

Meat trait recording

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Traits

- Live
- Dead/Carcass
 - HCWT, fat and eye muscle depths/widths, LMY
- Meat science
 - Intra-muscular fat, SF, Colour, Minerals
- Sensory
 - Taste panels

Carcase traits: Live animal

Fat Depth (mm)	FAT	Fat depth at the GR site. Fat depth ASBVs are calculated from live animal ultra-sound scan fat depth measurements, within the appropriate age range. Scanning must be done by a Sheep Genetics accredited operator.
Post Weaning Fat Depth (mm)	PFAT	GR fat depth at 45kg live weight.
Yearling Fat Depth (mm)	YFAT	GR fat depth at 60kg live weight.
Hogget Fat Depth (mm)	HFAT	GR fat depth at 70kg live weight.
Eye Muscle Depth (mm)	EMD	Eye muscle depth at the C site. Animals with more positive EMD ASBVs have greater genetic potential for muscle development giving an increase in yield and slightly more muscle in higher priced cuts.
Post Weaning Eye Muscle Depth (mm)	PEMD	Eye muscle depth at the C site in a 45kg live weight animal.
Yearling Eye Muscle Depth (mm)	YEMD	Eye muscle depth at the C site in a 60kg live weight animal.
Hogget Eye Muscle Depth (mm)	HEMD	Eye muscle depth at the C site in a 70kg live weight animal.

Carcase traits: Dead / Meat science

cwt	Carcass weight
cfat	Carcass fat
ccfat	Carcass C-site fat
imf	Intramuscular fat
sf5	Shear force after 5 days
cemd	Carcass eye muscle depth
dress	Dressing percentage
lmy	Lean meat yield (which measure, CT, DEXA)

Carcase traits: Other

Sensory	Task panel (Juiciness, Flavour, Tenderness, Overall Liking)
Nutrient content	Iron, Zinc
Amino Acids	Omega 3
Colour	Fresh / Aged / Retail
Ph	Time

Trait definition important

Eg: Fat depth

- Corrected for age or weight

Time of measurement

- W, P, Y, H, C
- Ph – hours
- Colour – Fresh or Retail

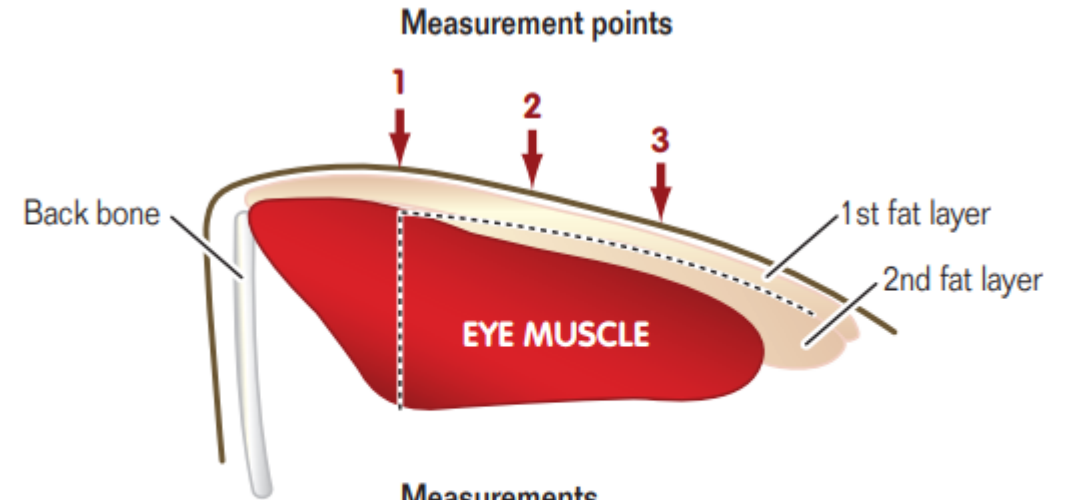
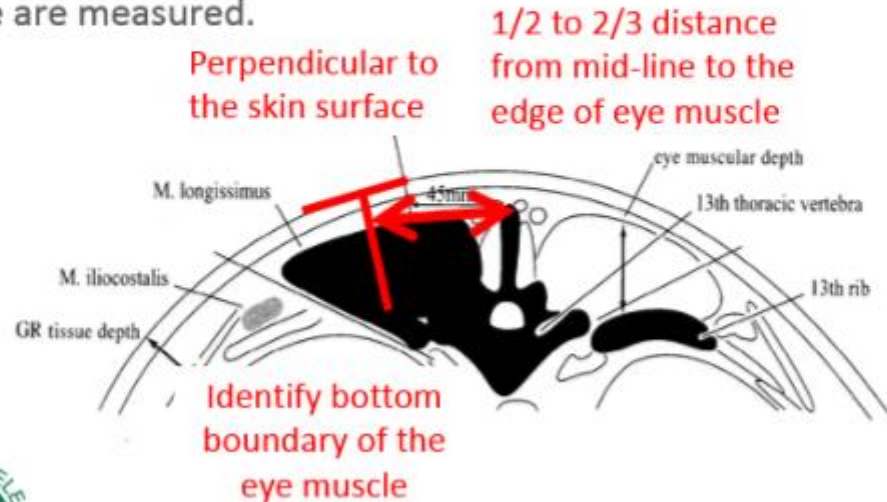
Calibration / accreditation

Ultrasound scanning

- Measure protocols

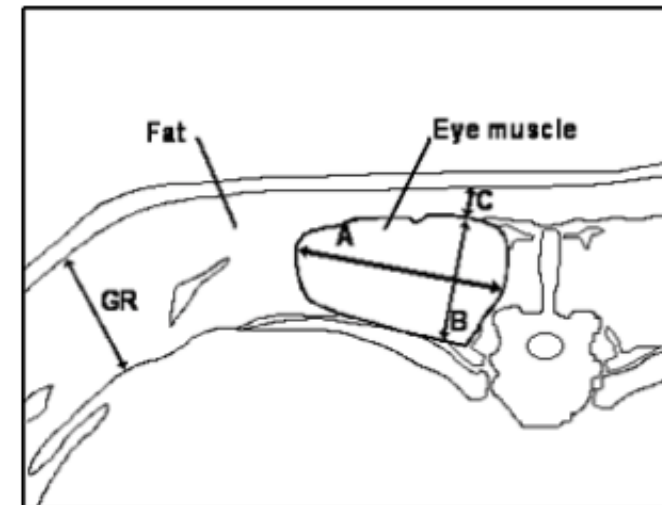
Where to Scan

The scan site used by Sheep Genetics is referred to as the C site, it is located at the 12/13th ribs (long/short ribs) where fat depth and eye muscle are measured.



Measurements

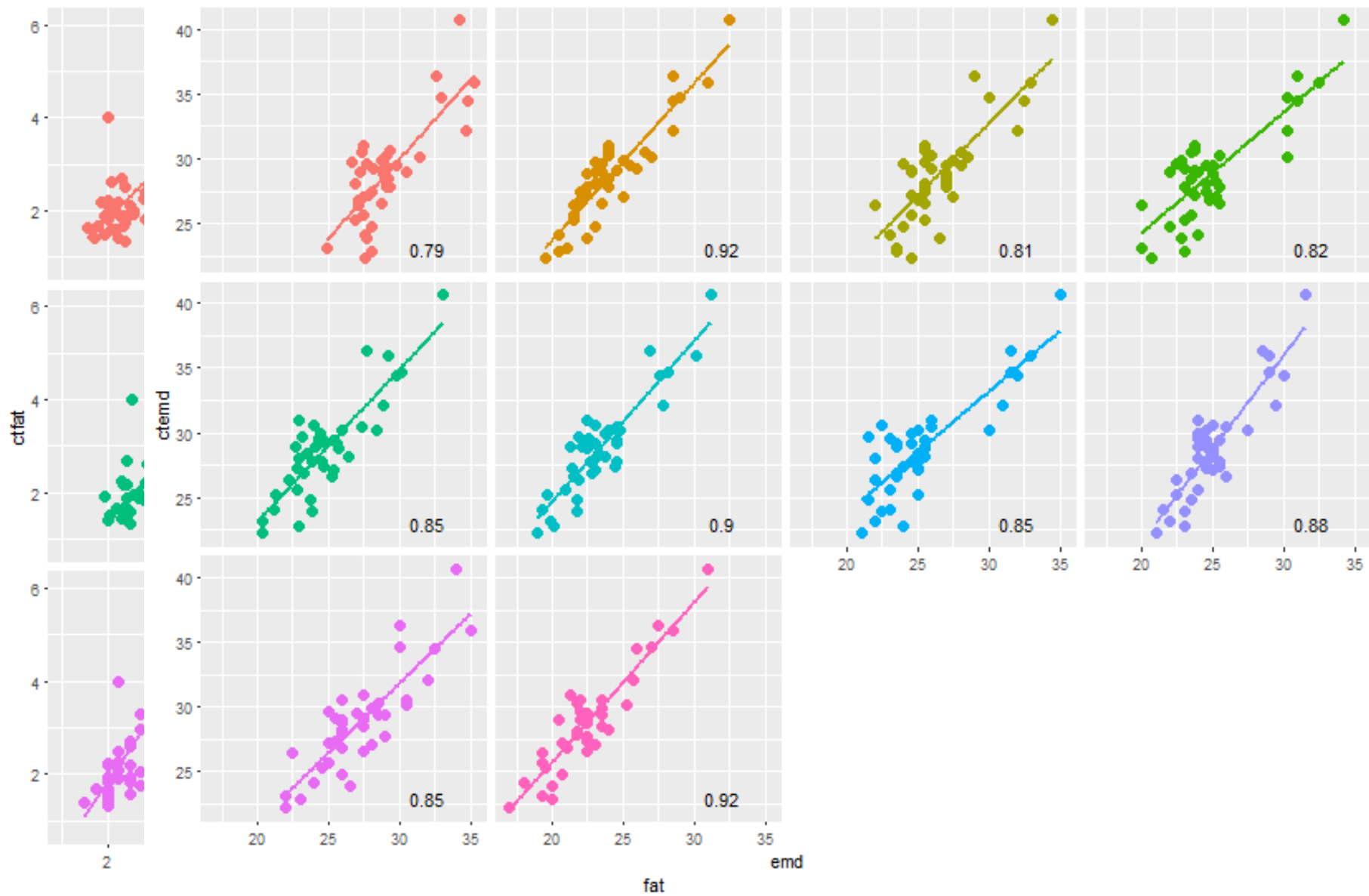
- 1 = Maximum muscle depth and fat depth
- 2 = Fat depth
- 3 = Fat depth



Calibration / accreditation

Ultrasound scanning

- Measure protocols
 - Where (site)
 - How
 - When (age, weight)
- Scanner training / accreditation
 - Repeatability / correlation with gold standard
 - Frequency



Existing documentation

5.5. Carcase traits (fat and eye muscle depth)

Data submitted must be from a Sheep Genetics accredited ultrasound scanner. A list of current accredited ultrasound scanners can be obtained from the Sheep Genetics office or from the website www.sheepgenetics.org.au/Service-providers

The recommended average group weight and fat cover are as follows:

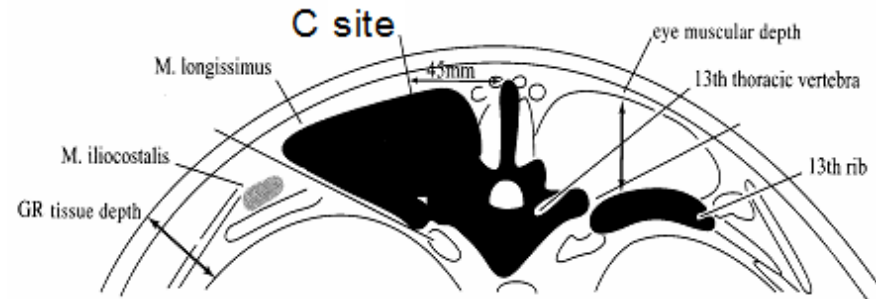
- Males average 55-60 kg
- Females average 45-50 kg
- All have at least 2-3 mm fat cover at the C site
- Sheep below 30 kg should not be scanned

Don't wait until animals are 15 months of age before scanning. The prediction of the value of genes needs to occur within a commercial production time frame.

Fat and eye muscle depth measurements are taken by accredited operators at the C site (45 mm from the midline at the 12/13 rib). GR depth is the fat grading in Australia. The GR site is 110 mm out from the backbone at the 12/13 rib.

A body weight must be taken at the time of ultrasound scanning and be submitted with fat and eye muscle depth measurements.

Figure 14: Site for Fat and EMD measurement



Scan operators provide a body weight and can also measure scrotal circumference if required.

Muscle and Fat Depth Scanning – Procedures

- Muscle and fat depth needs to be evaluated by an accredited ultra-sound scanner.
- A live weight measured at the time of scanning needs to be submitted with muscle and fat depth measurements.
- The recommended average group live weight and fat cover are:
 - ram average 55 to 60 kg,
 - ewe and wether average 45 to 50 kg.
 - Fat depth - at least 2 to 3 mm of measured fat cover at the 'C' site.

Existing documentation

Meat Scanning – best practice and how it is used to estimate carcass merit

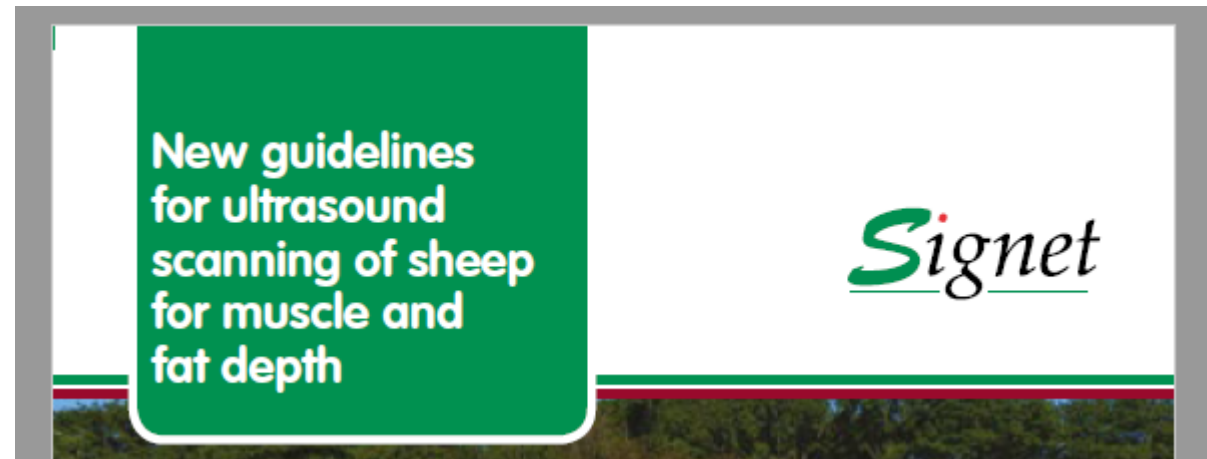
SIL Technical Note

- <https://www.sil.co.nz/files/149628013852.pdf>

SIL eNote 2: Meat Scanning Tips

March 2009

- <http://dev.sil.co.nz/getdoc/aedd7d81-d049-4747-853a-df5f9f48709e/SIL-eNote---02-Meat-Scanning-Tips-2009-March.aspx>
- <https://beefandlamb.ahdb.org.uk/wp-content/uploads/2017/01/Signet-ultrasound-sheep-scanning-120117.pdf>



Models

Fixed effects

Birth type (1, 2, 3, 4+)

Rearing type (1, 2, 3+)

Age of dam + Age of dam²

Weight

Age of trait measurement

Contemporary group (breed, flock, year of birth, sex, management group, date of measurement, kill group)

lab

Random effects

Direct Genetic

Maternal effects rare

- Where to from here?