

# The National Terminal Sire Evaluation FAQs

Emma Steele, December 2018

## Was this previously called 'Combined Breed Analysis'?

Yes, now launched as 'The National Terminal Sire Evaluation'.

## In short, what is the national terminal sire evaluation?

The new evaluation will see all terminal sire breeds and their crossbred progeny evaluated together in a single BLUP report to enhance the service we can provide for clients and make evaluations more commercially relevant. This approach is consistent with New Zealand, Australia and America.

## How many breeds are involved?

Currently 12 breeds are involved but Signet will look at ways to include other breeds in the future.

## I have an interest in a terminal breed that isn't involved, can it be?

Yes, we will look to include other breeds providing they have a performance recorded population.

## When will we see the new figures?

Signet clients will be introduced to the new figures in January 2019. Routine evaluations will go public in Spring 2019.

## What are the benefits as a Signet breeder?

Signet clients will receive new and enhanced EBVs, more regular BLUP runs and more accurate assessment of crossbred animals as well as access to breed specialists who can explain queries in a timely manner. The new, commercial focus of terminal sire evaluations should also stimulate an increased commercial demand for recorded rams.

## What are the benefits as a commercial breeder?

The commercial ram buyer will benefit from a more commercially focused evaluation service. New carcase EBVs will reflect a ram's ability to produce lambs that have a more profitable carcase at a fixed weight. Re-basing will also reset the breed benchmark and therefore EBVs will be easier to understand.

## Will I be able to compare between breeds?

EBVs will be reported back on a breed by breed basis, to highlight the best genetics within the breed. However, you will be able to use a conversion factor to accurately compare animals of different breeds where good genetic linkage exists between them – for example, where two flocks are run together on one holding.

## Will I be able to find EBVs for crossbred animals e.g. SuffTex?

Recorded crossbred animals will have EBVs based on their dominant breed (the breed making up the greatest part of their breed makeup). Where a crossbreed is 50:50, EBVs will be based on the breed of the sire.

## Is hybrid vigour accounted for?

Yes, we recognise hybrid vigour has an impact on crossbred performance and take this into account when producing EBVs.

## How do we strengthen the evaluation for crossbreds or between breed comparisons?

Recording the performance and parentage of crossbred lambs will create genetic linkage between breeds and allow more accurate comparisons. The RamCompare dataset is routinely included in the new evaluation to help with this.

## What are weight adjusted traits?

Weight adjusted traits report carcass attributes (such as muscle depth and fat depth) relative to the liveweight of the animal rather than at a fixed age (as previous). As lambs are selected for slaughter based on a combination of liveweight and finish, this is a more commercially focused way of assessing carcass merit.

## How will moving to weight adjusted traits change the figures?

Currently, sheep get superior Muscle Depth EBVs in one of two ways:

- a. Being genetically big – as big sheep tend to have deeper muscles across the loin
- b. Having a deep muscle across the loin relative to their liveweight

The new weight adjustment will tend to focus more on those animals who have a high amount of muscle relative to their weight.

## Should I be scanning lambs younger/lighter?

Signet has been promoting the scanning of younger, well fleshed lambs since the end of 2016 in anticipation of the new terminal sire evaluation. Clients can consider scanning lambs closer to commercial slaughter weights (ensuring the lightest/youngest lambs are 35kg) and from ~17 weeks of age, providing lambs are expressing some variation in finish/fatness when handled.

## Will the RamCompare figures use the same analysis e.g. weight adjusted traits?

Yes, RamCompare sires will have EBVs reported on a weight adjusted basis consistent with the new terminal sire evaluation. RamCompare data will also be fed into the national terminal sire evaluation to strengthen between breed genetic linkage.

## Will moving to weight adjusted traits change the way I select for muscle?

On the old system, selecting an animal with a high Muscle Depth EBV was likely to increase growth rate (and vice versa). With the new approach, selecting an animal with a high Muscle Depth EBV will purely select for improved muscling at a fixed weight; it won't indirectly select for growth rate at the same time. Indexes have been redeveloped so that selecting an animal with a high terminal sire index will select animals with superior genetics for growth, muscling and optimal finish.

## Why are there more negative fat depth EBVs than there were previously?

The old Fat Depth EBV was an assessment of fatness across the loin at a fixed age. The new Fat Depth EBV indicates fatness across the loin at fixed weight and we know animals with superior genetic potential for muscling, tend to be leaner at a fixed weight – as more of the carcass is muscle (and less is fat). The same is true for lambs with superior genetic potential for growth, where faster growing animals tend to be leaner at a fixed weight. Due to the improvements that have been made in muscling and growth in recent years, many of the current animals of high genetic merit have a tendency to be leaner than average – when assessed at a fixed weight.

A negative Fat Depth EBV now means that the animal is leaner at a fixed weight than the average animal (within the breed) in 2010.

This is the same approach that is used in the new analysis when assessing muscle depth, where the genetic influences on muscling are now assessed independently from those that influence growth rate.

## Will animals re-rank on their index?

Individual animals will re-rank within the population, this is mainly due to the changes to the way carcass traits are analysed and partly due to the changes in index calculation.

## Have we been going in the wrong direction for the last 20 years? Was the previous analysis wrong?

At a population level, the correlations between old and new Muscle Depth and Fat Depth EBVs are around 70-80% depending on breed. This means that the new analysis is not a complete change from the way we selected in the past, but it is an enhanced approach that makes full use of new knowledge and brings us in line with other world leaders in sheep genetics.

## Why have the EBVs and Indexes dropped from big numbers to smaller numbers e.g. sheep that had indexes of 300, now have indexes of 200

Figures have been re-based so that EBVs and Indexes are reported relative to the average animal (for a given breed) in 2010 rather than back in the 1990's. Re-basing is an inevitable part of genetic evaluation to keep EBVs relevant and understandable.

## Where will the new base be set to?

The average animal for a given breed in 2010 will have EBVs set to 0 and Indexes set to 100

## Will we have any new traits?

Yes, all breeds will receive EBVs for birth weight, lambing ease and litter size reared. Those breeds that regularly utilise the CT scanner will receive new traits for eye muscle area, intramuscular fat percentage and a variety of spine traits including vertebra number and spine length.

## How will you get a muscle area EBV?

Muscle area will be calculated by tracing the perimeter of the eye muscle on CT scans. We are not able to trace the perimeter of the eye muscle on the ultrasound scanner, but this research clearly shows that the on farm ultrasound measurement of muscle depth is still a very good predictor of loin muscularity (depth, width and area).

## Will we get an EBV for meat eating quality?

Not directly, you will get an EBV for CT predicted intramuscular fat percentage; calculated from the tissue density of CT images. Whilst this is not meat eating quality, intramuscular fat contributes to consumer acceptability due to its influence on juiciness, flavour and tenderness.

## Will the new analysis slow the rate of genetic progress? Because it's harder to breed a sheep that has it all?

The new analysis will not slow progress in individual traits, however it will be harder to breed the sheep that has it all as growth and muscling/leanness are now expressed as independent traits. Multi-trait (index) selection will lead to faster genetic progress when selecting for all of these attributes simultaneously and lead to a more balanced and profitable animal.

## The Texel sheep society will be delivering genetic evaluations directly to clients in 2019. Will they still be involved in the new analysis?

Yes, the Texel Sheep Society will be responsible for providing the genetic evaluation service to their registered members, as happened with the Limousin breed society a number of years ago, but their data will still be included in the national terminal sire evaluation.

## How will the new analysis be communicated? Especially to commercial breeders

Signet's first priority is to update clients on the changes, however 2019 work will focus on delivering the messages to the commercial breeder through means of meetings, press articles and knowledge exchange materials such as the new booklet explaining the changes. However, it is a shared responsibility with Signet clients to communicate changes to your ram buying customers – please let us know if we can assist you with this in any way.

## Will I see a difference in sale charts?

Sale charts will look similar, the main difference will be seen in the individual EBV values displayed. Re-basing means that these numbers will be smaller than those we are used to seeing. It will be more important to go in search of a sheep with a 'top 10% index' than 'an index over X points'.

## How does ET (embryo transfer) affect the maternal ability EBVs for the donor and recipient ewes?

The maternal ability EBV is calculated as the maternal component of the eight week weight. In other words, has my lamb grown well because of its genetics for growth (eight week weight) or because mum has looked after it really well (maternal ability).

In the case of ET (and fostered lambs), the genetic dam has not reared the lamb and therefore does not receive any credit for how it was reared, this attribute will be attributed to the rearing dam (either ET recipient/foster dam). The genetic dam will however receive the credit for the lamb's genetics for growth.

## Will there be a maternal national evaluation?

The immediate priority is to ensure the terminal sire evaluation is implemented successfully, revolutionising the way we evaluate terminal sires. There are no immediate plans or funding to develop a multi-breed evaluation for maternal sires, but it is not ruled out for the future.

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