

Welcome to the first edition of the Breeder's Bulletin for 2018



Regional Forums

The 2018 Regional Forums are fast approaching, below is a list of dates and locations. Sheep Genetics Regional Forums form a major part of our annual events and present a unique opportunity for us to communicate and interact with our breeders the latest in Sheep Genetics updates, data collection and quality as well as potential opportunities to improve genetic gain within individual flocks.

10/5/18 Walcha NSW

17/5/18 Orange NSW

24/5/18 Wangaratta VIC

29/5/18 Hobart TAS

31/5/18 Horsham VIC

07/06/18 Adelaide SA

Further information and registration details will be available closer to the dates. WA forums will be announced at a later date.

Genetic Defect Protocol for Sheep Genetics

If you see an animal within your flock that is displaying symptoms of what you believe is a genetic defect; the following protocol may be used to help determine if it is indeed a genetic defect; and help develop a test for it if so. To make use of information supplied it is important that breeders are actively seeking and reporting any suspected genetic defects in their flock.

1. Is it likely to be a genetic defect?
 - a. What are the symptoms being displayed by the animal?
 - b. Is there any idea of what kind of defect it is? does it appear to look like something that is known?
2. What is the phenotypic appearance?
 - a. Submit a photo or video of the animal.
 - b. Did it occur at birth? or is it a trait that is measured in later life?
3. Take 2 tissue samples from the animal – one to be analysed and one to be stored. Please contact the Sheep CRC Genomics Office to arrange a tissue sampling kit.

4. If possible have a tissue/blood card taken from the sire.

5. Take a tissue/blood card from the dam.

6. Identify apparently unaffected half-siblings and take 4-6 tissue/blood card samples from these too – this allows potential carriers and non-carriers to be identified.

7. Send this information to Sheep Genetics where we will liaise with Research Scientists in this field from the Sheep CRC and University of New England.

All information sent to Sheep Genetics will remain confidential.

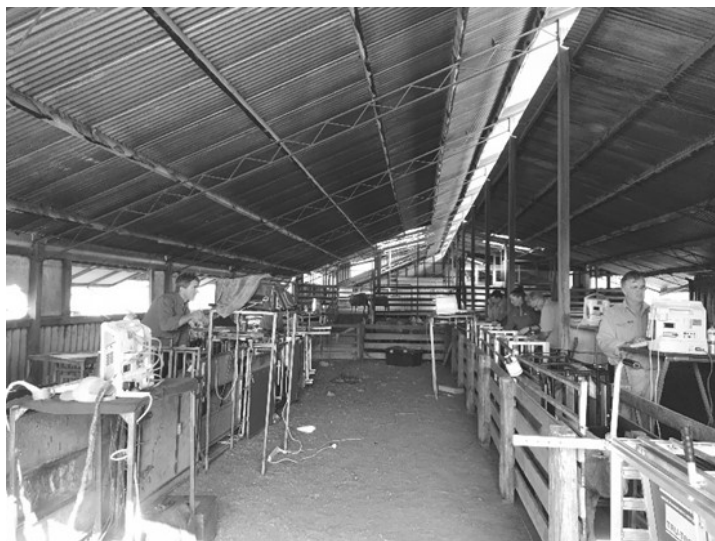
Contents

Regional Forum Dates	1
Genetic Defects Protocol	1
Scanner Accreditation	2
Submitting Animals by Drop	3
Recording Horn/Poll Phenotype	3
Reducing Breech Strike	4
Wanted Maternal Behaviour Info	5
Marketing Tips	6
Genetics World Congress	7
Submitting Data Explanations	7
Organisation chart	8

Carcase Scanner Accreditation 2018

Sheep Genetics held an Ultrasound Carcase Scanner accreditation in Armidale NSW in January 2018. Thanks must be given to Justin Tombs from "Harewood" Dohnes, for the use of his sheep and facilities. The accreditation ran over three days, with the first day involving an afternoon session with the Sheep Genetics Team, delivering some of the fundamentals of the genetic evaluation and the importance of accurate scanning data. The second day consisted of the accreditation and the following day the 40 animals were taken to the University of New England and scanned between the 12th and 13th rib using a CT scanning machine.

It is important for breeders who are utilizing muscle scanning to note that, research has shown as the accuracy of a carcase scanning operator decreases, the heritability of EMD and Fat also decreases. It is for this reason that we have these mandatory requirements in place to help in keeping the traits that use carcase scan information, as accurate and reliable as possible. The Sheep Genetics carcase scanners accreditation process requires the scanners to take two sets of measurements on at least 40 animals on the same day. There are minimum Correlation and Residual Standard Deviation thresholds that must be met on their duplicate measurement of all 40 animals in order to become accredited.



The correlation between the CT scan measurement taken and each individual scanner was also analysed with the results from the day being very good across the board. This indicates that Ultrasound scanning is still a very good predictor of muscle and fat in relation to CT scanning (which is the gold standard).

It is a strict requirement of Sheep Genetics Breeders Quality Assurance Guide that all carcase scanning information be recorded by an accredited or provisionally accredited scanner. For this reason, we now require all breeders to **submit the accreditation number** of their scanner when sending in data. An accredited or provisionally accredited scanner must supply their accreditation number to you at scanning, you can confirm your scanner is accredited by checking the Sheep Genetics website.

This is a timely reminder to ensure that when you are muscle scanning your sheep; you ensure your animal's fulfil the following requirements or risk the measurements taken at scanning NOT being able to be used in the analysis:

1. Each individual animal weighs a minimum of 30kg.
2. There must be on average, greater than 1.5mm of fat depth. (This allows for a variation to be seen between animals measured).
3. Animals are to be scanned by an accredited scanner, and that scanners 5 digit accreditation number provided to Sheep Genetics. *Included with this newsletter is a list of the currently accredited scanners, however you will need to refer to the Scanners list on the website regularly to check for any changes.*

Submitting Animals by Year Drop to MERINOSELECT

The submission and importing process is different for files going into MERINOSELECT and LAMBPLAN. For the MERINOSELECT data submission we are no longer accepting files that are not in an xml format, including Pedigree Master backups. We are also not accepting single files that contain all year drops. This means when you get new measurement for a drop or you need to fix some errors, do the change and submit only the drop that has changed. If there is no change in a drop you don't need to submit that drop.

How to create XML file per drop year in Pedigree Master?

1. From the front page of Pedigree Master click the **"Create XML export for MERINOSELECT"** button which is in the green box. Alternatively click (**Control + E**) (this will not appear for non merino breeds)
2. If you are prompted with the a message that says **"c:\data.dbf already exists, overwrite?"** With **"Yes"** or **"No"** buttons click **"Yes"**.
3. This will take you to **Sheep Genetics .. Exports** dialog box . From the **"Select drop to export"** drop down menu select the year drop you want to export. Then click the **"Export"** button
4. When the export finished a dialog box with a message about the export will come. Click OK. Then a window where the export file is stored will open which is in **C:/SheepGenetics/PedigreeMaster/EXPORT** .
5. Attach export file to an email and send it to Sheep Genetics.

Recording Horn/Poll Phenotype

Sheep Genetics currently report a predictive poll-horn status. This predictive breeding value, which is reported as PP, PH or HH, is based off a single SNP from the animal's 15K genomics test or DNA parentage test. It is important to note that this single SNP is not a direct marker or actual gene causing polled status. However the SNP is closely linked to the poll and horned phenotypes and will help estimate the proportion of offspring that will have a poll and horn status.

To improve the estimation for horn type, Sheep Genetics working towards including phenotypic measurements and genomic results in a single step analysis that includes information from pedigree, phenotypes and genotypes collected to estimate breeding values for Poll/Horn. Phenotypic measurements can be measured through a visual horn score. It is important that all scoring systems used are consistent as with other visual traits and permits the data collected in different flocks to be combined.

Horn Type Scoring

Summary: Horn Type refers to the expression of horn length in male animals. Horn length can vary from no horns, small scurs, medium horns and a full set of horns.

Age: Over 4 months of age only on Male animals.

How to score: A single score of 1,2,3,4 or 5.

Rule of Thumb: A sheep with Score 1 are Poll animals with an indentation in the skull. A score 5 sheep has a full set of symmetrical horns.

Score	Description
1 POLL	A detectable indentation in the bone of the skull at the horn site.
2	
3 SCUR	Small growth at the horn site 10mm or more in height.
4	
5 HORN	Full grown symmetrical horns firmly attached to skull.

Breeding for Reduced Breech and Body Strike

Why Breed for Sheep that are more Resistant to Breech Strike

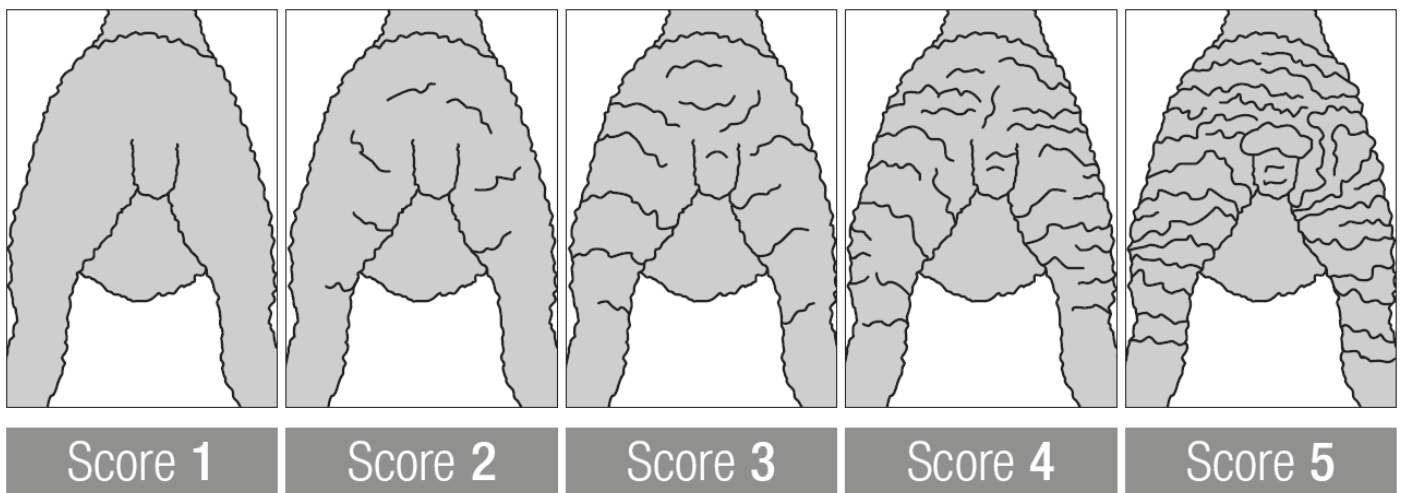
With mulesing being at the forefront of many discussions in the sheep industry at the moment, alternatives to the process are becoming of increasing importance. A number of producers have been able to breed sheep that are less susceptible to breech strike and therefore have been able to cease mulesing in their flock by making selection decisions based on the ASBVs available for breech traits. These ASBVs are produced for animals in the MERINOSELECT analysis that meet the accuracy and linkage thresholds.

Recording Breech Traits

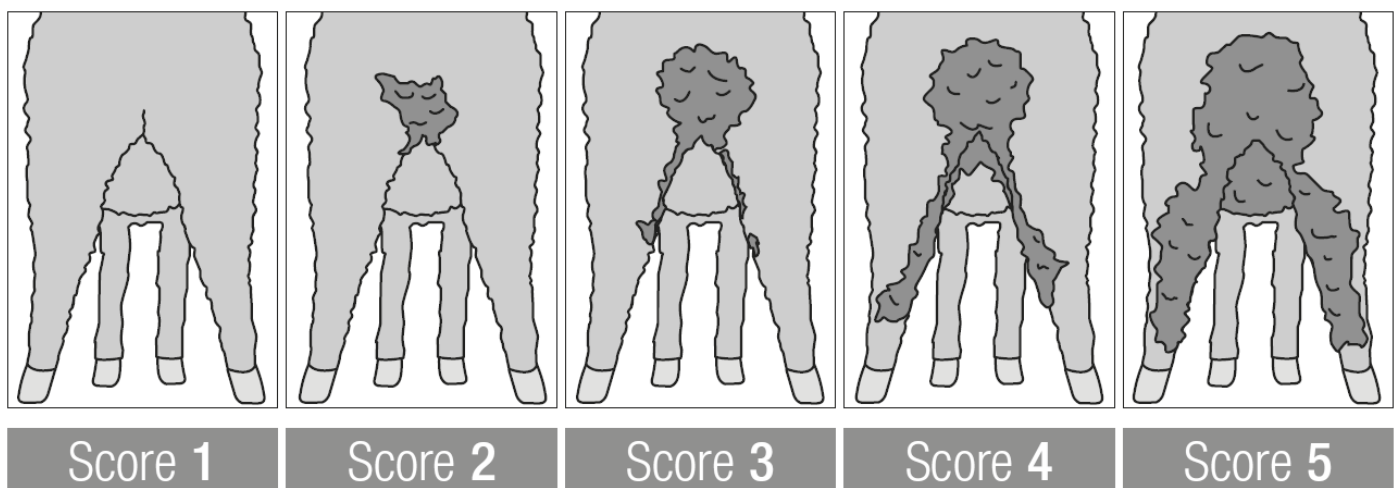
Currently within the Sheep Genetics Database we have 606 391 visual trait records from 361 flocks within the analysis for breech wrinkle, breech cover and dag scores.

Breech Wrinkle (BRWR) remains relatively consistent across age stages and is often measured by breeders on non-mulesed animals either at marking or off shears as a weaner or yearling. By using balanced selection with fleece weight ASBVs it is possible to select both a heavy cutting yet low wrinkle sheep.

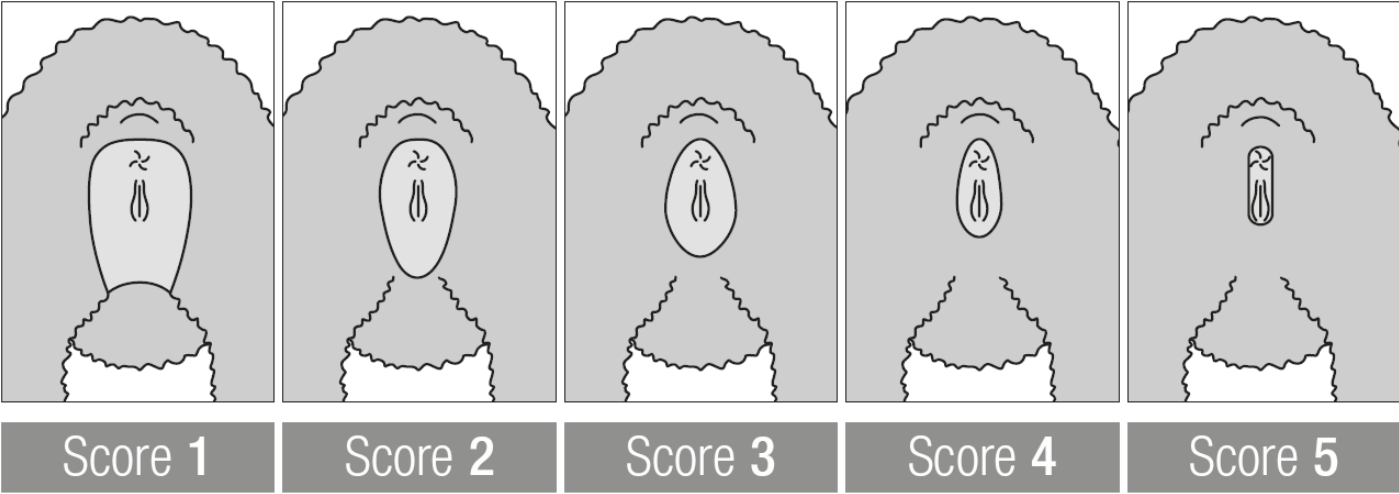
As with all visual traits, breech traits are measured on a scale of 1 to 5 as shown below:



Dag score ASBVs are also available, because dags can occur at any age stage the ASBV that is available is for late dag (LDAG). This is scored when sheep accumulate dags due to optimal seasonal and parasite conditions that lead to scouring. *This is also scored on a 1 to 5 scale:*



As some sheep naturally are bare breached we are able measure and report this as a Breech Cover ASBV (BCOV). It is measured using the scale below where animals that are scored 1 have a large bare area around the breech whilst an animal that scores 5 has complete wool coverage in the breech area. Low Breech cover is also positively associated with higher rates of reproductive performance.



Breeding Towards Non-Mulesed Sheep

A rule of thumb is that sheep with a phenotype Breech Wrinkle and Dag score of 2 or less and a Breech Cover Score 3 or less are able to breed sheep that have a lower susceptibility to fly strike. It is important to look at the ASBVs produced and incorporate this into your breeding objective.

Should you have any questions regarding how to record and use these visual traits in your flocks breeding objective please do not hesitate to contact the Sheep Genetics team.

WANTED: Maternal Behaviour Score Information

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.

Score	Description
1	Ewe stays close to the lamb and operator
2	Ewe stays within 10 metres of the lamb and operator
3	Ewe stays within 30 metres 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

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.

Marketing Tips for Sheep Genetics Clients

Using the Sheep Genetics Logo

As a ram breeder that is involved in LAMBPLAN or MERINOSELECT, the use of the relevant ASBV logos are important in the promotion of your business. Displaying the appropriate ASBV logo indicates that your flock is part of the National genetic evaluation service which is backed by strong quality assurance protocols.

The ASBV logo can be displayed anywhere where details of your performance recorded animals meet the requirements to receive ASBVs. This includes:

- Sale catalogues
- Pen Cards
- Websites
- Brochures
- Newsletters
- Advertisements

We are currently transitioning to Green logos to be more in line with MLA material. The updated logo can be downloaded off the website or can be emailed on request.

Knowing you Market

When developing a marketing strategy for your business it is important to identify your clients and what it is you are selling to them. The approach you take will differ based on whether you are supplying elite rams, rams for commercial use or semen packages. Each market has a different value

proposition and will require different levels of information and resources when marketing.

Reporting Trait Leaders in catalogues and pen cards

Being able to identify animals that are trait leaders for particular ASBVs and Indexes is an important marketing tool for your sheep business. On the Sheep Genetics website trait leaders are identified as being in the top 10 percentile and are highlighted blue.

Sheep Genetics strongly recommends that this colour is used for identifying animals in the top 10 percentile when publishing ASBVs on your animals and not a different percentile band. If the top 20 percentile is to be displayed it is recommended this is done in green.

Checklist of things to send to remember


- ☒ Accuracy is published
- ☒ Analysis dates are published
- ☒ A benchmark is provided (such as breed average)
- ☒ Trait leaders in the top 10 percentile are displayed in blue
- ☒ LAMBPLAN, MERINOSELECT, DOHNE or KIDPLAN logo

Below is an example Pen Card (Please note the grey shading would be blue if done in full colour)

SALE RAM 160016

SIRE: SALE RAM SIRE 150026 X SALE RAM GRANDSIRE 130429

DAM: SALE RAM DAM 120126 X SALE RAM GRANDDAM 094163

	BWT	MWWT	PWT	PFAT	PEMD	BLX	MAT\$
	(kg)	(kg)	(kg)	(mm)	(mm)		
	0.13	1.6	7.5	0.2	1.8	141.4	135
Acc	83	60	91	88	86	58	63
Avg	0.49	0.0	9.8	-0.6	0.5	120.8	122

Analysis Date: 01/03/2018

World Congress of Genetics Applied to Livestock Production

Sheep Genetics at WCGALP - (World Congress of Genetics Applied to Livestock Production)

On the 12th to the 16th of February 2018, Auckland, New Zealand hosted the World Congress on Genetics Applied to Livestock Production. This event attracted 1423 attendees from 70 countries where 873 scientific papers in total were presented. A small delegate from Sheep Genetics and the MLA Genetics Team attended. Each day was broken into 3 sessions where Congress participants were able to choose to attend one topic where there were presentations or posters. The third day of the congress presented attendees with opportunities to explore industries on-farm with field trips running over the course of the day. On a typical New Zealand day (overcast and rainy) some of our delegation travelled out to two newly established sheep dairy's which milked 2000 and 2500 ewes respectively. Both supply milk powder products to the rapidly expanding South East Asian market. There were contrasts in the breeding strategies between the two properties but both faced similar challenges due to the limited genetic base in New Zealand for dairy sheep. Those that did not attend the sheep dairy trip visited Focus Genetics' sheep and deer breeders. Focus Genetics is the largest red meat stud in New Zealand.

Clara and Daniel submitted papers for the conference and were both selected to do a presentation in the Ovine Species session. Clara's presentation was *A decade of Sheep Genetics: What have we achieved?* which summarised the achievements of Sheep Genetics as well as the changes in the number of animals/traits, advancements and what challenges lay ahead. Daniel's presentation titled the *Single Step Genetic*

Evaluations in the Australian Sheep Industry detailed the implementation of single step in the Sheep Genetics evaluation, and the technical challenges and parameters that had to be overcome to establish our world-leading genetic evaluation. Caris Jones also presented a paper in the Genetic Gain-Breeding Strategies session titled the *Key differences between high and low performing Australian Sheep flocks participating in genetic evaluation*, which was based on the RAMping Up Genetic Gain reports produced by Sheep Genetics.

The Gene Editing session created a lot of interest among those that attended, with some of the modelling showing the potential gain possible for traits by implementing this technology. Other papers around the adoption and extension strategies in the dairy and beef industries were also of relevance and were applicable across species. Papers presented on research done in New Zealand that had relevance in Australian systems included the *Estimation of Breeding Values for Footrot in New Zealand Merino Sheep* which was presented by Sam Walkom from AGBU and the *Preliminary Genetic Parameter estimates for intramuscular fat percentage in New Zealand lamb* which was based on work by Beef and Lamb New Zealand.

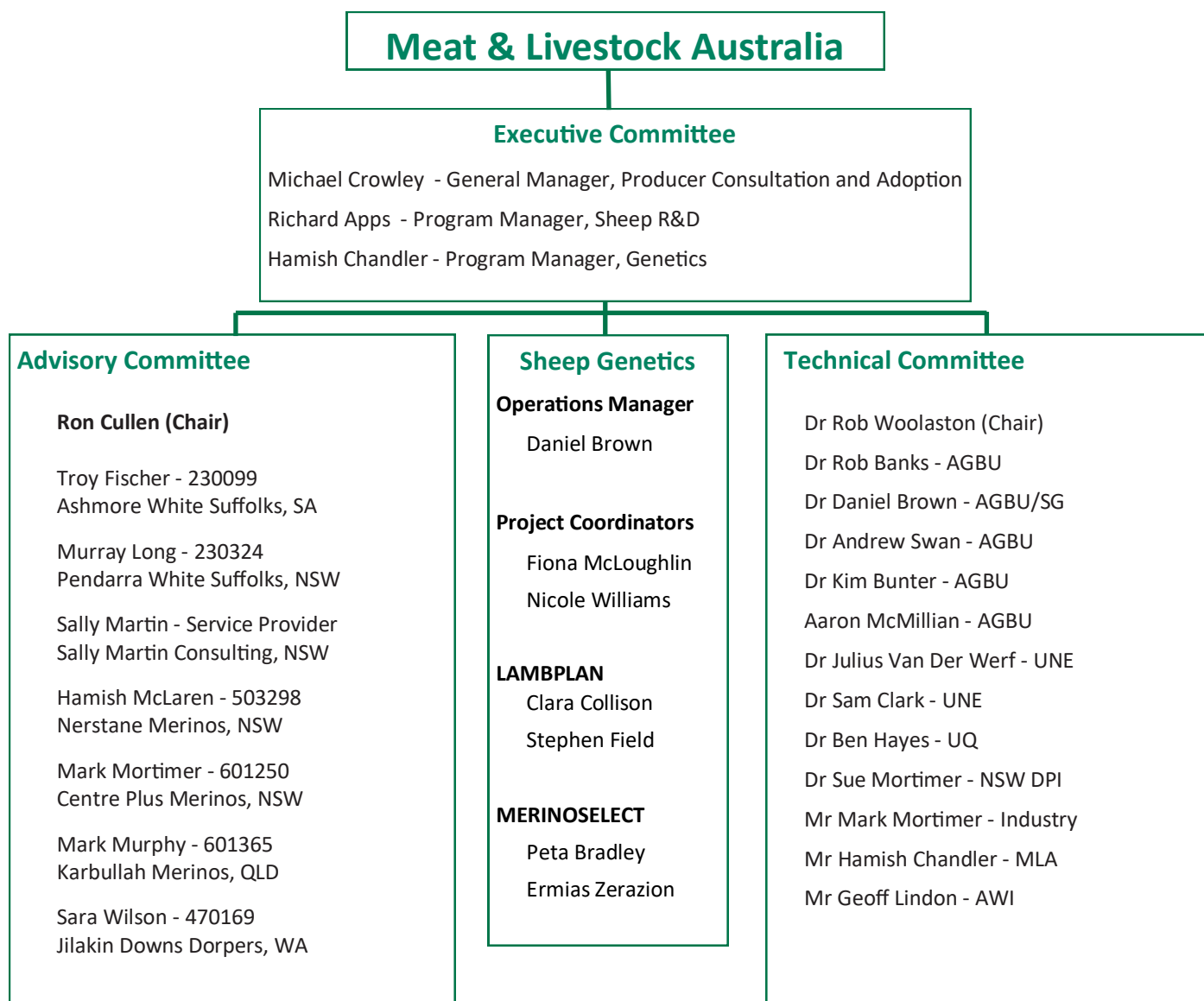
The congress was incredibly valuable from both a technical and extension perspective. Some of the sessions attended provided insight into the extension messages and challenges in the genetics space in other countries and species as well as highlight future improvement possibilities and current research studies. A take home message for Sheep Genetics from the congress was that our analysis is world leading.

Copies of the papers will be available on the archive website www.wcgalp.org

Submitting Data - Explanation in emails

To assist with the importing of files received by Sheep Genetics for both MERINOSELECT and LAMBPLAN could all breeders please include a description of what is included/has been changed in the file as part of the body of the email. This will help Sheep Genetics staff ensure that the correct information is included in the run. For example: *"Please find ram and ewe fleece data for 2017 drop of flock 019999" OR "changed the sex of 3 females previously listed as male"*

Sheep Genetics Organisational Structure



**Sheep Genetics staff should always be
the initial contact point for all communication**

Published by Meat & Livestock Australia Limited ABN 39 081 678 364 , **March 2018**, ISSN: 1448 790 X

Care is taken to ensure the accuracy of the information contained in this publication. However, MLA cannot accept responsibility for the accuracy or completeness of the information or opinions contained in the publication. You should make your own enquiries before making decisions concerning your interests. You may also contact MLA on 1800 023 100. MLA accepts no liability for any losses incurred if you rely solely on this publication.

Reproduction in whole or part of this publication is prohibited without prior consent and acknowledgement of Meat & Livestock Australia.

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

© Meat & Livestock Australia (2018)

Ph: 02 8055 1818 Fax: 02 8055 1850 E: info@sheepgenetics.org.au

Edition 1.2018

www.sheepgenetics.org.au