SHEEP GENETICS

Understanding Dohne ASBVs

Author: Allan Casey

DOHNE AUSTRALIA

Rams with a more positive **number of lambs weaned** (NLW) ASBV will sire daughters that wean a higher percentage of lambs. This ram will sire daughters who, on average, will wean 2% more lambs than a ram with a NLW ASBV of 0.0 (zero).

Rams with a positive ASBV for **bodyweight** (WT) will produce lambs that grow faster and reach their target weights sooner. This ram will generally breed progeny that are genetically 2.2kg heavier than those of a ram with a YWT ASBV of 0.0 (zero).

Rams with a lower **fat depth** (Fat) ASBV will produce lambs that are leaner at the same weight. This ram's negative ASBV means that his progeny are leaner than those sired by a ram with a positive Fat ASBV.

Rams with a lower **fibre diameter** (FD) ASBVs are finer. This ram with an ASBV of -2.4 will breed progeny that are genetically -1.2 microns finer than those of a ram with a FD ASBV of 0.0.

The **Dohne index value** is a summary of the sheep's performance for measured traits. A ram with a higher index value will breed progeny that are more suited to the Dohne Objective. For more detail see the reverse side if this sheet or "The Dohne Index" sheet.

Trait	Dohne Australian Sheep Breeding Values (ASBVs)										Dohne Index Value	Dohne Final Grade
	NLW (%)	MWWT (kg)	WWT (kg)	PWT (kg)	YWT (kg)	YEMD (mm)	YFat (mm)	YCFW (%)	YFD (µm)	YFDCV (%)		
ASBV	4.0	0.5	3.7	3.8	4.4	0.8	-0.5	2.6	-2.4	-1.2	141.5	R

Rams with more positive ASBV for **maternal weaning weight** (MWWT) will breed daughters which will wean heavier lambs. This ASBV reflects a combination of the daughter's ability to milk and provide a better maternal environment.

Rams with a higher ASBV for **eye muscle depth** (EMD) will produce lambs that have a higher lean meat yield. This ram will breed progeny that genetically have a 0.4 mm deeper eye muscle area than a ram with an EMD ASBV of 0.0 (zero).

Rams with a higher ASBV for **clean fleece weight** (CFW) will produce progeny that cut more wool. This ram will generally breed progeny that genetically cut 1.3% more wool than progeny of a ram with a CFW ASBV of 0.0 (zero).

Rams with a lower ASBV for **fibre diameter coefficient of variation** (CV) will produce progeny that have less variation in FD in their fleece. This ram with an ASBV of -1.2 will generally breed progeny that are genetically -0.6% lower CV than those of a ram with a CV ASBV of 00 (zero). A lower CV% is associated with higher staple strength.

Final Grade is a summary of the Dohne standard for visually assessed wool quality and conformation traits. R (Registered) grade is a suitable standard for a good quality commercial flock ram. (as graded by an independent Dohne approved Classer. C (Cull) grade is not suitable for sale. An R grade must also be pedigree recorded and evaluated for measured traits - if not the grade is UR (Unregistered).

Note: Where there is no ASBV reported the accuracy of the ASBV is too low for the trait to be effectively reported - normally due to a lack of performance information.

As a commercial breeder how can I relate a ram's ASBV to my flock's performance?

1. Ask a local Dohne breeder how a Dohne flock will perform on your property.
2. Relative to this flock performance define your breeding objective for each trait, e.g. reduce FD.
3. Select rams for this breeding objective, e.g., rams with an ASBV finer than average for the Australian Dohne drop average (the 50% Percentile Band – for FD this currently -0.3).

Percentile Band Table – see over page – the current drop's performance benchmarks.

A ram's own performance (e.g. FD of 17 micron at 11 months of age) is not a good indication of the performance of the flock the ram will breed. Firstly, the age, wool growth and evaluation procedure of a ram is very different from the flock he will breed. Secondly, a ram's own performance will not have accounted for the very significant pedigree and environmental differences between rams in a drop, such as early or late born, twin or single, maiden or adult dam, or management differences between the rams.

For more information contact: Dohne Database, Mr Brett Wilson, email: dohne.data@gmail.com, Ph: 0411 541 034

Dohne Australian Sheep Breeding Values (ASBVs)

Author: Allan Casey

Australian Sheep Breeding Values

Australian Sheep Breeding Values (ASBVs) describe the expected performance of the progeny of a sheep, not just the performance of the sheep itself. An ASBV therefore describes the breeding value of the sheep – and as a breeder isn't that what you want to know?

Dohne ram breeders produce ASBVs for major measured performance traits, including number of lambs weaned (NLW), maternal weaning weight (MWWT), body weight (WT), muscle depth (EMD), fat depth (FAT), fleece weight (CFW), fibre diameter (FD) and coefficient of variation (CV) of FD (see over page for more detail).

Dohne ASBV performance is based on the measured evaluation made by the ram breeder. The measurement is then "value added" by accounting for factors that breeders recognise can improve the ability of the measured performance to describe a sheep's breeding value. Factors accounted for include the trait heritability, if the sheep was a twin or single, date of birth of the sheep, maiden or adult dam age, the sheep's pedigree (relative's) performance and difference in environment between groups.

Pedigree performance records allow ASBVs to be compared across-years and flocks. Dohne rams and ewes from large and small Registered Dohne ram breeding flocks can in this way be directly compared.

A Dohne ASBV describes the expected performance of a Dohne's progeny for a trait relative to the performance of all Registered Australian Dohne ram breeding flocks.

The Dohne Index – Dohne Plus Index – introduced June 2017

The Dohne Index summarises into one number the performance of a Dohne for measured traits – number of lambs weaned, weaning and yearling weight, muscle depth, fat depth, fleece weight, fibre diameter and CV of fibre diameter. Having one number to use to assist selection simplifies and improves the accuracy of selections if the index matches a flock's objective. The balance in which traits are combined matches the Dohne Breeding Objective –

- improve growth rate, muscle depth, fat depth and reproduction.
- maintain reduce fibre diameter, fleece weight and staple strength.

There is also a *Dohne Base* index that assumes no recording of NLW and does not include the ASBV for NLW in the index. The *Dohne Plus* index (previously the Dohne index, developed in 2015) does include NLW in the index to accelerate the progress that can be made in this trait and the objective overall.

Benchmark to the current Dohne breed standard – Percentile Band Table

The performance of a registered Dohne sheep relative to the current Dohne breed standard (2018 drop – the drop currently being sold) is reported in the percentile band table below. For example, if a Dohne ram has a yearling weight (YWT) ASBV of 6.5 this sheep is in the highest 20% for YWT when compared with the current Dohne standard. That is, they have a higher YWT than the 20% band (6.2 kg). The sheep is not in the highest 10% as they would need to have an ASBV of 6.9 or higher. In this context "highest" means the extreme end of performance for a trait; it does not indicate "best" as best is defined by a breeder's objective.

An ASBV of 0.0 (zero) is the average of the 2000 drop ram breeding flocks. The 50 percentile band is the average of the current drop, e.g. YWT is 5.0 kg.

Percentile Band Table * – benchmark to the performance of the current Dohne drop being sold (07 Feb 2019 analysis)

Band	MWWT (kg)	WWT (kg)	PWT (kg)	YWT (kg)	PEMD (mm)	PFAT (mm)	YCFW (%)	YFD (µm)	YFDCV (%)	NLW (%)	Dohne Plus	Dohne Base
5	1.8	6.2	7.4	8.4	1.6	0.6	17	-1.0	-1.4	13	176	169
10	1.6	5.7	6.7	7.7	1.4	0.5	15	-0.9	-1.2	11	170	164
20	1.3	5.1	6.0	6.9	1.1	0.4	12	-0.7	-1.0	9	163	158
30	1.1	4.8	5.5	6.3	1.0	0.3	11	-0.5	-0.9	7	159	154
40	1.0	4.4	5.1	5.9	0.8	0.3	10	-0.4	-0.8	6	155	150
50	0.8	4.1	4.7	5.5	0.7	0.2	9	-0.3	-0.6	4	150	147
70	0.5	3.5	4.0	4.7	0.4	0.1	7	0.0	-0.4	2	141	139

Traits abbreviations

NLW: number of lambs weaned
MWWT: maternal weaning weight
WT: bodyweight
EMD: eye muscle depth
FAT: fat depth
CFW: clean fleece weight
FD: fibre diameter
FDCV: FD coefficient of variation

Age abbreviations

W: Weaning
P: Post weaning
Y: Yearling

Example when combined

YWT = yearling bodyweight

***** A more detailed Percentile Table is available as a pdf file on the ADBA web site – http://dohne.com.au/ – under the heading *Dohne* and dropdown subheading *Understanding ASBVs.*