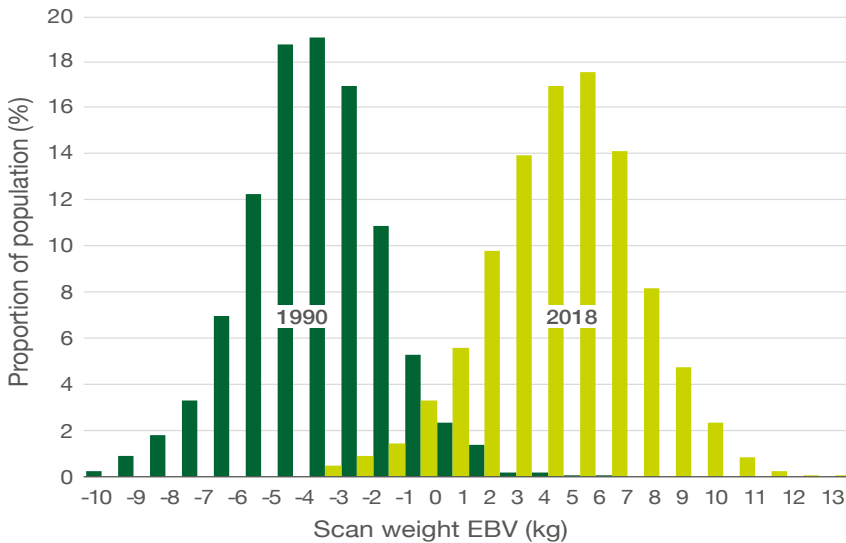# THE NATIONAL TERMINAL SIRE EVALUATION

A NEW GENETIC EVALUATION FOR TERMINAL SIRE BREEDS

The UK has world-leading sheep genetics, with over 650,000 terminal sire-bred lambs weight recorded over the last 25 years and high rates of gain in performance-recorded flocks.

A bar chart showing Proportion of population (%) on the y-axis (0 to 20) against Scan weight EBV (kg) on the x-axis (-10 to 13), with two distributions labelled 1990 (dark green) and 2018 (yellow).

We have come a long way

Genetic change in some breeds means the top 10% of the lambs born in 1990, would be in the bottom 10% of the breed today.

In 2019, a new multi-breed analysis will be launched, benefits include:

❯ Enhancing existing EBVs to make them more commercially focused

❯ Rebasing EBVs to aid interpretation by commercial buyers

❯ More regular BLUP runs

❯ Eight new EBVs derived from CT scanning images

❯ A more accurate assessment of crossbred animals

❯ Enabling lambs in different flocks that are managed together to be analysed together

❯ The integration of RamCompare data to provide:

　- A greater ability to compare rams regardless of breed

　- EBVs derived from abattoir data, including carcase weight, conformation, fat class and days to slaughter

Assessing muscle and fat depth across the loin using ultrasound scanning

NEW WAYS OF ASSESSING MUSCLE AND FAT

The UK sheep industry pioneered the use of ultrasound scanning to assess muscle and fat levels across the loin.

Historically, traits like muscle depth have been adjusted for age to identify lambs that lay down muscle at a certain age, regardless of weight.

Sheep with high Muscle Depth EBVs, might achieve them in two ways:

❯ Being big, as genetically bigger sheep tend to have more muscle

❯ Having a high muscle depth, relative to their liveweight

Breeders can already select for growth rate, so a better approach is to assess muscling independently from growth i.e. a comparison of muscling/fatness at a fixed weight, rather than a fixed age.

Within the new evaluation, all carcase trait EBVs will be weight-adjusted, rather than age-adjusted.

Commercial context

The new approach is advantageous for commercial farmers as it will enable them to optimise muscling and finish when lambs are drawn at a fixed weight.

NEW BREEDING VALUES FROM COMPUTED TOMOGRAPHY (CT)

Over the last 15 years, more than 10,000 lambs have been CT scanned and additional measures have been collected during this time.

Within the new evaluations, EBVs will be produced for:

- Thoracic spine length
- Thoracic vertebra number
- Lumbar spine length
- Lumbar vertebra number
- Total spine length
- Total vertebra number
- CT predicted intramuscular fat (IMF)
- CT eye muscle area

Commercial context

Commercial farmers can use these new EBVs to influence the length and shape of carcases, muscling across the loin and intramuscular fat, which is an indicator of meat eating quality.
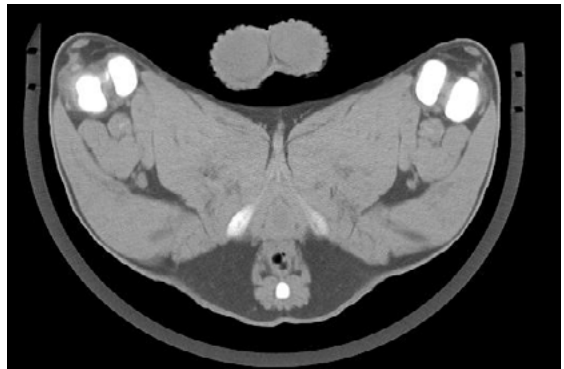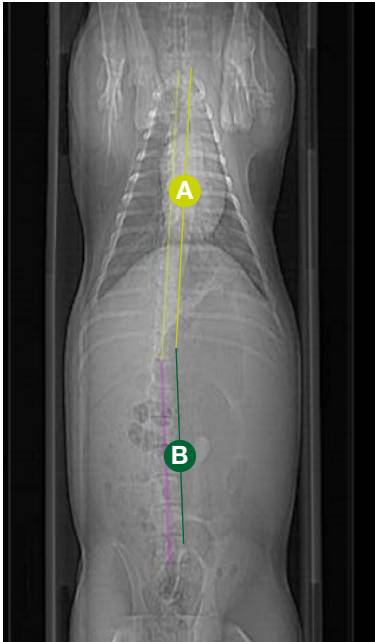
Above: CT image taken through the gigot

Left: CT image showing thoracic and lumbar measurements along the spine, (A) Thorax (rib) region, (B) Lumbar region

UPDATING EXISTING EBVS

EBVs for lambing ease, birth weight, litter size born, litter size reared, maternal ability and faecal egg count have all been updated using the latest research to make them more informative to commercial farmers.

ALL EBVS SET TO A 2010 BASE

All Estimated Breeding Values are being reset to a 2010 base, making EBV interpretation both easier and more relevant to commercial ram buyers.

NEW BREEDING INDEXES

Updated breeding indexes have been generated to aid the selection of rams for both terminal sire and maternal breeding programmes.

COMPARING PERFORMANCE

To enable the comparison of EBVs between flocks, there needs to be genetic linkage between the flocks i.e. some related sheep born in each flock.

New online tools are being developed to show the degree of linkage between Signet-recorded flocks to show where comparisons can be made.

WHICH BREEDS ARE INVOLVED?

The analysis currently includes the numerically large terminal sire breeds: Suffolk, Charollais, Dorset, Meatlinc, Hampshire Down, Beltex, Blue Texel, Bleu du Maine, Vendeen Shropshire, Southdown. It also includes data from unregistered Texels. Other breeds will be included in the future.

WHERE CAN I FIND INFORMATION?

EBVs and Breeding Reports from the new analysis can be found at **signetfbc.co.uk**

HOW CAN I GET INVOLVED?

Signet offers online recording services, so getting started has never been easier. It also costs around £50–100 per flock less than three years ago.

Contact Signet to start recording today. Email **signet@ahdb.org.uk**