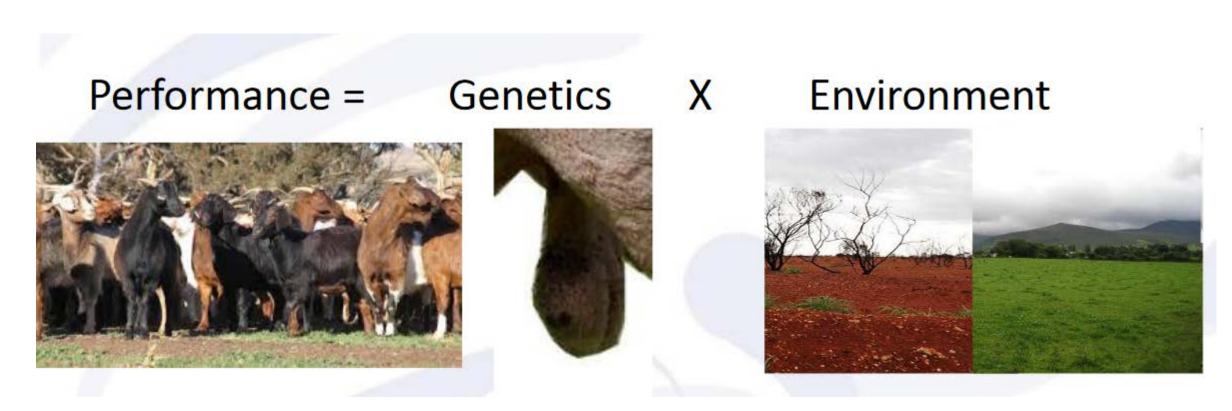
Genetic

- Lambplan
- Kidplan
- Merinoselect
- No commercially available databases on dairy goats, dairy sheep or goat fibre

Why genetic analysis and EBV/ASBV?



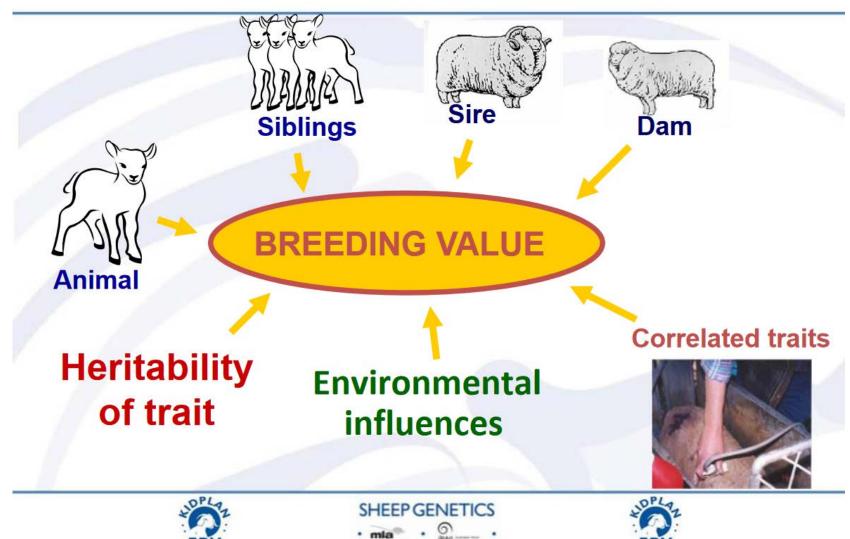
https://www.mla.com.au/globalassets/mla-corporate/generic/extension-training-and-tools/introduction-to-kidplan.pdf

What is needed?

- Collect physical data eg bodyweight, fleeceweight, rearing type etc
- Collect pedigree data dam/sire, GD/GS, GGD, GGS etc
- Keep stock in management groupings to allow fair comparison

- Submit data to SGA
- SGA review and analyse data and publish EBVs
- Continually updated as more data on siblings, progeny, ancestors etc

Calculating Breeding Values

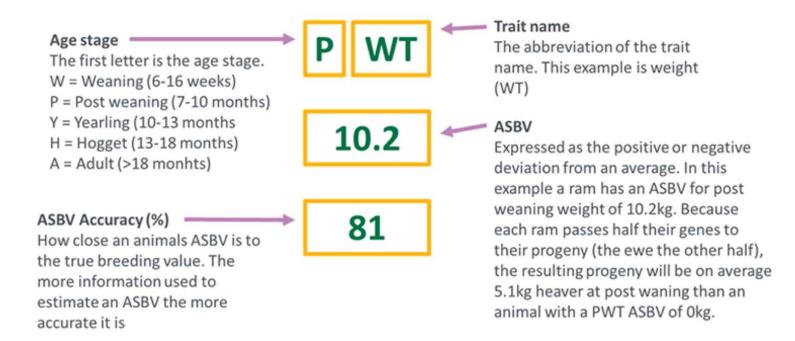


https://www.mla.com.au/globalassets/mla-corporate/generic/extension-training-and-tools/introduction-to-kidplan.pdf

Lambplan

- Meat breed sheep
 - Self replacing
 - Terminal sires
- ASBVs for relevant traits

Figure 1: How ASBVs are typically displayed



https://www.sheepgenetics.org.au/Getting-started/ASBVs-and-Indexes

Indexes

Figure 1: The traits in the TCP index and how they contribute to the overall balance of the index in the top 10% of current terminal progeny

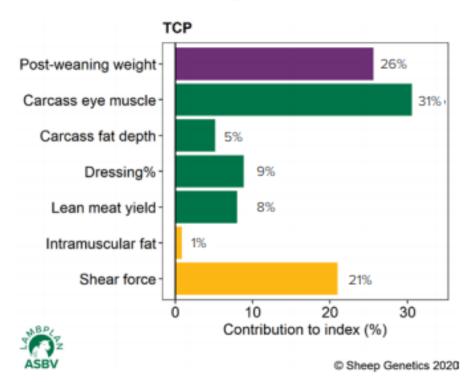
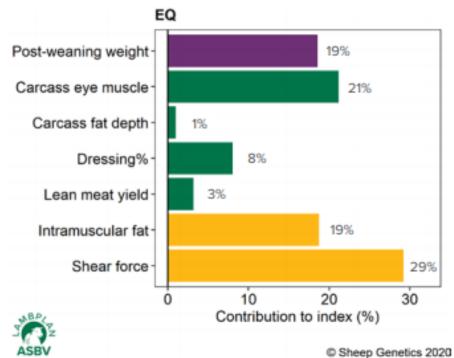


Figure 2: The traits in the EQ index and how they contribute to the overall balance of the index in the top 10% of current terminal progeny



Understanding MERINOSELECT ASBVs

Merinoselect

Rams with a higher clean fleece weight (CFW) will produce progeny that cut more wool. A ram with an ASBV of 20% will produce progeny that cut 10% more wool than the progeny of a ram with an ASBV of 0.

Animals with lower fibre diameter coefficient of variation (FDCV) ASBVs will genetically have a lower variation in fibre diameter.

A higher CV% is often associated with lower staple strength.

Animals with more positive staple strength (SS) ASBVs will, on average, have genetically stronger wool. This ram will, on average, sire progeny with 7.5 N/Kt stronger wool than an average sire.

Rams with a more positive ASBV for eye muscle depth (EMD) produce lambs that have a higher lean meat yield. A ram with an ASBV of 1.0 will breed lambs with 0.5mm more EMD than a ram with an ASBV of 0.

Worm egg count
(WEC) ASBVs estimate
an animal's genetic
potential for resisting
worm burdens. Lower
WEC ASBVs are
desirable. This ram
will, on average, sire
progeny that have 10%
fewer eggs/gram than
a ram with an ASBV
of 0.

Trait	WT (kg)	CF W (%)	FD (m)	FDCV (%)	SS (N/Kt)	SL (mm)	EMD (mm)	NLW (%)	WEC (%)	INDEX
ASBV	4.0	20	-0.80	1.24	15	10	1.0	10	-20	138.6
Acc	46	40	<i>4</i> 6	<i>4</i> 6	37	<i>4</i> 5	<i>4</i> 5	21	45	

Animals with a more positive ASBV for weight (WT) will produce lambs that grow faster and therefore reach target weights in a shorter period of time.

Lower negative fibre diameter (FD) ASBVs are generally desirable. A ram that has an ASBV of -0.8 will produce progeny that are genetically 0.4 microns finer than a ram with an ASBV of 0.

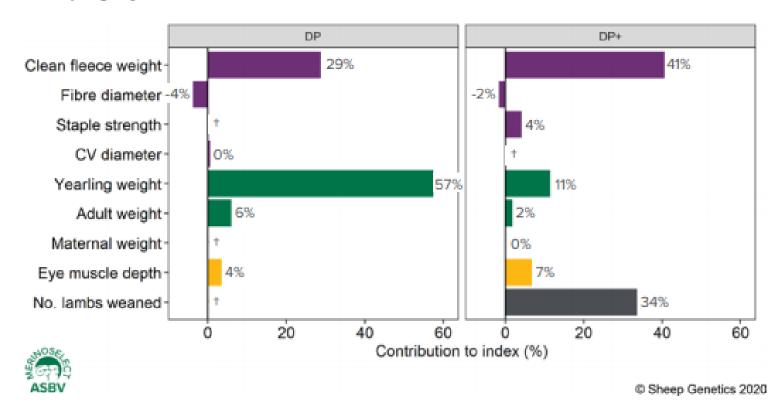
Animals with more positive staple length (SL) ASBVs will, on average, have greater genetic potential for longer fibre length. This ram will sire progeny that grow, on average, 5mm longer wool than progeny of a ram with a 0 ASBV for SL.

Rams with a higher number of lambs weaned (NLW) ASBV will sire daughters that wean a higher percentage of lambs. A ram with an ASBV of 10 will sire daughters who on average will wean 5% more lambs than daughters of a ram with an ASBV of 0.

An index is a guide to the value of a ram for a particular market. Rams with higher indexes will produce sheep that are more suited to that particular breeding objective.

Dual Purpose Merino index

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



Kidplan

- Similar EBVs available to the ASBVs for meat sheep
- Used for meat breed goats e.g. Boer
- If rangeland goat harvesters want to increase meat genetics in herds can import Boer bucks and release
- Index example
- Look at expected change and monitor

Self Replacing Carcase index.

Trait	<u>Relative</u>	Gain over 10		
	<u>Emphasis</u>	<u>years</u>		
BWT (Kg)	11%	0.2		
WWT (Kg)	23%	3		
MWWT (Kg)	5%	0.4		
PWT (Kg)	26%	4.3		
PFAT (mm)	5%	0.1		
PEMD (mm)	10%	0.6		
NKW (%)	14%	9%		
PWEC (%)	6%	-13		