# MERINO GENOMIC REFERENCE FLOCK

**AWI has commenced a two-year project to improve and increase the data going into the Merino Genomic Reference Flock, and to increase the genomic information on flystrike.**

## The new project is focused on:

- genotyping up to 5,000 progeny of 100 sires in Sire Evaluation each year
- genotyping 'on farm' animals that have been fly struck and collecting a range of data on the correlated indicator traits (ie pedigree, wrinkle, dag, wool colour, fleece rot); and
- assisting breeders cover the data management cost to do so.

Genomics has played an increasing role in genetic evaluation over the past decade. Quickly the focus moved from finding single genes of large effect for individual traits to genomically enhanced ASBVs (single step analysis for all traits) where all ASBVs are influenced by genomics. As the amount and quality of data improves, along with the methods used in the analysis, so does the value of genomic information.

Genomics has played an important role in increasing the depth of pedigree for many animals in MERINOSELECT. Having good information on parents and their relatives provides important information to better predict mid parent value ASBVs for young progeny, prior to direct measurements being collected. It has also assisted in the relatively quick move in eastern states to polled Merinos, by providing an indicator for Polledness through the HH, PH and PP genomic results.

Genomically enhanced ASBVs are most cost effective when animals are selected prior to taking a direct measurement of an important trait. This includes selecting:

- 5-7 month old ewe and ram lambs for joining prior to being able to conduct a fleece assessment
- animals prior to the expression of dags, worms, fleece rot or flystrike, more likely to occur in dry seasons
- ewes and rams for reproduction prior to joining
- for meat eating quality.

Once a direct measurement can take place, the value of genomics falls as generally an accurate direct measure overrides the influence of the genomic data for that trait.

There are also instances where it is only at much older ages that an accurate direct measure can be taken, such as lifetime fleece traits, reproduction and survival.

For genomics to have most value to a breeder they need to be well connected to the Reference Flock, which means a breeder needs animals in the Reference Flock that have similar and current genetics.

The current Merino Genomic Reference Flock has data from the Sheep CRC INF, MLA's Genomic Reference Flocks, Merino Lifetime Productivity (MLP) project, AWI Breech Strike Resistance Flocks, and increasingly on farm data from MERINOSELECT breeders.

With the last MLP joining taking place in 2018, this project is designed to increase the amount of contemporary older age data in the Reference Flock by:

- Utilising the existing seven Sire Evaluation sites across Australia by assisting with half the cost of genotyping up to 5,000 progeny per year generated from 100 AI sires. This allows any breeder to join the Merino Genomic Reference Flock by entering a sire. These Sire Evaluation sites take a broad range of visual and objective traits up to and including the adult age.
- Increasing genotypes from existing ram breeders that are recording on-farm flystrike phenotypes. AWI will assist with half the cost of genotyping struck animals in accordance with a well-defined protocol and pay the associated cost of recording and transferring that data. The aim is to develop a Flystrike Research Breeding Value as quickly as possible to act as an incentive for ram breeders to get involved. Genomics may also assist in not needing wrinkle and dags to be so low for natural flystrike resistance.

**More information:**

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