MLP
Merino Lifetime Productivity Project

Merino Lifetime Productivity Project Newsletter No.10

Project Data-to-Date

A snapshot of MLP data-to-date was recently provided to the 2021 MerinoLink Conference. This was sourced from a subsection of the 1.4M+ data points already collected in the MLP project. *Clean Fleece Weight* **(CFW),** *Reproduction* **(NLW) and** *CFW versus NLW* **data was presented from the MerinoLink Temora site, with a look at the topic of culling strategies based on site reproduction results.**

Within drop Clean Fleece Weight flock breeding value results from the MerinoLink 2016 drop were reported at each age stage, along with a total lifetime CFW thus far (Table 1). Adult breeding values are calculated using all prior measurements up to the reported stage, so the Adult 2 (A2) includes the Yearling (Y) and so on.

Results show that early Yearling results don't necessarily predict adult or early lifetime CFW. For example, not all Yearling trait leaders follow through to be adult or early lifetime leaders. As we found in other MLP drops, some sires can start strongly and drop away, while others do the opposite. When the Yearling results alone are correlated to the total lifetime results there is a reasonably strong relationship with a 0.72 correlation. However, this is significantly improved when the CFW for the next stage is also included (Y + A2) with a correlation of 0.92 (Note, these results are from 30-40 progeny / sire and not for individual animals).

This poses a number of analysis questions for the MLP project dataset:
- What role does fleece growth trajectory and early maturity patterns have on lifetime CFW?
- How do we identify the most productive animals for CFW, NLW and overall productivity, as early as possible?

Table 1: Clean Fleece Weight (CFW) from MerinoLink's 2016 drop presented as a total at each age stage and thus far across their lifetime.

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 runs at five sites where sire evaluation trials operate for the first two years and then continue tracking performance of ewe progeny as they proceed 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 Inc.
  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 will 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.

MerinoLink 2016 Drop	Within site and within drop flock breeding values				Total CFW Sire Mean (kg)	Total CFW Ranking
	YCFW	A2CFW	A3CFW	A4CFW		
Bella Lana, 130296	-5	-7	-14	-13	16.6	11
Boyanga, 145112	-10	-17	-21	-19	16.5	12
Glen Donald, 120014	6	17	21	19	20.8	1
Greendale, 120012	2	3	1	-1	18.9	6
Leahcim Poll, 090918	5	-7	-12	-9	17.8	10
One Oak No. 2, R56	-1	9	16	15	20.4	2
Pastora Poll, 082893	-3	-4	-3	-3	17.9	9
Poll Boonoke, 120020	6	7	10	9	19.9	3
Pooginook Poll, 140632	1	4	2	0	18.3	6
Roseville Park, 140611	-4	0	-1	-1	18.2	8
Trigger Vale Poll, 140477	-1	-6	-6	-2	18.4	7
Wattle Dale, 140754	3	1	1	0	19.1	5
Wurrook, 130149	1	1	6	6	19.2	4

Note, reported sires do not necessarily represent a stud. They are an individual animal and their results should be considered as such.

Of note is that once adult stages are reached there are other influences on the CFW breeding value, including NLW and Fibre Diameter. Data from all 5 sites across the 10 years will be required before drawing conclusions about lifetime results.

Reproduction results further highlight the need for a full MLP dataset, with varying annual results observed.

Let's take a look again at the MerinoLink 2016 drop results. This time we'll use the NLW raw data, remembering that raw data has not been adjusted for factors that improve its accuracy for genetic evaluation purposes (eg. birth and rear type).

Table 2 reports each of the last three years of weaning results plus a total number of lambs weaned. Results can be observed as being variable between years; although some sires have maintained consistent results (Boyanga, 145112), others have increased their NLW substantially in later years (Pastora Poll, 082893).

The reproduction within drop flock breeding values from this drop reiterate these varying results across the reproduction component traits (see full report - MerinoLink November 2020 MLP Site Report). With another two years of results, plus the other four sites, a more robust reproduction data set will enable a comprehensive analysis.

Also presented was an overlay of the NLW results with the CFW results, shown in Figure 1. In MerinoLink's 2016 drop, there are sires whose progeny can be noted as being

	2018	2019	2020	Total Lambs Weaned
Bella Lana, 130296	97%	104%	107%	3.1
Boyanga, 145112	116%	111%	115%	3.4
Glen Donald, 120014	116%	95%	117%	3.2
Greendale, 120012	105%	95%	88%	2.9
Leahcim Poll, 090918	122%	92%	95%	3.2
One Oak No. 2, R56	92%	114%	131%	3.4
Pastora Poll, 082893	82%	86%	136%	3.0
Poll Boonoke, 120020	79%	121%	107%	3.1
Pooginook Poll, 140632	115%	112%	119%	3.5
Roseville Park, 140611	88%	67%	87%	2.4
Trigger Vale Poll, 140477	100%	100%	100%	3.0
Wattle Dale, 140754	107%	89%	80%	2.8
Wurrook, 130149	94%	69%	107%	2.7
Average	**101%**	**96%**	**107%**	**3.0**

Table 2: Number of Lambs Weaned (NLW) from MerinoLink's 2016 drop presented for the last three years and as a total thus far across their lifetime.

very productive in regard to both cutting wool and rearing lambs, see top right quadrant (3 – Glen Donald, 6 – One Oak, 9 - Pooginook). The correlation of the relationship between ACFW and NLW is a notably low -0.08 for these specific 13 sires. Even considering this low correlation, this data snapshot shows that good performance in both production areas can be achieved.

Further information was presented at the MerinoLink Conference on MLP ewes who scanned as dries in their first and/or subsequent joinings for three MLP sites. Calculations around commonly used culling strategies were highlighted - further details will be reported in future MLP newsletters.
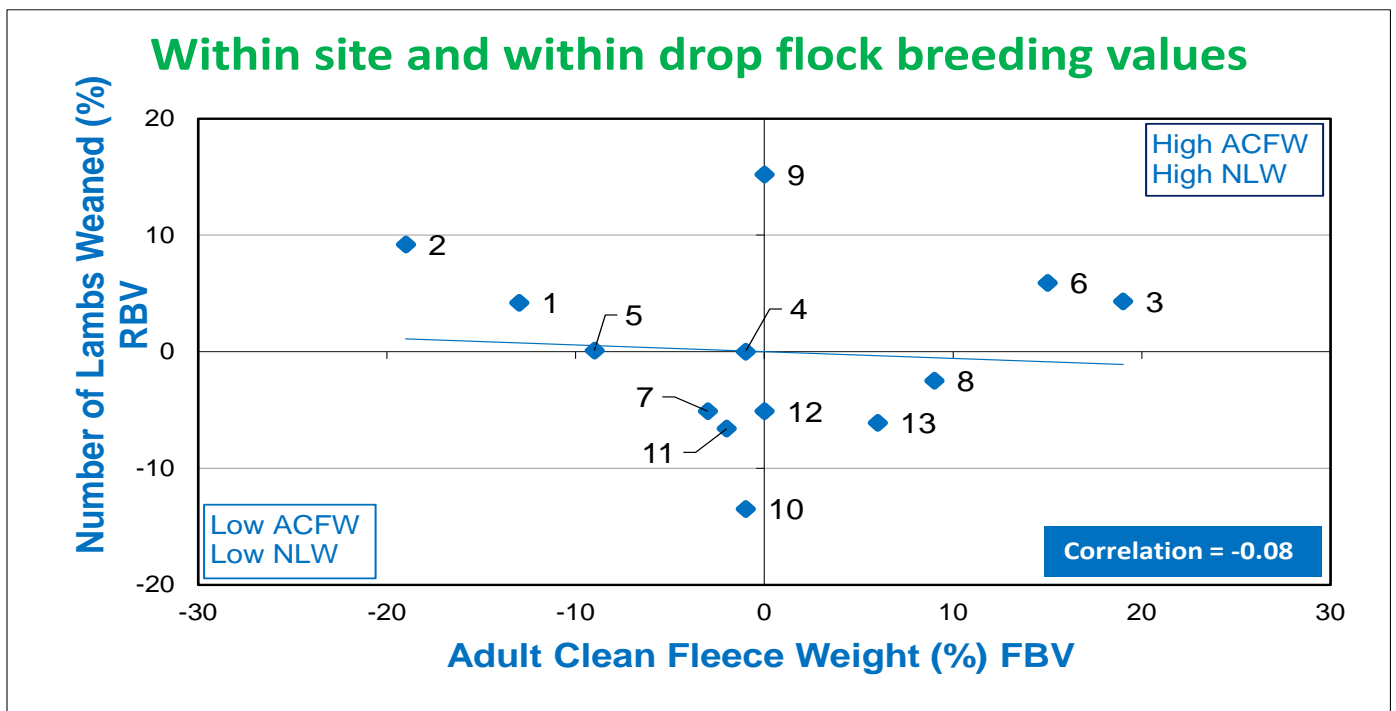
Within site and within drop flock breeding values

Figure 1: Number of Lambs Weaned (NLW) overlaid with Adult Clean Fleece Weight (ACFW) breeding values from MerinoLink's 2016 drop.

Around the sites

Balmoral

A reasonable autumn break was followed up with good rainfalls in May and June. A total of 150mm has fallen in 2021 with 37mm falling in June. Pregnancy scanning took place on June 7, the 2015 drop achieved 96% conception and 156% foetuses, while the 2016 drop achieved 92% conception and 145% foetuses. The 2015 drop averaged 53.7kg, the 2016 drop averaged 51.9kg and both drops averaged CS 3.2. A worm monitor saw pressure remaining low. An updated report will soon be produced for the Balmoral site.

Balmoral's MLP ewes at pregnancy scanning, June 2021. Dark rib line is vegetable oil residue from EMD/FAT scanning.
Image credit: Tom Silcock, Balmoral Breeders

Pingelly

Good pasture germination from summer / autumn rainfall has been followed up with 70mm received during May and 22mm during June. The MLP ewes are maintaining good condition and stopped receiving any feed supplements in late May. Pregnancy scanning took place on April 22, with 94% and 92% conception, and 154% and 141% foetuses in the 2016 and 2017 drops. The 2016 drop ewes averaged 63.9kg and CS 2.8 while the 2017 drop averaged 73.0kg and CS 2.9. An updated report for Pingelly is now available at merinosuperiorsires.com.au/mlp-project-reports

Pingelly's 2016 drop single bearing ewes, June 2021
Image credit: Richard McKenna, University of Western Australia

MerinoLink

A dry April was followed by rainfall of 14mm in May and 100mm in June resulting in good pasture availability just in time for lambing. Ewes were divided into lambing paddocks on May 3 with the 2016 drop ewes averaging 83.3kg and CS 3.2, and the 2017 drop ewes averaging 83.6kg and CS 3.4. Lambing proceeded smoothly and has finished recently with tagging of the F2 progeny scheduled for mid-July.

MerinoLink's MLP twinning ewes during lambing, May 2021.
Image credit: Marty Moses, Moses and Son

Macquarie

Macquarie has had good rain events with 460mm received for the year and 68mm received in June. Ewes were drafted into lambing groups on April 28, the 2017 drop averaged 79.8kg and CS 3.6 while the 2018 drop averaged 79.8kg and CS 3.5. Over lambing ewes have been supplemented with feeders and roughage after paddock pasture cuts tested at 8MJ of metabolizable energy (ME). Tagging of the F2 progeny is scheduled for mid July.

MLP F1 ewes and F2 lambs, June 2021.
Image credit: Tracie Bird-Gardiner, NSW DPI

New England

The site has received 62mm of rain for June and 441mm for the year. On May 3, rams were removed from both drops after initially joining on March 29. Classing was completed in June with a significant proportion affected by fleece rot, this is the first real summer rainfall challenge for the site. Pregnancy scanning in late June saw the 2017 drop achieve 97% conception and 130% foetuses and the 2018 drop 95% conception and 125% foetueses. Shearing is happening now with lambs due in late August.

2021 MLP Field Days
SAVE - THE - DATE
MerinoLink - October 12
Pingelly - October 22

Profile Series: Meet the MLP Site Managers

Kathryn Egerton-Warburton + Tracie Bird-Gardiner
NSW DPI, Macquarie NSW

Tracie is the current Site Manager for the Macquarie MLP site which is hosted by NSW DPI alongside the Macquarie Sire Evaluation Association, located near Trangie, New South Wales. Kathryn recently held the site manager's role and is currently seconded within NSW DPI.

NSW DPI's team has high credentials with both Tracie and Kathryn bringing impressive research, industry development and genetic skillsets to the site.

Where has your career path taken you?
Kathryn - B. Sc (Hons) and PhD at the University of NSW in wool and pastoral science with a PhD study exploring *Fine wool in non-traditional environments*. Work since has been across the university and government sectors including lecturing, project management and industry development (in wool, agribusiness, breeding and genetics).
Tracie - B. App.Sc (Agric) at Melbourne University followed by a Masters in *Genetic analysis of flystrike in sheep*. Prior to studying, Tracie worked across various agricultural industries in livestock and cropping contracting. Post-study work includes research and consultancy plus multiple beef and sheep genetics positions with NSW DPI.

What's a highlight of your role?
Kathryn - Getting this far! Through AI, assessments and then drought. Working with a great group of passionate people to deliver the MLP, including hosting successful field days and seeing the impact on attendees.

How would you describe your site and its ewe base?
Tracie - The Macquarie site is in a variable non-seasonal rainfall environment dominated by native pastures and herbs on red and grey calcic soils. Persistence of traditional improved pastures species is limited by rainfall/soil types. Ewes are medium - large framed carrying fine/medium wool, representative of sheep in the local environment.

Where are Macqaurie's ewes up to in their lifetime?
The ewes have almost completed their second (2018 drop) and third (2017 drop) lambing, with lamb tagging scheduled for the 6th July 2021. Four fleece assessments have been completed for the 2017 drop and three for the 2018 drop.

What makes the Macquarie site unique?
Kathryn - Trangie was specifically designed to have a divergent ewe base; one large framed, heavy cutting with the other an "all purpose" type.
Tracie - Trangie's unique environment, non-seasonal, with extreme weather events and seasonal change, challenges an animal's constitution and "do-ability".

NSW DPI team, 2019 MLP Field Day (Kathryn in high-vis, Tracie on far right)

What is the site's particular MLP interest?
Kathryn - From a DPI perspective; dam source effects on production and fitness traits, especially at younger ages; economic modelling (Grassgro & Ausfarm); selection strategies; meat & eating quality through additional investment in projects.

What's the most important activity of the year at Trangie?
Kathryn - Lamb tagging; we collect data and DNA samples that complete the reproduction record for the dams. With a focus of the project as managing the F1 ewes to give them every opportunity to bear and rear a lamb, this is a really important check-in and an opportunity to see the hard work come to fruition. If we stuff-up here, we lose a lot of data!

From Kathryn:
'Lamb tagging - a really important check-in'

What's the most interesting activity of the year?
Kathryn - Toss up between weaning, visual scoring and classing. It's great to be able to close the loop with the weaning data; but the way different classers approach the ewes is very interesting, even their language when describing traits – it's a real learning opportunity.

Top tips for collecting quality data?
Kathryn - 5 P's – proper preparation prevents poor performance! Always have a back-up system available. Spend time getting the process right – dedicate skilled people to particular jobs (and invest in upskilling). Download at the end of each day!
Tracie - Have a good understanding of animal and human fatigue, which affects data collection and quality.

Further information

Download MLP Reports from www.merinosuperiorsires.com.au/mlp-project-reports
Feel free to contact the Site Managers, Project or AMSEA staff who are listed in reports for assistance with interpreting reported results.

Contact MLP Project Manager Anne Ramsay on 0400 368 448

www.wool.com/MLP