Merino Lifetime Productivity Project Newsletter No.16

FINAL Field Day

The New England site will host their final field day at CSIRO Uralla on **Wednesday May 29 2024** which will be the last MLP field day held with sheep on display.

The day will be a mix of sheep displays, presentations and a celebration of the New England site and the wider MLP Project data collection teams.

Site host CSIRO has been involved in some exciting add on work that will also be showcased on the day. Hear about:

- Neonatal fitness and survival

- Predicting immune competence and its relationship to production traits

- Udder traits and their impact on lamb survival

We wholeheartedly encourage industry stakeholders to attend this event, as it marks the completion of the lifetime dataset and the commencement of comprehensive project analysis. We look forward to welcoming you and celebrating this milestone together.

Keep an eye out for more details in future newsletters or via www.wool.com/MLP.

New England Site Committee back in 2018. Come along and see if it's not only the sheep that have changed over time

MLP quick facts

- The Australian Wool Innovation (AWI) funded MLP project is a $8M (plus $5M from partners), 10-year partnership between AWI, the Australian Merino Sire Evaluation Association (AMSEA), nominating stud Merino breeders and site hosts.

- The MLP project has run at five sites where sire evaluation trials operated for the first two years and then tracked the performance of ewe progeny through four to five joinings and annual shearings.

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

- A full suite of assessments have be undertaken during the MLP project including visual trait scoring, classer gradings, the objective assessment 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.

FINAL MLP
New England Field Day
SAVE THE DATE
May 29, 2024

Generating MLP Data

Annually, ewes in the MLP project have approximately 60 datapoints collected on them, with a further 7 datapoints collected on their lambs. Since 2015 core data has been collected to protocol – and there have been very few occasions where sites have missed collecting a datapoint.

Traits assessed annually

Wool Measurements	Fleece weight, yield, fibre diameter, fibre diameter standard deviation (SD), fibre diameter coefficient of variation (CV), staple strength, staple length, comfort factor and curvature
Growth and Carcase	Live weight, eye muscle and fat depth
Disease and Welfare	Worm egg count, faecal moisture, dag, urine stain, breech cover, crutch cover, breech wrinkle
Visual Wool Traits	Fleece rot, wool colour, wool character, dust penetration, staple weathering, staple structure, fibre pigmentation, non-fibre pigmentation, recessive black and random spot
Visual Conformation Traits	Face cover, jaw, legs/feet, shoulder/back, body wrinkle
Classing	Two classings by independent sheep classers
Joining, Pregnancy and Lambing	Sire, dam, pregnancy scanning, number of lambs weaned, live weight and condition score at pre-joining, pregnancy scanning, pre-lambing, weaning

The project has detailed protocols and prompts for upcoming data collection activities – and sites developed their own strategies to meet the protocols. The overall result is an independently collated, robust, unique, and extensive dataset.

MLP Fun Facts

Super Ewe

Pictured is 171131, a Macquarie 2017 drop ewe who conceived 13 embryos over 5 joinings and raised all 13 through to weaning. To date she has weaned the most lambs of all the ewes in the MLP Project.

MLP Sire Usage

Initially, when the 134 MLP sires were introduced to the project, they collectively had 9,000 offspring assessed within the MERINOSELECT system. Fast forward to October 2023, and an additional 70,000 offspring from these sires have been evaluated. Out of this expanded dataset, approximately 11,400 of these extensively recorded and genotyped animals are attributed to MLP data, which increases the accuracy of genetic predictions for their half-siblings.

Hardware and operator failure has been a rare occurrence in the project. Sites have reviewed processes, and the project has developed protocols and collection guides to mitigate these errors. Regular catchups between site managers provided a setting for sharing tips and insights to streamline and strengthen the data collection processes.

The project boasts several layers of data review with site data managers, project data manager and then the AMSEA database manager checking and reviewing data collected.

Overall, the data collected is of a high standard creating an enormously robust and powerful resource for industry.

Once the data collection is complete, the core analysis will take place and deliver insights that will enhance our existing selection approaches to deliver lifetime productivity more effectively and economically.

Keep an eye out for an upcoming update in Beyond the Bale that outlines the value the MLP Project dataset has created to date.

MLP Data Update

We are just 120,000 datapoints away from collecting the MLP 2,029,208 planned datapoints.

The Macquarie site is set to complete MLP core data collection by November 2023, and the New England site by July 2024.

Ben Swain holds Macquarie F1 Super Ewe, October 2023

Analysis Insights

In July, MLP analysis team member AGBU's Dr Peter Wahinya presented a paper at the AAABG Conference in Perth that set out to answer the question "What is the genetic relationship between visual classing traits recorded pre-selection and adult ewe lifetime production and survival traits?"

The presentation featured preliminary heritability and correlation estimates between a subset of measured adult ewe traits with visual classing traits recorded at a young age.

Peter looked at data across all five MLP sites up to the fourth year of age and, in an industry first, he explored the heritability of ewe survival and its correlation with early classing visual traits.

Heritability estimates were high to very high for body weight, eye muscle depth, fat depth, body wrinkle, breech wrinkle, breech cover and classer grade (0.32 – 0.64); moderate for urine stain (0.21) and legs score (0.23); and low for weaning rate (0.07) and ewe survival (0.06).

The analysis showed favourable genetic relationships between visual classing traits at a young age and the ewes lifetime body weight, eye muscle depth, fat depth and weaning rate. Wrinkle also showed a moderately favourable (0.4) genetic relationship with ewe survival, meaning that plainer ewes at an early age are more likely to survive longer in the flock.

Peter concluded that emphasis on visual traits when selecting maiden ewes is likely to have beneficial effects on these adult measured traits (this is a similar outcome to earlier breeding and selection trials).

Once the full MLP dataset is complete in July 2024, this analysis will be revisited to include additional traits such as the fleece traits and full lifetime records (out to six- and seven-year-olds).

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New England MLP Ewe, Body Wrinkle Score 4

BODY WRINKLE (BDWR)

| Score 1 | Score 2 | Score 3 | Score 4 | Score 5 |
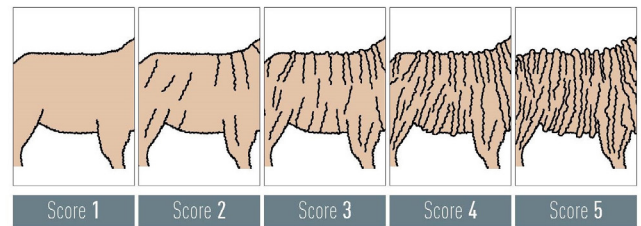
Visual Sheep Scores for Body Wrinkle

Congratulations

A big congratulations to MLP Industry Steering Committee member and entrant Bill Sandilands who, along with MLP Analysis guru Prof Andrew Swan, have been elected as fellows of AAABG for their eminent service to animal breeding.

Macquarie and MerinoLink site committee member, and MLP sire entrant Mark Mortimer was awarded the Helen Newton Turner Medal for his contributions to genetics research and development.

We also congratulate MerinoLink site host Marty Moses who received a well-deserved Wool Industry medal for his long-term services to the industry.

Bill Sandilands

Andrew Swan

Mark Mortimer

Marty Moses

Around the sites

Balmoral, MerinoLink, Pingelly - SITES COMPLETE

Macquarie

The site has experienced dry conditions through winter receiving half their annual rainfall and warmer than usual weather. Ewes were fed a full ration through lambing via lick feeders and trail feeding barley. Supplementation continued until weaning which took place at the end of August.

At weaning the 2017 drop ewes achieved 111% lambs weaned to ewes joined and the 2018 drop ewes achieved 116%. Despite the dry conditions the ewes had a rise in worm egg count and were faecal sampled on September 5.

Ewes will go through their final assessment in October, followed by methane related data collection prior to leaving the project by the end of 2023.

From left to right, Allan Casey, Jamie Fraser, Logan Fraser, Tracie Bird-Gardiner. Final Macquarie F1 ewes udder and teeth scoring, August 2023

New England

The site has received lower than average rainfall for 2023. Supplementation commenced with beans from mid-June and continued through lambing.

Preg scanning took place in late June with the 2017 drop achieving 166% foetuses to ewes joined, and the 2018 drop 171%. At scanning the 2017 drop averaged CS 3.4 and the 2018 drop CS 3.5.

Mid side sampling, classing, and scoring took place early June and ewes were shorn on June 22-23 with off shears scoring taking place early July. Ewes were side branded the first week of August and vaccinated and moved onto the plots on August 14 ahead of lambing commencing on August 26.

Mild weather was experienced through lambing and 2091 lambs were tagged at birth suggesting 170% lambs born to ewes joined. Lambs were marked in mid-October and will be weaned in December.

New England F1 Ewe raising triplets, September 2023

Catch MLP Project Updates at these Events

Yardstick Field Day October 26, 2023

Pingelly Site Manager Dr Bronwyn Clarke will present some early MLP Analysis Insights.

Balmoral Field Day March 1, 2024

AMSEA Executive Officer Ben Swain will be presenting some early MLP Analysis Insights.

Chris Bowman & Bill Walker, final Macquarie Classing, October 2023

Further information

www.wool.com/MLP