

# Project summary

## Genetics of Reproduction and Lamb Survival

### Genetic opportunities

Reproductive performance can have a significant impact on the profitability of a ewe flock. The heritability of the reproduction traits tends to be quite low. This leads some people to believe that reproduction is not worth worrying about from a genetic perspective. However, there is a large variation in the reproductive performance of sheep across the industry, and this variation provides an opportunity to source genetics that will help you improve in this area. With the release of improved ASBVs for reproduction in recent years, producers are better equipped than ever before to make genetic gain in the reproductive performance of their flocks.

### Background

Prior to the arrival of ASBVs for reproduction, the main mode of selection for reproduction was to buy rams that were born and raised as twins. At the stud level there was also selection toward ewes that scanned and raised twins. Over time this did improve reproductive performance, but it was very slow. With the new ASBVs, the gains will be much faster because it is a lot more accurate to use the ASBVs to select for reproduction than to select on a rams birth or rear type.

### The demonstration

The project aimed to demonstrate differences in reproduction by using ram teams of different genetic merit for reproduction and following their daughters through.

### Key outcomes

- The new ASBVs for reproduction include Conception, Litter Size, Ewe Rearing Ability and the overall trait, Weaning Rate
- These new ASBVs have been widely accepted by industry and providing a great opportunity for producers to genetically improve reproduction
- While the time lag makes it difficult to assess the impact of genetics on reproduction, it is clear that genetics plays a role in flock reproduction.

### Things to consider

- It is important to consider your own enterprise when determining your breeding objectives.
- Selection for increased reproduction should only be undertaken if it is one of the key traits that will improve profitability on your farm and is something you want to work on
- Many producers are keen to working on ewe rearing ability rather than litter size because dealing with triplets is problematic



Improving ewe weaning rates through genetic selection is now even more possible with the ASBVs available

## The reproduction ASBVs spelled out

The reproduction ASBVs (Australian Sheep Breeding Values) are separated out across the stages of reproduction. Depending on the current opportunities in your flock, you may choose to weigh one of the components more heavily than others. For example, many breeders are happy with their current scanning percentages but would like to improve lamb survival, so the Ewe Rearing Ability (ERA) ASBV takes a higher priority.

**Conception (CON)** – ability of a ewe to get in lamb

**Litter Size (LS)** – how many lambs a ewe conceives

**Ewe Rearing Ability (ERA)** – the number of lambs weaned per lamb born

**Weaning Rate (WR)** – A combination of the above traits, lambs weaned per ewe joined

There is also a ewe Maternal Behaviour Score (MBS), which is a measure of how far away from the birth site a ewe moves when tagging her lambs.

## Variation equals opportunity

All of the breeding values associated with reproduction are measured at the individual level. All of these numbers seem small, but if you multiply them up to 100 ewes to reflect a percentage, you soon see the impact they can have.

The breeding values are derived from data that ram breeders collect. Each time a ewe is put to the ram it is considered as a lambing opportunity. Breeders record whether each ewe became pregnant and, if so, how many lambs were conceived. The number of lambs the ewe weaned is also recorded. Obviously, the rams for sale don't often have any daughters, and if they do, they are not likely to have had the opportunity to reproduce yet. All breeding values for reproduction use the performance of female relatives in a ram's pedigree to estimate the genes it is carrying for reproduction.

## Where do I start?

Your ram breeder and the Sheep Genetics website are good places to start. Talk to your ram breeder about whether they provide the reproduction ASBVs or flick through last years catalogue and have a look. You can also browse the Sheep Genetics website ([www.sheepgenetics.org.au](http://www.sheepgenetics.org.au)) and search the ASBVs on your current ram team or rams available in your area. For more information, head to the MLA genetics hub ([genetics.mla.com.au](http://genetics.mla.com.au))

**For further information:** Mark Ferguson, neXtgen Agri International T +64 21 496 656 M +64 21 496 656 E [mark@nextgenagri.com](mailto:mark@nextgenagri.com)