SHEEP GENETICS

Early Breech Wrinkle ASBVs

The first breech strike breeding value to be released is the Early Breech Wrinkle ASBV (EBWR). Breech wrinkle breeding values have been developed due to the large impact of the trait on breech strike, as well as being cheap and easy to score. Ongoing research will see the release of further breeding values for additional indicators of breech fly strike.

Wrinkle ASBVs have been developed by using breech and body wrinkle score data collected from MERINOSELECT subscriber flocks, Sire Evaluation sites, the Sheep CRC Information Nucleus and the AWI breech strike research flocks. Combining this data has meant that more accurate genetic parameters can be estimated, as well as the impact of non-genetic effects on its expression.

Both breech and body wrinkle have an estimated heritability of 0.35, which is similar to body weight, staple strength and eye muscle depth. Another important finding is that the 'bad' genetic correlation for breech wrinkle is with fleece weight (as wrinkle decreases, fleece weight tends to decrease); though this correlation is low, and better than the relationship between fibre diameter and fleece weight (See Table 1). As with all traits, it is important to keep selection for wrinkle in balance with other traits in your breeding objective.

	Breech Wrinkle		Fibre diameter	
Clean fleece weight	0.20	✖	0.30	✖
Body weight	-0.20	✓	0.20	✖
CV% of diameter	0.20	✓	-0.14	✖
Staple strength	-		0.30	✖

Table 1: Genetic correlation of breech wrinkle and fibre diameter to other Merino production traits

Environmental effects also play a significant effect on the expression of wrinkle, sometimes called 'feed wrinkle'. An example of this is where a twin born lamb is on average 0.3 to 0.5 of a score plainer than a single born lamb. Other feed effects include lambs from maiden ewes are 0.2 to 0.3 score plainer compared to lambs from older ewes, and lambs born in a drought/restricted feed are 0.5 to 1.0 scores plainer compared to those born in good feed conditions. Accounting for these feed effects is one of the reasons why a wrinkle ASBV has been developed

Breech wrinkle will be analysed separately to other production traits, with only wrinkle scores and pedigree to be used to generate the breeding value. Because the genetic correlation between breech and body wrinkle is so high (0.9) at both lamb marking and older ages, both breech and body wrinkle scores that have been recorded between lamb marking and adult ages can be recorded. The only proviso is that breech wrinkle cores cannot be used from animals that have been mulesed (See Table 2).

	Breech Wrinkle	Body Wrinkle
Mulesed	Don't score	Lamb marking / off shears
Unmulesed	Lamb marking / off shears	Lamb marking / off shears

Table 2: Requirements to score breech and/or body wrinkle

Using Breech Trait ASBVs

Provided the data you submit to Sheep Genetics is linked and of high enough accuracy, you will receive breech wrinkle ASBVs for animals that have been scored. Breech wrinkle ASBVs are expressed as a deviation, with a more negative breeding value indicating less breech wrinkle.

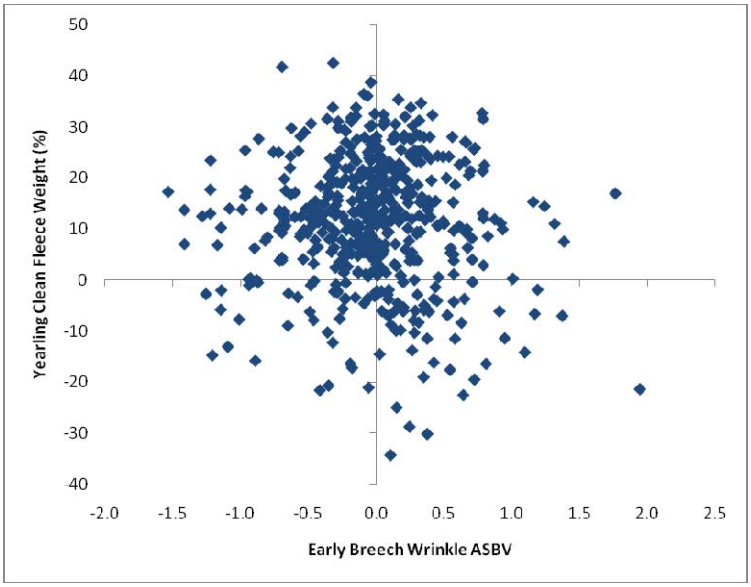

Figure 1: Genetic variation for MERINOSELECT sires used 2007-08 for early breech wrinkle and clean fleece weight

Another positive story regarding the use of ASBVs for skin wrinkle is that it clearly shows the large degree of genetic variation that occurs amongst Merino breeders. For example, while the correlation between clean fleece weight and breech wrinkle is antagonistic, it is also quite weak and can be easily broken. Figure 1 shows the range in early breech wrinkle ASBV and Clean fleece weight ASBV for sires used in MERINOSELECT between 2007-08. At any given fleece weight, there is a wrinkle ASBV range of 2.5 wrinkle scores – more than enough to identify plainer sires to use without compromising production.

Another successful outcome is a wrinkle genetic trend for the Merino industry. Because ASBVs can monitor genetic progress over time, the change in breech wrinkle can be observed alongside progress in other major production traits through genetic trends (Fig 2). This is an important tool, not just for breeders who want to make sure production levels continue to move in the right direction, but also to demonstrate to the international community the genetic progress being made in Australian Merinos.

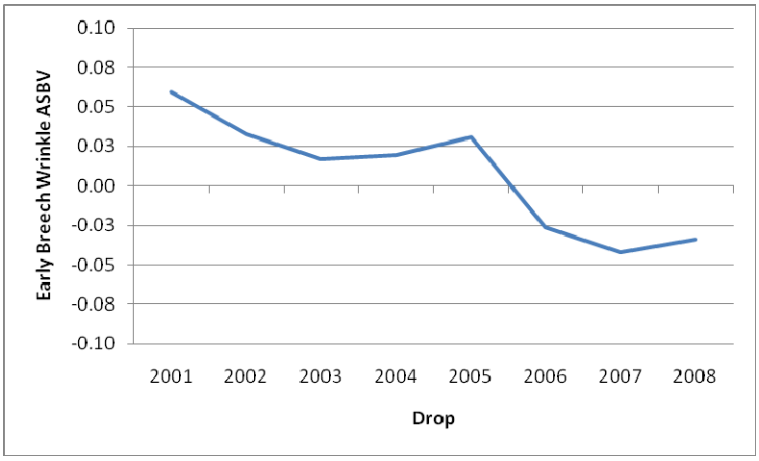

Figure 2: Genetic trend for early breech wrinkle ASBV over time

Early Breech Wrinkle ASBVs will be reported back to breeders as part of their standard reports, and will be publicly available through the Sheep Genetics web search engine and trait leader lists. A breech trait web page has been setup on the Sheep Genetics website to provide additional information and support material. There are currently over 14,000 2008 drop animals with an EBRWR ASBV.