



MERINO SIRE EVALUATION

SITE REQUIREMENTS

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Welcome and Introduction

Welcome to Merino Sire Evaluation!

Merino Sire Evaluation (MSE) is a progeny testing program that has been running since 1989 and currently operates at 10 sites located across Australia. MSE is managed by the Australian Merino Sire Evaluation Association (AMSEA) and is largely funded by ram breeders through entry fees, along with industry funding provided by AWI and a large amount of in-kind support from site committees, site hosts and service providers.

This folder is your guide to setting up a MSE site and running trials. It's designed to be a practical, working document, used by you as a tool for your MSE site. Please contact us with any suggestions or edits.

This guide is designed so that you can easily navigate to the section, and then the subsection, that is relevant for you at each stage of your trial. So, use the Table of Contents as your starting point. The folder is divided into these sections;

1. Getting Started
2. Trial Activities
3. Data Management and Reporting
4. Additional Information and Resources

The first section, **Getting Started**, outlines the various components that are necessary for setting up a MSE site and designing a trial.

Trial Activities section outlines the operation of an MSE site. Checklists are provided at the beginning of this section. Identify which trial design matches your trial and use this checklist to tick off each activity so you know you're collecting the necessary records.

The next section, **Data Management and Reporting**, outlines what to do with the data that you will be collecting at your site and how the results will be reported.

In the final section, **Additional Information and Resources**, there is information about the ongoing operations of a MSE site, along with the forms that you will use, as well as additional references and resources.

AMSEA and the Merino sire evaluation sites are run by the following committees:

AMSEA	Chair: Jock McLaren	0429 775 891
	Deputy Chair: Rich Keniry	0427 878 541
Balmoral Breeders Association	Chair: Mark Bunge	0409 962 248
Macquarie Sire Evaluation Association Inc	Chair: Matthew Coddington	0428 635 386
MerinoLink Limited	Chair: Rich Keniry	0427 878 541
New England Sire Evaluation Association	Chair: Duncan Lance	0447 297 135
North East Victoria Stud Merino Breeders	Chair: Murray McKenzie	0428 481 961
Pingelly/Muresk – Federation of Performance Sheep Breeders (WA Branch)	Chair: Brett Jones	0428 323 012
South Australian Stud Merino Sheepbreeders Association	Chair: Roger Fiebig	0407 568 786
Yardstick - Federation of Performance Sheep Breeders (WA Branch)	Chair: Bill Sandilands	0427 514 030

For any further information or to hear about other sites just get in touch. A full site and committee contact list can be found in section 4. We look forward to working with you and your site!

Ben Swain
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SECTION 1: Getting Started

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Setting up

Setting up a Site Committee

Each MSE site must have an active site committee to oversee the general operations and management of the site's activities. The cornerstone of all MSE sites is the enthusiasm, longevity and engagement of the local site committee.

Involvement in a site committee (or hosting a trial) is an opportunity for Merino breeders to evaluate a range of leading genetics first hand, in their specific environment, over their own ewe base. For producers looking to change bloodline or type is it an opportunity to see which genetics work. For those that are not, it is an opportunity to benchmark their own genetics against progeny of leading sires to see how they compare.

Sire evaluation committees and hosts are also exposed to new ideas, technology and influential people that will add value to their business. Finally, being part of a sire evaluation committee is a great networking and social experience that may even outweigh the benefits of improving their operation's genetics.

Site committee members require a good understanding of the aims of Merino sire evaluation and need to be strong supporters of the objectives of the trial. It is also important that the site committee is willing to engage with breeders of differing breeding philosophies.

The site committee's roles are to:

- set a site breeding objective
- develop and regularly review a trial design
- call for and decide on sire entries
- oversee the site management and operations
- supervise the activities undertaken in the trial
- assist AMSEA in preparing site reports

Generally, a site committee will include (but is not limited to) a site chairman, site manager, data manager, secretary, treasurer and a representative to the AMSEA Executive Committee. Depending on the structure of the site committee, an annual general meeting is often an association or incorporation requirement.

Succession plans need to be in place for site committees to ensure that appropriate governance continues at the site and the committee remains active and enthusiastic.

Setting a Site Breeding Objective

A site breeding objective defines the attributes of the sheep that the site is selecting for. It is provided to the classer in order for them to assess the progeny as part of the trial. A site breeding objective should be:

- reasonably specific
- confirmed by measurements, or classing
- realistic and achievable
- annually reviewed

Example of a site breeding objective:

Selection will be for sheep that consistently produce 18.0-19.0 micron wool with good character, colour and nourishment making it suitable for the local conditions. In addition, selection will also focus on maintaining

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fleece weights of 5.0kg while improving carcass characteristics by increasing growth, eye muscle depth and fat in order to turn off wether progeny at 10-12 months of age at 20-22kg carcass weight.

Setting Sire Entry Fees

Site committees set their sire entry fees based on their trial design and the associated costs. Sites may also secure local sponsorship to subsidise trial costs and this will enable sire entry fees to be lower. As a guide, sire entry fees are generally \$2000-\$3900 excluding GST.

Pedigree Options

Whilst it is **mandatory that 100% of lambs have a sire pedigree** recorded, site committees can decide the level of overall pedigree recorded in the trial when considering the trial design. The options are:

- **Sire and ewe source only pedigree:** Recording the sire and ewe source for all progeny is the minimum mandatory level of recording.
 - **Where a site uses only one ewe source there is only the requirement to record sire.** This involves **lambing in sire groups and recording the individual's sire** when the progeny are tagged, or **DNA testing all progeny and sires**, or **using Pedigree MatchMaker** to mother up lambs and then assigning sire through dam AI records (in this instance any lambs not 'mothered up' will need to be DNA tested, including all black and spotted lambs).
 - **When a site uses more than 1 ewe source, progeny are required to be identified with both their sire and ewe source.** To achieve this, lambing will need to be carried out in ewe source groups, or by identifying dams through Pedigree Matchmaker as identified above (including all black and spotted lambs).

Or,

- **Sire and individual dam pedigree:** It is optional for MSE trials to record dam pedigree however this dam information allows Rear Type (RT) results to be determined. Obtaining both the sire and dam pedigree involves undertaking **DNA testing on all progeny, sires and dams**, or **either daily lambing rounds** to match and record birth dam to lamb **or Pedigree MatchMaker** (DNA testing will need to be undertaken for any unmatched lambs).

Deciding on the Trial Design

Site committees decide on the trial design, which will determine when each trait is assessed or measured. The trial design also determines how many times each trait is assessed or measured, remembering that **it is a requirement for all traits to be assessed or measured at least once during the trial**. Some measurements will be taken multiple times throughout the trial (eg. Body weight), whereas others such as carcass measurements (eye muscle depth and fat) may be measured and assessed at any number of stages but are only required to be undertaken once during the trial.

The trial design is generally determined by the management program of the host property (eg shearing time), as well as the stages that entrants are wishing to have measurements and assessments recorded for. Some activities are obvious in their timing, eg. greasy fleece weight is undertaken at shearing, whilst others are more flexible.

There are number of example options for trial designs outlined below. Sites may choose to follow one of these designs or develop their own design. Each trial design has its own features, however to achieve optimal results for analysis the preference is in the following order; Yearling/Adult, Post Weaning/Adult, Hogget, Yearling and then other trial designs.

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Options for Trial Designs

1. Yearling and Adult

All measurements and assessments are recorded at both the yearling and adult stages. This includes a shearing at the yearling stage (300-400 days), followed by another at the adult stage (over 540 days). Carcase traits and worm egg counts can be measured between the two shearings and are only completed once. This is generally considered the 'gold standard' of trial designs, providing maximum information to entrants, albeit in a slightly less timely manner. The inclusion of the adult stage visual classing and shearing provides the most accurate prediction of lifetime performance available within a normal trial design.

2. Post Weaning and Adult

This is an ideal trial design for sites that are seeking to gain both early stage and adult measurements in as short a timeframe as possible. A post weaning shearing can be conducted between 210-270 days, followed by an adult shearing after 540 days of age. Visual classing can be completed at both the post weaning as well as the adult stage, or only at the adult stage. Carcase traits and worm egg counts can be measured between the two shearings and are only completed once. By undertaking the visual classing at both post weaning and adult stages, a full suite of information can be provided to entrants very early in the trial.

3. Hogget

All traits assessed or measured up to, and including, the hogget stage. The progeny must have been shorn at weaning. This trial design suits production environments where the focus is on meat production, with less emphasis on wool production at the adult stage.

4. Yearling

If all traits are going to be assessed or measured at the yearling stage only, the progeny must be at least 330 days of age at shearing and have been shorn at weaning. This trial design is not generally recommended as it does not collect any later stage records (hogget or adult), which is seen as one of key benefits of MSE.

5. Other Trial Designs

By using a combination of the above trial designs, any number of other trial designs can be established. In doing so site committees should keep in mind the following:

- it is a requirement that all traits are assessed or measured at least once
- if only one visual classing and shearing is being undertaken, it must be at least at 330 days of age and the progeny must have been shorn at weaning
- traits that are assessed or measured at older ages are generally demanded by MSE entrants, so an adult component is recommended
- early results should be provided to entrants as soon as possible after the trial has commenced, so a post weaning or yearling component is also recommended

AMSEA can assist site committees in deciding the details of their trial design.

Changes to Trial Designs

If, as the trial progresses, it is necessary to **review and/or significantly vary** this trial design there must be **agreement by the site committee** prior to changes being made. This is to ensure any changes will meet the AMSEA requirements.

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Checklist for Trial Designs

At the beginning of section 2 there is a corresponding **checklist for each trial design**. All traits to be recorded are included in these checklists. Identify which matches your site's trial design and use it throughout the trial to confirm that you're recording all required traits.

Additional Activity & Reporting Information

Further descriptions of the required traits can be found in section 2 of this publication, while section 3 provides additional details about site reports and sites updates.

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Trial Site Selection Guidelines

Choosing a Ewe base

MSE sites require a **classed, even line of ewes that represents the typical 'type' run in the area** of which the site is located in. An even line of ewes will better enable genetic variation to be measured, as well as decrease the number of management groups required in the analysis. A ewe line representation of the region is also important for local ram breeder and wool grower engagement.

An **equal allocation of ewes must be joined to each sire in a trial**. The ewes must be randomly allocated. If known, the ewes must be stratified into sire groups in the following order; ewe source, pedigree, dam age, condition score, body weight, lambing opportunities and ASBV.

Recently sites have used **pedigreed and/or performance tested ewes** sourced from previous MSE trials, other research flocks (eg Information Nucleus Flock) or MERINOSELECT flocks. These ewes offer significant benefit to the analysis of results. However, it is imperative that they still meet the overall requirements and that the site committee has endorsed their use.

From an analysis view point it is highly preferable to have a ewe base sourced from a **single bloodline with or without pedigree**. The **next preference is a ewe base taken from two or more bloodlines with pedigree**, and the **least preferred ewe base is two or more bloodlines with no known pedigree**. If a single bloodline is not possible then the flock needs to have the opportunity for considerable selection to allow for an even line to be created.

The **base ewes will need to be visually identified and, if dam pedigree is to be recorded, electronically identified as well**.

Choosing a Site Host

The property on which the trial is run is the site host. It is critically important that an appropriate site host is chosen. The following should be considered in the selection process:

Site owner

The owner of the site host, whilst likely to be on the site committee, needs to individually possess the skills and attributes to host a site and be genuinely keen. In particular, the site owner or members of the Site Committee, should have **experience in the operation of MSE trials, or at the very least, on-farm progeny testing**. The site owner also needs to have the **skills to be able to employ** good employees and industry operators.

Flexibility in hosting the trial will also be necessary. From the ability to add on projects as the trial develops, to welcoming new genetics that may not normally be introduced into the operation.

Business stability

A prospective site host should have **sound business stability**. This will assist in ensuring the long-term success of the trial. Consideration should be given to business stability historically and possible impacts of farm succession planning. If the site is government/corporately owned consideration should also include possible farm and executive staff changes.

Facilities

It is important that a site host has **good facilities** including **sheep yards and a shearing shed** for efficient stock handling and data collection. Remember to also consider **facilities for field days**. Site layout, including paddock design and topography, is another important factor for sheep management, particularly during lambing, in all seasons and weather conditions.

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Sheep management skills

The capability and capacity of the site manager is a major selection criterion. They must be **well skilled, experienced in, and have a willingness to implement industry best practices.**

The site manager's skillset would need to include a sound understanding of feeding requirements and the ability to resource and undertake any supplementary feeding activities.

Contingency plans are needed for when the site manager or other project staff might be unavailable. Consideration should also be given as to whether suitable replacements might be found should staff leave their positions.

Biosecurity risks

The risk to the trial through **biosecurity hazards needs to be minimal** at each site. Site hosts need to have a proven track record of managing their operation to avoid the risk of the sheep being effected by hazards such as fire, floods, lice, footrot or OJD. Sites should align their management of biosecurity risks to local, state and federal guidelines.

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Sire Entries

Any Merino sire can be entered in a MSE trial, this includes Dohne, SAMM or Afrino. Sires from both registered and unregistered flocks can also be entered. It is at the site host and site committee's discretion which sires are suitable for the trial and which will be included.

There is **no minimum or maximum** number of sires required for each MSE trial (except the link sire requirements – see below).

Once entered, sires cannot be withdrawn from publication in Site Reports (see section 3). They can however, be withdrawn from publication in Merino Superior Sires at the entrant's discretion.

All sires are to be genotyped using a low density genotype test that is compatible with national sheep genomic database, through the provision of an extra straw / pellet of semen at the time of AI. The cost of genotyping is to borne by the Site Committee with AMSEA providing assistance in facilitating this testing.

Link Sires

Link sires are used across multiple sites and/or years. This allows the results from different sites and/or years to be compared. **Link sires must have previously been entered at another site and/or year, and have 25 or more progeny** reported at their first shearing.

Two types of link sires are required:

Between Site Link Sire;

At least one link sire must provide linkage between the current trial and a previous trial at **another site**.

Between Year Link Sire

At least one sire must provide a link across the site's own trials by being joined in the **site's previous trial years**. This is not necessary if the site is a new site.

Sites require **two or more link sires when joining up to 14 sires, three link sires where 14-21 sires are joined** and at least **four link sires if over 21 sires** are to be joined.

One link sire may meet both linkage requirements, however the minimum number of link sires is still required to be entered.

All link sires must be approved by AMSEA prior to joining.

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Sheep Management Guidelines

A high standard of sheep management is critical to ensure a successful MSE trial. This provides confidence in the results. But most importantly, a high standard of care supports our industry's commitment to ensuring animal welfare.

The sheep that form the basis of the trial should be given every opportunity to demonstrate genetic potential and provide variation in the analysis. Therefore both over feeding (including very low stocking rates) and under feeding (including very high stocking rates) need to be avoided.

The trial design will assist in outlining the sheep management activities. This will assist in maintaining a high standard of sheep management. AMSEA advises the use of the relevant *Lifetime Wool Regional Guidelines* (www.lifetimewool.com.au/guidelines) along with the *Making More From Sheep* resources (www.makingmorefromsheep.com.au) to assist in managing the trial sheep.

Maintaining Condition Scores

Ewes

It is **recommended** that the base ewes utilised in the trial be managed, as a **minimum mob average**, to meet the following condition score targets:

Stage:	Condition Score:
Joining (AI)	3.2 (remember, there is a significant lead time to reach this target)
Scanning	2.8
Pre lambing	3.2 (3.3 or higher for twin bearers)
Weaning	2.8

Condition scoring should be undertaken by experienced, consistent personnel to eliminate variation. Further information can be found here: www.lifetimewool.com.au

Progeny

It is recommended that the trial progeny be maintained at a minimum mob average condition score of 2. Whilst this condition score seems low, it is a **minimum mob average across all seasonal conditions**.

Animal Health Program

There are no specific requirements regarding the management of diseases or parasites. However, it is assumed that site hosts will **maintain an animal health program equivalent to best industry practice**. The animal health program will be suitable for the location including vaccinating, drenching, dipping and/or foot bathing as necessary. Sites are encouraged to formalise this annual program at the committee level. **Records of this program are to be reported in the site report** (more details about site reports is in section 3).

It should be noted that **the measurement of Worm Egg Count (WEC) is a requirement of MSE trials** so consideration of this is advised when planning the animal health program. The WEC protocol can be found in Section 2.

Supplementary Feeding

The use of supplementary feeding to maintain appropriate condition scores may be necessary. It is the site committee and site owner's responsibility to identify this and decide on an appropriate feeding program. Sites

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are again referred to www.lifetimewool.com.au for more information. It is important to **report the details of any supplementary feeding within the Site Report.**

It is also acknowledged that **even with supplementary feeding** there will be times when it is difficult to maintain trial sheep at the target condition scores. In these instances, a resolution will be developed between the site committee and AMSEA on a case-by-case basis. For instance, in some situations relocation of trial sheep may be the agreed option rather than sale or dispersal of stock.

In contrast to drought conditions it should be noted in exceptionally good seasons that the aim is to conduct the trial relative to good commercial conditions. Stock should only be managed above good commercial condition when extremely good pastures and seasonal conditions exist for extended periods, in the order of 1 in 10 years.

Field Days/Public Displays

An annual field day is a requirement for MSE trial sites. This day enables the sire evaluation work to be recognised, with progeny showcased in their sire groups, and making the trial results visible to industry. A field day provides a unique, hands-on opportunity for entrants and industry to evaluate progeny groups. Entrants are keen to see their sire's progeny and advance notification is advised for optimal attendance. AMSEA encourages sites to host Field Days and can provide organising assistance including the development of results booklets and pen cards.



Consideration in hosting a field day is the additional stress placed on the progeny. It should be noted that progeny must not be yarded for non-essential activities (ie. field days) unless they are strong and healthy, and in 2+ condition score. Any stress must not compromise the level of animal care or affect their assessment results. Progeny must not be yarded for more than 24 hours and have adequate feed, water and shade.

Preferably an average score of 3, with a stable or improving plain of condition is preferable **for sheep to be publicly displayed.** If progeny are on average less than 3 score the group **must** be experiencing a rising plain of nutrition to ensure they won't be unduly affected by the activity.

Any progeny that are sick, injured or below 1 condition score must NOT be displayed. They must be held and cared for away from public access to ensure no additional stress is placed on them.

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Additional Progeny Requirements

Progeny Mob Management

All progeny should be managed in one mob for the period of the trial from 14 days after the lambing period has ended (when sire groups or lambing groups are boxed together). This is to ensure progeny are all given equivalent conditions and to negate any environmental difference that may affect progeny performance.

The only exceptions to this are:

- Progeny of single and multiple birth types can be run in birth type groups between lambing and weaning. This should be limited to one group per birth type
- Progeny can be split into males and females at any time during the trial. They may be managed differently, as long as all requirements are met for each sex

Removal of Progeny from Trial

Progeny can only be removed from the trial for animal welfare and injury concerns or fibre pigmentation issues. Otherwise all progeny are to remain in the MSE trial and be assessed for all traits.

Welfare and Injury

Progeny that have been assessed by two or more of the site committee and considered to have **permanent welfare and/or injury issues** which will affect their trial results can be removed from the trial. Traits not affected by the welfare/injury issue should be assessed prior to the progeny being removed. Trait results deemed affected should also be removed from the data. Results not affected must be included.

Examples of permanent issues are: cripples, obvious injury to udder/feet/legs, extreme conformation problems, illness and severe fly strike.

Pigmentation

The **site committee can choose to remove progeny** from the trial if they are visually assessed as having **wool pigmentation scores of 5** for fibre pigmentation, recessive black and/or random spot.

If a sire has progeny classed as recessive black, or 10% or more progeny with fibre pigmentation or random spot (VSS scores of 5) across all AMSEA sites, then that sire cannot be reported in MSS or used as a link sire.

Remember to record the individual animal's details prior to removal.

Assessing Only One Sex

The site can decide to assess only the male or female progeny. **A minimum of 20 progeny of the chosen sex per sire group is required at weaning prior to making this decision.**

If the minimum 20 progeny per sire group of the one sex are not available, then all progeny of both sexes must remain in the trial.

To achieve this **more than the usual 50 ewes per sire** may need to be joined.

Assessing only one sex is usually carried out when the wether portion are being slaughtered for carcase measurements. Ideally, this would be carried out after the first shearing so a complete set of records can be obtained on the wethers at an early stage, with the ewes carried on for a second stage of assessment and measurement. Advice from AMSEA should be sought if in doubt.

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Joining Ewe Progeny

Ewe progeny are able to be joined within the trial period as long as they are joined as one mob and not divided into joining groups. **Ewe progeny are not to lamb within a 2 month period of the trial period concluding** due to the significant impact that late pregnancy and lambing would have on their relative performance. There is opportunity to implement alternative trial designs to accommodate lambing within the trial period, to explore these opportunities contact AMSEA.

SECTION 2: Trial Checklists & Activities

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Checklist for Yearling Trial Design

Activity		Completed	Records Collected	When	Wool Growth
Sire Selection	Sire Entry form completed				
	DNA sample or additional semen samples collected (if applicable)				
AI Preparation	Ewe Selection/stratification				
	AI pre-treatments				
AI			Sire joined to		
Pregnancy	Preg Scan		Pregnancy Status, Number of Foetuses		
Lambing	Separated into lambing groups		Group	Within 14 days from start of lambing	
	Lamb tagging		Sex, BT, Paddock, INJURY, DNA ID (if applicable) SIRE (if known), FPIG, SPIG, BLK, SPOT, BWR, BCOV	Within 14 days from end of lambing	
	Lambing groups boxed into management group(s)		Group	Within 14 days from end of lambing	
Lamb Marking			Collect any trait not recorded at tagging		
Weaning	Weaning		WT, INJURY DNA Resamples (if necessary) RT (Optional)	42-120 days	
	Even up shearing			At weaning	
Crutching	Post Weaning		CCOV, URINE &/or DAG	210-300 days	
Worm Egg Count	Post Weaning, or		WEC	210-300 days	
	Yearling		WEC	300-400 days	
Carcase Scanning	Post Weaning, or		WT, EMD, FAT	210-300 days	
	Yearling			300-400 days	

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Checklist for Hogget Trial Design

Activity		Completed	Records Collected	When	Wool Growth
Sire Selection	Sire Entry form completed				
	DNA sample or additional semen samples collected (if applicable)				
AI Preparation	Ewe Selection/stratification				
	AI pre-treatments				
AI			Sire joined to		
Pregnancy	Preg Scan		Pregnancy Status, Number of Foetuses		
Lambing	Separated into lambing groups		Group	Within 14 days from start of lambing	
	Lamb tagging		Sex, BT, Paddock, INJURY DNA ID (if applicable) SIRE (if known) FPIG, SPIG, BLK, SPOT, BWR, BCOV	Within 14 days from end of lambing	
	Lambing groups boxed into management group(s)		Group	Within 14 days from end of lambing	
Lamb Marking			Collect any trait not recorded at tagging		
Weaning	Weaning		WT, INJURY DNA Resamples (if necessary) RT (Optional)	42-120 days	
	Even up shearing			At weaning	
Crutching	Post Weaning		CCOV, URINE &/or DAG	210-300 days	
	Hogget			300-400 days	
Carcase Scanning	Post Weaning, or		EMD, FAT, WT	210-300 days	
	Yearling, or			300-400 days	

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Checklist for Post Weaning & Adult Trial Design

Activity		Completed	Records Collected	When	Wool Growth
Sire Selection	Sire Entry form completed				
	DNA sample or additional semen samples collected (if applicable)				
AI Preparation	Ewe Selection/stratification				
	AI pre-treatments				
AI			Sire joined to		
Pregnancy	Preg Scan		Pregnancy Status, Number of Foetuses		
Lambing	Separated into lambing groups		Group	Within 14 days from start of lambing	
	Lamb tagging		Sex, BT, Paddock, INJURY, DNA ID (if applicable), SIRE (if known), FPIG, SPIG, BLK, SPOT, BWR, BCOV	Within 14 days from end of lambing	
	Lambing groups boxed into management group(s)		Group	Within 14 days from end of lambing	
Lamb Marking			Collect any trait not recorded at tagging		
Weaning	Weaning		WT, INJURY, DNA Resamples (if necessary) RT (Optional)	42-120 days	
Crutching	Post Weaning		CCOV, URINE &/or DAG	210-300 days	
	Hogget			400-540 days	
Carcase Scanning	Post Weaning, or		EMD, FAT, WT	210-300 days	
	Yearling, or			300-400 days	
	Hogget			400-540 days	
Worm Egg Count	Post Weaning, or		WEC	210-300 days	
	Yearling, or			300-400 days	
	Hogget			400-540 days	

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Checklist for Yearling & Adult Trial Design

Activity		Completed	Records Collected	When	Wool Growth
Sire Selection	Sire Entry form completed				
	DNA sample or additional semen samples collected (if applicable)				
AI Preparation	Ewe Selection/stratification				
	AI pre-treatments				
AI			Sire joined to		
Pregnancy	Preg Scan		Pregnancy Status, Number of Foetuses		
Lambing	Separated into lambing groups		Group	Within 14 days from start of lambing	
	Lamb tagging		Sex, BT, Paddock, INJURY DNA ID (if applicable) SIRE (if known) FPIG, SPIG, BLK, SPOT, BWR, BCOV	Within 14 days from end of lambing	
	Lambing groups boxed into management group(s)		Group	Within 14 days from end of lambing	
Lamb Marking			Collect any trait not recorded at tagging		
Weaning	Weaning		WT, INJURY DNA Resamples (if necessary) RT (Optional)	42-120 days	
	Even up shearing			At weaning	
Crutching	Post Weaning		CCOV, URINE &/or DAG	210-300 days	
	Hogget			400-540 days	
Carcase Scanning	Post Weaning, or		EMD, FAT, WT	210-300 days	
	Yearling, or			300-400 days	
	Hogget			400-540 days	
Worm Egg Count	Post Weaning, or		WEC	210-300 days	
	Yearling, or			300-400 days	
	Hogget			400-540 days	

MERINO SIRE EVALUATION

Site Requirements

Sire Selection

Here are the steps to work through when selecting sires:

1. Identify type of suitable sires for host property with host and site committee. Also confirm semen quantity required (suggestion is to get 2 extra doses per sire for genotyping surety)
2. **Call for sire nominations**/entries from ram breeders using the AMSEA Sire Entry Form
3. Shortlist the sires, deciding on a final number
4. **Select at least 1 across-site link sire and 1 across-year link sire**, in consultation with AMSEA
5. **Finalise sire entries** ensuring all Sire Entry Forms are completed and signed. It is suggested that entries not be finalised until semen is received
6. Once sire list is confirmed, send sire entry forms through to AMSEA and collect a blood sample card or tissue sample unit for genotyping if DNA pedigree or low density genotyping is required. Alternatively, collection of extra semen may be requested from sire owners to use as a DNA sample for DNA pedigree testing. Even if DNA pedigree or low density genotyping is not planned it is recommended to request extra semen in case it is required to confirm an unknown or disputed pedigree

When:

Sire selection can commence as soon as the site committee has decided on the trial design. Sire selection should be finalised at least 2 months before the AI process to allow time for AI preparations.

Process:

The site committee will call for sire nominations with a closing date well in advance of the proposed AI session. A **Sire Entry Form** must be completed by the owner as well as the breeder (if different) for each sire nominated. This form is available in the last section of this workbook.

Once sire nominations have been received the site committee will **decide on the number of sires** the trial will join and **decide which sires will be included** (remembering to use link sires). This is done in conjunction with AMSEA.

A completed and signed entry form along with a blood sample card, tissue sampling unit or additional semen must be obtained for all entered sires before undertaking the AI process.

After AI, forward the sire entry forms to AMSEA and submit material for DNA testing, if required for pedigree purposes.

MERINO SIRE EVALUATION

Site Requirements

AI Preparation

There are a number of components to coordinate in preparation for AI:

1. **Confirm semen** is at AI centre and available for all entered sires and link sires
2. Consider undertaking a split AI program to mitigate risk of poor conception or difficult lambing conditions
3. **Consider ewe condition** score and manage this well in advance of programming
4. **Confirm ewe availability** and numbers/sire (minimum 50/sire). It is essential to ensure more ewes are available than necessary to be programmed in the lead-up to AI allowing for rejects
5. **Book in AI** program early and confirm any additional management techniques with the site service provider, such as keeping ewes off hay/grain for 48 hours prior to the AI process
6. **Organise the program of dates/times for CIDR/Sponge insertion and removal**, to line up with the AI session(s) in conjunction with your AI service provider and labour availability
7. **Ensure ewes are isolated from all rams for at least 2 months prior to commencing the AI program**

When:

Commence preparation for the AI process 2-3 months beforehand. This will allow time to ensure a service provider is available, that semen is organised and ewes are managed appropriately; initially for optimal condition leading into AI and then to control the timing of their oestrus cycle for optimal insemination.

Records to Collect:

There are no requirements for assessments leading up to the AI procedure. Sites may record the ewe pedigree if it is known and/or record a condition score of ewes for their own stock management purposes.

Process:

Two Site committee members are required to inspect the ewe base to ensure quality, plus evenness of type and soundness. **Condition scoring** is another aspect that must be considered in the lead-up to the AI process, see recommendations in section 1 regarding the joining condition score. Additional management may be required in the (approximately 2) months leading up to the AI process to ensure that ewe conditions are optimal; this may include separately managing the tail end of the ewe mob to even them up.

50 or more ewes must be joined to each sire. Some sites will join 60 ewes to ensure the minimum number of required progeny is met for each sire. It is suggested that at least an extra 5% of ewes are programmed to ensure minimum progeny numbers are met.

Ewes will be stratified for AI to sires by the following attributes (if known): age, ewe source, condition score, body weight, lambing opportunities and ASBV. Ewes should be split across the AI session(s), for example 25 of each sire completed in the morning, or day 1 of the program, and the remainder in the afternoon, or on day 2. AMSEA can assist with this stratification process.

A split AI program may be undertaken by Sites to minimise the risks of an unsuccessful AI procedure and/or adverse conditions such as extreme weather conditions following the AI procedure or during the lambing period. Sires should also be spread across the split.

MERINO SIRE EVALUATION

Site Requirements

AI

The MSE trial steps for the AI process are:

1. **Allocate ewes to sires** for joining (via AI) by the following attributes (if known): age, ewe source, condition score, body weight, lambing opportunities and ASBV
2. **Administer progestogens** (CIDR usage is a requirement), after consultation with the Site AI service provider but generally timed to be 12-14 days before the AI date. Include additional ewes than necessary to cover failed CIDRs and ewe rejection at AI
3. **Check in with AI service provider about any additional management approaches** such as ensuring ewes are kept off hay and grain for 48 hours prior to the AI procedure
4. After cessation of progestogen treatment (the removal of CIDR/sponge) the timing of the AI process is critical. **Follow your service providers instructions closely**. As a guide for your planning, **the AI procedure occurs** optimally 48 hours after removal of the CIDR/Sponge and preferably within 60 hours
5. **Record AI dates** for individual ewes
6. Ensure **low-stress management of ewes** is maintained for **at least a 10-14 day period**, ideally more, following the AI procedure and the ewes are run as one management group at least until pregnancy scanning
7. If **Backup rams** are to be used, they are to be introduced a minimum of 14 days after the last day of AI for each AI group.

When:

The **timing of the AI joining process will be in accordance with the trial design** (as set by the site committee). There are a number of factors to consider, and align, for the AI process including ewe condition score, AI service provider availability, and site staff/labour availability.

Records to Collect:

Record individual **ewe AI date and the sire** she was joined to. Sites may choose to record other assessments such as a condition score.

Process:

Planning the AI process is important. Consult your AI service provider about the details of this. The following points are a general guide only, to assist in the site's planning process:

- Ewes need to have been isolated from sight or smell or any rams for at least 2 months prior to commencing the AI program
- The AI program starts with CIDRs generally being administered for 12-14 days prior to the AI procedure. Upon removal of the CIDR ewes will come into oestrus after 24-36 hours, peaking at 48 hours and all ewes should be in oestrus within 60 hours. Additional ewes should be administered CIDRs than necessary for the AI process, this is to cover failed CIDR treatments
- AI is then completed via laparoscopy; with semen deposited directly into the ewe's uterus through the abdominal cavity. Your AI service provider should provide further, site-specific information regarding equipment and method
- Avoid unnecessary disturbance and stress to ewes for at least a 10-14 day period, ideally 5 weeks, after the AI procedure. This provides optimum conditions for embryo survival after conception.

Allocating ewes to sires involves allocating a single mob of similar ewes evenly to the entered sires. This is done by stratifying by age, ewe source, condition score, body weight, lambing opportunities and ASBV. Ewes allocated to sires should be spread across the AI process to mitigate the risk of the AI procedure/timing. Split ewes between AI sessions, whether that be morning and afternoon or two sessions a fortnight apart.

MERINO SIRE EVALUATION

Site Requirements

Pregnancy Scanning

The following steps outline pregnancy scanning and the management steps after scanning:

1. **Book pregnancy scanning as recommended by your Service Provider**, generally 50-60 days after the AI procedure
2. **Scan for singles/twins/triplets/dries**
3. Rescan dry ewes at a later date to cover backup pregnancies
4. Start planning for lambing
5. **Maintain ewe condition scores** (see section 1 and section 5 for further information)

When:

During the pregnancy period, ewes are to be scanned for their pregnancy status and number of foetuses. Following scanning there will be management decisions required for lambing mobs and to maintain the required minimum mob average condition score for the ewes (3.2 for lambing). Ewes scanned as carrying triplets may be removed from the trial (see notes in Management groups below).

Records to Collect:

Trait Name	Code
Date	
Electronic Identification	EID
Visual Identification	VID
Pregnancy Status	PREGNANT/EMPTY
Number of Foetuses	1/2/3

Process:

Pregnancy Scanning

Pregnancy scanning of ewes enables better management and maintenance of condition scores.

Consult your scanning service provider for specific instructions to increase scanning accuracy. Ewes are normally taken off feed and water the night before, with no hay or grain given in the 48 hours prior to scanning.

A guide for site planning is that scanning is generally carried out 50-60 days from the AI procedure to ensure foetus is healthy. Scanning at this time should allow the scanner to accurately distinguish between AI lambs and backup lambs as the backup lambs will only just be starting to show. A **second scanning** will be necessary **to determine ewes that are pregnant to the backup rams**. Further information is included in Section 4.

Management Groups

Following pregnancy scanning ewes carrying single and multiple lambs can be managed separately. **Where possible, triplet carrying ewes should be run separately to the twin carrying ewes. If triplet bearing ewes are run separately from the twins, the number of triplets per sire will determine the option of whether these animals stay in the trial.** Consult AMSEA for more information about this. **Ewes scanned as “dry” must be lambled as a separate group** so that any lambs born (contrary to their scan) can be mothered up and their sire recorded.

Management can then be according to the principles of the Lifetime Ewe Management Program (www.lifetimewool.com.au) to ensure ewe condition is maintained.

Planning for Lambing

Start planning for lambing. Consider optimal lambing conditions but also **remember to consider the method the site is using to determine essential pedigree** and whether lambing rounds, lambing in sire groups, DNA or Pedigree MatchMaker will need to be used. Further information on lambing mob options can be found in the *Lambing* section.

MERINO SIRE EVALUATION

Site Requirements

Lambing

Lambing should be undertaken with the usual **consideration of paddocks; ensuring adequate shelter, predation management and mob size management** is considered. Guidelines for optimal lambing conditions can be found at: www.makingmorefromsheep.com.au/wean-more-lambs

It is optimal for ewes in MSE trials to all have access to **similar feed and conditions**.

Site committees may split ewes to lamb in smaller management groups or lamb down as a boxed mob.

Ewes may be split into the following smaller management groups:

- **Into sire mobs** for the lambing period as a method of determining pedigree. This is a common method for sites
- **By their pregnancy scanning results;** single or multiple foetuses. This will require using DNA testing or Pedigree MatchMaker to determine progeny pedigree
- The other option is to **split ewes by their pregnancy scanning results and then into sire groups**. This allows for progeny pedigree to be determined by the management group, without additional DNA testing or Pedigree MatchMaker, however it would require a significant number of lambing paddocks

When:

The lambing period is termed as the fourteen days prior to the estimated start of lambing and for up to fourteen days after lambing.

Records to Collect:

- Record **Start and finish of the lambing period**
- Record **individual ewes in management groups**, if the ewe mob has been split
- Records **identifying dams to lambs** and **birth type** are optional progeny records that may be collected if lambing rounds are undertaken

Process:

Mob size and management

Ewes can be split into sire and/or single/multiple groups up to 14 days before the lambing period starts but then must be boxed up again within 14 days of lambing finishing. The exception to this is that singles, twins and triplets can continue to be run separately, but ideally with only one mob for each birth type.

If ewes are split into sire groups and/or single/multiple carrying groups **sites must record which group/paddock they lambed in.**

Lambing Rounds

If lambing rounds are to be undertaken they should include, at minimum, **a daily inspection round of the ewes with any new lambs identified/tagged and linked to the ewe's identification.**

Minimal disturbance of ewes with new lambs, as well as older lambs and ewes, is imperative.

MERINO SIRE EVALUATION

Site Requirements

Lamb Tagging (within 14 days of lambing ending)

Tagging is generally the first activity undertaken on the progeny in an MSE trial. For those sites that are **lambing in sire groups, lambs must be tagged while still within those sire groups. For sites using alternative pedigree processes (eg DNA or Pedigree MatchMaker), lambs must be tagged in lambing groups** (eg birth type and/or lambing paddock).

The **mandatory records of progeny ID and sex will be recorded at Lamb Tagging, plus the sire** if it's known at this point from lambing in sire groups. **Dam ID** is an optional progeny record that may be gathered via DNA testing or Pedigree MatchMaker data after lamb tagging.

When:

Tagging must be done within 14 days from the end of the lambing period. Lamb marking may also be undertaken at tagging. At tagging, all progeny from individual **sire groups must then be boxed together** and run as one management group. The exception being that singles, twins and triplets can continue to be run separately, but with only one mob for each birth type.

The listed visual sheep scores can be assessed at lamb tagging. Alternatively, they can be assessed at lamb marking (prior to mulesing) between 6 and 10 weeks of age. They **must** be assessed **at either lamb tagging or marking**.

Records to Collect:

Trait Name	Code	Score
Date		
Electronic Identification	EID	
Visual Identification	VID	
Sex	SEX	
Birth Type (Optional)	BT	
Paddock Identification (Optional)	PADDOCK	
Injury, disease, other abnormalities	INJURY	
DNA Sample (If collected, can be blood cards or TSUs)	DNA ID	
Sire (If known)	SIRE	
Visual Traits to assess		
Fibre Pigmentation	FPIG	1,2,3,4,5
Non-fibre Pigmentation	SPIG	1,2,3,4,5
Recessive Black	BLK	1,5
Random Spot	SPOT	1,5
Breech Cover – Lambs	BCOV	1,2,3,4,5
Breech Wrinkle – Lambs	BWR	1,2,3,4,5

MERINO SIRE EVALUATION

Site Requirements

Process:

Tagging

Each lamb must have an electronic tag (EID) as well as a matched visual tag (VID) inserted at tagging. It is preferable that all tags are the same colour and sequential in numbering. The EID and VID need to be recorded and matched for each lamb. Some sites choose to also include a sire number on the visual numbered tag. Some sites find it beneficial to use a coloured tag not otherwise used on the property.

Sex

Each lamb must have a sex recorded. Sex is to be recorded as M=Male or F=Female.

Birth Type

For sites that are recording birth type, **each lamb must have a birth type recorded.** Birth Type is recorded as 1=Single, 2=Twin, 3=Triplet.

Paddock Identification

For sites that are lambing in multiple non-sire group lambing paddocks (eg splitting single bearing ewes up to maximise lamb survival), **each lamb must have a paddock identification recorded as well as alternative sire pedigree processes undertaken** such as DNA or Pedigree MatchMaker.

Injury, Disease and other Abnormalities

Any **lambs displaying injury, disease or other abnormalities must be recorded.** Injury or disease includes any non-genetic effect due to injury, misadventure or infection. Examples of abnormalities could include conformation deformities, hermaphrodites, arthritis, poddies or lambs with only one testicle.

DNA Sampling

For **sites that are using DNA for pedigree verification, either fully or partly, a DNA sample must be collected at tagging.** DNA samples can be either collected as bloodcards or Tissue Sampling Units (TSU).

When using **bloodcards**, the EID of the lamb must be recorded on the bloodcard. This must be recorded by using a sticky barcode label attached to each bloodcard with the EID barcode printed on the label. Note: some resampling would generally be required when using blood cards and TSUs.

When using **TSUs**, the EID for each lamb must be matched to the TSU ID. This must be recorded by scanning the TSU barcode and capturing the TSU ID, together with the EID in a data file.

Note: MLP sites must use TSUs for all progeny

Visual Sheep Scores:

See Section 4, Visual Classing and Visual Sheep Scores for further information on scoring visual traits.

Other Optional Visual Traits

Many sites record other visual traits specific to their own interests. Examples of these include Birth Coat and Entropians. If assessed, the scoring system used to record these optional visual traits should be provided to AMSEA along with the data.

MERINO SIRE EVALUATION

Site Requirements

Weaning (Aged 42-120 days)

When:

Weaning must be done between 42-120 days based on average progeny age. A minimum progeny weight of 20kgs is suggested as a suitable weaning weight to achieve robust trial results and analysis.

Records to Collect:

Trait Name	Code
Date	
Electronic ID	EID
Weaning Body Weight	WWT
Injury, death, other abnormalities	INJURY
DNA Resampling	TSU ID
Rear Type (Optional)	RT

All progeny are to be boxed together after weaning into one management group except when running different sexes separately.

Process:

Injury, Disease and other Abnormalities

Any progeny displaying injury, disease or other abnormalities must be recorded. Injury or disease includes any non-genetic effect due to injury, misadventure or infection. Examples of abnormalities could include conformation deformities, poddies, broken limbs, flystrike or having been stuck in a fence or dam.

DNA Resampling

It may be necessary to **resample for DNA** analysis at weaning for sites that are using DNA for pedigree verification, **if the results indicate sample failures** occurred at lamb marking or tagging and have been returned. If they have not been returned by weaning the re-sampling should take place as soon as they are received.

Collection procedures are outlined in the previous *Lamb Tagging* activity.

Body Weight

A body weight (weaning weight) must be collected on each progeny at the time of weaning.

Weaning is the first body weight that is recorded on progeny. Weaning weight is important as it allows early environmental influences to be adjusted in the analysis of breeding values, such as dam milking ability

See the Body Weight activity (page 33) for further information on measuring body weight.

Rear Type

Rear type is recorded on full pedigree sites (when both Sire and Dam are identified) and is the number of lambs in the birth litter surviving at weaning.

Grouping Progeny for Management

At weaning **all progeny should be boxed together** if they have been running in separate management groups for singles, twins and triplets. The exception being, that from weaning males and females can be run separately as long as the requirements are met for both sexes.

MERINO SIRE EVALUATION

Site Requirements

Body Weight

When:

Body weight is to be recorded at each age stage in the trial for individual progeny; **Weaning (42-120 days), Post Weaning (210-300 days), Yearling (300-400 days), Hogget (400-540 days) and Adult (1.5-2.5 years) stage.**

Note that body weight is already included in the following activities: Weaning, Post-Shearing and Carcase Scanning. However, it must be recorded at all age stages so be sure to schedule this in. Always allow a 4 hour curfew off feed and water prior to weighing.

Records to Collect:

Trait Name	Code
Date	
Electronic ID	EID
Body Weight @ each stage:	WWT
	PWT
	YWT
	HWT
	AWT

Process:

Ensure progeny have received **consistent treatment or removal off feed and water** for at least 2 hours before being weighed. **All progeny should be weighed on the same day.**

Use **scales that are accurate to 0.1kg and calibrate** them regularly.

Weigh progeny in a random order.

MERINO SIRE EVALUATION

Site Requirements

Pre Crutching

When:

The pre crutching assessment is designed to record breech traits that have not been recorded at any other time. Pre shearing is another time that these traits can be recorded, or any other time that the sheep are being handled and there is suitable variation displayed for the trait being recorded.

Records to Collect:

Trait Name	Code	Available options
Date		
Electronic ID	EID	
Visual Traits to assess		
Crutch Cover *	CCOV	1,2,3,4,5
Dag**	DAG	1,2,3,4,5
Urine**	URINE	1,2,3,4,5

* Only visual scores on unmulesed animals for Crutch Cover need to be scored.

** Dag and Urine may also be scored at the pre shearing assessment if conditions are such that either is unable to be assessed at crutching. For instance, if Dag scores are high, Urine may not be visible.

Note that the **mulesing status is to be recorded**.

Process:

Dag and Urine should be scored when there is variation in the sheep. The aim should be for a least 50% of the sheep to be a score 2 or greater.

It is unlikely that Dag and Urine can be scored at the same time, as Dag will hide Urine and make it impossible to score.

Crutch Cover is best scored when the ewe is upside down. This can be achieved across the board at crutching or shearing. Some scorers prefer to score Crutch Cover in a sheep handler. In those cases, Crutch Cover may be scored outside of the crutching or shearing activity.

Visual Sheep Scores:

See **Section 4: Visual Classing and Visual Sheep Scores** for further information on scoring visual traits.

Consistent Crutching Area

Another note for crutching is important to ensure that the crutched area is kept consistent in size across the mob. This ensures that other records are also consistent and have a higher accuracy ie. Fleece weights.

MERINO SIRE EVALUATION

Site Requirements

Visual Classing (Pre Shearing)

When:

Assessment of the listed traits requires a minimum of 6 months wool growth. This classing is generally completed before shearing at the same time as midside sampling.

All progeny are to be assessed individually. Be careful to ensure that extreme scores are available/allocated to extreme individuals.

Records to Collect:

Assessment of the listed visual traits is to be undertaken in accordance with *Visual Sheep Scores* (available in section 4).

Trait Name	Code	Available options
Date		
Electronic ID	EID	
Visual Traits to assess		
Fleece Rot	FLROT	1,2,3,4,5
Wool Colour	COL	1,2,3,4,5
Wool Character	CHAR	1,2,3,4,5
Dust Penetration [^]	DUST	1,2,3,4,5
Staple Weathering [^]	WEATH	1,2,3,4,5
Staple Structure	SSTRC	1,2,3,4,5
Random Spot*	SPOT	1,2,3,4,5
Face Cover	FACE	1,2,3,4,5
Jaw	JAW	1,2,3,4,5
Legs/Feet	LEGS	1,2,3,4,5
Dag**	DAG	1,2,3,4,5
Urine**	URINE	1,2,3,4,5
Classer's Visual Grade	GRADE	TOP/FLOCK/CULL
Selection Grade*	SGRADE	TOP/FLOCK/CULL
Optional Traits to assess		
Sire progeny group evenness		

* Random spot records must be updated if they are observed at ANY time during the trial.

[^] Note that Staple Weathering and Dust Penetration can be confounding traits. Depending on the environment and season, only one trait may need scoring.

* Selection Grade will only be undertaken when a 2nd full assessment is completed for trials undertaking 2 classings.

** Dag and Urine may be scored at shearing, or between shearing and crutching, if conditions were such that either is unable to be assessed at crutching. For instance, if Dag scores are high, Urine may not be visible.

MERINO SIRE EVALUATION

Site Requirements

Process:

Visual Sheep Scores:

See *Section 4: Visual Classing and Visual Sheep Scores* for further information on scoring visual traits.

Classer's Visual Grade

At the main classing undertaken prior to each assessment shearing, **the classer shall assign a Classer's Visual Grade (GRADE) to each progeny** after completing the individual Visual Sheep Scores outlined above.

The Classer's Visual Grade describes the overall standard of the sheep for visual performance relative to the **sites breeding objective**.

Classer's Visual Grade is either: TOP, FLOCK or CULL. **Before starting the classer should take some time to evaluate the mob, considering which sheep need to be Tops, Flocks and Culls, to target the required proportion allocations.**

The classer should aim for:

- 25% in the TOPS
- 50% in the FLOCKS
- 25% in the CULLS

An additional tool for classers is to start the classing session by calculating the numbers to achieve these percentage breakdowns for each grade and use this just for the first few races to identify individual sheep for each grade (using pegs or similar) to determine the classing standard for each grade. Then, once that standard is determined, carry that grading standard through the remainder of the mob. In using this it is important that the first few races are representative samples of the whole mob.

Selection Grade

The Selection Grade is an additional classing assessment on each sheep by the classer after the Classer's Visual Grade is completed. It **should only be recorded on animals at their second full assessment**, prior to their second shearing.

In assessing the classing Selection Grade, the classer uses available measured information (generally the appropriate index and percentile range) to adjust the Classer's Visual Grade for each sheep (which is based only on a visual assessment of traits). AMSEA will provide the appropriate index. By doing so, **Selection Grade provides a summary of each sire's progeny's suitability for the breeding objective using all available sources of information.**

Classing Selection Grade is either TOP, FLOCK or CULL and the classer should aim for the same percentage as with Classer's Visual Grade. See additional tool notes in Classer's Visual Grade.

Classing Selection Grade is to be reported in a separate table to other traits.

Sire Progeny Group Evenness

Assessing a sire progeny group for evenness is the only time progeny are identified and assessed in their sire group.

This is an **optional assessment of each Sire's progeny group for evenness, but not performance or type.**

The **sire of the group is not to be disclosed** to the assessor until assessment of all sire progeny groups is completed.

Assessors should be provided with the percentage of singles and twins (scanned/born/reared if known) for each group before assessment is undertaken, or the progeny group should be split and presented to the assessor as single and twins groups.

MERINO SIRE EVALUATION

Site Requirements

Mid-side Sampling

A mid-side sample is collected for each individual progeny prior to, or at, **each** shearing and assessed for the traits listed below.

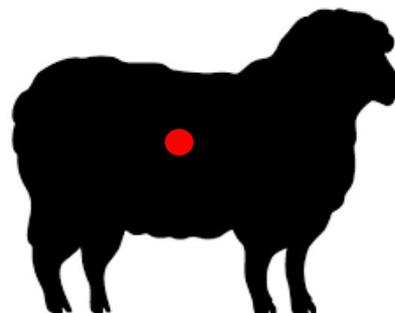
The exception to this is the measurement of **SS/SL** which need only be assessed once during the trial.

When:

Assessment of the listed traits requires a minimum of **6 months wool growth**, so this activity may be completed **either pre-shearing with the Visual Classing or at shearing time**. It is preferable to undertake the mid-side sampling within 1 month of shearing so that the sample taken reflects the whole fleece at shearing. If the mid-side is to be taken at shearing time it is not recommended to take the sample on the board as this can be very error prone. Note that there are additional traits to collect at those stages; see those sections for more information.

Records to Collect:

Trait Name	Code
Date	
Electronic ID	EID
Take a Midside Sample for analysis of:	
Yield	YLD
Fibre Diameter	FD
Fibre Diameter Coefficient of Variation	FDCV
Fibre Diameter Standard Deviation	FSDS
Curvature	CURV
Comfort	Comf
Staple Strength	SS*
Staple Length	SL*



* SS and SL only needs measuring once during a trial.

Process for collection of Mid-side Samples:

A mid-side sample is to be collected from all individual progeny and submitted for testing to an accredited wool testing service.

It is important to keep the sampling location consistent for all progeny. Mid-side samples should be taken in line with commercial practise; Samples should be centred over the third last rib halfway between the mid-line of the back and mid-line of the belly. As a guide, samples would generally fill a coffee cup and/or weigh 75-85 grams. It is an option to weigh the mid-side sample and recorded with the GFW for additional accuracy of this measurement.

Speak to your service provider for their specific instructions about collecting mid-side samples. Details of service providers can be found at: www.sheepgenetics.org.au/Service-providers/Fleece-Testing

MERINO SIRE EVALUATION

Site Requirements

Shearing

When:

At shearing a **greasy fleece weight for each individual progeny** is to be recorded.

Records to Collect:

Trait Name	Code
Date	
Electronic Identification	EID
Greasy Fleece Weight	GFW
Random Spot*	SPOT
Optional Traits to measure	
AWEX-ID: If doing fleece values	

Process:

Greasy Fleece Weight

The main requirement is to be consistent.

Emphasis should be placed on **shearing all sheep evenly**, to the skin.

Fleece weighing should include all wool including the belly, but minus the locks left on the board.

Scales should be accurate to 0.1kg and calibrated regularly through the day. Extra care is required, by a designated person, to record tag numbers against fleece weight and keep the records accurate!

AWEX-ID

If sites choose to collect fleece values, each fleece is to be assessed by an accredited AWEX-ID appraiser.

Random Spot* Random spot records must be updated if they are observed at ANY time during the trial.

MERINO SIRE EVALUATION

Site Requirements

Post-Shearing Visual Classing (Off shears or within a month of shearing)

When:

The **listed visual sheep scores are to be assessed off shears, or within a month of shearing**, to ensure these traits are easily observable. If more than 1 shearing is undertaken this classing should occur after each shearing.

Records to Collect:

Trait Name	Code	Available options
Date		
Electronic Identification	EID	
Body Weight	WT	
Visual Traits to assess		
Shoulder/Back	BACK	1,2,3,4,5
Body Wrinkle	BDWR	1,2,3,4,5
Breech Cover*	BCOV	1,2,3,4,5
Breech Wrinkle*	BRWR	1,2,3,4,5
Random Spot**	SPOT	1,2,3,4,5

*Only visual scores on unmulesed animals for Breech Cover and Breech Wrinkle need to be scored.

Process:

See **Section 4: Visual Classing and Visual Sheep Scores** for further information on scoring visual traits.

Random Spot

**Random spot records must be updated if they are observed at ANY time during the trial.

MERINO SIRE EVALUATION

Site Requirements

Carcase Scanning

MSE trial progeny are assessed for fat and eye muscle depth via carcass scanning. Carcass scanning by an accredited service provider only needs to be **undertaken once during the trial**.

When:

Carcass scanning can be completed at any of the following stages: **Post Weaning (210-300 days), Yearling (300-400 days) or Hogget (400-540 days)**. Choose the age stage that best fits the site's trial design, remembering there is a **30kg body weight requirement for each individual (or no measurement will be achieved)** and the recommendation is to have **an average 1.5mm fat cover, or more, across the progeny group**.

Records to Collect:

Trait Name	Code	Available options
Date		
Electronic Identification	EID	
Body weight	WT	
Fat	FAT	
Eye Muscle Depth	EMD	

Process:

1. Monitor progeny in the months leading up to the scanning date using a minimum condition score of 2 as a guide
2. Ensure that each individual will be **above the minimum 30kg body weight** (no measurement will be taken if the animal is <30kg) at the time of scanning **with the mob having an average of 1.5mm, but ideally 3, of fat cover**
3. **Book the ultrasound scanning** in with an accredited scanner. A list of accredited scanners is available here: <http://www.sheepgenetics.org.au/Service-providers/Carcass-Scanners>. **Coordinate the scanning preparation and arrangements with your service provider** to ensure optimal results
4. It is preferable to **complete all scanning within 8 hours**

MERINO SIRE EVALUATION

Site Requirements

Worm Egg Count

Assessment of progeny for their worm egg count (WEC) is a mandatory requirement of an MSE trial.

Organising WEC sampling is one of the most challenging components of data collection as it is difficult to forward plan. Sites are only required to **undertake sampling for WEC once in the trial.** Therefore, consideration of the best timing and process for WEC is important but flexible for each site to allow for different seasons and conditions.

When:

WEC can be **collected at the Weaning (42-120 days), Post Weaning (210-300 days), Yearling (300-400 days) or Hogget (400-540 days) stage.** Sheep Genetics note that Hogget WEC assessments provide the most significant results for selection processes (more information can be found in section 4). A worm challenge, **prompted by seasonal rainfall and conditions**, is required before assessment can occur.

Records to Collect:

Trait Name	Code	Available options
Date		
Electronic Identification	EID	
Worm Egg Count	WEC	

Process:

1. Consider when a worm challenge is likely to occur for the site. **Focus on regional and seasonal trigger points to timetable sampling;** for example 6-8 weeks after the autumn break (in winter rainfall areas) and/or 4-6 weeks after significant rain (>20mm) with follow-up rain of >10mm (in summer rainfall areas)
2. **Decide on a threshold for sampling the whole progeny group.** Sheep Genetics currently states the threshold as **all *Strongyle* eggs, 300-500 epg for non *Haemonchus* species and >500-1000 epg for *Haemonchus*** (with no more than 10% of readings at 0%). Remember WEC assessment involves **targeting variation across the progeny group.** Sites should aim to be sampling the progeny group when no more than 10% of progeny are still at 0 epg. Ensure WEC analysis is completed by an accredited laboratory, a list of these laboratory service providers is available from: www.sheepgenetics.org.au/Service-providers/WEC-Labs.
3. **Develop a WEC monitoring schedule;** this will probably involve monitoring a small group of progeny (eg. 10-15 individuals per management group) to identify when levels are increasing and variation is occurring. **Start with a bulk sample and then when approaching thresholds an option is to undertake individual samples on a selection of the group to ascertain variation levels**
4. Once the threshold is reached for the monitored group **undertake WEC assessment of all individual progeny.** The aim is to collect a sample from every individual, however a few unsampled sheep are preferable to adverse treatment of sheep. If it is proving difficult to obtain a sample from an individual animal leave it for an hour or two!
5. Undertake all sampling of individuals within the same day
6. If labs are able to provide faecal consistency scores they should be asked to do so

AMSEA can assist sites to develop a worm management plan for the assessment of WEC. Additional information can also be found in Section 4: Additional Information and Resources.

MERINO SIRE EVALUATION

Site Requirements

SECTION 3: Data Management and Reporting

MERINO SIRE EVALUATION

Site Requirements

Data Management

Gathering Assessment Data

MSE involves gathering large amounts of assessment data. An emphasis must be placed on maintaining the integrity of all data.

Measured trait data collection is to be undertaken by an accredited operator wherever an accreditation system exists (for example, carcass scanning), where no accreditation system exists then sites should **use an independent person** not directly associated with the entered sires and **data collection should be completed to industry best practise standards**.

Visually assessed traits must be classed by an independent sheep classer. All visual assessment requirements are outlined within their subsection of this document and in *Section 4; Visual Classing and Visual Sheep Scores*. The Visual Sheep Scores booklet is also included in this appendix as the main reference document when undertaking visual assessment.

Please note that there are several optional traits that may be collected through the trial. When you're bringing sheep in for assessment of the required traits, it's often not an extra burden to collect optional trait(s), however this is at the discretion of the site committee.

Data Submission

The trial will generate a significant amount of data. This data needs to be handled carefully as it is the intellectual property (IP) of the site committee and AMSEA. Remember, entrants have paid an entry fee to have quality data collected by the site.

Special care must be taken when collecting data on shared hardware. All data should be downloaded/removed before the hardware leaves the site.

Data should be supplied to AMSEA within two weeks of on-farm collection or receipt from the service provider (by entering it into the Stockbook program).

Using Stockbook

Stockbook is the software program used by sites and AMSEA to submit and manage all data. The site and/or data manager will be trained by AMSEA in the use of Stockbook, and support is provided as required.

AMSEA uses Stockbook as the interface between the data collected by the sites and Animal Genetics and Breeding Unit (AGBU).

MERINO SIRE EVALUATION

Site Requirements

Reporting

There are **3 types of reporting** throughout the trial process.

- **Site Updates:** an update on recent activities of the trial, for all activities other than the Pre-Shearing Visual Classing, Shearing and Post-Shearing Classings (when a site report is completed). An update could be given on any, or all, partial assessments.
- **Site Reports:** Undertaken after each Pre-Shearing Visual Classing, Shearing and Post-Shearing Classings assessment and including all assessments completed before that, so after each Full Assessment. This is a comprehensive publication of data, developed in conjunction with AMSEA, for delivery to the Merino industry at large.
- **Merino Superior Sires (MSS);** the annual publication of all sites, sires and their results.

Site Updates

This is an **informal update of where the site is up to in its trial process**. It may be released to sire entrants, those involved in the site and/or industry generally noting recent trial activities and recent results. Examples of an update format are: site newsletters or results summaries for key traits. Updates could occur whenever new results are available. There are no formal requirements for site updates however they are a great tool in keeping entrants and site committee engaged

Site Reports

Site Reports are developed after each main assessment which includes the Pre-Shearing, Shearing and Post-Shearing Assessments. The report will incorporate all assessment results completed previously in the trial. These were previously known as the 1st and/or the 2nd Assessment Reports.

AMSEA maintains a Site Report template which all Sire Reports are based on to ensure report consistency and accuracy across all sites. **Each site will provide content to AMSEA for their Site Reports which summarises the results to that point in the trial design.** Within site FBVs, sire means and visual trait summaries will be included.

Sites will provide AMSEA with the following content for each Site Report:

- Foreword by the site chair, or their representative
- Description of assessment(s) included in the report
- Site committee details
- Sire details table
- Site manager's report
- Assessment and management checklist
- Details of the site breeding objective and who undertook the visual trait assessments

These components are sent to AMSEA who will then collate the site's trial data for the report. This provides consistency across all MSE trials and enables the reports to be publicly reported by AMSEA through their extensive industry network.

If the site trial design includes multiple assessments (the main Visual Classing assessment) then the site will produce multiple site reports, one for each of these assessments.

Sires to be reported

All entered sires are to be reported in site reports, however traits reported are based on the accuracies in the Merino Superior Sires table presented below.

MERINO SIRE EVALUATION

Site Requirements

Compulsory Traits to be reported

There are measured and visually classed traits that are compulsory to report within the Site Report. These are outlined in each activity's protocol.

Previous Site Reports are available at www.merinosuperiorsires.com.au or for further assistance contact AMSEA.

Merino Superior Sires

The annual publication reporting all sires entered into MSE is undertaken by AMSEA. This involves the collation of sire results across all sites with individual sire results presented for ASBVs, Indexes and Classer's Visual Grades.

Sires to be reported

Sires must have minimum accuracy thresholds of:

CFW: 45%	WT: 45%	EBWR: 45%
GFW: 45%	EMD: 40%	If either EMD or FAT meet the _____ threshold both will be published.
FD: 60%	FAT: 40%	
SS: 45%	WEC: 35%	DP+, MP+, FP+ & WP+: 20%

Sires not to be reported

If a sire has **progeny classed as recessive black, or 10% or more progeny** with fibre pigmentation or random spot (VSS scores of 5) **across all AMSEA sites** then that sire cannot be reported in MSS or used as a link sire.

Sire entrants can withdraw sires from MSS reporting by altering their details in the Sire Database Audit which is completed annually, generally mid-year.

SECTION 4: Additional Information & Resources

MERINO SIRE EVALUATION

Site Requirements

Acknowledgements

Merino sire evaluation trials were originally undertaken under the auspices of Central Test Sire Evaluation and the original Requirements were developed and authored by Allan Casey, Sally Martin, Ben Swain and Anne Ramsay. There must be especial acknowledgement given to these authors along with the many other individuals and site committees who have contributed to sire evaluation and its processes over the years.

This history established a foundation enabling sire evaluation to continue providing the Australian Merino industry with robust, relevant results.

Support and Extra Resources

Remember, there are many people involved in the MSE trial program so you're not alone! A list of AMSEA sites and contacts is listed below. If you would like any support just get in touch with the AMSEA Executive staff or the AMSEA Executive Committee. We're a phone call away.

AMSEA Executive Officer

Ben Swain

0427 100 542

AMSEA Chairman

Jock McLaren

0429 775 891

MLP Project Manager

Anne Ramsey

0400 368 448

MERINO SIRE EVALUATION

Site Requirements

AMSEA Sites & Committee Contacts List

Site	Name	Role	Phone
Balmoral	Mark Bunge	Site Chair	0409 962 248
Balmoral	Tom Silcock	Site Manager/AMSEA Representative	0419 882 239
Balmoral	Liz Mecham	Site Secretary	0407 015 059
MerinoLink	Rich Keniry	Site Chair/AMSEA Deputy Chair	0427 878 541
MerinoLink	Sally Martin	Site Manager	0400 782 477
Macquarie	Matthew Coddington	Site Chair/AMSEA Representative	0428 635 386
Macquarie	Kathryn Egerton-Warburton	Site Manager	0429 943 708
Macquarie	Megan Rogers	Site Secretary	0427 459 891
New England	Duncan Lance	Site Chair	0447 297 135
New England	Jen Smith	Site Manager	0411 825 748
New England	Luke Stephen	AMSEA Representative	0409 193 852
North East Vic	Murray McKenzie	Site Chair	0428 481 961
North East Vic	Anna Toland	Site Coordinator	0438 981 605
North East Vic	Phil Toland	AMSEA Representative	0429 981 605
Muresk/Pingelly	Brett Jones	Site Chair	0428 323 012
Pingelly	Bronwyn Clarke	Site Manager	0418 957 293
South Australia	Roger Fiebig	Site Chair	0407 568 786
South Australia	Anna Cameron	Site Coordinator	0403 747 332
South Australia	Stephen Lee	AMSEA Representative	0421 570 630
Yardstick	Bill Sandilands	Site Chair/AMSEA Representative	0427 514 030
Yardstick	Bob Hall	Site Secretary	0428 361055

MERINO SIRE EVALUATION Site Requirements

AMSEA Sire Entry Form



MERINO SIRE EVALUATION

Site Requirements

Visual Classing & Visual Sheep Scores

1. Visual sheep scores are to be completed by an independent classer
2. Progeny should be assessed in random order
3. Progeny should not be visually identified to the classer in any way in a manner that obviously indicates which sire they are by, or that links them to other progeny of the same sire
4. Progeny can be classed in a classing race, classing box or lamb marking cradle if that suits the trial activity being undertaken ie. in a lamb cradle for lamb traits
5. Visual traits are to be scored in accordance with the Visual Sheep Scores booklet

The current Visual Sheep Scores publication can be requested in hard copy from AMSEA and is also available for download here:

<https://www.wool.com/on-farm-research-and-development/sheep-health-welfare-and-productivity/sheep-breeding/visual-sheep-scores/>

A new version of Visual Sheep Scores is currently in production and will be circulated to sites when available.

MERINO SIRE EVALUATION

Site Requirements

Condition Scoring

Sites are advised to use the Lifetime Wool method for condition scoring of sheep. The methodology and yard form are included here. There is also an App for that – the LTEM App is available for both Apple and Android phones.

How to Condition Score

The animal should be standing in a relaxed position. It should not be tense, crushed by other animals or held in a crush. If the animal is tense it is not possible to feel the short ribs and get an accurate condition score. Place your thumb on the backbone just behind the last long rib and your fingers against the stubby ends of the short ribs. Use the scoring system described below to assign a score. Many people use a system of half scores such as 2, 2.5, 3, 3.5 etc.

Randomly draft 25 sheep into a race or choose a random group from the middle of the mob. Many people choose a couple of animals from each race full when drenching or doing some other animal husbandry task. Be sure to record the scores so that you can calculate the average. A simple method of calculating the median of the mob is to use the [Condition Score](#) worksheet. This not only gives you a middle point but also shows the range of scores and whether there is a significant tail in the mob.

	<p>Backbone The bones form a sharp narrow ridge. Each vertebra can be easily felt as a bone under the skin. There is only a very small eye muscle. The sheep is quite thin (virtually unsaleable)</p>	<p>Short Ribs The ends of the short ribs are very obvious. It is easy to feel the squarish shape of the ends. Using fingers spread 1cm apart, it feels like the fingernail under the skin with practically no covering</p>
	<p>Backbone The bones form a narrow ridge but the points are rounded with muscle. It is easy to press between each bone. There is a reasonable eye muscle. Store condition- ideal for wethers and lean meat.</p>	<p>Short Ribs The ends of the short ribs are rounded but it is easy to press between them. Using fingers spread 0.5cms apart, the ends feel rounded like finger ends. They are covered with flesh but it is easy to press under and between them.</p>
	<p>Backbone The vertebrae are only slightly elevated above a full eye muscle. It is possible to feel each rounded bone but not to press between them. (Forward store condition ideal for most lamb markets now. No excess fat).</p>	<p>Short Ribs The ends of short ribs are well rounded and filled in with muscle. Using 4 fingers pressed tightly together, it is possible to feel the rounded ends but not between them. They are well covered and filled in with muscle.</p>
	<p>Backbone It is possible to feel most vertebrae with pressure. The back bone is a smooth slightly raised ridge above full eye muscles and the skin floats over it.</p>	<p>Short Ribs It is only possible to feel or sense one or two short ribs and only possible to press under them with difficulty. It feels like the side of the palm, where maybe one end can just be sensed.</p>
	<p>Backbone The spine may only be felt (if at all) by pressing down firmly between the fat covered eye muscles. A bustle of fat may appear over the tail (wasteful and uneconomic).</p>	<p>Short Ribs It is virtually impossible to feel under the ends as the triangle formed by the long ribs and hip bone is filled with meat and fat. The short rib ends cannot be felt</p>

Further information is available from: <http://www.lifetimewool.com.au/conditionscore.aspx>

Collecting WEC in Merino Sire Evaluation

The collection of Worm Egg Count (WEC) measurements is of paramount importance in Merino Sire Evaluation and for the broader Merino industry.

Why:

- The **Merino industry** is increasingly selecting for worm resistance.
- **WEC Breeding Values** rely on the collection of these WEC measurements.
- There is a **significant data gap** in the MERINOSELECT database due to the lack of WEC trait records being collected.
- WEC measurements are a **mandatory requirement of all AMSEA Sire Evaluation Trials**. Sire entrants have expectations that WEC will be measured.

When:

Seasonal triggers and particular events (for example rain and/or weaning) in the management cycle provide the timing and opportunities for WEC measurement.

WEC can be **collected at any of these stages:**

Weaning (42-120 days)

Early Post Weaning (120-210 days)

Post Weaning (210-300 days)

Yearling (300-400 days)

Hogget (400-540 days)

AMSEA Sites are only required to **undertake sampling for WEC once** during an AMSEA Sire Evaluation trial.

A NOTE FROM SHEEP GENETICS

Records at the **hogget stage are the most significant data** for selection purposes as the phenotype is affected more by acquired immunity as opposed to innate immunity, which is of more significance from a selection point of view. Though weaners are more susceptible to worms, the goal of selecting for WEC is to reduce the number of drenches that occur throughout the lifetime of the animal.

WEC is considered a **lowly to moderately heritable trait with heritability of the trait increasing with the age stage** thus further highlighting the importance of trait recording in AMSEA sites and broader industry where this trait is of importance in breeding objectives.

PLEASE MIND THE GAP

In 2015 there were over 112,500 animals submitted to MERINOSELECT and only 15,000 (13%) had WEC data recorded! This illustrates the current gap in the information for this trait in the analyses.

Sire Evaluation Sites are in the ideal position to assist in filling this gap in WEC data with robust data across a variety of locations.

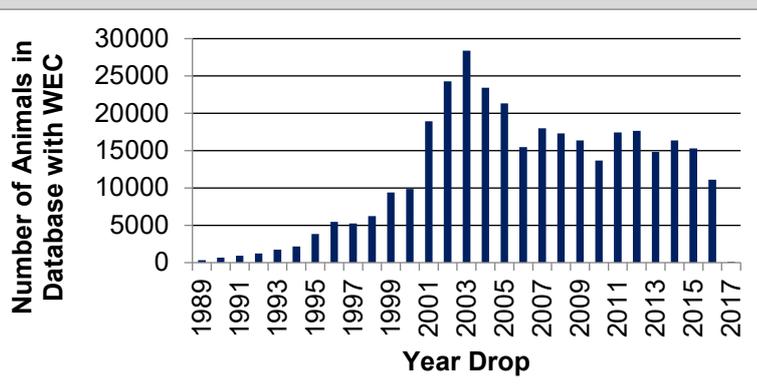


Figure 1. The number of animals that have submitted to MERINOSELECT with WEC records

MERINO SIRE EVALUATION

Site Requirements

How:

7. **Consider when a worm challenge is most likely to occur for the site and sheep.**
8. **Focus on regional and seasonal trigger points to timetable sampling.**
For example 6-8 weeks after the autumn break (in winter rainfall areas) and/or 4-6 weeks after significant rain (>20mm) with follow-up rain of >10mm (in summer rainfall areas).
9. **Decide on a threshold for sampling the whole progeny group.**
Sheep Genetics currently states the threshold as 300-500 epg for *Haemonchus* species and 1000 epg for non *Haemonchus* (with no more than 10% of readings at 0%). Remember WEC assessment involves **targeting variation across the progeny group**. Sites should aim to be sampling the progeny group when no more than 10% of progeny are still at 0 epg.
10. **Make it right for your site.**
Each site will approach the collection of WEC differently. Identify the the right approach for your site and your sheep and plan it out.

Extra Management Tools:

Here are some management techniques that may be an option for when WEC is difficult to collect:

Focus on Barbers Pole worm. This summer worm has lower production effects at lower counts and may enable a greater range in WEC to develop across the progeny group.

Use the lambing paddock. Return weaned lambs to this paddock within a month of the end of lambing, or immediately after weaning, as this is most likely the paddock with the highest level of larval infection and will provide the best chance of infection.

Pasture vrs crop. A pasture will give higher infection levels than the monoculture, stinky nature of a crop so put sheep onto pasture rather than crop to increase worm pressure.

Ditch the Drench. If infection proves extremely difficult consider not giving a weaning or even pre-lambing drench.

Concentrate the Count. Some Sire Evaluation sites have increased WEC levels in the progeny group by yarding the group overnight and then collecting samples.

Consider artificial infection. If all else fails, sheep can be artificially infected. Although this can be an expensive option.

Further information:

AMSEA

Sheep Genetics

WormBoss

Ben Swain

Peta Bradley

Deb Maxwell

ben.swain@bcsagribusiness.com.au

info@sheepgenetics.org.au

deb@paraboss.com.au

MERINO SIRE EVALUATION

Site Requirements

Pregnancy Scanning

The following article was published 'Farming Ahead', May 2018 and has been included for additional pregnancy scanning information. Michelle Cousins adds the following instructions specific to AI pregnancies and sire evaluation:

- Scanning is best done at 50 to 60 days post AI.
- If done earlier it can be hard to pick up if the foetus is healthy/going to take, though it's possible to see from 40 – 45 days if ewes are pregnant
- There can be a week difference in dates, with some ewes seeming to take longer
- Some backups are starting to show at 50-60 days, but there will still need to be a rescan for dries

Getting the best from scanning ewes

Scanning ewes to determine pregnancy status has become an important tool for many producers' flock management. To get the maximum benefit from scanning, it is essential to have your dates correct. By **Jill Griffiths**

Michelle Cousins, Cousins Merino Service, said having the right date for scanning was the most important thing producers could do to get the best results. She said the date of scanning differed with whether you were scanning for wet/dry or twins/singles.

"The optimal time for scanning for twins is 80-100 days after the rams go in with the ewes," Michelle said. "For wet/dries it is 40 days after the rams are taken out.

"If you are working on a five to six week joining, these days will coincide, but if the joining is longer, they won't.

"A five or six week joining, as recommended by Lifetime Ewe Management programme (LTEM), gives

nice clear-cut ram entry and exit dates. If joining is longer, you get a longer spread of foetal ages at scanning and it is more difficult to be accurate."

The discrepancy in optimal dates is due to it becoming harder to clearly see twins as pregnancy advances.

"As the lambs grow bigger, it is much harder to see what is going on," Michelle said. "You'll see a head or a leg as you scan across but it's not easy to tell what belongs to what, so it becomes hard to be accurate. Earlier in the pregnancy, the lambs are easier to differentiate from each other in utero.

"After 100 days shading caused by bones developing also makes it difficult to determine the number of foetuses present.

"Confirming pregnancy is easier and can be done over a wider range of dates, than scanning for twins or multiples. The most accurate results for wets and dries will be 40 days after the rams leave the ewes. That gives enough time for foetuses to develop to the point that they can be readily seen. If you scan earlier than that, some foetuses will be missed as they won't be visible at scanning."

GETTING IT RIGHT

When booking for scanning, it is important to clarify whether you are scanning for wet/dries or for multiples and to let the scanner know the joining dates. Sheep should be kept off feed and water the night before scanning to ensure the rumen is empty.



E-Copy

MERINO SIRE EVALUATION

Site Requirements



Pregnancy scanning improves ewe management in a wide range of environments, including pastoral regions. Photo: Michelle Cousins

Two people should be on hand to help move the sheep through the yards, and a decent set of yards with a race and the ability to draft the ewes according to scan results is useful. Fat ewes – with a condition score of 4 or above – can be difficult to scan.

The ultrasound machines used these days are generally custom made for work in sheep yards and are built to withstand dust and the rigours of working with sheep. Michelle said her business used BCF Ultrasound Ovi-Scan 6, which is widely used in the industry. It is specialised equipment and takes considerable skill to use accurately.

“Our staff only scan for wet/dries in the first two seasons of work,” Michelle said. “It takes more experience to be able to accurately scan for twins and multiples.”

“In a perfect scenario, scanning should give over 96-98% accuracy of pregnancy status,” Michelle said. “Just the odd one

slips through – we’re working with sheep and they don’t always cooperate.”

Michelle said some producers had made great gains by scanning ewes before sale and being able to sell them confirmed pregnant. Producers aiming to do this should obtain a certificate from the scanner confirming the flock’s pregnancy status. Where electronic ear tags are used, individual pregnancies can be noted. When buying scanned ewes, take note of the date of scanning as some lambs may be lost between scanning and purchase. The closer the scanning date is to the date of sale, the more accurate the results will be.

“Producers have been receiving up to and over \$20 per head premium for ewes confirmed pregnant,” Michelle said.

She said the preferential feeding and better management of twinning ewes had been a great tool in lifting weaning percentages, but it was important to note

that scanned pregnancies did not equal lambs marked. Michelle would like to see more producers calculating the difference.

“It’s an area where there are great productivity gains to be made,” she said. “Scanning gives you your potential lambing and if you compare that to your actual marking, you can see where the productivity gains could come from.” **FA**

More information

www.bcfultrasound.com/products/ovi-scan-6

www.sheepcrc.org.au/industry/sheep-management/pregnancy-scanning.php

Contact:

Michelle Cousins,
Cousins Merino Services (SA)
08 88922 108
cousinsms@bigpond.com
www.cousinsms.com.au



Optimal dates for scanning. (Source: Sheep CRC – www.sheepcrc.org.au/files/pages/fact-sheets/pw13-reproduction-series/Successful_pregnancy_scanning_2014_for_web.pdf)

MERINO SIRE EVALUATION

Site Requirements

Glossary of Abbreviations

STAGES

B	Birth; Birth to 24 hours
T	Tagging; 14 days after lambing till weaning
W	Weaning; 42-120 days (7-16 weeks)
E	Early post weaning; 120-210 days (4-7 months)
P	Post weaning; 210-300 days (7-10 months)
Y	Yearling; 300-400 days (10-13 months)
H	Hogget; 400-540 days (13-18 months)
A	Adult; 1.5-2.5 years
A3	Adult (3); 2.5-3.5 years
A4	Adult (4); 3.5-4.5 years
A5	Adult (5); 4.5-5.5 years
A6	Adult (6); over 5.5 years

FLEECE TRAITS

GFW	Greasy Fleece Weight (kg)
CFW	Clean Fleece Weight (kg)
FD	Fibre Diameter (um)
FDCV	Fibre Diameter Coefficient of Variation (%)
FDSD	Fibre Diameter Standard Deviation (um)
YIELD	Clean Yield (%)
SL	Staple Length (mm)
SS	Staple Strength (n/kt)
COMF	Comfort Factor (%)
CURV	Curvature (deg/mm)
CURVSD	Curvature Standard Deviation (deg/mm)

CEM	Course Edge Micron (um)
-----	-------------------------

BODY TRAITS

WT	Weight (kg)
EMD	Eye Muscle Depth (mm)
FAT	Fat Depth (mm)

OTHER TRAITS

WEC	Worm Egg Count (eggs per gram)
NLB	Number of Lambs Born
NLW	Number of Lambs Weaned
CONC	Conception; Number of ewes pregnant per 100 ewes joined
LS	Litter Size; Number of lambs born per 100 ewes lambing
ERA	Ewe Rearing Ability; Number of lambs weaned per 100 lambs born

VISUAL WOOL TRAITS

FLROT	Fleece Rot
COL	Wool Colour
CHAR	Wool Character
DUST	Dust Penetration
WEATH	Staple Weathering
SSTRC	Staple Structure

PIGMENTATION TRAITS

FPIG	Fibre Pigmentation
SPIG	Non-fibre Pigmentation
BLK	Recessive Black
SPOT	Random Spot

MERINO SIRE EVALUATION

Site Requirements

VISUAL CONFORMATION TRAITS

FACE	Face Cover
JAW	Jaw
LEGS	Legs / Feet
BACK	Shoulder/Back
BDWR	Body Wrinkle

VISUAL BREECH TRAITS

BCOV	Breech Cover
CCOV	Crutch Cover
BWR	Breech Wrinkle
DAG	Dag
URINE	Urine

VISUAL CLASSING TRAITS

GRADE	Classer's Visual Grade
SGRADE	Overall Selection Grade

DNA TRAITS

DNA PEDIGREE	SNP DNA test to determine pedigree
DNA 15K SNP	SNP DNA test based on 15,000 SNPs to improve accuracy of ASBVs and provide Research Breeding Values
DNA 50K SNP	SNP DNA test based on 50,000 SNPs to improve accuracy of ASBVs and provide Research Breeding Values
DNA 700K SNP	SNP DNA test based on 700,000 SNPs to improve accuracy of ASBVs and provide Research Breeding Values
GENE SEQUENCING	Whole of gene sequencing of individual sheep



MERINO SIRE EVALUATION

Site Requirements

Genetic Defect Protocols

Sheep Genetics has provided the protocols on the following pages as an optional sire evaluation assessment. For any further information please contact AMSEA or Peta Bradley at Sheep Genetics.



Building W41a, The Short Run,
UNE, Armidale, NSW 2351
Phone: 02 8055 1818
Fax: 02 8055 1850
Email: info@sheepgenetics.org.au
www.sheepgenetics.org.au

Dealing with Genetic Defects in AMSEA Sites

Currently there may be genetic defects that are not being identified within wider industry. AMSEA sites are in a unique position to help identify potential genetic defects that may occur within their sites that may lead to genetic tests being developed to help identify these potentially detrimental effects. If an animal within an AMSEA site is displaying symptoms of what may be considered a genetic defect; the following protocol can be used to help to determine if it is indeed a genetic defect and help develop a test for it if this is the case. To make use of information supplied it is important that both breeders and sites are actively seeking and reporting any suspected genetic defects in their flock.



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Genetic Defect Protocol for AMSEA Sites:

1. Is it likely to be a genetic defect?
 - a. What are the symptoms being displayed by the animal?
 - b. What what kind of defect it is? Does it appear to look like something that is known?
2. What is the phenotypic appearance of the affected animal?
 - a. Submit a photo or video of the animal
 - b. Did it occur at birth or is it a trait that occurred later in life?
3. Take 2 DNA samples from the animal – one to be analysed and one to be stored. Please note that samples are preferred to blood cards for the affected animals as not enough DNA can be extracted from the blood card.
4. If possible have a sample taken from the sire
5. Take a blood card from the dam
6. Identify apparently unaffected half-siblings and take 4-6 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

Checklist of things to send to Sheep Genetics:

- ✓ 2 DNA samples from the affected animals
- ✓ Blood card from the sire
- ✓ Blood card from the dam
- ✓ 4-6 blood cards from unaffected half-siblings
- ✓ Email: info@sheepgenetics.org.au with a: description of the defect, relevant photos and videos and to inform them that a package with the above will be arriving

All information will and must remain confidential.