

# AWI and AGBU partnering for genomics and the MLP analysis

A new \$1 million, five-year project has commenced with the Animal Genetics and Breeding Unit (AGBU) set to analyse the expansive Merino Lifetime Productivity project dataset and undertake additional Merino genetic benchmarking R&D with a focus on flystrike genomics.



The team from the Animal Genetics and Breeding Unit (AGBU): **Elena Dehnavi**, **Daniel Brown**, **Peter Wahinya** and **Andrew Swan**.

This project will be run by an expert genetic team from AGBU, working in conjunction with AWI and the MLP project team. Two new dedicated post-doctoral research positions have been funded and recruited within the AGBU team.

The new team members will be working on the analysis phase of the MLP project as well as additional AWI genomics projects. They will be working under the guidance of two familiar genetic experts, and it's hoped that, in future, student positions will be incorporated to capitalise on the newly formed analysis team.

The MLP dataset is of significant value to the Merino industry for longer term phenotypic, genetic and economic analysis in order to answer a diverse range of industry questions. The NSW Stud Merino Breeders' Association Trust has indicated that it would like to provide additional support that will see analysis targeting specific points of interest to industry.

The first of the newly created research positions has been filled by Dr Elena Dehnavi who joined AGBU in early 2021 and has worked on breeding objectives and breeding program design. Elena's work included updating terminal sheep selection indexes and estimating genetic parameters. Elena's university studies were completed at the Gorgan University of Agricultural Sciences and Natural Resources in Iran and the Isfahan University of Technology also in Iran, with time spent in Canada at the University of Guelph's Centre for Genetic Improvement of Livestock group. Elena has a background in marker selection, genomic selection, reference population breeding design, simulation, imputation across a range of animals and has previously worked with buffalo, cattle, poultry and Japanese quail genetics – the project is lucky to have her skillset now applied to Merinos!

Dr Peter Wahinya has capably filled the second position with a special focus on

the MLP dataset. Peter finished his PhD at AGBU in 2020 on quantitative genetics after earlier university studies in Kenya. His studies were in the application of genetics and economics to improve livestock productivity by developing breeding strategies for genetic improvement of dairy cattle under different production systems. Since 2020, Peter has been involved in a variety of AGBU projects including the estimation of genetic parameters of methane emission in Australian sheep in grazing and controlled environments, plus the analysis of pure and crossbred genotypes for breed composition estimation and genetic evaluation in beef cattle.

The project's senior supervisors and collaborators include Professors Daniel Brown and Andrew Swan. Daniel is a Principal Scientist at AGBU at Armidale. He is well-known as a member of the team responsible for the routine estimation of Australian Sheep Breeding Values (ASBVs) for Sheep Genetics, as well as the ongoing research and development of the genetic evaluation system. Daniel has been working in this role for nearly 23 years with the primary focus on the genetic improvement of sheep. Daniel is also a program leader for the Advanced Livestock Measurement Technologies project aiming to develop objective measurement technologies to collect lean meat yield and eating quality data from commercial supply chains. And keeping in touch with the practical elements of his professional work, Daniel also operates a small sheep and beef operation with his family.

Andrew Swan has been working in animal genetics research for 30 years, joining AGBU in 2006. Whilst at AGBU he has contributed to the development of genetic evaluation services for the Australian sheep industry, delivered to ram breeders and their clients through Sheep Genetics and AMSEA. This has involved close collaboration with AMSEA, Sheep Genetics staff, ram breeders, and genetics service providers over a long period of time. Recently Andrew's research focus has been on the application of genomic information working in collaboration with other researchers and leading to the full implementation of 'single step genomic BLUP'. This is the first and largest analysis of its kind in international sheep breeding. Andrew's passion is to see genetic gains made by ram breeders translated into improved productivity and sustainability for industry.

Analysis outcomes from AGBU and the MLP project team will be reported via the usual AWI and MLP channels plus additional avenues which will be advertised in future editions of the MLP Project Newsletter (subscribe to the MLP newsletter via [www.merinosuperiorsires.com.au/contact-us](http://www.merinosuperiorsires.com.au/contact-us)).

The MLP project looks forward to reporting analysis outcomes to industry. **B**

## 85% OF MLP DATA POINTS COLLECTED

With more than 85% of the MLP's 1.9 million data points now collected, some early analysis of the dataset is commencing.

The first of the five sites (Balmoral, Victoria) will complete its project assessments in March 2022, Pingelly (Western Australia) and MerinoLink (NSW) will wrap up in late 2022. The Macquarie and New England sites will continue into 2023/24.



## MLP FAST FACTS

The AWI-funded MLP project is a \$13 million (\$8 million from AWI plus \$5 million from project partners), 10-year venture between AWI, the Australian Merino Sire Evaluation Association (AMSEA), nominating stud Merino breeders and site partners.

- **Balmoral, Vic**  
Partner: Tuloona Pastoral  
Committee: Balmoral Breeders Association
- **Macquarie, Trangie, NSW**  
Partner: NSW DPI  
Committee: Macquarie Sire Evaluation Association
- **Pingelly, WA**  
Partner: Murdoch University / UWA  
Committee: Federation of Performance Sheep Breeders (WA Branch)
- **New England, NSW**  
Partner: CSIRO  
Committee: New England Merino Sire Evaluation Association
- **MerinoLink, Temora, NSW**  
Partner: Moses & Son  
Committee: MerinoLink Inc.

The MLP project is tracking the lifetime performance of 5,700 ewes as they proceed through four to five joinings and annual shearings.

A full suite of assessments will be undertaken including visual trait scoring, classer gradings, objective assessments of a range of key traits and index evaluations.

A unique and extensive dataset will result and be used to enhance existing Merino breeding and selection strategies, for both ram sellers and buyers, to deliver greater lifetime productivity and woolgrower returns.

To stay up to date with the latest MLP findings, visit [www.wool.com/MLP](http://www.wool.com/MLP). Subscribe to MLP updates via [www.merinosuperiorsires.com.au/contact-us](http://www.merinosuperiorsires.com.au/contact-us)

## 2022 MLP FIELD DAYS

### Macquarie: 30 March

The Macquarie Sire Evaluation Association, along with site hosts NSW DPI, invite industry to attend the Macquarie 2022 MLP Field Day at Trangie Agricultural Research Centre. Further details are available at [wool.com/mlp](http://wool.com/mlp)

### Balmoral: the final field day

The recent MLP field day held on 17 February at the Balmoral Breeders Association MLP site, generously hosted by Tuloona Pastoral, saw an enthusiastic crowd gather to view the 2015 and 2016 drop MLP ewes in their final display. The ewes were shorn after the field day and have exited the project. A full report of their lifetime results will be produced with analysis to follow.



Hear from Balmoral MLP site manager Tom Silcock of Balmoral Breeders and sheep classer Bill Walker in Episode 211 (4 February) of AWI's The Yarn podcast at [www.wool.com/podcast](http://www.wool.com/podcast)

In-person  
& remote  
attendance  
available

## 2022 CONFERENCE & FIELD DAY 6-8 JUNE WAGGA WAGGA NSW

Event info + rego [merinolink.com.au/conference2022](http://merinolink.com.au/conference2022)

MerinoLink invites all of industry to once again join us in Wagga Wagga NSW for a conference featuring the latest Merino information presented by a broad spectrum of key industry presenters across a range of formats and venues.

We'll revisit many of the high calibre 2021 venues with a brand new program of topics and line-up of presenters, plus a variety of opportunities for behind-the-scenes access to industry experts and their work.

The 2022 program runs from Monday, June 6 through to Wednesday June 8 and includes a lead-in session and an informal meet and greet dinner, a full conference day and formal dinner, plus a field day across multiple venues.



# Merino LINK