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MLA acknowledges the Traditional Custodians of the lands on which we live, work and care for. We pay our respects to Elders past and present, as we recognise their history, culture, connection to land and water, and share in their commitment to caring for Country.

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Overview

In response to a growing demand for shedding sheep and producers looking to develop a shedding sheep flock, Meat & Livestock Australia via MLA Donor Company and support from Cashmore and Low Footprint Lamb have funded project P.PSH.1421 with research collaborator, Animal Genetics and Breeding Unit. The project, in conjunction with shedding sheep breeders, will improve understanding of the genetic architecture behind the trait of 'shedding' with the aim to develop breeding tools to aid the selection for, and infusion of, shedding characteristics into commercial flocks.

The project is coming to an end and is looking to expand beyond the project flocks.

Note – this is version one of a research scoring guide with the most recent research outcomes and will be updated with additional research outcomes if required.

As the project concludes, and the breeding values are developed, the final scoring guide will be refined.

The 'original' scoring guide

Data collected via the old scoring guide released in 2019 on the 1 (complete shed) to 5 score (fleece remains) remains viable, as changes in this guide reflect refinements around the key phenotypic thresholds. Data collected using the original scoring guide will still be used.

Going forward, Sheep Genetics advises all breeders to score their sheep using the research scoring guide in this document, and to use the outlined scoring system when assessing shedding progress in future.

What to consider before scoring

The scorer

Scorers must be appropriately trained and experienced in assessing the 'SHED' trait. Where possible, the same scorer should be used between years to minimise variables and allow the best comparison between drops.

The sheep

Sheep should be scored within management groups – that is, sheep that have been run together – because animals from different mobs may express traits differently and cannot be directly compared. Management groups should ideally be as large as possible, as smaller groups may be biased, and care should be taken when making such comparisons. All age groups should be scored with the adult or yearling fleece providing the best indication of the lifetime shedding characteristics of the individual.

When to score

It's important to consider your flocks location, season, and management of animals when figuring out the best time to score shedding on your sheep.

Shedding in sheep follows a cyclical pattern with the animals growing their fleece as they head into winter

(days getting shorter). The fleece begins being shed after they pass the winter solstice as day length increases and the temperature increases. Consequently, to capture shedding expression within the flock scoring is recommended to occur in the period where the greatest variation in shedding expression is observed in the flock. This will occur from spring to early summer (between August and December) although it should be noted that this point will vary across locations, seasons and the level of nutritional stress on the individuals (dry ewes will shed before pregnant or lactating ewes).

Breeders may also choose to score at the end of the shedding period in late summer to describe the final level of shedding. This score should reflect the level of fleece shed and not include the fleece that is starting to grow back. Strong genetic correlations between measurements across the shedding period indicate that a single score is capturing most of the shedding expression and is likely to provide sufficient evidence to rank animals on shedding merit.

▲ Optimal scoring time

Score the flock when the greatest variation in body shedding is being expressed within the flock.

Scoring body shedding (SHED)

The scoring guide is designed to capture the level of shedding the individual is expressing as they shed the fleece they have grown in the last season. It is important to distinguish the shedding line between the current fleece and the areas of shedding (**Figure 1**). Some animals may still be carrying the previous season or seasons fleece having not expressed complete shedding. Each score reflects the proportion of fleece that has been shed this season and not how the shedding aligns to a defined shedding pattern.

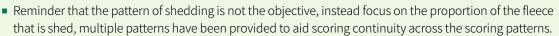
▲ (SHED) scoring

Body shedding score is submitted to Sheep Genetics under the trait name 'SHED' (SHED). With scores provided between 1 and 5. Half scores are not required.



Figure 1: Shedding line in white shows the areas in which the animals current fleece has been shed. These animals are still carrying some fleece from the previous season/s.

Tips and tricks for scoring body shedding





- The score should reflect how much of the animal's body is still covered by its most recent winter fleece, regardless of any older wool that was not shed in previous seasons.
- The diversity within shedding breeds means that there is variation in the fleece they grow and it can be made up of coarse hair, silky hair, wool or a combination of the three and the scoring should reflect the animal's proportion to shed their winter fleece more than the type of fleece.
- The shedding score needs to reflect the proportion of the body covered by the winter fleece and should be allocated irrespective of the length of the fleece that is yet to be shed by the animal.
- Distinguishing score 4 and score 5 animals may require closer inspection especially around the belly, neck and around the inside of the legs which may be covered by the winter fleece especially in animals with a longer stapled fleece.

Body shedding score (SHED) descriptions

- An animal with a score of 1 does not currently have wool longer than 1cm on any part of the body, it may have grown wool and completely shed, or it may be a hair sheep. Score 1 animals should be very clean of their winter fleece, some errors can occur in the animals that have a naturally short stapled fleece and it is important to identify the absence of a 'shedding' line.
- A score 2 animal has expressed a high level of shedding but still has some of its most recent winter fleece present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 1% to 32% (or approximately a third). If there is any wool left on the animal it should not be a score 1 and remains a score 2. There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous season/s but this will not cover more of the animal than the threshold for a score 2.
- A score 3 animal has expressed a moderate level of shedding with its most recent winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 33% (one-third) to 65% (two-thirds). There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous seasons even if this area is smaller than the scoring threshold the score should reflect the proportion of the body covered by the current fleece.
- A score 4 animal has expressed any level of shedding with most of their winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 66% (two-thirds) to 99%. There should be patches of the animal that have exhibited shedding. The score 4–5 threshold can often be difficult to capture in the longer fleeced animals as the fleece can 'hang' over/cover the shed regions, especially on the belly, neck and around the inside of the legs.
- An animal with a score of 5 is **completely covered in wool** (excluding the head, feet and lower legs). The animal should not have any areas of their body where they have shed their winter fleece. Dependent on the time of scoring a score 5 animal may shed in the future but at this stage still has their full winter fleece.

Scoring crutch shedding (SHED_C)

In conjunction to scoring body shedding breeders may also choose to score shedding in the crutch area of the animal (**Figure 2**). The score is designed to target the area of the fleece that is potentially of higher risk from a health and welfare point of view and has economic advantages to be bare even if the animal is not fully shed. This area is approximately 8cm around the crutch.

Unlike body shedding, crutch shedding should consider not just the proportion of coverage but also the pattern of the shed with the animal needing to lose all its fleece in the area before it can be given a lower score even if it has shed wool in the regions further from the crutch.

Research into the relationship between crutch and body shedding is ongoing but at this stage there is some evidence that some animals have a greater genetic predisposition to shedding over the crutch area.

▲ (SHED_C) scoring

Crutch shedding score is submitted to Sheep Genetics under the trait name 'SHED_C' (SHED_C). With scores provided between 1 and 5. Half scores are not required.



Figure 2: A ewe that is expressing shedding in the crutch area.

Tips and tricks for scoring crutch shedding

The scoring needs to reflect the shedding of the animal's most recent winter fleece and it should reflect the area of the animal's crutch which is covered by that winter fleece. This is to occur irrespective of wool that has not been shed in previous spring sheds.



- The diversity within shedding breeds means that there is variation in the fleece they grow and it can be made up of coarse hair, silky hair, wool or a combination of the three and the scoring should reflect the animal's proportion to shed their winter fleece over the crutch area of the sheep
- Unlike body shedding crutch shedding reflects the pattern of shedding around the crutch
- A simple way to think about scoring shedding of the crutch is to think about the area you would train someone to shear if they were crutch shearing the same animal.
- If the animal's tail has not been docked, then the focus of shedding should remain around the crutch area, with wool on the tip not considered a problem (**Figure 2**).

Crutch shedding score (SHED_C) descriptions

- An animal with a score of 1 has **no wool cover on the crutch and upper tail area longer than 1cm**. The animal may of previously grown wool there and shed it or may be naturally bare. The bare area should expand beyond at least **8cm from the crutch area** (Approximately the width of a shearing handpiece). Wool coverage outside this area does not influence the crutch shedding score.
- An animal with a score of 2 still contains **some wool cover on the crutch and upper tail area** longer than 1cm. It may of previous grown wool there and shed it or may be naturally bare. The area within **6cm of the crutch tail area** should be bare.

A score 3 animal should be **clear of wool on the inner crutch and upper tail area**.

The area within **4cm of the crutch tail area** should be bare (approximately ½ the width of a shearing handpiece).

A score 4 animal has expressed some level of shedding with most of the crutch and tail area still covered in wool.

5 An animal with a score of 5 is **completely covered** in wool across the crutch and tail area.

Score

Description

Guide to scoring shedding in sheep

Patter-based scoring guide

Sheep Genetics trait code (SHED)

Scoring sheep that shed from back to front



An animal with a score of 1 does not currently have wool longer than 1cm on any part of the body, it may have grown wool and completely shed, or it may be a hair sheep. Score 1 animals should be very clean of their winter fleece, some errors can occur in the animals that have a naturally short stapled fleece and it is important to identify the absence of a 'shedding' line.

Visual representation

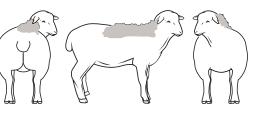




A score 2 animal has expressed a high level of shedding but still has some of its most recent winter fleece present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 1% to 32% (or approximately a third). If there is any wool left on the animal it should not be a score 1 and remains a score 2. There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous season/s but this will not cover more of the animal than the threshold for a score 2.

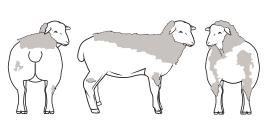
1-32%

% of fleece



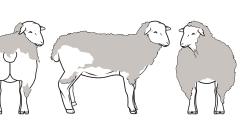
A score 3 animal has expressed a moderate level of shedding with its most recent winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 33% (one-third) to 65% (two-thirds). There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous seasons even if this area is smaller than the scoring threshold the score should reflect the proportion of the body covered by the current fleece.

33-65%

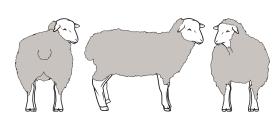


A score 4 animal has expressed any level of shedding with most of their winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 66% (two-thirds) to 99%. There should be patches of the animal that have exhibited shedding. The score 4–5 threshold can often be difficult to capture in the longer fleeced animals as the fleece can 'hang' over/cover the shed regions, especially on the belly, neck and around the inside of the legs.









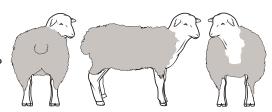
Sheep Genetics trait code (SHED)

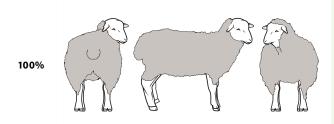
Scoring sheep that shed from front to back



Description % of fleece Visual representation An animal with a score of 1 does not currently have wool longer than 1cm on any part of the body, it may have grown wool and completely shed, or it may be a hair sheep. Score 1 animals should be very clean of their winter fleece, some errors can occur in the animals that have a naturally short stapled fleece and it is important to identify the absence of a 'shedding' line. A score 2 animal has expressed a high level of shedding but still has some of its most recent winter fleece present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 1% to 32% (or approximately a third). If there is any wool left on the animal it should not be a score 1 and remains a score 2. There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous season/s but this will not cover more of the animal than the threshold for a score 2. A score 3 animal has expressed a moderate level of shedding with its most recent winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 33% (one-third) to 65% (two-thirds). There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous seasons even if this area is smaller than the scoring threshold the score should reflect the proportion of the body covered by the current fleece. A score 4 animal has expressed any level of shedding

with most of their winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 66% (two-thirds) to 99%. There should be patches of the animal that have exhibited shedding. The score 4–5 threshold can often be difficult to capture in the longer fleeced animals as the fleece can 'hang' over/cover the shed regions, especially on the belly, neck and around the inside of the legs.





Score

Description

Guide to scoring shedding in sheep

Sheep Genetics trait code (SHED)

Scoring sheep that shed from bottom to top



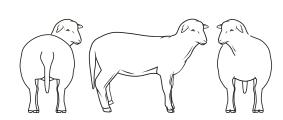
An animal with a score of 1 does not currently have wool longer than 1cm on any part of the body, it may have grown wool and completely shed, or it may be a hair sheep. Score 1 animals should be very clean of their winter fleece, some errors can occur in the animals

that have a naturally short stapled fleece and it is important to identify the absence of a 'shedding' line.

0%

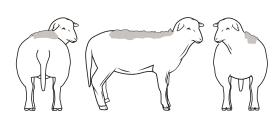
% of fleece

Visual representation



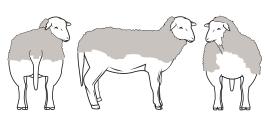
A score 2 animal has expressed a high level of shedding but still has some of its most recent winter fleece present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 1% to 32% (or approximately a third). If there is any wool left on the animal it should not be a score 1 and remains a score 2. There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous season/s but this will not cover more of the animal than the threshold for a score 2.

1-32%



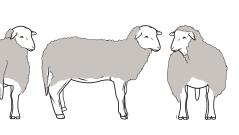
A score 3 animal has expressed a moderate level of shedding with its most recent winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 33% (one-third) to 65% (two-thirds). There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous seasons even if this area is smaller than the scoring threshold the score should reflect the proportion of the body covered by the current fleece.

33-65%

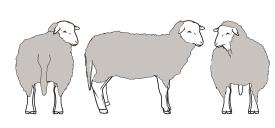


A score 4 animal has expressed **any level of shedding with most of their winter fleece still present**. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from **66% (two-thirds) to 99%**. There should be patches of the animal that have exhibited shedding. The score 4–5 threshold can often be difficult to capture in the longer fleeced animals as the fleece can 'hang' over/cover the shed regions, especially on the belly, neck and around the inside of the legs.

66%-99%







Sheep Genetics trait code (SHED)

Description

Scoring sheep that shed **randomly**

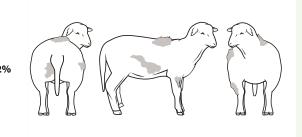


An animal with a score of 1 does not currently have
wool longer than 1cm on any part of the body, it may
have grown wool and completely shed, or it may be
1 a hair sheep. Score 1 animals should be very clean of
their winter fleece, some errors can occur in the animals
that have a naturally short stapled fleece and it is
important to identify the absence of a 'shedding' line.

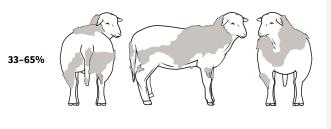
% of fleece

Visual representation

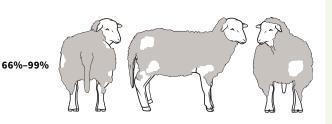
A score 2 animal has expressed a high level of shedding but still has some of its most recent winter fleece present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 1% to 32% (or approximately a third). If there is any wool left on the animal it should not be a score 1 and remains a score 2. There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous season/s but this will not cover more of the animal than the threshold for a score 2.

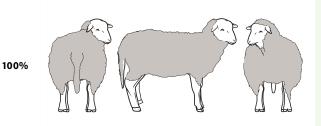


A score 3 animal has expressed a moderate level of shedding with its most recent winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 33% (one-third) to 65% (two-thirds). There should be a defined 'shedding' line allowing separation from the winter fleece and the area that has expressed shedding. The animal may still be carrying wool that it failed to shed in the previous seasons even if this area is smaller than the scoring threshold the score should reflect the proportion of the body covered by the current fleece.



A score 4 animal has expressed any level of shedding with most of their winter fleece still present. The proportion of the body (excluding the head, feet and lower legs) covered in wool ranges from 66% (two-thirds) to 99%. There should be patches of the animal that have exhibited shedding. The score 4–5 threshold can often be difficult to capture in the longer fleeced animals as the fleece can 'hang' over/cover the shed regions, especially on the belly, neck and around the inside of the legs.



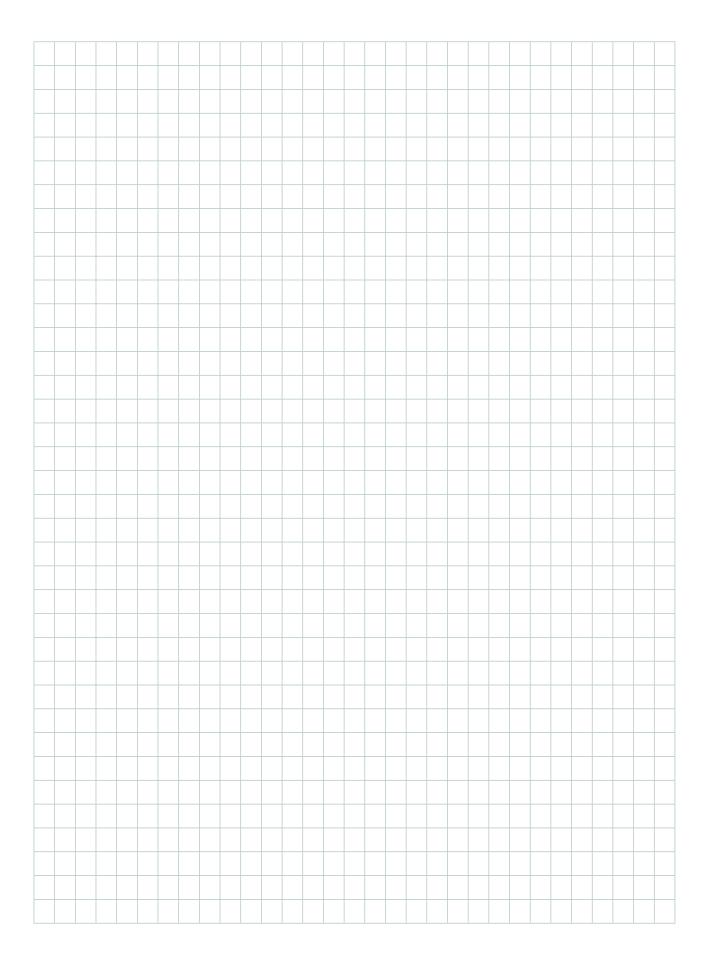


Sheep Genetics trait code (SHED_C) Scoring sheep that shed from crutch



| Carm | Description | cm from crutch/upper tail | Visual representation | |
|---------|--|---------------------------|-----------------------|--|
| Score 1 | An animal with a score of 1 has no wool cover on the crutch and upper tail area longer than 1cm. The animal may of previous grown wool there and shed it or may be naturally bare. The bare area should expand beyond at least 8cm from the crutch area (Approximately the width of a shearing handpiece). Wool coverage outside this area does not influence the crutch shedding score. | 8cm | Visual representation | |
| 2 | An animal with a score of 2 still contains some wool cover on the crutch and upper tail area longer than 1cm. It may of previous grown wool there and shed it or may be naturally bare. The area within 6cm of the crutch tail area should be bare. | - | | |
| 3 | A score 3 animal should be clear of wool on the inner crutch and upper tail area . The area within 4cm of the crutch tail area should be bare (approximately ½ the width of a shearing handpiece). | 4cm | | |
| 4 | A score 4 animal has expressed some level of shedding with most of the crutch and tail area still covered in wool. | - | | |
| 5 | An animal with a score of 5 is completely covered in wool across the crutch and tail area. | 0cm | | |

Notes







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Sheep Genetic's *Guide to scoring shedding in sheep* is available online at **sheepgenetics.org.au/score-shedding-sheep**