Sheep GENETICS

THE
BREEDER'S BULLETIN

Edition 1.2023

mla
MEAT & LIVESTOCK AUSTRALIA

MANAGER'S REPORT

Welcome to the April Edition of the Sheep Genetics Breeders Bulletin.

Over the first months of 2023 the Sheep Genetics team have hit the ground running with a number of key events and workshops with our clients. The highlight of which was the Leading Breeder Conference in Bendigo. This event is always an exceptional showcase of the progress and trends and looks towards the future of our genetic evaluations and breeding programs. This years theme of "breeding for productivity and sustainability" highlighted considerations of consumers needs of the future that sheep breeders can start breeding towards today. The videos from this conference are now available online and I strongly recommend anyone that could not attend to go back and watch these.

In February Sheep Genetics released the submission portal on the website enabling breeders and service providers to directly upload data and receive timely feedback on the data. The uptake of the submission portal has seen more than 60% of all data submissions from February to April come directly into the database from the breeder or their service provider. This, along with the additional information reported back to service providers and breeders, has allowed our database development team to focus on new pieces of development and there are a number of improved features and functionality that our website users can expect to see over the coming months.

Another key piece of development that is being worked on are our 2023 Analysis Enhancements. The team at the Animal Genetics and Breeding Unit (AGBU), who are responsible for the Research and Development behind the analysis or "engine" of Sheep Genetics, have been working on this years enhancements. Sheep Genetics and AGBU work closely on the implementation of these enhancements into our routine genetic evaluations. An overview of this years enhancements are included in this Breeders Bulletin. More detail on these will be sent to all clients shortly. I strongly recommend attending one of our pre and post enhancements webinars to understand what the impacts of this years enhancements mean for your flock. There will also be an opportunity to attend a regional forum to meet with staff face to face to discuss this years enhancements as well as a range of other topics relevant to your breeding program . There are some significant enhancements scheduled for Merinos, SAMMs, Dohnes and Terminals this year with the aim of providing our breeders with the most up to date and latest ASBVs to estimate the genetic merit of their stock.

MLA's BredWell FedWell workshops have been redeveloped to reflect evolving best practice genetics and nutrition management. They are hosted on-farm and aimed at improving knowledge and skill of producers. There is a flyer on page 10 of this newsletter, that has links to register your interest to participate of host a workshop. I would encourage you to consider this as the workshops provide great information.

Peta Bradley

Manager – Sheep Genetics

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ANALYSIS ENHANCEMENTS 2023

Sheep Genetics continually strives to provide a world leading genetic evaluation for our clients. Annually we implement enhancements to our analysis to ensure that we are providing the new and accurate breeding values and tools to our Sheep Genetics clients. Sheep Genetics works with AGBU (Animal Genetics and Breeding Unit) who are responsible for the research and development behind the Sheep Genetics evaluations. This year SG and AGBU have been working together to continue to refine our genetic evaluation and deliver the analysis enhancements for 2023. The analysis enhancements will be implemented for the following runs:

- 21st May for MERINOSELECT/DOHNE

- 1st June for LAMBPLAN/SAMM

- 21st June for MERINOSELECT Research Indexes

The enhancements this year fall under 2 key themes. These are:

- There are more phenotypes and genotypes than ever before. This enables new and updated ways for data to be used in the evaluation.

- The software that is used to develop indexes has undergone a major redevelopment to better model on-farm production systems and account for traits that will become important in breeding objectives in the future

A summary of this years enhancements are given below. Communication including documentation and webinars pre and post enhancement will be rolled out through the Sheep Genetics channels over the coming months and also will form a key part of this years regional forums. Please keep an eye out for future communication on the enhancements.

The MERINOSELECT indexes will be released 1 month after the other enhancements to allow breeders to understand the impact of the other enhancements on the ASBVs and existing indexes. The new indexes will be released as research indexes that will be run in parallel with the existing MERINSOELECT indexes until Analysis Enhancements 2024 when they will be reviewed and fully replace the current indexes.

Summary of the 2023 Analysis Enhancements by Analysis

Enhancements	Merino	Maternal	Terminal	SAMM	Dohne
Updated genetic parameters	Y			Y	Y
Updated partitioning of genomic and pedigree information	Y				
Lambing Ease Model updated to Single Step			Y		
Updated SNPS (Single Nucleotide Polymorphism) used in the genomic evaluation	Y	Y	Y		
New Research Indexes	Y				

2023 REGIONAL FORUMS

Register now, scan the QR code of visit:
**www.sheepgenetics.org.au/regionalforum**

THE DATA SUBMISSION PORTAL

Sheep Genetics have released a new data submission portal that allows breeders and service providers to upload their own data files to analysis.

This submission portal allows real time feedback on the file submitted including a summary of data within the file, exclusions and changes between submissions.

You can access this through the "Your flock" tile when logged in and linked on the Sheep Genetics website.
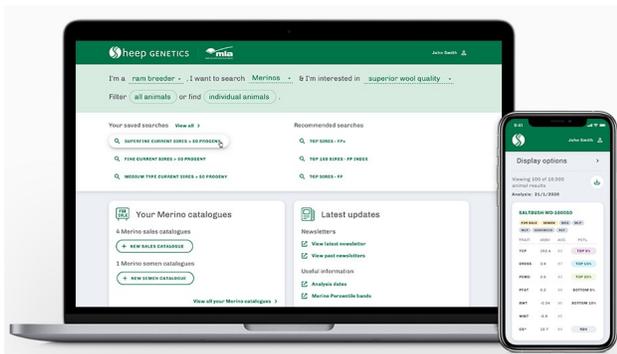
Help documentation including a how-to guide, recorded demonstration and glossary of the exclusions can be found in the "Getting started- data submission process- data submission portal" on the website.

Currently you have access to use this submission portal or continue to send files through for Sheep Genetics to submit on your behalf.

Top tips for using the submission portal

- first upload the file a few days ahead of the cut off to allow enough time if fixes are necessary

- use the message icon to describe what the changes are for Sheep Genetics to review easier i.e. 2021 drop with pedigree updates and fleece data

- review all of the summary tabs available to check your file is okay to submit

- the submission portal experience is optimized for single year drop submission

For more information: **www.sheepgenetics.org.au/submitdata**

WELCOME KATE RUMMERY - DEVELOPMENT OFFICER

We would like to introduce Kate Rummery, our new Sheep Genetics Development Officer who commenced in March 2023.

Kate is familiar with the New England area (and balmy winters we experience), growing up on a sheep and cattle property near Bendemeer before she moved to Wagga Wagga to undertake a Bachelor of Animal Science at CSU in 2018.

During her time at university, Kate studied Sheep Production and Sheep Management units and graduated in November of 2021. Since then she has spent her time travelling Australia (including working on a Mango farm), studying a Certificate III in Horticulture and working as part of her family's business.

We are excited to have Kate join our team, please make Kate feel welcome when you catch up with her at events or on the phone.

COMMERCIAL CARCASE MEASURES ON SHEEP GENETICS ANIMALS

Sheep Genetics want to work with any breeders who are consigning surplus animals that have been entered into Sheep Genetics to processors that are collecting commercial measures of eating quality.

This applies to those who are processing animals that are in an SG evaluation and getting individual animal feedback for intra-muscular fat (from a probe or other device) and yield data (via DEXA). The intention is to investigate the relationship between these commercial measurements and the research measurements routinely taken in the MLA Resource Flock, to determine if commercial measures can be routinely included in the genetic evaluation.

Is this you?

If you have a consignment of animals that meets these requirements and are interested in being involved, please contact SG before the animals are consigned to ensure that all the necessary information is collected. Additional information that Sheep Genetics need to this data in genetic evaluation includes pre-slaughter weights and ideally condition scores.

RETAGGING ANIMALS

If an animal has been retagged (the 16 digit ID has been changed) it is essential that we ensure the correct ID is updated within the analysis.

Before updating an ID it is important to consider

- has the animal been submitted to SG with measuresments? The animal will need to have its ID updated in the on-farm software and be resubmitted

- does this animal have a genotype? If so, you need to contact your genotype provider with a list of the updated IDs

- if the animal has been used as a sire in other flocks you will need to contact Sheep Genetics to discuss a strategy.

Tag changes will need to be resubmitted to the analysis. A tag change within the database is not an immediate update, especially if a genotype needs to be changed. Please keep this in mind when submitting

Whereever possible it is recommended that tag changes are kept to a minimum and visual tag changes kept track of on farm rather than through a 16 digit ID. Especially for older animals.

GENOMICS PEDIGREE INCONSISTENCIES

The Genomic Pedigree Inconsistencies report can be found on your reports dashboard. This handy report shows you the difference between the data you submit and what the genomic testing has indicated.

The parentage results are not automatically updated, you will need to check your report and update your data accordingly. You then need to resubmit for analysis to update the database.

You can view the report online or export to a PDF or CSV file.

Figure 1: Example of the Tile on reports dashboard

ANIMALID	PEDIGREE TYPE	PEDIGREE SUPPLIED	INDICATED BY GENOMICS RESULTS
16 9090 2018 18 0405	Sire	16 9090 2016 16 0291	16 8222 2015 150 373

Figure 2: Example of the information on the report , the sires differ, so you can update accordingly if you agree with the result.

LEADING BREEDER CONFERENCE 2023

Sheep Genetics held their biannual Leading Breeder conference in Bendigo on the 15th and 16th of March this year. The conference was well attended by over 90 LAMBPLAN and MERINOSELECT breeders and service providers.

The 2023 Leading Breeder conference was themed *'The role of genetics in sustainability and productivity'* and separated into four sessions:

1. A panorama view of genetics and updates for your business

2. From genomics to plate. Engaging with breeders through to consumers.

3. Designing breeding programs

4. Achieving sustainability outcomes – what role does genetics play?

A seven course Lamb themed dinner was served on the first night, where every course, including dessert, incorporated lamb. Breeders were able to network throughout dinner, and those breeders who had achieved a five-star Data Quality Scores (DQS) as well as having submitted their 2022 drop data were recognised for their achievements. It was great to be able to hold this event in person again after the 2021 hybrid Leading Breeder conference.

Day one commenced with a welcome and update on the achievements of Sheep Genetics and its breeders over the last 2 years by the manager Peta Bradley. It was well received, and people enjoyed hearing the accomplishments of Sheep Genetics, the breeders, and the wider sheep industry. Following on from Peta in session one was *'Powering our genetic engines of the future'* presented by Steve Miller of AGBU. Again, this section looked at the growth in the use of genetics in the sheep industry and the role genomics has played in the expanding use of genetics evaluation. It took examples from other industries to indicate how the sheep industry could continue to calculate timely and accurate ASBVs in the face of an ever-increasing number of traits, records, and genotypes. Andrew Swan, also of AGBU, presented next on *'Developing indexes – showcasing the new developments of the Index software'.* This presentation looked into the current MERINOSELECT indexes and identified where

change was needed. According to surveys on both ram breeders and commercial producers, sustainability traits were identified as the next big introduction to the MERINOSELECT indexes. The introduction of the new indexes will occur in June as part of the Sheep Genetics Analysis Enhancements. Finishing up session one was Allan Ryan with '*Better business driving genetic progress'*. Allan is the founder of Hargraves Institute and helps businesses make change, and make change stick. His session was one of the best reviewed and created a lot of talk during the afternoon tea break.

Session two commenced after an afternoon tea break on day one, and opened with Julius Van Der Werf, a Professor of Animal Breeding and Genetics at UNE. The topic was *'Underpinning genomic selection with reference populations – outcomes of the MLA Resource Flock and what's next',* Julius went over the learnings of earlier genomic resource flock iterations and presented the new resource flock project. From here Sam Walkom of AGBU presented the '*Outcomes of ALMTech project and what it means for capturing eating quality data'*. The ALMTech project is coming to a close and the presentation delved into the technologies that have stemmed from the project including DEXA, SOMA and MEQ. The section before dinner saw meat science professor Pete McGilchrist and butcher Matt Tyquin break down a lamb carcase live, and showcase the latest in-plant technologies capturing eating quality data in carcases. This section was a perfect prelude to the seven course lamb dinner.

Pictured: Pete McGilchrist and Matt Tyquin

Pictured: Sarah Strachan, Daniel Brown and Mark Mortimer with Peta Bradley chairing the panel session

Day two was kicked off by Chloe Bunter and Marnie Hodge, development officers for Sheep Genetics, on '*Sheep Genetics MateSel success*'. This was the introduction to the use of MateSel and its use for Sheep Genetics clients. Following on from here, Brian Kinghorn, the developer of MateSel, went into more detail on how MateSel is being used in other industries and upcoming developments in the technology. Debbie Milne, an agricultural consultant at Richmond Hill Agribusiness, then took over and showcased '*MateSel in practice*'. This gave the audience practical examples of MateSel in use, and ways MateSel can improve their breeding programs. Prior to the morning tea break, a Panel Session was run. The panel included Sarah Strachan (MLA), Daniel Brown (AGBU) and Mark Mortimer (Centre Plus Poll), and questions were taken from the audience and answered by the panel. Morning tea was then served, where discussion continued.

The final session, got underway with Sarah Strachan from MLA talking on '*Carbon neutral by 2030 – what role do our sheep breeders play?*'. This gave insight into the Australian red meat industries target of carbon neutral by 2030 and where we were when the agreement was made, where we are today, and what we need to do to accomplish the target. Continuing with the sustainability theme, Daniel Brown of AGBU then spoke on '*Genetics sustainability projects for sheep – what is possible and how to get involved*'. Daniel presented the research and preliminary results on the development of new sustainability traits from the research flock, and how these traits will be delivered to breeders, particularly around the expression of units around emissions. To shake things up, the next presenter was Jon Wright, a composite cattle breeder focussed on feed efficiency. He presented his results in breeding for more efficient cattle, with lower emissions and higher feed conversion rates. Schalk Cloete presented last on '*Breeding for reproduction – what are the long-term outcomes? Evidence from the South African Selection lines*'. He compared a line of sheep that were split, and set different breeding objectives around reproduction since 1986, and showcased the impact breeding objectives could have on a flock over time.

Overall Leading Breeder 2023 was a great success, and we thank everyone who attended. If you were unable to attend or would like to revisit the conference, you can access the videos online.

Videos online now: **www.sheepgenetics.org.au/leadingbreeder**

5 STAR DATA QUALITY SCORE AWARDS

Data Quality Metrics for Sheep Genetics were developed to describe the quality of data submitted for inclusion in genetic evaluation systems, and delivered through the RAMping Up Genetic Gain (RUGG) reports.

The RUGG reports are now a more refined feedback tool for breeders to use, they incorporate

- DQS Score
- Star rating
- Recommendations and strengths

The report provides targeted advice to assist in management changes, improved data collection and submissions and hence ASBV accuracy. In turn this will assist in more accurate selection decisions and increased rates of genetic progress.

On average, flocks with a 5 star data quality score have higher index accuracies and greater rates of genetic gain.

Sheep Genetics data quality score reflects

- The amount of data,
- Completeness and accuracy of records,
- Data structure, and
- Timeliness of submission

The following flocks were recognised at the recent Leading Breeder conference as having 5 star data quality scores, based on the 2022 drop data submitted up the 21st Feb—MERINOSELECT/ DOHNE run, and the 1st March LAMBPLAN run.

You can check out your DQS report when you login to the search dashboard.

Border Leicester

021929	Gleneith
024075	Kegra
024239	Inverbrackie
024791	Cooinda

Corriedale

032401	Blackwood

NZ Polwarth

900021	Matakanui

Coopworth

150056	Chrome
150060	Boonerah
150099	Cashmore Oaklea

Poll Dorset

160001	Newbold
160002	Valma
160336	Kentish Downs
161143	Derrynock
161245	Melton Vale
161778	Gooramma
162002	Marocara
162248	Woolumbool
163528	Bruan
163677	Felix
164073	Pepperton
164324	Bundara Downs
164412	Icon
164422	Lambpro
164425	Kinellar
164636	Bowan Park

Suffolk

192252	Bundara Downs

Ultrawhite

240008	Bundara Downs

Composite Maternals

CM0005	Lambpro
CM0009	Cloven Hills
CM0017	Days
CM0024	Ella Matta

Composite Shedders

CS0001	Cashmore Nudies

White Suffolk

230001	Ella Matta
230026	Woolumbool
230043	Detpa Grove
230048	Felix
230072	Warburn
230090	Mount Ronan
230091	Anden Stud
230099	Ashmore
230139	Farrer
230243	Bundara Downs
230281	Maroola
230377	Pioneer
230450	Trigger Vale
230536	Induro
230542	Yanco
230596	Kinellar
230736	Days
230911	Cascade
235038	PLG Willows

Merino

500063	Mumblebone
501039	Rocklyn
501156	Glenwood
503358	Wattle dale
503884	Grass Merinos
504173	Kurra-Wirra
504792	Bogo
509069	Turkey Lane
509124	Redlands KI
509207	Curlew

Poll Merinos

600815	Leahcim Poll
601048	Pimbena
601082	Toland Poll
601101	Aloeburn
601250	Centre Plus Poll
601322	Firgrove Poll
601365	Karbullah
601413	Kerin Poll
601435	Bundilla Poll
601442	Pooginook Poll
601450	Ella Matta
601540	Kambah
601555	Clovernook
601623	Bella Lana
609147	Anderson
609154	Ingle
609251	Trigger Vale

Dohne

510035	Babirra
510076	Denvale
510194	Hillview
510206	Ulooloo

NZ Merino

710534	Melrose
740167	Armidale
740258	Earnscleugh
740293	Blairich
749247	Glen Orkney

NZ Poll Merino

850007	Gray's Hills
858002	Ninemile
859109	Middlehurst

VALE ARTHUR GATES

9th January 1935 to 1st March 2023

Sheep Genetics would like to recognise a long term supporter of LAMBPLAN and Sheep Genetics, we were saddened to learn of the passing of Arthur and would like to share some information about his life and contribution to the sheep industry.

Arthur was an innovative Poll Dorset breeder, strong proponent and promoter of performance recording in meat sheep breeding. He was a founding member of the Meat Elite program, and strong voice in state councils backing industry strategic development and focus on the customer. (extract from 'We Love Our Lamb" book)

Some highlights of working alongside Arthur - Alex Ball and Rob Banks

- Arthur was an early adopter of NSW Meat Sheep Testing Service, and he was a force behind the New England Performance breeders. He always had a very strong commitment to honest and complete recording – honesty and truthfulness were central.

- He actively promoted the 1st use of ultrasound for the measurement of fat and muscle in live sheep – to encourage other breeders to participate in the NSW Meat Sheep Testing Service.

- Was a strong supporter of the development of lamb supply chain officers within MLA.

- He was active in on-farm trials with NSW DPI, specifically around genetics and carcase development.

- He understood and communicated the essential strong focus on both the consumer needs, but also on ensuring that lambing difficulties (due to lamb size and shape) were minimised. To help ensure lamb producers experienced less and less lamb deaths, he was an early adopter of birth weight breeding values and a strong advocate for terminal sire breeders in the collection of birth weight.

- He took on the challenging role of host farm for first phase of Meat Elite - a young sire program that initially formed a cooperative breeding nucleus, and which

pioneered use of CT Scanning in sheep in Australia, and which "identified" the Carwell gene, a gene responsible for increased muscling in sheep.

- Meat Elite in a later phase underpinned across-flock evaluation in LAMBPLAN. Meat Elite still continues today, some 37 years later and has been used a model for several other sheep and beef breeding nucleuses.

- His pioneering role was recognised in the award of the Inaugural LAMBPLAN and Sheep Producers Australia Breeder of the Year

- Strong commitment to whole-of-industry planning, including major industry workshops and was instrumental in the development of the first Lamb Industry Strategic Plan in 1996.

- He has had a huge influence on the genetics of the terminal sire breed with a number of key Pollambi sires being used heavily across industry. One sire Pollambi 451 is one of the highest use sires in the Australian terminal sire industry and was notable because he was a White Suffolk x Poll Dorset composite.

- He was a contributor to the formation of the Information Nucleus Flock of the Sheep CRC and was on the breeder advisory panel for that organisation.

- He and Joan were long-time very generous hosts of UNE course pracs and students. Pollambi was often used as a flock where international visitors interested in the Australia lamb industry were hosted. This included the initial TRILAMB group.

The team at Sheep Genetics thank Joan and the extended Gates family for allowing us to share this tribute and for the many years of working together for the improvement of the lamb industry, our thoughts are with them at this time.

BredWell FedWell

MEAT & LIVESTOCK AUSTRALIA — mla

An introduction to

Breeding and feeding to maximise profit

evolving best practice • Relaunched to reflect **NEW in 2023**

On the back of a decade of success, the BredWell FedWell workshops have been redeveloped to reflect evolving best practice genetics and nutrition management.

- Develop a customised breeding plan for your livestock enterprise aligned to your profit drivers
- Identify sires and select animals that help you meet your objectives
- Learn about feeding animals well to achieve your objective and maximise your genetic investment

Informative
Presentations and discussions with deliverers and peers

Interactive
Practical and written activities hosted on-farm

Individualised
Learning outcomes you can apply in your own enterprise

So far, BWFW workshops have delivered $17.2m* in total net benefits to participating producers

1.9M
cattle influenced by the BWFW workshop

$**2.98**
net benefit per cow mated

639k
breeding females

19.6M
sheep influenced by the BWFW workshop

$**2.48**
net benefit per ewe joined

12.7M
breeding ewes

*Calculated as net present value of adoption to 2045, discounted at 5% annually.

New workshops are available for all sheep types, southern cattle and northern cattle production systems. Register your interest to participate or host a workshop.

mla.com.au/bredwellfedwell

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