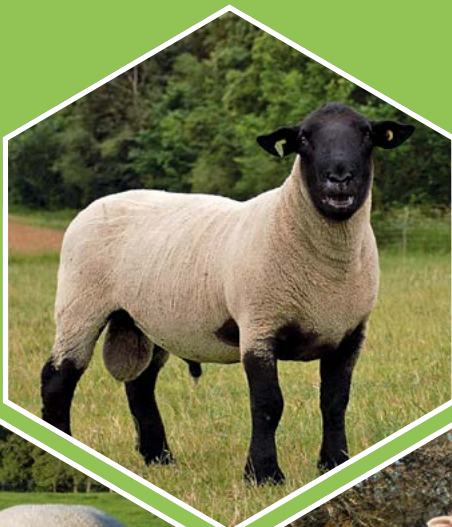


# SELECTING RECORDED RAMS FOR CARCASS TRAITS

INCORPORATING THE LATEST INFORMATION FROM RAMCOMPARE



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## ACKNOWLEDGEMENTS

RamCompare is a partnership that brings together many organisations throughout the supply chain to help take genetic evaluation forward in the UK sheep industry. All partners have had an important role in getting RamCompare to this point.

### Commercial farmers

- › Duncan Nelles, Thistleyhaugh Farm, Northumberland
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# INTRODUCTION

Signet's role in performance recording terminal sires started 50 years ago. Still, the launch of RamCompare (our national progeny test) in 2015 was a game-changing step in our quest to identify the UK's most profitable terminal sires.

Analysing abattoir data as part of the National Terminal Sire Evaluation demonstrates the value of existing recording programmes, but more importantly, it brings a sharper focus to the services we offer and the commercial benefits that can be derived from genetic improvement.

The research completed by SRUC in 2023 and the breeding values produced are an important step in our journey, improving the predictions we make about a ram's genetic merit for carcase traits and its true economic value to the flock.

**Samuel Boon**  
Signet Manager/AHDB Breeding Specialist



# WHAT IS THE BEST WAY TO ENHANCE CARCASS TRAITS?

Estimated Breeding Values (EBVs) for growth and carcass traits have been shown to enhance carcass attributes at the abattoir.

Ultrasound scanning has been used for over 30 years and provides a quick and cost-effective way to assess large numbers of lambs and select the best for breeding.

CT (computed tomography) scanning is expensive but provides highly accurate information about the yield of meat in the carcass, as well as traits influencing carcass shape and, through the breeding value for intramuscular fat, meat quality.

However, the inclusion of abattoir data into our genetic evaluations will take our analyses to a new level of accuracy, providing better predictions of genetic merit for those traits on which commercial producers are paid.



# RAMCOMPARE'S ROLE IN THE NATIONAL TERMINAL SIRE EVALUATION

RamCompare is the UK's commercial progeny test for terminal sires and a major source of abattoir data.

During seven breeding seasons, we have recorded over 38,500 lambs sired by 400 rams, using both artificial insemination (AI) and natural mating.

RamCompare is an important project which has been used:

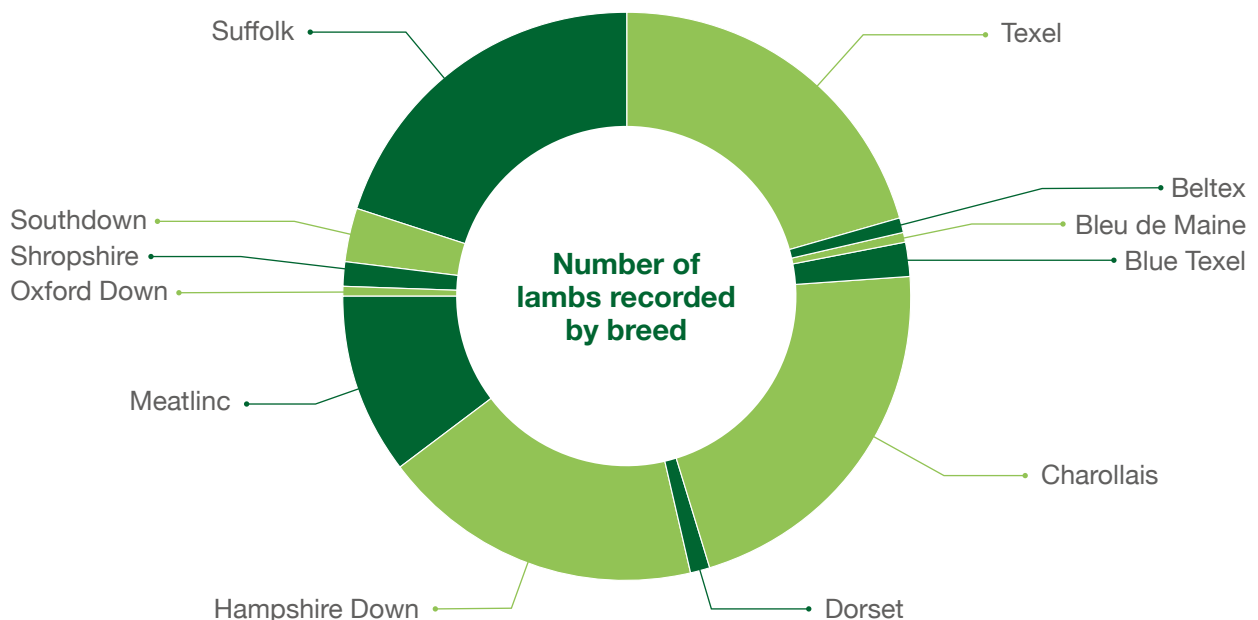
- ▶ To assess the extent to which a lamb's value at the abattoir is influenced by its sire's genetics, using this knowledge to develop EBVs for these traits
- ▶ To compare the performance of progeny by recorded rams to enable rams to be ranked according to their genetic merit
- ▶ To demonstrate the economic value of selecting rams using breeding values

RamCompare isn't the only source of abattoir phenotypes. Many other farmers already send in additional data to supplement the analysis, including nearly 4,000 Poll Dorset and Dorset Horn carcass records.

For more information, go to [ramcompare.com](http://ramcompare.com)



## BREAKDOWN OF LAMBS RECORDED AS PART OF RAMCOMPARE



# NEXT STEPS FOR THE NATIONAL TERMINAL SIRE EVALUATION

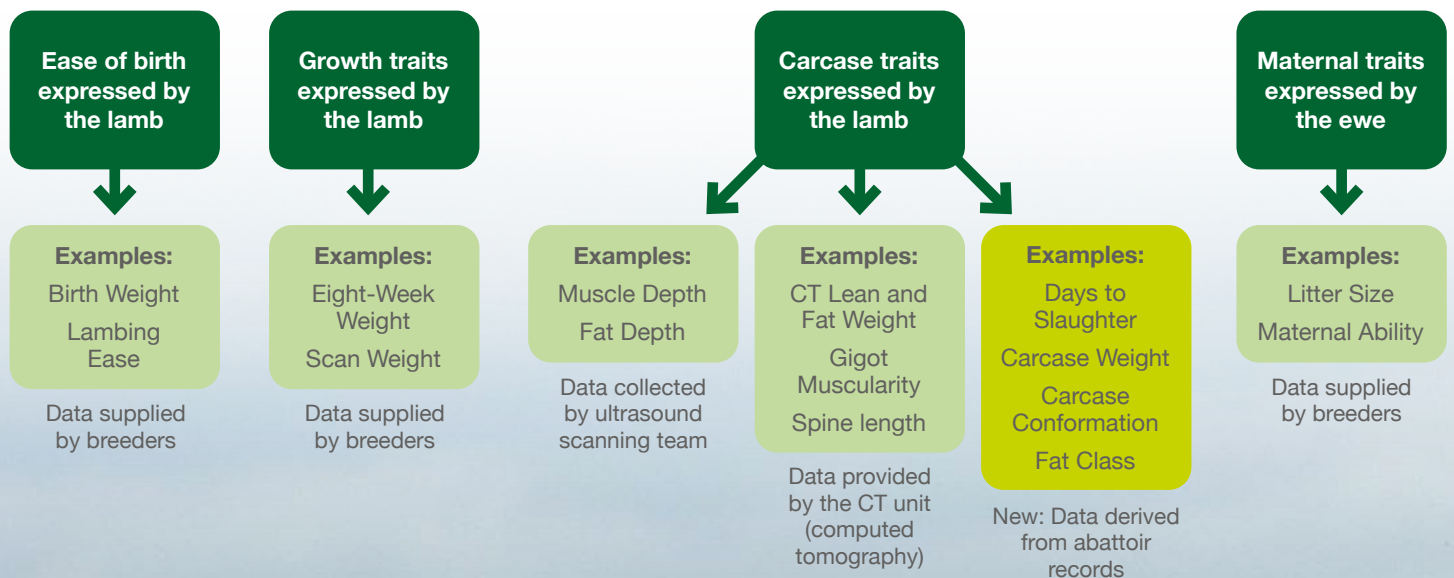
The National Terminal Sire Evaluation is a multi-breed genetic analysis that is used by ram breeders and commercial ram buyers to identify those sheep with the best genetics. Over twenty EBVs are routinely analysed each month for a series of economically important traits, using data from a range of different sources.

These breeding values enable ram buyers to select rams based on their genetic potential and are proven to be the best indicators of progeny performance.

EBVs can be used to enhance ease of birth at lambing time, growth rate, carcass quality or maternal performance. The inclusion of abattoir records in the evaluation provides a new approach to the improvement of carcass traits.

The analysis includes data from purebred, pedigree breeding animals and commercial crossbreds, with breeding values updated monthly and published on the Signet website.

Breeding indexes are used to rank animals for a given breeding objective to simplify decision-making. Using the latest findings from RamCompare, a new sub-index, Lamb Value, has been created to rank rams according to their genetic merit for abattoir-derived breeding values.



# A NEW APPROACH TO ANALYSING ABATTOIR DATA

The way we analyse carcass traits has evolved.

At the start of the project, on-farm measurements of growth rate and muscling were analysed completely separately from the abattoir data and delivered through two different analyses.

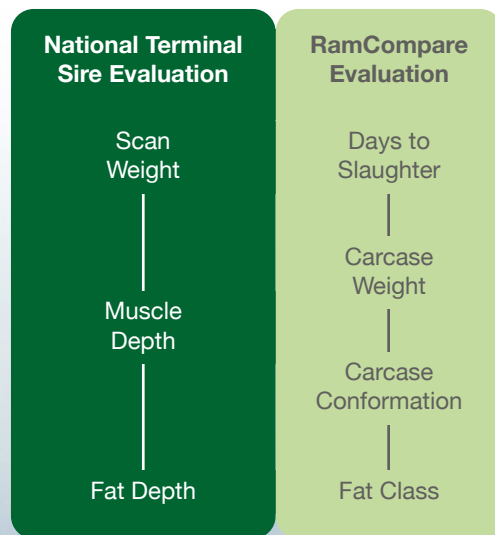
In 2023, abattoir data will be analysed as part of the National Terminal Sire Evaluation. For now, the genetic relationships we observe between farm and abattoir-derived traits, such as the relationship between Scan Weight and Days to Slaughter, won't be applied while research is completed to see how these changes will impact the main evaluation.

Services in the future will make more use of the genetic relationships between traits to enhance the EBVs produced for abattoir derived traits.

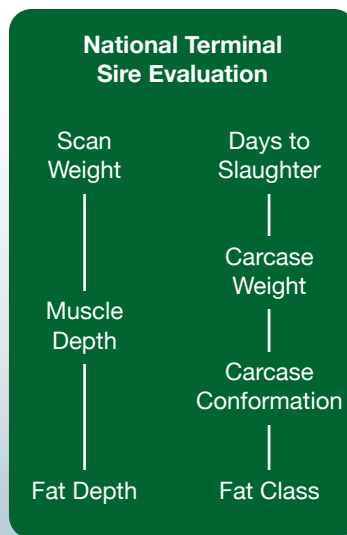
While the new approach is an important development for the National Evaluation, at present, only a small proportion of the population have abattoir measurements for themselves or their progeny. In many cases, the accuracy values produced for the new EBVs will be low.

In this scenario, breeders and ram buyers should place greater emphasis on those EBVs which have more records behind them and therefore have higher accuracy values.

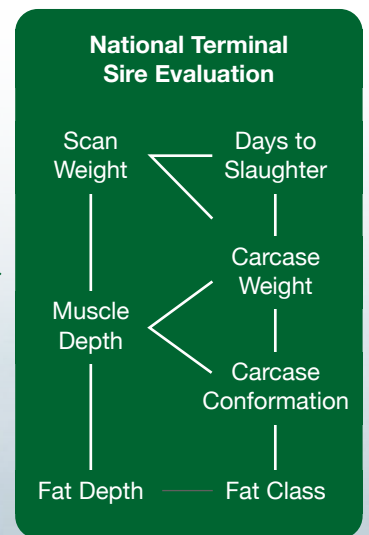
## Research phase (2016–2022)



## Current analysis (from 2023)



## Future approach



# LAMB VALUE – A NEW BREEDING INDEX

To identify the most valuable terminal sires based on their breeding values for abattoir traits, a new breeding index has been developed called ‘Lamb Value’.

Lamb Value takes into account the value of increasing carcass weights and conformation at an optimum level of finish, but it also values the savings attributable to reducing days to slaughter.

While it is relatively easy to assess the economic impact of increasing carcass values, it is harder to value faster finishing.

For spring-born lambs, there are direct savings associated with:

- ▶ A reduction in forage and/or concentrate consumption
- ▶ A potential reduction in vet and medicine costs

Forage costs shouldn't solely reflect the cost of summer grazing. More significant savings arise through reducing the grazing pressure as lambs are slaughtered, lifting the performance of the remaining lambs and reducing the competition for forage between lambs and ewes at mating time and over the winter.

Indirect benefits are harder to assess:

- ▶ Labour does reduce as lambs are slaughtered, but savings are small until large numbers of lambs leave the farm
- ▶ The longer lambs are on the farm, the greater the risk of mortality or the chance they encounter factors that limit performance, such as drought or worm challenge
- ▶ The early sale of lambs frees up land for other purposes, such as the finishing of store lambs or overwintering extra ewes

In addition, lambs that have the genetic potential to finish quickly can be sold sooner on a falling market. Where deadweight prices are falling at 2p, 4p or 6p/kg per week, a 38 kg lamb is losing 11p, 22p or 33p per day.

The new index developed by Abbygail Wells at SRUC takes these direct and indirect benefits into account in the production of this index developed for a typical spring lambing flock selling lambs over the summer. In certain scenarios, such as high creep costs or a rapidly falling market, it may undervalue the overall merit of the best sires, but it does provide a robust and reliable starting point in quantifying the value of superior terminal sires.

## Don't forget the environmental benefits of faster finishing

While Lamb Value assesses the economic benefits of faster finishing, the environmental benefits must also be considered. The more quickly lambs leave the farm, the less methane they produce over their lifetime. By increasing lamb growth rates, we also reduce the carbon footprint of lamb.





# USING BREEDING VALUES TO SELECT SUPERIOR TERMINAL SIRES

The highest priority in any flock is that every ewe produces a live lamb or lambs, which are born easily. Where flocks have a high proportion of difficult births, there are breeding values that can assist them in selecting sires with the genetic potential for smaller lambs that will be born more easily. This is particularly important when breeding from ewe lambs.

Producers must then consider the relative economic merit of the following growth and carcass attributes, selecting those rams with the best breeding values to enhance them.

## DAYS TO SLAUGHTER

Reducing days to slaughter can have a major impact on flock profitability, decreasing production costs, hitting peak markets and reducing stocking rates to benefit later-born lambs.

EBVs to use (where available):

- ▶ Days to Slaughter EBV – Negative values indicate faster finishing
- ▶ Scan Weight EBV – More widely recorded than Days to Slaughter and a good indicator of how quickly lambs will finish

## CARCASS WEIGHT

Providing lambs continue to meet market requirements and do not take longer to finish, there is usually an advantage to increasing their carcass weight.

EBVs to use (where available):

- ▶ Carcass Weight EBV – Positive values indicate progeny with heavier carcasses
- ▶ Scan Weight and Muscle Depth EBVs, as well as EBVs derived from CT scanning, all tend to have an important influence on this trait

## CARCASS CONFORMATION

The value of increasing carcass conformation will vary depending on the flock's current performance and market, with economic gains achievable in many flocks.

EBVs to use (where available):

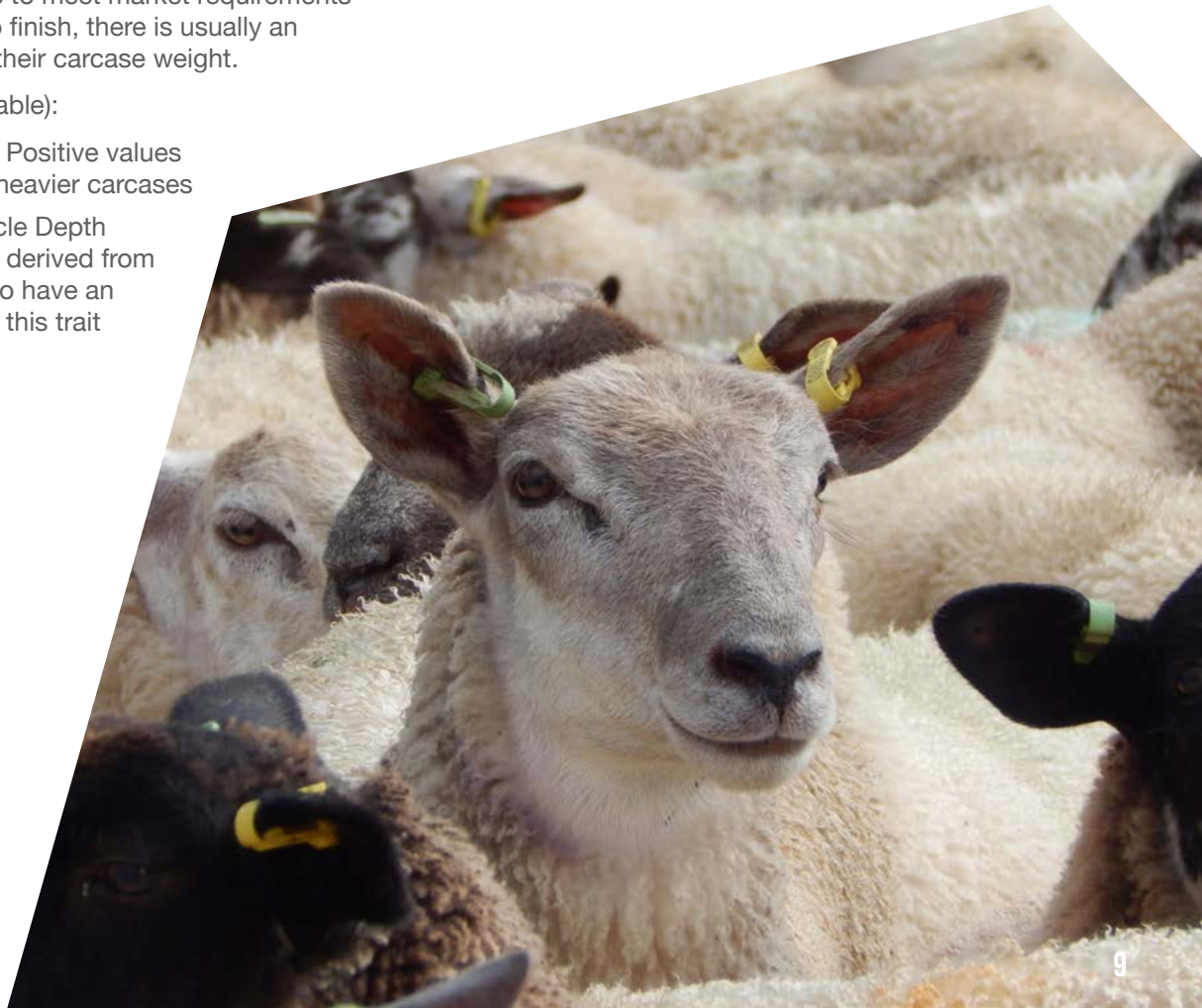
- ▶ Carcass Conformation EBV – Positive values indicate progeny with superior conformation
- ▶ Muscle Depth and Gigot EBVs – Both enhance carcass conformation

## FAT CLASSIFICATION

Abattoirs will penalise overfat lambs, but where lambs meet their requirements, there is little advantage in selecting for leanness. Lambs tend to be leaner when flocks use rams with high growth rates and increased muscling, so most producers place less emphasis on this trait.

EBVs to use:

- ▶ Fat Class EBVs – Negative values indicate leaner genetics
- ▶ Fat Depth and CT Fat Weight EBVs have a major impact on fat classification. Selecting animals with negative values will result in leaner lambs



# INTERPRETING BREEDING VALUES AT SALES

EBVs are often displayed on breeding charts, and tags are used to promote individuals in the top 5%, 10% or 25% of the breed to ram buyers.

Values to the right of the chart indicate above-average performance, faster growth rates, better conformation and shorter days to slaughter.

Care should be taken when interpreting EBVs for traits influencing fatness/leanness. Positive values indicate sheep that produce fatter carcasses. Producers seeking leaner genetics should select rams with negative values for fat traits.



EBVs are expressed in real units of measurement. Compared to a ram with EBVs of 0, this ram has the genetic potential to:

- Weigh 4 kg more at scanning
- Finish nearly five days earlier
- Produce a 1 kg heavier carcase

Accuracy values indicate how much is known about an animal in the calculation of its EBV. The higher the value the more accurate the EBV.

As we develop and increase the dataset, the accuracy value will often be low for abattoir traits. Values over 40% are informative, but the higher the better.

	EBVs	Accuracy values %	Below average	Above average
Scan Weight	4.02	77		
Muscle Depth	1.68	75		
Fat Depth	-0.78	75		
CT Lean Weight	0.88	53		
CT Fat Weight	-0.57	60		
CT Muscularity	4.15	43		
Days to Slaughter	-4.82	38		
Carcase Weight	1.03	39		
Carcase Conformation	1.25	39		
Fat Class	-0.74	40		
Lamb Value	£2.38	66		

Lamb Value is an economic index which provides a way of ranking animals to identify the most profitable terminal sires. A Lamb Value of £2.38 indicates we estimate his progeny to be worth an extra £2.38 compared to a ram with a Lamb Value of £0. The actual financial return will vary with farming systems; in systems with higher finishing costs, it may be considerably higher.

# FINDING BREEDING INFORMATION

The breeding values produced by Signet are published online. Even non-recorded sheep often have breeding values derived from information on relatives thanks to data sharing agreements between Signet and breed societies.

AHDB make this information freely available to pedigree and commercial sheep producers.

## BREEDING VALUES FOR INDIVIDUAL SHEEP

Go to Sheep Search at [signetdata.com/sheep-search](https://signetdata.com/sheep-search)

Select the breed of interest and its identity, using either the Flockbook number or the UK ministry tag.

The website will display the animal's breeding values and where it sits in the breed for each trait.

The screenshot shows the Signet Breeding Services website. The navigation bar includes Home, News, Sheep Search (highlighted), Beef Search, and Contact. The main heading is "Sheep Search". On the left, there is a section "Please select breed from the list below to narrow the search:" with a dropdown menu showing "CHAROLLAIS". Below this is a "Search by:" section with radio buttons for "Tag (FBN, UK Tag, EID)" (selected) and "Name". A text input field contains "UK 0 123456 12345" and a green "Search" button. On the right, there is a section "Find the latest technical information on the Signet website:" with a search input field and a green search button.

## TRAIT LEADERS

To find the leading rams in the breed use the EBV Search function at [signetdata.com/sheep-search/ebv-search](https://signetdata.com/sheep-search/ebv-search)

Select the breed of interest and the genetic attributes that you are looking for.

The screenshot shows the Signet EBV Search website. The navigation bar includes Home, News, Sheep Search (highlighted), Beef Search, and Contact. The main heading is "EBV Search". On the left, there is a "Breed" dropdown menu showing "CHAROLLAIS". Below this are "Breeder Flocks" and "Owner Flocks" dropdown menus, both showing "All Flocks". There are radio buttons for "Animal details" (selected) and "Estimated Breeding Values". On the right, there is a section "Select any traits to search by:" with a list of traits and their EBV values. Each trait has a checkbox, a comparison operator, a value, and a slider for "Top %".

Trait	EBV	Top %
Days To Slaughter	0.74	50
Carcase Weight	1.15	10
Carcase Conformation	1.39	10
Fat Class	-0.4	50

## RECORDED BREEDERS

To find out who has recorded rams in your area, go to FlockFinder at [signetdata.com/sheep-search/flock-finder](https://signetdata.com/sheep-search/flock-finder)

Enter your postcode, and you will see which breeders have recorded rams available in your area.

### For more information:

The publications below are available to anyone that wants to know more about the National Terminal Sire Evaluation or how to start performance recording their flock with Signet:

- ▶ **The National Terminal Sire Evaluation**
- ▶ **How to performance record your flock with Signet**

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