

Bare Points Sheep

SIL Technical Note

Relates to: Recording of Fleece Cover and Tail Type traits for Bare Points sheep
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Summary

- SIL can record Bare Point traits on the SIL database including fleece cover on the breech & belly, and tail characteristics
- All Bare Point traits recorded can be included in SIL reports
- Currently SIL does not genetically evaluate any Bare Point traits
- SIL highly recommends recording a live weight at the time fleece covers are measured and either a leg length measurement or a live weight when tail traits are measured

Background

AgResearch are currently concluding a study in New Zealand into “Low Cost, Easy Care” sheep. SIL has incorporated most traits in this study into the SIL database allowing SIL breeders to record them. These fall into two main groups: Bare Point traits and Dag Score traits.

Bare Point and Dag Score traits have been used in the AgResearch project with the aim of reducing certain management costs such as the need for dagging and crutching. Bare Point traits being studied involve fleece cover on various parts of the body and tail length. Dag Score traits relate to dagginess at certain times of the year. Possible reductions in fleece weight are also being studied by AgResearch as part of their study.

SIL’s Bare Point traits fall into three categories (1) Fleece Cover, (2) Tail Characteristics & (3) Body Size. Fleece cover relates to reducing the amount of wool on the breech and belly areas, ultimately eliminating the need for crutching. Tail characteristics are used to allow selection for less dags on undocked tails by selecting for shorter and less woolly tails. Body size measurements are used to adjust for the size of each animal. Dag score is included in conjunction with fleece cover and tail characteristics to reduce the amount of dags and because there is a relationship between these traits.

All of the recorded traits recorded can be included on SIL reports. Dag Score is a SIL goal trait group that can be genetically evaluated by SIL, so breeding values and a Dag Score sub-index can be reported. Some of these Bare Point measurements are likely to be used in future genetic evaluations that SIL implements for Bare Points traits.

What can be recorded on SIL

Bare Point (BP) traits that can be recorded on the SIL database relate to three categories:

- (1) Fleece Cover, (2) Tail Characteristics & (3) Body Size

Table 1 below gives a summary of these traits and their measurement.

Table 1: Bare Point traits that can be recorded on the SIL database

Type	SIL abbrev	Full name	Measurement	Frequency	Time
(1) Fleece Cover:	BBELLY (BBELLY18)	Belly Bareness	Score (1-5)	Once (or twice)	Weaning (and 18mths)
	BBREECH	Breech Bareness	Score (1-5)	Once	Weaning
(2) Tail Characteristics:	TLEN	Tail Length	Length (cm)	Once	Tailing (<u>not</u> at birth)
	TSKIN	Bare Skin under Tail	Length (cm)	Once	Tailing (<u>not</u> at birth)
(3) Body Size	CANL	Front Cannon Bone Length	Length (cm)	Once	At time of tail measurements
	TLW	Body Weight (when Tail traits measured)	kg	Once	At time of tail measurements

- (1) Fleece cover traits assess the amount of wool on the belly and breech. The two areas are subjectively scored using a simple scale. Selection for these traits aims for higher scores i.e. less wool cover in defined areas. SIL recommends belly bareness is recorded on animals at weaning. An additional belly bareness score can also be recorded on animals at 18 months of ages. If an 18 month belly bareness score is measured, a weaning weight for the same animals is required. Belly bareness scores are useful because animals with bare bellies do not need pre-lamb crutching, dry more quickly for shearing and are less likely to lose teats during shearing.
- (2) Tail characteristic traits look at length of tail and amount of bare skin on the underside of the tail. These traits are measured in centimeters and selection is for shorter, less woolly tails.
- (3) Body size traits are used as estimates of body size to adjust tail characteristic measurements. Front cannon bone length is measured objectively in centimeters. Body weight is an alternative to front cannon bone length and measured on the scales in kilograms. SIL strongly recommends front cannon bone length over body weight for tail characteristic adjustments.

Best practice for recording traits

SIL recommends following these guidelines:

- Use the same person to ‘score’ or ‘measure’ each individual trait e.g. one person measures the cannon bone of all of the lambs and one person measures all of the tail measurements (or one person does both measurements for all lambs)

- If more than one person assesses the same trait (e.g. in a large flock), record the actual person against each lamb for each trait. SIL can remove ‘operator’ effects when these are treated as ‘virtual’ mobs
- Record or measure all lambs on the same day for each trait (where possible)
- Record date the scores and measurements are taken
- Record tail characteristic and leg length traits on the same day (no exceptions)
- If possible weigh all of the lambs at the same time the breech and belly scores are taken (If it is not be practical to weigh each lamb at tailing, measure the front cannon bone length instead as a measure of body size.)

For individual traits follow these guidelines:

1) Fleece Cover: Breech & Belly scores

Fleece cover scores are best taken at weaning when all lambs are in the yards at the same time. SIL scores for both breech and belly bareness range from 1 (woolliest) to 5 (completely bare).

The Breech and Belly Score Scales are described in more detail at the end of this document in *Table 2* along with pictorial descriptions in *Diagrams 1 & 2*.

2) Tail Characteristics: Tail Length (TLEN) and Bare Skin under the Tail (TSKIN)

Tail characteristic measurements are best taken at tailing, and not before. It is also very important to record the date of measurement, so SIL can adjust for the age of each animal. Measurements are made in centimeters on the underside of the tail from the anus to the tip of the tail for the tail length, and from the anus to the end of the bare area underneath the tail for the bare skin measurement.

See *Explanation 1 & Diagram 3* at the end of this document for a more detailed explanation and diagram.

3) Body Size: Leg Length (or Body Weight)

The cannon bone length from one of the front legs (or body weight) must be taken at the same time as the tail measurements.

Explanation 2 & Diagram 4 at the end of the document explains how to measure the front cannon bone length aided by some diagrams.

Genetics – what we know so far

Research to date has shown fleece cover traits to be moderately heritable (25 – 30%) and tail traits to be even more heritable (50 -70%). There is a negative correlation between breech bareness and dag score (-0.18 to -0.30) which is central to the appeal of this trait i.e. barer breeches carry less dags.

Preliminary work has confirmed a weak negative correlation between fleece cover scores and fleece weight. This may be due to two reasons 1) less wool overall i.e. less belly wool contributing to the total fleece weight, and 2) the genes for bare points or fleece cover also affect growth of the main body wool. Studies so far show a negative correlation of -0.2 between belly bareness and hogget fleece weight for crossbred hoggets.

Genetic evaluation

Currently SIL does not yet perform genetic evaluations for the BP traits. SIL does perform a genetic evaluation for Dag Score. Dag Score sub-indexes are available for the Dual Purpose, Terminal Sire and Mid-Micron Wool Indexes.

All BP traits can be recorded on SIL, and SIL expects to offer genetic evaluations for fleece cover and tail length in the future. Breeders wishing to select for these traits are advised to begin collecting information now so that future evaluations benefit from a solid base of on-farm measurements.

Reporting

SIL reports can be formatted to include actual measurements for BP traits. They can be included alongside SIL indexes or placed on separate reports.

SIL does not usually recommend using raw data for animal selection, but this is the best option at present for the BP traits. It is useful to include the date of measurement, live weight at the time of measurement and a fleece weight in the report, to aid interpretation. Beginning collection of Bare Point traits now will position you well to take advantage of genetic evaluations that SIL may implement in the future.

References

The following publications provide more information about the Bare Points sheep concept:

- Meat & Wool New Zealand R&D Brief Number 116, March 2006: Breeding sheep with bare breech and belly. Available from www.meatandwoolnz.com or from your local M&WNZ Regional Manager
- Scobie, D.R. 2003: The sheep of the future. *Proceedings of the 33rd seminar of the society of sheep and beef cattle veterinarians NZVA*: 61-69

Technical Notes

SIL has a range of different technical notes written specifically for SIL breeders. A technical note on **Dag Score** details how to collect such data and how to use results from a genetic evaluation of dag score data. SIL Technical Notes can be found on the SIL website (www.sil.co.nz) in the Technical Information section.

Need more information?

Contact your SIL bureau, send an email to silhelp@sheepimprovement.co.nz or telephone 0800 silhelp (0800-745-435)

OR contact David Scobie, Scientist, AgResearch, email: Scobie@agresearch.co.nz

Diagrams & Explanations of Measurements

Fleece Cover

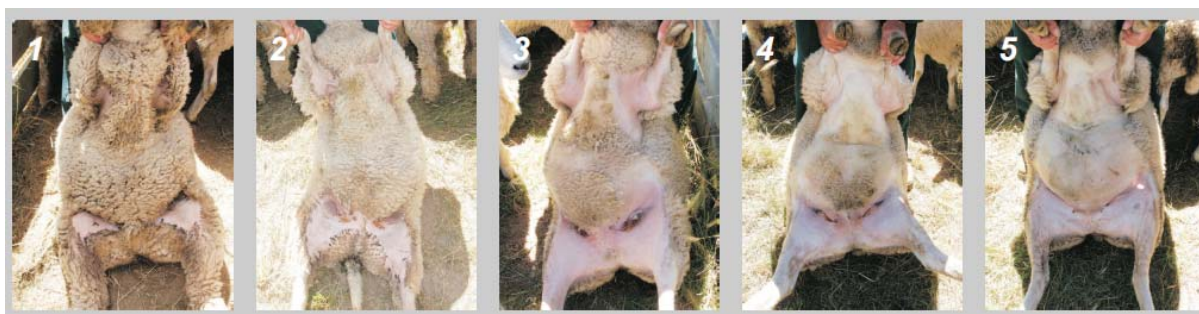
Table 2: Breech and Belly Bareness Scores

Score	Breech Bareness	Belly Bareness
1	Fleece cover extends to the margins of the anus (and vulva in ewes)	Extensive woolliness (around the anus and between the legs)
2	A slight bareness around the anus (and vulva in ewes) which is about 1cm wide on either side	Clean armpits
3	A triangle of bare skin evident around the anus (and vulva in ewes) around two centimeters wide on each side. The bare skin is likely to carry hairs or may be completely bare of any fibres	Bareness around the navel and possibly across the brisket
4	A large bare area of skin around the anus (and vulva in ewes) which is around the size of a mans palm and is quite likely to carry short hairs like those on the legs and nose. The bare area may extend to the scrotum or udder but these parts retain some wool	Extensive bareness with just a couple of strips of wool either side of the navel (looks a bit like a vee)
5	An extensive bare area either side of the anus and more than likely to extend on to the scrotum of rams or the udder of ewes.	Underside of sheep carries no wool at all

Diagram 1: Breech Score Scale (1 – 5)



Diagram 2: Belly Fleece Cover Score (1 – 5)

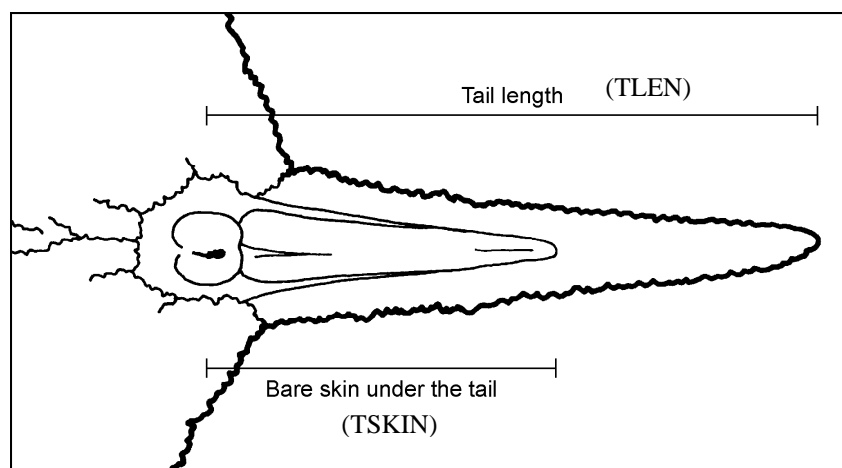


Tail Characteristics

Explanation 1: Tail Characteristic Measurements

Tail length and the length of bare skin under the tail are measured as in the diagram below. It is most convenient to do this at “docking or tailing” when the legs are held in a cradle or by a person. A ruler is placed with one end against the anus and the tail held along the ruler and measured to the tip in centimeters. While still holding the ruler in this position, the end of the bare area is measured, although sometimes it may be necessary to gently rub fibres or faecal matter away to collect this measurement.

Diagram 3: Tail Characteristic Measurements



Front Cannon Bone Leg Length

Explanation 2: Cannon Bone Measurement

The length of the front cannon bone is measured in centimetres with a ruler as shown in the photographs below. It is best to use two people, one person holding the lamb in an upright sitting position whilst holding onto the bent front leg and one person doing the actual measurement of the cannon bone, although it is possible for just one person to do it. The front leg needs to be held and bent at the ‘knee’ and the ‘knuckle’ (see Figures 1 & 2). You can then feel the hollow points of the knuckles at each end (see Figure 2). Position your forefinger and thumb in the each of these knuckle hollows with one hand and measure the distance between these two points (see Figure 3) with your other hand.

Diagram 4: Cannon Bone Measurement

Figure 1:



Figure 2:



Figure 3:

