



sheep GENETICS

THE BREEDER'S BULLETIN



EDITION 1.2021

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MANAGERS REPORT - Gus Rose



I am pleased to share the First Breeders Bulletin for 2021. Since the last update Gabrielle Sherring joined the team as LAMBPLAN Development Officer. Gabrielle is settling into her role nicely and getting to know a lot of you. We are also excited to announce that Emma McCrabb has been promoted to Senior Development Officer. Emma has continued her hard work and dedication in her new role and has stepped seamlessly into her new responsibilities.

We had a big start to the year with Leading Breeder, service provider workshop and regional forums. We finally got out to see some of you in person which was great. The team also continued MateSel training and new member workshops online. COVID struck again interfering with some regional forums so we organised online webinars and sessions to catch up with those we missed in our travels.

Currently the whole team is busy working on our database redevelopment. This will be a big release early in 2022 including;

1. Improved breeding values using our new database
2. A new way for you to directly update data to our database
3. Improved reporting options for you to access breeding values and information
4. Update to the search site including improved views with more traits and more animals

The other big improvements we are working on with AGBU for next year include updating indexes and improving the analysis to manage lots of genotypes. These are big collaborative projects and we can't wait to show you the benefits they will make to you and your breeding programs.

We tested our new Data Quality Score with breeders at workshops and regional forums. The feedback was really positive. We are incorporating this feedback and looking at ways to make the Data Quality Scores available for you to use.

FEES AND CHARGES

Meat & Livestock Australia's Accelerated Adoption Initiative concluded at the end of June, as a special promotion Sheep Genetics will continue to provide free database charges until the 25th of November 2021.

This means that Australian levy payers will have had the opportunity to submit two full year drops of animals at no charge.

From the 25th of November 2021, Sheep Genetics will charge normal fees. A breakdown of those fees is shown on the right.

Charges	Australian	International
Annual Flock Subscription	\$506.00	\$550.00
Additional Stud	\$143.00	\$150.00
Animal Data Charge	\$2.42	\$2.90
Animal Data Charge Small Stud (no annual subscription)	\$11.00	\$12.10

All Australian charges include GST.

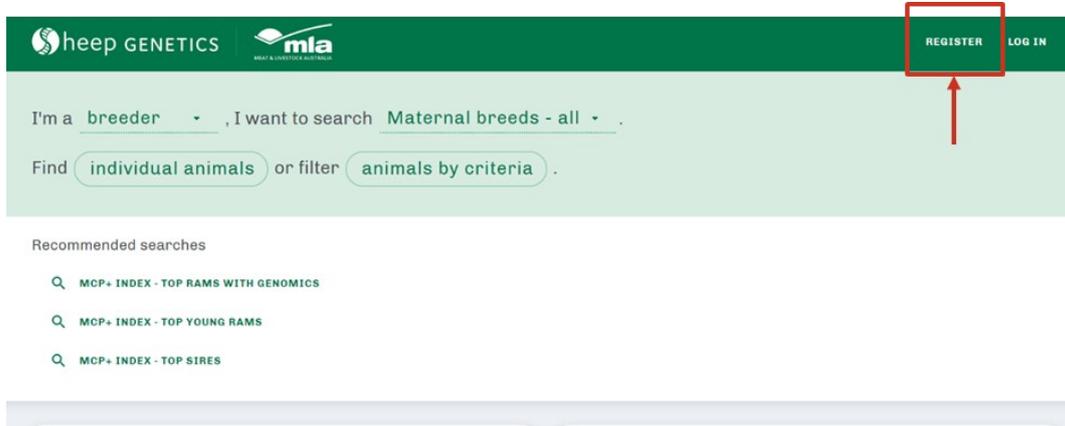
SEARCH PAGE UPGRADE

Sheep Genetics are approaching the final stages of the website redevelopment and we are excited to share the improvements we have been working on. The new search site customises the search filters to what you want to see each time and export the search results to your computer. These features are available to you once you register to the search site with your email address.

Your registration also allows you to view your animals on the search site if your flock is on a private setting, and you can also create sale catalogues and pen cards. Additionally, the search site will soon become the portal where you upload and submit your data to

Sheep Genetics, so it is important that you register to the site and ensure your flock is linked to your account.

To register, go to <https://search.sheepgenetics.org.au/> and click on the word 'REGISTER' at the top right of the page (see image below). You will then be directed to enter your details and agree to the Sheep Genetics terms and conditions. Once you receive a confirmation email, send an email to info@sheepgenetics.org.au with your flock code and the email address you used to register and we will link it to your account. If you use a data manager, you may also wish to grant them access to your flock by including their name and email address in an email to us.



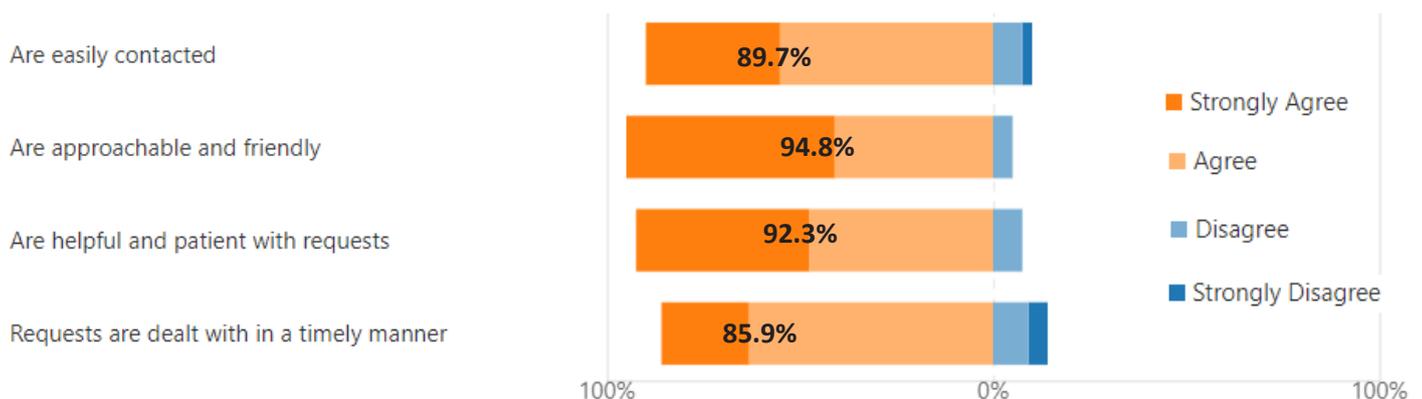
2020 ANNUAL SURVEY

Each year we survey subscribers to gauge opinion on a range of topics including customer service, ASBVs, Indexes, MateSel and the updated search site. 2020 was a unique time, with staff separated and unable to travel to the many events where we can catch up with breeders face to face. In light of this it was pleasing to

see that the survey results indicated that the majority of people felt that staff were maintaining a similar level of service to past years. See table below.

The 2021 Annual survey will be distributed via email shortly and we encourage all breeders to complete the online survey and have your input.

Figure 1. Sheep Genetics Staff



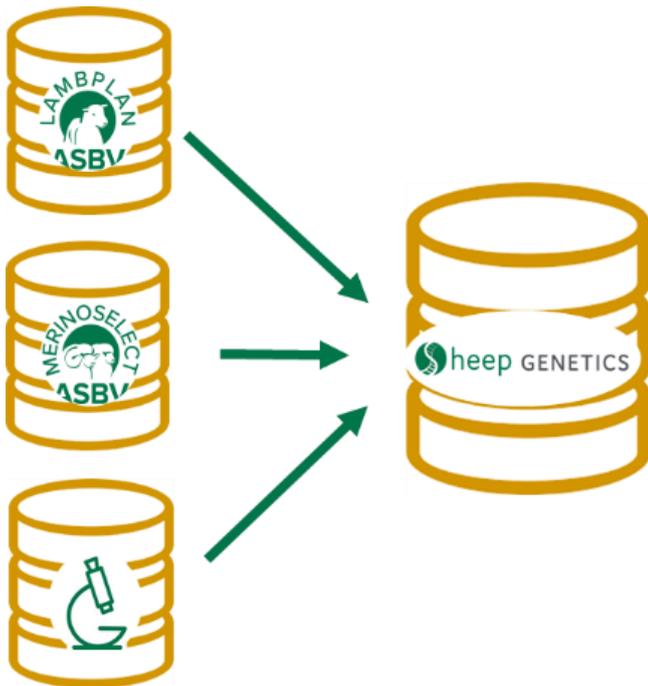
UPDATE TO OUR DATABASE SYSTEM

In early 2022 we are planning to release our new database system including;

- Improved breeding values using our new database
- A new way for you to directly update data to our database
- Improved reporting options for you to access breeding values and information
- Update to the search site including improved views with more traits and more animals

PHASE ONE – CREATING ONE SHEEP GENETICS DATABASE

We put all the data from our LAMBPLAN, MERINOSELECT and Research databases into a new Sheep Genetics database. By keeping the new database on the cloud, your data is more secure.



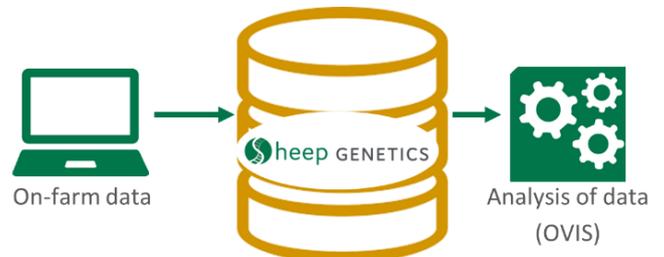
PHASE 2 - GETTING DATA IN, ANALYSED AND OUT – FINISHING IN SEPTEMBER

In phase two we have improved how you can upload data into our new database.

By early 2022 we will have a portal on the Search Site for you to upload your own data. This means you will;

- Have immediate feedback and validation so you can update data if needed

- Know when your data has gone into the analysis
- See which data is going to analysis
- Be able to compare old and new submissions

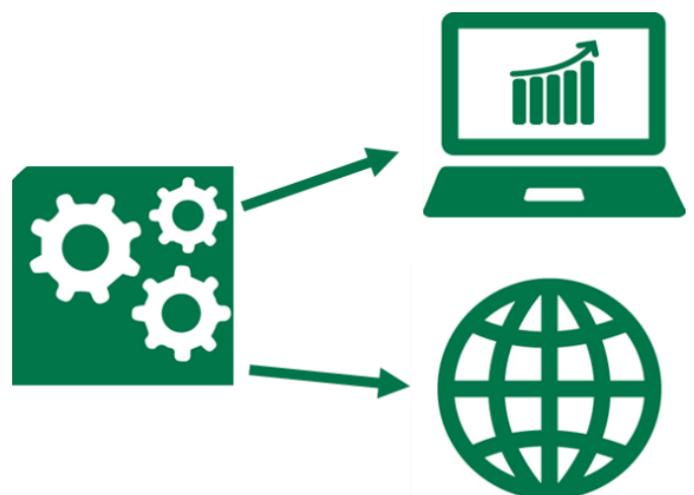


Now that we have improved how we import and store data, we are testing how this changes breeding values. We are also testing the data in its new format. These breeding values are due for release in early 2022.

PHASE 3 – RESULTS AND REPORTS

By early 2022 we also aim to improve reporting. This will include updates to

- How you receive your results and reports from the analysis
- Increase the number of traits and animals that can be viewed at once on the search site
- Ramping up Genetic Gain reports and data quality information that will be available via our search site



INDEX REVIEW

Sheep Genetics provides indexes to help breeders and ram buyers select rams. Indexes combine breeding values by putting different emphasis on traits that are important to producers. We want these indexes to be relevant to the future direction of the industry. To help with this, we reviewed;

- I. What the industry thinks about current indexes, and what future indexes should include
- II. How industry members are involved, and can be more involved, in creating indexes
- III. How we can improve the adoption of indexes in the future

WHO WAS INVOLVED?

We sent out an expression of interest for anyone interested in being part of the review.

Breeders	40
Consultants/classers	10
Research/industry groups	8

Of these interviews, there was representation across the different analysis types

Merino	29
Terminal	11
Maternal	8
Combination	10

We also surveyed the 40 breeders that attended our Regional Forums and breeders during the breeder group workshops.

WHAT WERE THE KEY OUTCOMES?

Common themes across the review were that

1. We need to update indexes more regularly - updates could be a refresh of the parameters used to calculate emphasis, or total overhaul of indexes
2. Faster turnaround time to phase out old indexes. More education, information and transparency about indexes – especially when new indexes are introduced

WHAT ARE OUR PLANS FOR INDEXES

Based on our feedback, Merino indexes were prioritised for a full review. Therefore we plan to release new Merino indexes in the 2022 Analysis Enhancements that;

- Replace NLW with the new reproduction traits – Conception (CON), Litter Size (LS) and Ewe Rearing Ability (ERA)
- All new indexes will include Breech Wrinkle (EBWR), and some may include Dag
- Some indexes will also include resilient traits such as fat, muscle or Condition Score (CS) to represent resilience.

We will also release updated terminal indexes in 2022 that has pressure on birth weight (BWT). We will also replace NLW in maternal indexes with the new reproduction traits – Conception (CON), Litter Size (LS) and Ewe Rearing Ability (ERA).

There will be a detailed review of Maternal indexes in 2022-2023 and Terminal indexes in 2023-2024. Going forward, each analysis will be reviewed in a three year cycle.

MATESEL

Our 2020 Annual survey told us that only 23% of respondents were using MateSel to assist with their mating allocations, and of the 23% that responded yes, only 50% were using it directly.

As a result we ran free online trainings to enable people to understand and use the software, which is free to all subscribers. We will be running more online training toward the end of this year. To register your interest visit the following link, www.sheepgenetics.org.au/resources/matesel/

Figure 1. Do you use MateSel?

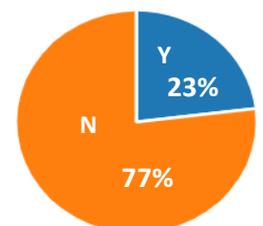
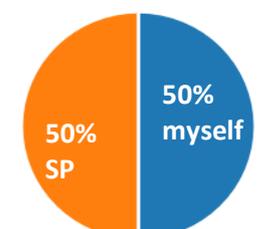


Figure 2. How do you access?



SHEEP GENETICS ON SHOW

Sheep Genetics has hosted and been part of several events over the past year, including workshops for breeders, service providers and breeder groups. During these events we provided updates on what's been happening at Sheep Genetics, the genetic analysis, and discussed ways to improve genetic gain.

LEADING BREEDER

This year's events kicked off with the Leading Breeder conference held in Armidale NSW and Adelaide SA and was also streamed online. A variety of guest speakers presented topics including Sheep Genetics enhancements and updates, reference populations opportunities and updates, and the avenues for genetic investment including insights to new genetic research on immune competence, pain and wellbeing, predicting livestock age from DNA samples, and community attitudes to gene editing. Considerable numbers of people came and tuned in to learn more about these topics, with over 100 people in attendance at the face-to-face venues. The livestream event was recorded and is available online at <https://www.sheepgenetics.org.au/news/leading-breeder-videos/>

SERVICE PROVIDER

Sheep Genetics hosted a workshop for service providers which included data managers, MateSel advisors, genetic advisors, carcass scanners and genotyping providers. This workshop gave service providers current and advanced information for enabling breeders to achieve genetic improvement. The event was held in Melbourne during May, fortunately scheduled at a time with travel allowed between most states, although snap changes in WA restrictions meant that some service providers were unable to attend. We were delighted to see the range of service providers come together and to foster collaboration.

BREEDER GROUPS

Emma and Gabby were very appreciative to have received invites from various breeder groups to speak to their members and provide targeted advice on making genetic gain. Gabby presented at the \$SuperBorder\$ Conference in Swan Hill and was happy to meet the group of breeders face to face, and she



looks forward to collaborating with other breed associations involved with LAMBPLAN.

Emma presented at the annual Merinolink Conference in Wagga, which attracted over 180 attendees. This was a



fantastic opportunity to talk all things Sheep Genetics and genomics with a wide audience, including Merino ram breeders, commercial producers, service providers and industry representatives. Emma was also involved in the annual ram breeder workshop as part of the UNE DNA Stimulation Project. More information on the project can be found on the following link.

<http://www.merinolink.com.au/projects/merinolink-une-dna-stimulation-project/>

The team were looking forward to attending the Australian Sheep and Wool Show and SheepConnect, however both events were cancelled due to COVID-19, restrictions.

REGIONAL FORUMS

Sheep Genetics has been running our annual Regional Forums over the past few months in Armidale, Launceston, Adelaide and Dubbo. Unfortunately, due to travel restrictions resulting from COVID-19, we had to postpone the Bendigo, Hamilton and Perth forums. At the forums that went ahead, we have met with over 40 people including breeders and service providers, which provided an excellent opportunity to ask questions of the team, and access to flock-specific information and reports. There was positive feedback from attendees with an average overall satisfaction of 9 out of 10, and 90% of people said they would be implementing change in their operations using what they'd learnt. We also heard from those unable to attend, who commonly expressed their interest for a virtual session.

Gus, Emma and Gabby have greatly enjoyed the opportunities we've had to travel around the country and speak to breeders who found time to come out to the various events we've hosted. While uncertainty remains for the future opportunities of travel to speak with breeders and share our insights face to face, we are working on ways to connect with you in the future.

VIRTUAL SESSIONS

To ensure that the people who missed out on this year's Regional Forums due to restrictions can access this content, we have modified the sessions presented to be delivered as online workshops and in future e-learning modules. The Sheep Genetics Update and

Recording Reproduction online webinars were delivered during August and September and are available on our website. To watch a recording of these presentations please go to the events page on our website www.sheepgenetics.org.au/resources/events/.

The Data Quality Workshops held at the end of August and beginning of September covered the proposed Data Quality Score and new version of the Ramping Up Genetic Gain report. The workshop provided an opportunity to go through individual flock's reports with a Sheep Genetics team member.

As our team continues to investigate COVID safe ways to bring you Sheep Genetics updates, we welcome your insight as to how you would like to receive information. If you were unable to attend any of the events we've hosted this year and would like to hear more about what we delivered, please get in touch.

NEW MEMBER WORKSHOPS

Sheep Genetics staff will run regular online new member workshops to help those who are getting started and want to learn more about the process.

The workshops cover

- Getting ASBVs – what goes into your breeding values?
- Getting results – how do I access my breeding values?
- How does genotyping fit

Keep an eye on our Monthly update emails for dates or visit the events page of the website

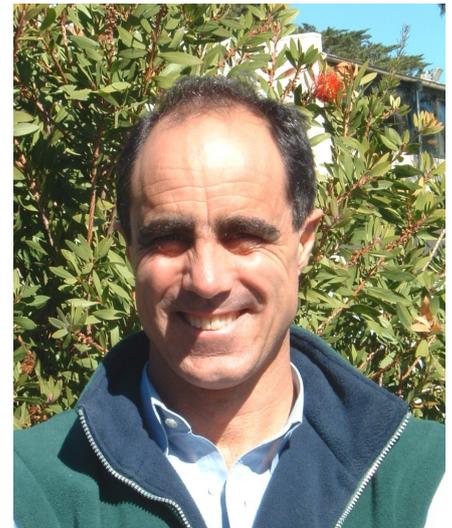
www.sheepgenetics.org.au/resources/events/

FAREWELL DR ROB BANKS

Congratulations to Dr Rob Banks for an influential career. Rob has retired as Director of AGBU bringing to a close a long association with Sheep Genetics and LAMBPLAN. Rob was instrumental in getting breeders involved in LAMBPLAN and then extending that service to provide genetic evaluation for the Merino industry.

Rob has always been a passionate advocate for genetic evaluation, and was involved in developing the Information Nucleus flock which provides great benefit to the sheep industry.

We wish Rob all the best for the future and look forward to continuing his legacy.



NEW MERINOSELECT DEVELOPMENT OFFICER

Welcome to our new MERINOSELECT Development Officer Chloe Bunter.

Chloe grew up on a mixed enterprise generational family farm in Gilgandra, Central West NSW. Chloe developed a passion for genetics while studying a Bachelor of Rural Science at UNE. Chloe is now in her final year and has focused her studies on further developing her knowledge of the sheep industry and genetics. Currently she is working on an honours project looking at Sexual Dimorphism in sheep. Chloe loves to engage and communicate with different groups within the agriculture sector and truly believes you can learn something from everyone.

We are looking forward to Chloe joining the team in late October.



RECORDING HORN/POLL - NOT JUST FOR MERINOS

Do you have horns in your breeding flock? Sheep Genetics needs you to record variation in horn expression, in any breed, not just Merinos.

The development of Poll DNA tests in Merinos was underpinned by the physical recording of horn. We need routine recording of horn phenotypes for ongoing assessment of these genomic tools, and to develop these tools in other breeds.

The expression of horn length, ranging from no horn, to scurs, to a full horn set is recorded as HORN. This is submitted as a visual trait in your software, on a scale

from 1 to 5. Male animals must be over 4 months of age when recorded.

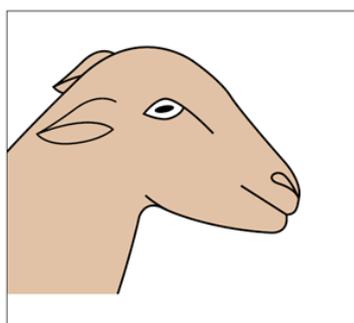
Score 1: Poll – a detectable indentation in the bone of the skull at the horn site.

Score 3: Scur – small growth at the horn site 10mm or more in length.

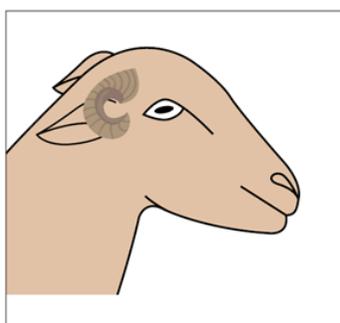
Score 5: Horn – full-grown, symmetrical horns firmly attached to skull.

While only score 1, 3 and 5 are described, 2 and 4 are also valid scores.

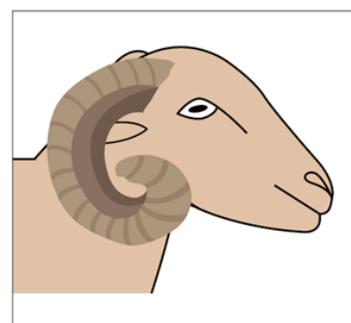
This score method is included in the 'Visual Sheep Scores' guide. (Can be found on the Brochures and fact sheets page of our website)



Score 1



Score 3



Score 5

ARE YOU TAGGING AT BIRTH?

Please ensure you are submitting your maternal behaviour scores under the correct trait name! As part of the component reproduction evaluation, maternal behaviour score is now available as an ASBV in flocks that are recording and linked for the trait.

Maternal and Merino breeders can check this on their *Reproduction Breeding Values* PDF report, on their Analysis Result emails.

MATERNAL BEHAVIOUR SCORING

Maternal behaviour refers to the ewe's behaviour towards its lamb(s). It can be scored through assessing the distance a ewe travels from the lamb when handled by operators when tagging at birth. Maternal behaviour can vary from the ewe staying close by to running away and not coming back. A breeding value for maternal behaviour score (MBS) can be estimated as long as the trait is measured in a consistent manner across flocks. Repeated measurements of the ewe over her life will increase the accuracy of the breeding value estimated.

When: Within 24 hours of parturition /birth

How to score: A single score of 1,2,3,4 or 5. MBS Scores can be recorded with your mating information and submitted to Sheep Genetics.

Rule of Thumb: A ewe with Score 1 shows excellent maternal behaviour and stays close to the lamb. A ewe with Score 5 shows poor maternal behaviour and little interest in the lamb.

Score	Description
1	Ewe stays close to the lamb and operator
2	Ewe stays within 10 meters of the lamb and operator
3	Ewe stays within 30 meters of the lamb and operator
4	Ewe ran away but readily returned when operators moved away
5	Ewe ran away and was difficult to get to return to the lamb

PRESENTING ASBVs

It's that busy time of year again, with sales across the country well and truly underway. Sheep Genetics have had an influx of calls from breeders pulling sale catalogues and pen cards together, with many questions about what should you include alongside your ASBVs.

Sheep Genetics recommend that you include:

- Accuracies with the ASBVs, as this helps buyers understand the amount of information contributing to the breeding values and is how we distinguish ASBVs from unlinked Flock Breeding Values (FBVs)

- Analysis date, this informs buyers if there is a difference between catalogue values and the SG search page.
- Display the relevant Sheep Genetics logo (MERINOSELECT, LAMBPLAN, DOHNE, KIDPLAN). These logos are provided on request

If you are highlighting percentiles, use the same colouring as the SG search site, where ASBVs in the top 5% are highlighted purple, top 10% are blue and top 20% green.

Example from search site

ANIMAL ID	↓ FP+ ⓘ	ACFW ⓘ	YDCV ⓘ
TALLAWONG-191052 GENOMICS	209.60 ACC. 48 TOP 5%	28.48 ACC. 70 TOP 10%	-1.58 ACC. 68 TOP 20%

PROMO MATERIAL FOR SALES/FIELD DAYS

If you would like to order any material for sales or field days, please visit the following link and order via the online form, please note there may be delays due to Covid-19 so try to order early. We have plenty of the trait specific brochures and pocket guides available.

www.sheepgenetics.org.au/resources/brochures-and-fact-sheets/

RECORDING REPRODUCTION

Sheep Genetics, and the team at AGBU, have been working hard to create breeding values that give the most benefit to breeders. As part of this work, the new reproduction evaluation that breaks down reproduction into its components traits has this year transitioned from its research phase into full ASBV traits. These traits include conception (CON), litter size (LS) and ewe rearing ability (ERA), as well as maternal behaviour score (MBS). Condition score (CS) is also reported from this evaluation, however will remain as a research breeding value as industry collects and submits condition score data.

Maternal and Merino breeders will see these traits reported on the search site, in their software and as an additional report on their Analysis Result email.

These new traits have put a spotlight on reproduction recording. They are complex traits to record, as it requires information to be collected across joining, pregnancy and lambing. Sheep Genetics have developed a 'checklist' to help breeders collect this data to contribute to their reproduction breeding values. This checklist is relevant to all breeds interested in recording good quality reproduction data. A copy is over the page, and can be found on the following link:

www.sheepgenetics.org.au/resources/Data-quality/

RECORDING REPRODUCTION CHECKLIST

Overall requirements to be included in new reproduction evaluation (Maternal and Merino flocks)

At least 70% of the lambs in a drop must have dam pedigree	➔	Reproduction is a trait of the dam, so complete pedigree recording ensures we are capturing the full variation of the joining cohort.
Consistency between birth types (BT) of lambs supplied and the count of lambs in the drop	➔	Compares the BT of each lamb, and the total number of lambs in the drop. This validates the consistency of recording through the lambing.

Joining

ID of the ram the ewe is joined to	➔	To identify service sire failure. If joining as syndicates (and using DNA parentage), leave the join sire as a syndicate.
Ram in-and-out dates	➔	Check dates for relevance – be as accurate as possible with dates.

➔ Also include this ram information for any backup joining

Ewe joining weight	➔	Measure in the 30 days before the rams goes in. Contributes to AWT ASBV.
Ewe joining condition score	➔	Measure in the 30 days before the rams goes in. Contributes to CS RBV.
Management group of the ewes	➔	Grouping for CON and LS. Groups are checked (e.g. are there dry ewes in the joining group?).
Conception method of the ewe. Any use of chemical intervention (such as oestrus-inducing products)	➔	ET ewes are not used in the reproduction evaluation. Ensures fair comparison of ewe's reproduction performance.

Pregnancy

Pregnancy scan result	➔	Identifies dry ewes (do not need DRY tags if submitting preg scans).
For multiples	➔	Fills gaps in BT (if ewe is not matched to lamb outcome). Used for CON and LS ASBV
Wet/dry scanning	➔	Used for CON ASBV.
Pregnancy scan date	➔	Checks accuracy of scan – minimum 70 days from start of joining (or 35 days from ram-out date) and maximum of 110 days from start of joining.
Foetal age (optional)	➔	Can provide more accurate lamb DOB (e.g. early/mids/lates).
Pregnancy scanner name	➔	Will use this information into the future.

Lambing

Lambing (tagging at birth)			Marking (if not at the birth site)
Identify dams of lambs	←	Dam pedigree	→ Identify dams of live lambs.
Real birth type	←	CON and LS ASBV	→ Birth type from pregnancy scan.
Identify dead at birth lambs (DAB)	←	Must be confident in scanner accuracy	→ Identify ewes that lambed and lost (using scan result and DAB tags).
Exact date of birth	←	Dates checked for relevance	→ Date of birth (may be average of whole lambing, or more accurate).
Conception method of lamb	←		→ Conception method of lamb.
Maternal behaviour score (MBS)	←	MBS ASBV	
Lambing ease score (LE)	←	LE ASBV	
Birth weight (BWT)	←	BWT ASBV	

Weaning

Record survival of lambs born	→	Adjust RT to reflect survival. Used for ERA ASBV.
Take an early measurement on all reared lambs (e.g. WWT)	→	Helps inform RT and captures variation in cohort.

Using DAB tags and pedigree to estimate rear type

You can infer ewes which lambed and lost lambs by matching pregnancy scan to pedigree (e.g. DNA parentage results). To use this method you must:

- get full pedigree on the whole drop cohort (not getting pedigree selectively)
- pregnancy scan for multiples
- get dam pedigree as early as possible (marking is preferred over weaning)
- be confident in the reliability of pregnancy scan data.

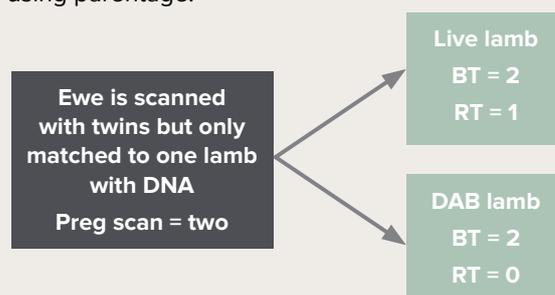
Instructions for submitting this data to Sheep Genetics

Birth type is based on the pregnancy scan of the dam.

Rear type will be a result of matching live lambs to dams using parentage.

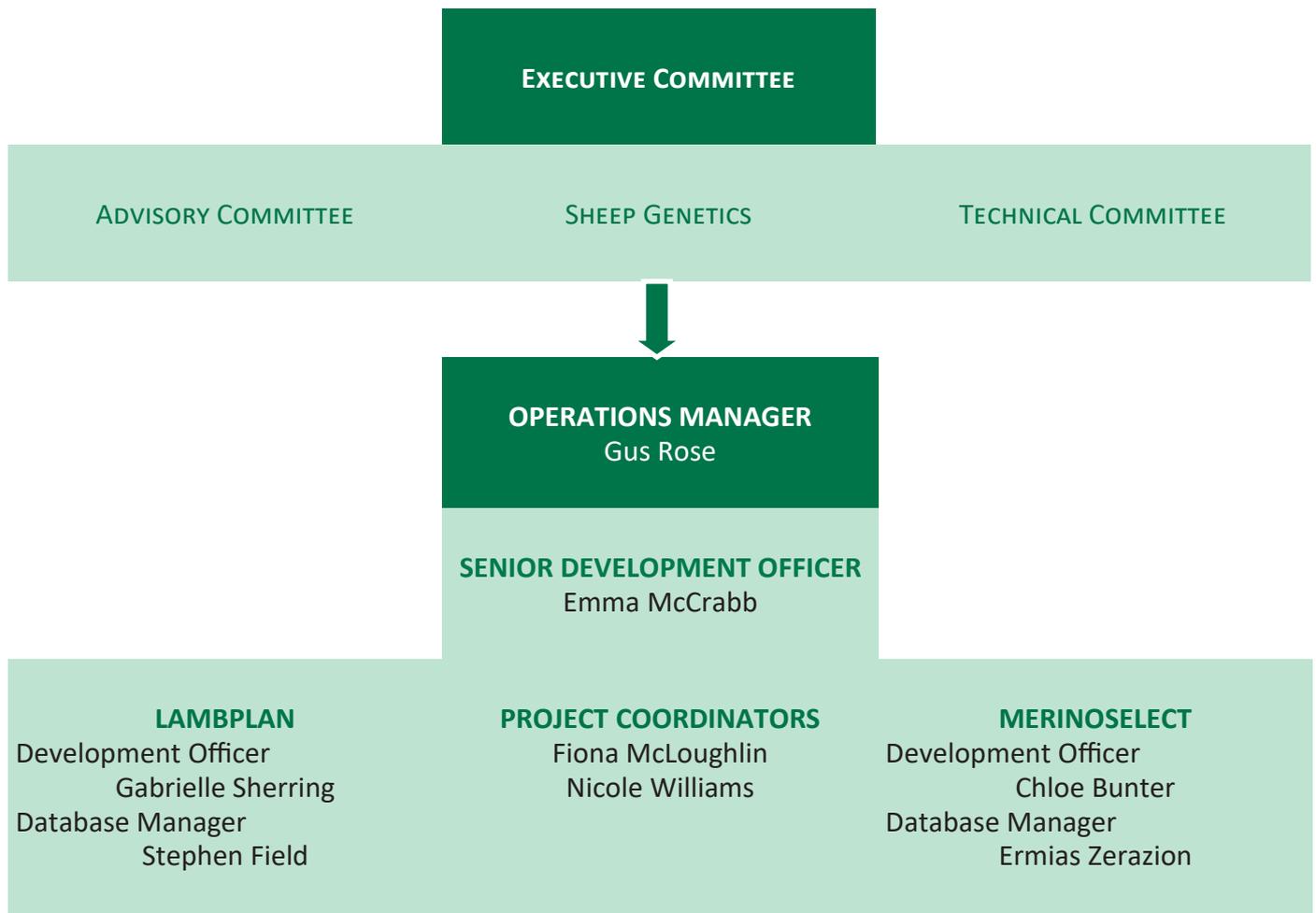
DABs are identified by comparing the pregnancy scan result of the ewe to the live lambs matched to her through parentage. For those ewes with a pregnancy scan larger than her live litter, you need to fill DAB tags into the gaps.

Example: A ewe is scanned in lamb with twins, however only has one lamb matched to her through DNA parentage.



SHEEP GENETICS STRUCTURE

MEAT & LIVESTOCK AUSTRALIA



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