Sheep GENETICS

The

Breeders Bulletin

LAMBPLAN ASBV

MERINOSELECT ASBV

mla
MEAT & LIVESTOCK AUSTRALIA

Managers report

Welcome to the Christmas Edition of the Breeders Bulletin of 2023. Highlights for the Sheep Genetics program this year have included Leading Breeder in Bendigo, our Service Provider Training in Melbourne, AAABG in Perth which saw a number of our breeders honoured with awards for their contribution to the industry and the implementation of the 2023 Analysis Enhancements which included updates for MERINOSELECT and the implementation of the new Lambing Ease Analysis for Terminals.

The team is already busy planning for 2024 and look we look forward to engaging with our clients throughout next year. I'd like to personally thank the Sheep Genetics team, AGBU, our service providers and of course our breeders for their contribution to improving the analysis, services and genetic gain this year. It would be remiss of me to overlook the current market conditions and seasonal challenges that our clients may be facing or have faced this year. It has been a timely reminder that genetic progress is a long-term commitment and that the gain made is permanent and cumulative.

As 2023 draws to a close it is with great sadness that we say farewell to Emma McCrabb who, after her transition to part-time work at the start of 2023, will be diving full-time into her family's sheep and cattle operation based south of Hay, NSW. Emma joined MLA in November 2018 and on her second day found herself on a plane travelling to Melbourne for her first breeder workshops where the reproduction Research Breeding Values (RBVs) were piloted. Emma has become a well-respected member of the Livestock Genetics team and has formed incredibly valuable relationships with both service providers and our clients. Starting her MLA journey as the MERINOSELECT Development Officer before transitioning to Senior Development Officer she has brought with her a practical, applied knowledge of genetics, commercial farming experience and can-do attitude to the job. Thanks Em, for your contribution to the Sheep Genetics team.

I wish you and your family a Merry Christmas and Happy New Year, we at Sheep Genetics look forward to working with you into 2024 and beyond.

Peta Bradley - Manager Sheep Genetics

Welcome Rudolph Linde

We would like to introduce Rudolph Linde, who started with MLA on the 27th of November as the Business Manager - Genetic Services.

Rudolph will be responsible for the overall performance of the genetics commercial services within MLA's interest. This includes the commercial operation of Sheep Genetics.

Rudolph joined us from his recent role as Senior Director Sales and Operations with STgenetics New Zealand leading the Dairy, Beef and DairyBeef genetic programs to drive sales and market growth globally.

Rudolph comes from an agricultural background in South Africa with family operations of a commercial Hereford herd, Angus stud, sheep operation, Holstein dairy operation and even ostriches. This is supported by completing agricultural and animal health related university qualifications at University of South Africa and later MBA through Massey University in NZ.

We look forward to connecting Rudolph with our MLA teams, and stakeholders over the coming months.

Improving data quality

Improving the quality of data in the Sheep Genetics analysis

Data quality is an integral part of an accurate and reliable Sheep Genetics database. From how data is collected, defined, used within the analysis, adjusted for, and displayed back as ASBVs, the entire data pipeline is impacted on by varying degrees of data quality.

The Development Officers are on a mission to work with breeders to improve the quality of data in the Sheep Genetics evaluation. Key areas that will be targeted include:

- Genomic Pedigree Inconsistencies

- Exclusions

- Selective recording

- Linkage

- Effective progeny numbers

- Contemporary groups

- Reproduction recording

- Data Quality Score

- Improving recording of various traits within each analysis

It's important to review these reports prior to key events in your business, including ram sales and joining decisions to ensure high data quality and accurate ASBVs.

Look out for further information, webinars, documentation, etc. on how to improve your flocks data quality.

We will be reaching out to flocks identified that can make improvement, however if you would like to request a data audit for your flock please contact us.

New tools for your business

Setting a Breeding Objective is the first step to a successful sheep breeding business. Your Breeding Objective should capture key traits for the productivity and profitability of your business, as well as your client's businesses.

Sheep Genetics is asking for feedback on some recently developed resources to assist both seedstock and commercial producers in setting a Breeding Objective and tracking genetic gain. These resources can be found on news page of the Sheep Genetics website or by scanning the QR code.

We encourage seedstock breeders to test these tools for their own business, as well as working

one-on-one with clients to develop their Breeding Objective, track their flock's genetic merit, and develop skills of ram buyers on how to select sires that will help achieve their Breeding Objective.

Please email any feedback to info@sheepgenetics.org.au

Breeder profile: Kinellar - Lachlan Patterson

Property name: "Brittas" and "Warree Creek"

Breed: White Suffolk and Poll Dorset

Enterprise: Seedstock sheep producer

Location: Canowindra & Cudal NSW

Rainfall: 600mm

Kinellar location: Canowindra & Cudal NSW

How long have you been using LAMBPLAN and what was your pathway to getting involved in LAMBPLAN?

We have been using LAMBPLAN since Kinellar was founded in 2005. The ewes we purchased at that time (from the nucleus White Suffolk flock dispersal, Prime Lamb Genetics, and White Suffolk and Poll Dorset ewes from Kurralea at Ariah Park) all had LAMBPLAN data. At that time, we did not fully appreciate the power of LAMBPLAN and how it would influence the genetic gain at Kinellar over the next two decades. LAMBPLAN data has allowed us to increase our rate of genetic gain across a range of traits from growth to eating quality and even reproduction. It has also allowed us to target our long-standing clients specific needs and help them to achieve a positive result as well as gain more new clients in the process.

What are your breeding objectives, and how does it relate to your business direction?

Our breeding objective focuses on structural correctness and carcass shape, low-moderate birthweight, high early growth, moderate fat, high muscle, and excellent eating quality which are achieved though using the relevant ASBVs from Sheep Genetics. We focus on a number of traits including BWT, WWT, PWT to achieve small birthweight lambs that grow quickly, PFAT and PEMD to get an appropriate balance of fat and muscle on our and our clients carcases, and eating quality traits like IMF and SF5 to produce juicy, tender lamb products. Our clients support us because we can provide sires that are high indexing (top 5 and 10% of industry) and perform well across a range of traits like growth and muscle (WWT, PWT and PEMD).

We have benefited from the MLA Resource Flock and Gundagai Meats by receiving direct feedback from meat science and processor data for eating quality such as intra-muscular fat and shear force, which are now also included in our breeding objective. We now use eating quality ASBVs when making all joining decisions to ensure genetic improvements in eating quality. As seed stock producers, we need to make sure every consumer has a positive eating experience from every bite of lamb. Over the next five years, we will be producing rams that sire lambs which have high growth, moderate intra-muscular fat, a well-shaped eye muscle, and lamb which melts in your mouth.

What index are you using?

We use a combination of TCP and EQ Indexes to make our joining decisions, as these indexes best align with our breeding objective.

What software do you use?

We use Pedigree Master as our data management software and Gallagher APS as our data collection software. Pedigree Master is very simple and easy to use, and imports well into Sheep Genetics. We have found it to be very straightforward. We use Gallagher APS as it stores our data on the cloud, making it accessible to us anywhere. It also has a great app that we find very useful.

Do you employ a service provider?

No, we don't. We handle all our own data from the collection, collation, and submission to Sheep Genetics. We can do this because we have good software programs in place, and have mastered using these software over a number of years.

Between 2018 to 2022, your White Suffolks (230596) have made over 16 index points (TCP) which is almost 3 times the amount of genetic gain in same 5-year period prior to 2018, resulting in the average for your flock surpassing both the breed and analysis average TCP. Your Poll Dorsets (Kinellar 164425) are also making similar genetic gain. What strategies have you used to result in such genetic gain in index for Kinellar?

Three deliberate strategies have contributed to the genetic gain in both our White Suffolks and our Poll Dorsets:

- Using proven LAMBPLAN sires – buying rams which have been used in the vendor stud, using semen of rams which have been used in multiple studs, and entering our rams into the Resource Flock for benchmarking.

- Heavy culling of ewes and ewe lambs – after each life event (e.g., weaning and ewe-lamb classing) we review ewes on hand and cull lower LAMBPLAN performing stock.

- Joining of ewe lambs – reducing the generation interval and increasing our genetic gain. Occasional joining of ram lambs – very careful to select high accuracy ram lambs to limit the impact of progeny performance on the ram lambs used. Reduces generation interval and increases rate of genetic gain.

Do you collect birth site measurements? If so, what measurements do you collect and why?

We collect birth site measurements, including birth weight, birth type and rear type, dam pedigree, lambing ease and maternal behaviour score, all within 24 hours of birth. Low birthweights are important for our clients, as they prefer to run low maintenance sheep that don't need lambs pulled. We also collect weights on lambs that are dead at birth to get more accurate data and help track the number of lambs born. Weaning weights are collected at 100 days, to help produce accurate data for clients who produce sucker lambs. Post weaning weight, eye muscle, and fat depth are collected at 200 days. Cull ewe lambs are sent to Gundagai Meats to collect intra-muscular fat and lean meat yield data. All of this data helps inform our breeding decisions and lets us turn off high-quality rams.


Photo courtesy of Lachlan Patterson, Kinellar

Figure 1. Genetic trends for Terminal Carcase Production (TCP) for Kinellar White Suffolks 230596
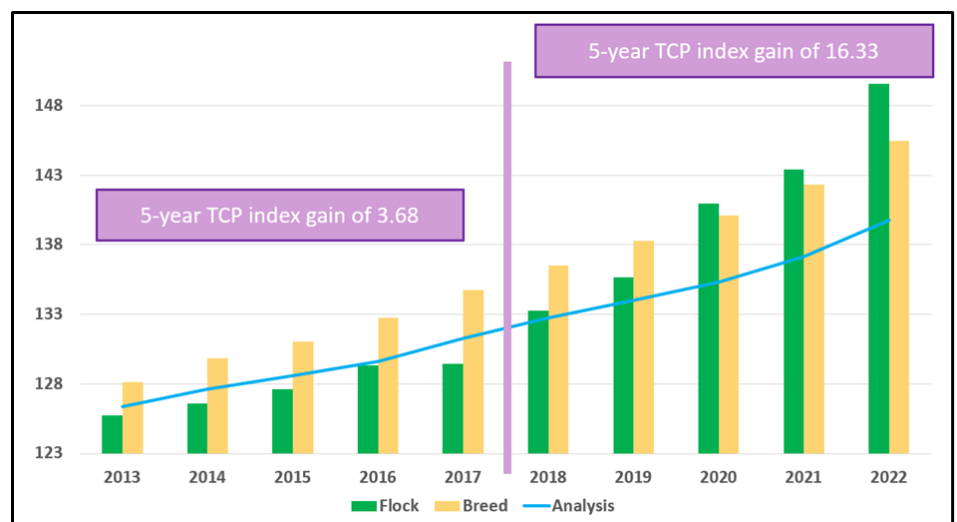
Year	No. of animals	No. in top 20%	No. in top 10%	No. in top 5%	Annual Index Gain (TCP)
2018	525	0	0	0	3.83
2019	367	0	0	0	2.41
2020	473	43	10	6	5.31
2021	478	37	8	4	2.43
2022	624	267	140	76	6.18

Figure 2. Number of animals in the top percentile bands over the past 5 years for Kinellar White Suffolks 230596

Proportion of 2022 drop Kinellar White Suffolks in percentile bands

- Top 20%
- Top 10%
- Top 5%
- Other
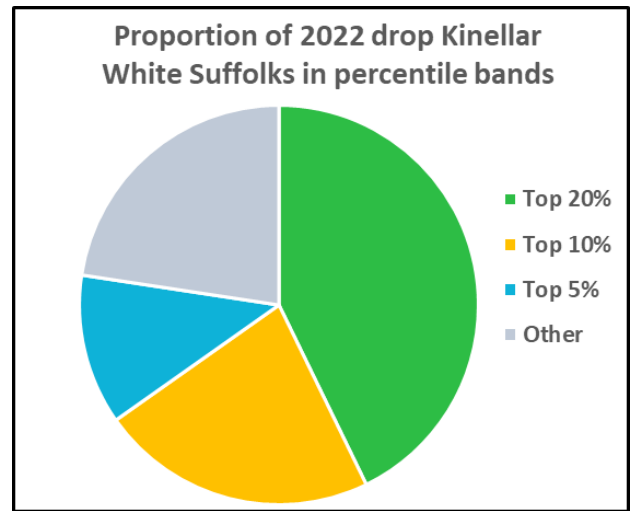
How are your commercial clients using the genetic information that you provide them? Do you have any examples of success stories?

We do private sales for our clients and can give a more personalised experience to each of them. This allows us to discuss with our clients what they are aiming to achieve and how they can get there using our genetics.

Our clients visually inspect rams and use LAMBPLAN data to select rams. They focus on specific ASBVs that suit their breeding objectives and enterprises, including – BWT, PWT, PFAT, PEMD, IMF. One of our clients won 2019 champion sucker lamb at the Dubbo Hoof and Hook Competition with the progeny of one of our rams who had +4.4 for PEMD. This client aims to select for higher PEMD rams each year to ensure they are making progress on this trait.

**What excites you about the future of sheep production?**

We can now focus on carcass quality at the same time as continuing to make genetic gain. It is great to be able to integrate our classing, LAMBPLAN data, and feedback from Gundagai Meats (based on DEXA scans for lean meat yield and dressing percentage and meat eating quality (MEQ) probes for intra-muscular fat) to increase the accuracy eating quality traits and to reinforce breeding decisions. Our aim over the next couple of years is to get our entire flock to a really good level of eating quality, whilst maintaining our other traits. When we reach this goal, we will look at moving forward with other traits.

Over the next five years, we will be producing rams that sire lambs which have high growth, moderate intra-muscular fat, a well-shaped eye muscle, and lamb which melts in your mouth.

Pocket Guide to ASBVs

The 2023 version of the Pocket Guide to ASBVs has been completed and we now have a good quantity printed and ready to post out.

If you would like to order pocket guides or any other resources please call or email the team on info@sheepgenetics.org.au.
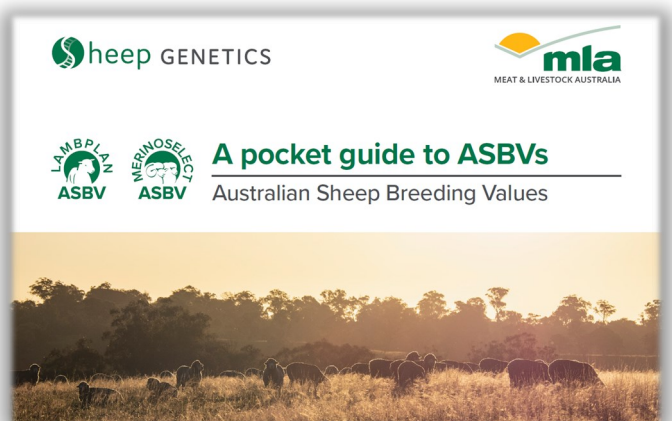
AAABG conference

The 2023 AAABG (Association for the Advancement of Animal Breeding and Genetics) conference was held in Perth in late July running across 3 action-packed days. The conference gives researchers in the animal genetics industry a chance to present their research and for attendees to get an insight into the latest and greatest research and development underway in industry. This conference is also a great opportunity for networking and catching-up with colleagues and friends.

The theme of the 2023 conference was Animal Breeding at the Crossroads, inviting organisers, presenters and attendees to reflect on the achievements in animals breeding since the inaugural AAABG conference in 1979 and explore the role of animal breeding in a future with ever-increasing community concern for climate change, environmental impacts, animal welfare and meat consumption.

Lynley Anderson, of Anderson Poll Merino, opened the conference with from the view-point of a sheep breeder. She put into context the impact that the research and development has on the sheep industry at a practical level, and how it has lead to, and will continue to lead to, rapid genetic gain.

Another Sheep Genetics breeder, Mark Mortimer, of Centre Plus Poll, was recognised for his major contributions to genetics research and development, receiving the prestigious Helen Newton Turner medal. This award celebrates the dedication Mark has for the sheep industry and his skill in data collection and management. We applaud Mark for his achievements.

AAABG also recognised Bill Sandilands, Billandri Poll Merino founder, and honoured him with a Fellowship for his work in genetics. Congratulations to Bill, it is well deserved recognition of the many years that he has dedicated to genetics in the sheep industry.

Sheep Genetics' Peta Bradley, Marnie Hodge and Kate Rummery were in attendance, as well as MLA's Sarah Hassall, who all came away with new insight into the future of genetics and breeding in Australia. A large portion of the Sheep Genetics analysis enhancements and the development of the new Merino indexes was presented and welcomed praise from top research scientists in industry. The Sheep Genetics genetic evaluation continues to be a world leader in the genetics space.

Some key research presented included:

- Evolution of sheep breeds within LAMBPLAN and the rise of the Composites - Aaron McMillan

- Towards selecting for lower methane sheep - Pete Fitzgerald

- Measured Goats in the Rangelands: An overview of a meat goat reference population - Tom Granleese

- New Sheep Indices - Andrew Swan

- Merits of using DEXA to measure lean meat yield for the genetic evaluation of Australian lamb - Samuel Walkom.

- Panel session. Can the geneticists please inform us: what is the ideal adult body size for the Merino ewe? - Alex Coole, John Young and Daniel Brown. Chaired by Bronwyn Clark and Ashley Herbert.

We look forward to the next AAABG conference in 2025, and witnessing the achievements in genetics over the next couple of years.

Full conference proceedings and individual papers can be found on the following link www.aaabg.org or by scanning the QR code.

Photo Marnie Hodge presenting at the AAABG conference

Understanding the evaluation

The Animal Genetics and Breeding Unit who are responsible for the evaluations, have created a series of videos to assist in understanding the evaluations and the components that contribute.

- Phenotypes
- Fixed effects
- Pedigree
- Genomics
- Heritability
- Correlations

- Linkage
- Accuracy
- Multibreed evaluations

You can view the entire playlist on the news page of our website or scan the following QR code.

Thank you to the following AGBU staff for this resource.

Sam Walkom, Steve Miller, Andrew Swan, Daniel Brown, Matt Wolcott, Kirsty Moore, Peter Wahinya and Sara de las Heras-Saldana

Service providers

The Sheep Genetics website has a list of service providers that are able to assist you to collect and submit data for analysis, access reports and set breeding objectives to make genetic progress.

You can find a list of these on our website *sheepgenetics.org.au/ service-providers* or by scanning the following QR code

Carcase Scanners

It is a requirement of the evaluation that all ultra-sound carcase measurements are be taken by an accredited scanner. The accredited scanner list should be checked prior to booking to ensure that measurements will be used in the analysis. The scanner will provide you with an accreditation number so that you can enter this with your data.
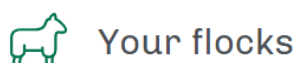
Linking service providers to your flock

You can link and unlink service providers to your flock by using the "Your Flocks" tile on the search site. Once linked a service provider can submits data on your behalf, access your reports and create online sale and semen catalogues.

For instructions please visit the website or scan this QR code.

🐑 Your flocks

FLOCK CODE	FLOCK	SERVICE PROVIDER	ACTIONS		
239999	HAPPY VALLEY SHEEP	—	⚙ MANAGE SP	▫ REPORTS	★ DATA QUALITY
			☁ SUBMISSIONS	⬚ MATESEL	

Figure 1. The Your Flocks tile from the website search.sheepgenetics.org.au

Genotyping

Genotyping Providers

All providers authorised to offer sheep genetics testing services working with Sheep Genetics are listed on our website as service providers. You can view our authorised providers by scanning the QR code.

Genotyping checklist

☐ The order has the correct flock code

☐ Tags are assigned to the correct animals

☐ I have well documented notes of any mishaps during collection for future reference

☐ All possible parents are listed on the order

☐ All animals are submitted with a measurement to Sheep Genetics

☐ There is 6-8 weeks between submitting the genotype to when the results are needed

☐ If a retag is needed, the genotyping provider is contacted as soon as possible

☐ Parentage results are updated in the software and the year drop file submitted to Sheep Genetics for the next analysis run

More information can be found on the website sheepgenetics.org.au/resources/genomics

New Years resolutions

Stumped on what your new year resolution should be? How about improving your data quality and upskilling yourself with all things Sheep Genetics! With 2023 winding down now is the perfect time to set yourself up to hit the ground running for 2024 with Sheep Genetics.

Things to check out include:

✓ Learn how to use the Sheep Genetics website and access your results

✓ Check and correct your pedigree inconsistencies and exclusion reports on the results dashboard

✓ Create or review your Breeding Objective. Does it meet the SMART framework?

✓ Sit down and plan your calendar of events for measurements, when to submit data and genotypes for which run so results are back in time for events through the year

✓ Refresh your knowledge with our Introduction to Sheep genetics e-learning or the MLA Genetics Hub

✓ Delve deeper into specific aspects of Sheep Genetics by binge watching videos from past events like Leading Breeder, Analysis Enhancements, hear about the finer details of the analysis and indexes from the scientist at AGBU

✓ Familiarise yourself with MateSel or sign up for training

✓ Check out your Data Quality report and make an action plan to improve

S - Specific
M - Measurable
A - Attainable
R - Relevant
T - Time Based

Lambing Ease Guidelines

We have recently updated the scoring guidelines for lambing ease which now include further information about how to record different birth positions and how to score multiple lambs within a litter. The lambing ease analysis was also updated for Terminals during the 2023 analysis enhancements. More information about the updated analysis for lambing ease can be found by scanning the QR code.

- *Lambing ease analysis enhancements*

- *Understanding lambing ease ASBVs*

Regional Forum wrap

Sheep Genetics got on the road across May and June to present the annual Regional Forums. This year Sheep Genetics ran four Regional Forums across four states: Ballarat VIC, Cowra NSW, Adelaide SA and Launceston TAS. Ram breeders are encouraged to attend their local regional forum to catch up with the Sheep Genetics team and hear about the annual analysis enhancements and other projects occurring within the Sheep Genetics space.

This year, the forums all began with a session called 'Boost you Business'. This is an interactive session where each participant asks a question to their peers, and gets the opportunity to answer the questions of other participants. This activity is used as an icebreaker and sets the interactive tone for the day. It encourages collaboration between peers, and promotes long-term communication between ram breeders in a similar area. This session had an average rating out of 10 of 7.7 across all four forums. A comment made in our feedback was: "Great idea! Love to see folks in the same space collaborating."

Following morning tea, Sheep Genetics gave an update on the current research projects underway, and the use of LAMBPLAN and MERINOSELECT in industry and the uptake of ASBVs by commercial producers. Research in the methane and feed efficiency has some exciting updates with the methane trailer soon to arrive in Australia. Sheep Genetics has seen constant substantial growth in both LAMBPLAN and

MERINOSELECT over the last 5 years, and has also seen an increase in the rate of genetic gain over this period.

Analysis enhancements, released annually to ensure the genetic evaluation Sheep Genetics provides is up to date and as relevant and accurate as possible, were presented next. This session was split into 3 main concepts: MERINOSELECT parameter updates, LAMBPLAN updates, particularly around lambing ease, and the release of the new Merino indexes. This session was very informative and received an average rating of 7.9 out of 10.

Photo Chloe Bunter presenting at regional forums

Following the analysis enhancement update, Sheep Genetics presented a session called 'Submission Portal for Success'. This session gave a live demonstration of how to submit data to the analysis via the Submission Portal (released February 2023), and what to check when submitting data. This session also went over some data quality rules, and ways to maximise the usefulness of data submitted.

After the afternoon tea break, Sheep Genetics ran through a quick 'round-up'. This looked into the tools available to assist breeders in the quest for genetic gain. It focused on the role of genomics in a breeding business, and was reviewed highly, with one attendee saying, "As a genomics service provider this session was great to better understand all of the benefits breeders can get from the use of genomics and helps me to provide a better service."

Overall, the annual Sheep Genetics Regional Forums were a great success. The overall satisfaction of attendees was rated at 8.7 out of 10 across all locations. The feedback of attendees was very positive, with a range of comments: "Good explanations of material, good interaction with group and group discussions on topics, very beneficial." "Always new things to learn. Makes the day off farm worthwhile." "The interactive presentations were excellent."

Sheep Genetics would like to thank everyone who made the effort to attend one of the forums.

Figure 1. The below table gives an overview of the ratings of each session, across all workshops.

	Avg Score	Comments:
Boost your Business	7.7	"Good discussions around the table. Gets people engaged and talking openly." "Great idea! Love to see folks in the same space collaborating."
MLA and Sheep Genetics Update	7.8	"Interesting progress and projects upcoming."
Analysis Enhancements	7.9	"Good to have some updates. Some complex concepts"
Submission Portal for Success	7.7	
The Round-up	7.5	"As a genomics service provider this session was great to better understand all of the benefits breeders can get from the use of genomics and helps me to provide a better service."
"Please rate your overall satisfaction of this regional forum." **Overall Regional Forum 2023**	8.7	"Good explanations of material, good interaction with group and group discussions on topics, very beneficial." "Always new things to learn. Makes the day off farm worthwhile." "The interactive presentations were excellent."

Christmas Holiday Period

The Sheep Genetics office will be closed from Friday 22nd of December 2023 and will re-open on Tuesday 2nd of January 2024.

The first analysis dates for 2024 will be

- 5th January - MERINOSELECT/DOHNE

- 15th January - LAMBPLAN/KIDPLAN

More analysis dates can be found on our website or by scanning the QR code.

We wish everyone a Merry Christmas and a safe and happy new year and look forward to working with you in 2024.

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