code:

see Group.

Flock group:

see Group.

Genetic Advisor:

A person, organisation or business (not defined as a breeder) who provides a service required by a breeder to advise them on genetic aspects of their breeding program.

6.0 GLOSSARY OF TERMS

Genetic correlation:

The genetic relationships that exist between traits.

Genetic group:

see Group.

Genetic linkage:

When two or more flocks share common genes.

Genetic parameters:

The complement of heritabilities, genetic and phenotypic correlations, variance and adjustment factors used in an SGA analysis.

Generation interval:

The time interval between generations, defined as the average age of parents when their progeny are born.

Genotype:

A combination of the genes of a sheep.

GR site:

110 mm from the centre of the spine at the last long rib.

Greasy fleece weight (GFW):

The weight of greasy wool shorn from the sheep before skirting. As long as all sheep at the fleece weighing of a Management Group are treated the same the belly wool can be either included or excluded.

Group:

Group records are required to adequately describe contemporary and genetic grouping of sheep records in the SGA analysis. The group types that need to be submitted to SGA are as follows:

Flock Code

The combined breed and flock sections (the first six digits) of the 16-digit Australian sheep identification (4.1).

Flock Group

A flock group has one or more flock codes that are considered by the breeder to have a comparable genetic group. A flock group will generally only have one flock code but in a small percentage of situations will be more than one.

A flock group can have one or more site codes. A flock code can only exist within a single flock group.

A flock group that contains a single flock code is not required to submit a flock group because in this case the flock group will default to the flock code. If more than one flock code is present in a flock group the group needs to be assigned a code (FG1, FG2, etc)

Site code

Site codes are relevant when a flock group is evaluated at different 'sites'. Sites are locations that are geographically remote from each other. Sites are independent of flock codes and flock groups and therefore two or more breeders can share a site code.

A flock group that is only evaluated at one site is not required to submit a site code because in this case the site code will default to the flock group. However, if a flock group is evaluated at more than one site a site code is required. A general name such as the property name can be used as the site code however it is preferable to use the property identification code (PIC) of the property that is most relevant to the site.

Genetic group

Genetic groups are segments of a flock code (or tiers within a flock code) that, for the traits submitted, are considered to be of significantly different genetic standard.

The vast majority of flock groups will contain a single genetic group.

All sheep can be assigned a genetic group however, where full pedigree exists the assigned genetic group is not used in the SGA analysis.

A genetic group is not applied across flock groups or across flock codes within a flock group.

If more than one genetic group is present in a flock group then each genetic group is assigned a code (GG1, GG2, etc). If only one genetic group is present no code should be submitted.

Genetic groups should only be assigned when there are significant genetic differences within a single flock code or tiers within a flock code. For example, genetic groups would be applied when separate fine and superfine lines are bred within a particular flock code.

Genetic group codes will be used only for SGA analysis and will not be publicly reported in a way that identifies a breeder or individual sheep.

Management Group

When a breeder submits data to SGA the sheep need to be separated into a group known as a 'Management Group'. A Management Group is used to group sheep accurately for an SGA analysis. In addition, the name of the Management Group is used to describe the sheep being submitted and reported.

A Management Group is a group of sheep with all the following characteristics:

- a. Born under similar management conditions at one site.
- b. Born over a period that is no longer than 42 days.
- c. Male or female progeny from one Breed Group. Breeders may submit data that contains both male and female progeny if they have been managed together up to the time when the records were taken. Male and female progeny are often managed together in the period when birth records and weaning records are taken.

Some breeders require additional Management Group records to ensure sheep are correctly grouped in the analysis. Additional Management Group records (see 'Group') are required to be submitted when,

- a. a Management Group contains more than one flock code (first six digits of the 16-digit ID).
- b. a Management Group contains more than one tier or section of a flock that are considered to be different genetic groups.
- c. a flock code is evaluated at more than one site code.

Management Subgroup

If sheep in a Management Group cannot continue to be managed the same way, then two or more Management Subgroups need to be established and recorded to ensure the analysis is correctly carried out.

Each Management Subgroup needs to be recorded within the Management Group by identifying them 1, 2, etc in a Subgroup field. Subgroup records need to be submitted the first time after traits have been evaluated following the establishment for the Subgroups. These codes are only applied by SGA within a Management Group

Heritability:

The average proportion of the difference between sheep (after adjusting for known non-genetic influences) that can be passed on to their progeny.

ID:

Australian sheep identification system 16-digit identification number (4.1).

Live weight (WT):

The weight of a live sheep in Kilograms.

Management Group:

see Group.

Management Subgroup:

see Group.

Merino Superior Sires (MSS):

Publications and activities conducted by Australian Merino Sire Evaluation Association (AMSEA).

Micron:

One millionth of a metre.

Nemesis:

Research and extension project carried out to establish an understanding of the genetics of sheep worm resistance. Nemesis guidelines were the basis for the worm egg count QA standards in this manual and the standards for the measurement of worm egg count. Also see worm egg count.

OVIS:

The name of the BLUP software used to calculate SGA breeding values (ASBVs and FBV).

Phenotype:

The observable performance for a given trait, as measured or scored for a sheep.

Progeny test:

A comparison between the progeny of a group of sires that were mated to randomly selected females. Pregnant females and progeny for all sire groups are run under identical conditions for the period of the test.

Quality:

The ability of a product or service to satisfy its customers.

Quality assurance (QA):

What you need to demonstrate so a product or service will satisfy your customers.

6.0 GLOSSARY OF TERMS

Quality assurance system:

The organisational structure, processes and procedures necessary to ensure the QA intentions and direction are met and the quality of a product or service is assured.

Ram (or male progeny):

An entire male sheep that does not have progeny data analysed in a particular SGA analysis.

Scored traits:

Those characteristics of a sheep that are evaluated subjectively – by hand and/or eye – relative to a set of standards. (4.13)

Selection:

The choice of sheep to be used as parents.

Selection accuracy:

The correlation between true breeding value and estimated breeding value. Selection response is directly proportional to selection accuracy.

Selection criteria:

The traits used to evaluate sheep for a particular breeding objective.

Selection differential:

The difference between the average phenotypic or genetic merit of the selected parents and the average merit of the group from which they came.

Selection index:

A calculation that weights and combines the performance of a sheep for two or more traits to give an overall index value for that sheep. An index value can be used to assist selection for the breeding objective defined by the index. SGA will produce index values by combining ASBVs and/or FBVs.

Selection response:

The effect of selection on the merit of progeny or later descendants, measured as a deviation of the merit expected if parents had been chosen at random, rather than by selection on a trait or combination of traits.

Service provider:

Data manager or genetic advisor who meets the standard required by SGA.

Shearing:

The removal of wool from a sheep by machines, blades or chemical defleecing. The latter can affect the calculation of age and wool growth due to difference in the wool growth being harvested.

Sire:

An entire male sheep that has progeny analysed in a particular SGA analysis.

Site code:

see Group.

TGRM:

Total Genetic Resource Management. TGRM is computer software used to optimise genetic gain and inbreeding.

Tier:

A section of the ewes within a flock group that has been selected for mating and is considered to be of a different genetic standard compared to other sections of the flock group.

Trait:

Traits current able to be submitted or that are reported are described in Table 4.1 in section 4.9 of this manual. A trait name, for example live weight, is often accompanied by a description of the age of evaluation of the trait (also listed in Table 4.1). Reports list both the trait and the age to provide a clear definition of the information reported. The abbreviation of an 'age and trait' is presented by adding the abbreviation for the 'age' in front of the 'trait' abbreviation. For example, hogget (live) weight is recorded as 'HWT'. The current SGA traits and ages are in the tables at the end of this glossary.

Worm egg count (WEC):

A measurement of intestinal parasite load to evaluate worm resistance that is obtained by counting the number of parasite eggs per gram (epg) in a sheep faecal sample collected and measured to Nemesis standards.

Yield:

The proportion of a fleece sample remaining after relevant washing.

Table 6.1 Age names, abbreviations

Age Name	Abbreviation (upper case)	Average age of the group*	Approximate age in weeks or month
Birth	B	birth to 24 hours	
Weaning	W	42 to 120 days	6 to 17 weeks
Early post weaning	E	120 to 210 days	4 up to 7 months
Post weaning	P	210 to 300 days	7 up to 10 months
Yearling	Y	300 to 400 days	10 up to 13 months
Hogget	H	400 to 540 days	13 up to 18 months
Adult	A	540 days or older	18 months or older

*Management Group

Table 6.2 Trait names and abbreviations

Trait Name	Abbreviation (upper case)	Units Submitted	Units Reported
Live weight	WT	kg	kg
Maternal weaning weight	MWWT	Not submitted	kg
Eye muscle depth	EMD	mm	mm
Fat depth	FAT	mm	mm
Greasy fleece weight	GFW	kg	%
Clean fleece weight	CFW	kg	%
Fibre diameter	FD	um	um
Coefficient of variation of FD	FDCV	%	%
Staple strength	SS	N/ktex	N/ktex
Staple length	SL	mm	mm
Worm egg count	WEC	%	%
Number of lambs born	NLB	0 to 4	%
Number of lambs weaned	NLW	0 to 4	%
Scrotal circumference	SC	cm	cm