LIST OF MERINO LIFETIME PRODUCTIVITY (MLP) "ADD-ON" PROJECTS

Add-on projects use the core MLP sheep for additional R&D but are separate to the core purpose of the MLP

Projects Self-Funded by Sites Involving F1 Ewes

Drops Involved	Project Name & Detail	Short Project Description
Balmoral 2015 & 2016 **New England 2017 & 2018**	**Teeth Eruption Monitoring** **(AWI funded the 2015 drop)**	• Variation and timing of teeth eruption at Balmoral and New England.
Macquarie Foundation ewes, dams of 2018	**Rectal Temperature**	• Rectal temperature of Merino ewes and implication for AI conception rates.
New England 2017 & 2018	**Crimp Frequency Measurement**	• Crimp frequency measured using a crimp gauge to explore wool type and change in crimp frequency with age.

Projects Involving MLP F1 Ewes

Drops Involved	Project Name & Detail	Short Project Description
Balmoral 2015 **MerinoLink 2017** **Macquarie 2017 & 2018**	**Wells Classing Trial** **AWI Funded** **Delivery Partner: AMSEA**	• Explore the classers role in selecting for lifetime productivity within sire groups. • Specifically, progeny will be classed within their sire group four ways (top, firsts, seconds, culls) and classed to a breeding objective that reflects the breeding objective of the entrant. • This differs from the sire evaluation and project classing where the progeny is classed randomly as a mob and to the sites breeding objective. • The activity is undertaken at the first, second assessment and final assessment at five years of age with the aim to see how animals visually perform relative to their earlier visual classing.
New England 2017 & 2018	**Reproduction Efficiency & Foetal Aging** **AWI Funded** **Delivery Partner: CSIRO** **AGBU - Foetal Aging**	• This project will collect maternal pedigree from lambing rounds; litter size born, marked and weaned; birth weight; any compromises to lamb (and dam) fitness; and death date. • This additional information will enable evaluation of detailed ewe reproductive performance and lamb survival at different age stages which is not collected at other sites. • In 2017 CSIRO worked with AGBU to explore the use of foetal aging at pregnancy testing to see if this is a reliable predictor of birth date.

Projects Involving MLP F1 Wethers – Pingelly – 2016 and 2017 Drops

Project Name & Details	Short Project Description

Adding Wool, Growth & Feed Efficiency
 	
AWI Funded
Delivery Partner: Murdoch
	Phase 1: Objective to add value to the MLP project through extra measurement of the wether progeny in 2016 & 2017 drops
	• Extra measurements will include time to reach lamb finishing weights, predicted commercial carcase value and time to reach market specifications for shippers.
	• Specifically, measurements/assessments will include:
	    o Weight and body condition score recorded every month between 8-14 months of age and then two monthly until hogget shearing.
	    o Two-monthly live carcase scans and monthly teeth eruption between 8-14 months.
	    o Visually assessed at 10 months.
	    o Wool samples taken at yearling and at adult age and AWEX-ID allocated at first adult shearing.
	    o WEC measured at yearling.
	• Carcase value and fleece value analysis will be generated.
	• This will allow some comparisons to be made with their dry, single rearing and twin rearing sisters.
	
	Phase 2:
	• The 4-year project aims to improve the estimation of profitability per hectare of the genotypes represented in MLP. The project will assess the viability of practical feed efficiency assessments using new ways of measuring and comparing feed intake, whole body tissue composition and productivity.
	• Firstly, animals will be assessed in an animal house to validate predictions of feed intake, body reserves and productivity under differing levels of nutrition compared to normal grazing conditions.
	• Secondly, the project will trial new 'wearable sensors' and other methods to measure feed intake under grazing conditions.
	• The use of the new DEXA carcase scanning machine will help to explore body composition differences.
	• The measurement of feed intake and body composition will inform new and improved methodologies of profitability per hectare across all sire groups within the MLP project and other modelling software e.g. SheepObject.

Projects Involving MLP F1 Wethers – Balmoral – 2015 Drop

Project Name & Details	Short Project Description
Adding Wool, Growth & Slaughter Data **AWI & MLA Funded** **Delivery Partner: AMSEA**	**Shearing of wethers at Yearling age** • Fleece measurement of the Balmoral F1 wethers at Yearling age to add value to the F1 ewe post weaning assessment. **Slaughter measurements** • MLA to fund the collection in-plant carcase data and loin samples (10 lambs per sire) for IMF and SF5 measurements. • Data to be integrated with other data submitted by AMSEA to MERINOSELECT.

Projects Involving MLP F1 Wethers – MerinoLink – 2016 and 2017 Drops

Project Name & Details	Short Project Description
Whole Flock Production Data **AWI Funded** **Delivery Partner: MerinoLink (& Monaro Farming Systems Group)**	**2016 Drop** - Wethers will be measured to generate whole of flock production data. - Specifically measured twice for wool traits, plus meat and live carcase traits and slaughter traits. The post weaning assessment complements their sisters yearling assessment and will help to increase the accuracy of post weaning genetic parameters. - The site will also generate fleece and carcase values. **2017 Drop** - Wethers will be measured to generate whole of flock production data. - The wethers will be measured for four years for wool traits, growth and weight traits. - Carcase and store sales will be simulated and fleece and carcase values will be generated. - This will allow some comparisons to be made with their dry, single rearing and twin rearing sisters.

Projects Involving MLP F1 Wethers – Macquarie – 2017 and 2018 Drops

Project Name & Details	Short Project Description
Whole Flock Production Data **AWI Funded** **Delivery Partner: NSW DPI**	- The project will add to collection of early age fleece, growth and carcase data and report comparative information on the value of wool and carcase of different Merino types. - Combined with carcase composition and meat quality data as described in the projects below, this project will deliver data to contribute to estimating genetic relationships between these traits and lifetime wool and reproduction traits.
Genetics of Merino meat value and lifetime performance **MLA Funded** **Delivery Partner: NSW DPI**	- This project will help industry improve Merino carcase values through an increased knowledge of relationships between carcase traits, **meat quality** and reproductive performance. - The project will measure carcases, and their meat quality, from the wethers under a range of sites and finishing systems, utilising multiple genetic sources. - This information, in conjunction with growth, wool and reproductive measurements, will be available to the wool industry to review and enhance current selection practices.
Eating quality in Merino breeding programs **MLA Funded (pending approval)** **Delivery Partner: NSW DPI**	- The proposed project will be a complementary project to the 'Genetics of Merino meat value and lifetime performance' project. - The project will help industry improve Merino carcase values through an increased knowledge of relationships between carcase traits, **eating quality** and reproductive performance. - Samples from both sides of the carcase will be prepared for consumer taste panel assessments. - This information, in conjunction with growth, wool and reproductive measurements, will be available to the wool industry to review and enhance current selection practices.

Projects Involving MLP F1 Wethers – New England – 2017 and 2018 Drops

Project Name & Details	Short Project Description
Resilience Project **AWI Funded** **Delivery Partner: CSIRO**	**50% Wether Progeny per Sire Group – Lifetime Production and 50% assessed in a feedlot and slaughtered** • Understanding the contribution of immune competence, stress-coping ability and temperament to resilience in the CSIRO MLP wethers and the associations between these traits. • Understanding what trade off or synergies exist between resilience and productivity in terms of wool, meat and fat. • Validation that methodologies developed to measure resilience in Merino sheep can in fact identify resilient sheep. • Quantifying the benefits of enhancing resilience of the flock in terms of improved vaccination efficacy and reduced animal health costs. • Understanding what proportion of these mechanisms for resilience are heritable. • Where appropriate, uncompromised wether data will be used in the MLP project. • 50% of wethers from each sire will be retained for three years and will have wool, visual and classing assessments conducted on them in line with what is assessed on ewe progeny with data flowing to the MLP project. • The remaining 50% of wethers are part of the DPI project 'Genetics of Merino meat value and lifetime performance'.

Projects Under Consideration

Drops Involved	Project Name & Detail	Short Project Description
To be confirmed	**Sensitive WEC Method** **AWI Funded** **Delivery Partner: Dawbuts**	• Assessment of a new worm egg counts (WEC) measurement options (Mini-FLOTECH) to see if worm egg counts can be assessed accurately at lower levels that impact less on the animal and allow those breeders who have made good progress in the traits to continue selection.
Balmoral 2016	**Adding Wool, Growth & Slaughter Data** **AWI Funded** **Delivery Partner – AMSEA**	• Wethers retained to generate whole flock production data and explore productivity differences with their sisters.