



GeneTracker Service Guide

GeneTracker - Frequently Asked Questions

What is GeneTracker and what does it do?

GeneTracker is the UK's leading genomic testing service provided by NMR.

The service can be undertaken through hair or tissue samples, however, our experience shows that a tissue sampling unit (TSU) delivers the best results for on farm accuracy and successful lab sample completion. This system uses a small tissue sample from an animal's ear which can be taken using a standalone TSU or as part of the official tag pair.

This tissue sample is then inserted into a sealed vial and posted back to the NMR Harrogate office where it is processed and shipped to the laboratory for genotype processing.

The genotype is generated as a result of DNA extraction and processing. It is then submitted to AHDB Dairy and Egenes for the creation of the following individual genomic evaluation data:

- Health
- Production
- Fertility
- PLI
- Type

The results also include a number of genetic recessives free of charge.

These results are made available through the following on farm management tools, InGENEious, Herd Companion or Searchpoint. These tools enable the customer to make more accurate and informed breeding decisions at a herd level or on individual animals.

How do I order a test?

Tests can be ordered by calling GeneTracker Customer Services: **03300 241 334**

Or by email orders@genetracker.co.uk

Our dedicated GeneTracker team will talk you through the test options, costs and processes.

Do I have to milk record with NMR to use the service?

No, following our partnership with Zoetis we can now offer genomic tests for herds recording with other organisations as well as non-recorded animals. The result reliability will be lower due to the lack of recording data. Where available we use a cdl file so that we can extract details needed to generate information required for submission. This improves the accuracy of the test by ensuring accurate animal and parentage IDs.

What are the criteria for animals? Do they have to be pedigree?

The only criteria are that they must be at least 87.5% pure bred in one of the following breeds;

- Holstein
- British Friesian
- Jersey
- Guernsey
- Ayrshire
- Brown Swiss (Only available with the US CDCB evaluations)

Can I test bulls as well as females?

Yes, NMR can test bulls for any of the above breeds.

We only offer the AHDB “unofficial” test for your own use. If you wish to publish your results we suggest that you speak to AHDB direct for pricing on “official” results. These utilise the same genotype but is not a service we offer direct.

What are the testing options?

We have simplified our service in the UK following our partnership with Zoetis.

All tests are now carried out on the US market leading 30k chip due to its blend of cost effectiveness and efficiency. 9k chip testing has now been phased out due to the lack of compatibility with the new health and efficiency traits that will soon be available.

Our 30k chip allows imputation of results to the same level of accuracy as our previous 50k chip.

A complete breakdown of what is included in the 30k chip testing can be found on the next page.

What testing services are available?

In addition to our standard pay as you go service, NMR provides Total Herd Genomics giving you the convenience of order-free TSU dispatch (after recording updates) or inclusive of DEFRA approved tag pairs for all animals to be tested. Further advantages include a “per cow per month” invoicing structure to assist with cashflow particularly where there is a large group of heifers to test at the service outset. Full details of this service are available from the GeneTracker helpline or your local NMR fieldsperson.

What's included?

Indexes

- £PLI
- Type Merit

Production Traits

- Milk (kg)
- Fat (kg)
- Protein (kg)
- Fat (%)
- Protein (%)
- SCC

Reproductive Trait(s)

- Fertility Index

Health and Fitness

- Lifespan
- Temperament
- Ease of Milking
- Condition Score
- TB Advantage
- Mastitis
- Lameness Advantage
- Calf Survival
- Dairy Carcase Index
- Maintenance

Mammary Traits

- Mammary Composite
- Fore Udder Attachment
- Rear Udder Height
- Udder Support
- Udder Depth
- Front Teat Placement
- Teat Length
- Rear Teat Placement

Feet and Leg Traits

- Feet and Legs Composite
- Rear Leg Side View
- Foot Angle
- Locomotion

Body and Dairy Strength

- Stature
- Chest Width
- Body Depth
- Angularity
- Rump Angle
- Rump Width

Calving Traits

- Direct Calving Ease
- Maternal Calving Ease

Milk Proteins

- Beta Lactoglobulin
- Kappa Casein I (ABE)

Included Base Genetic Conditions

- BLAD
- Citrullinemia
- DUMPS
- Factor XI
- HCD
- Mulefoot
- Spinal Dismyelination
- Coat Colour

In addition, the following can be requested:

Add-on Genetic Condition

- Horn/Polled
- Brachyspina
- CVM
- Beta Casein A2

How much will it cost?

The standard price is £33.00 per test.

This includes the sampling kits being sent to farm, postage to the laboratory including all export and import licensing and documentation, a suite of reporting options and result analysis and support from our dedicated genomics team.

Discounted pricing is available for 20+ animals tested in a one month period and for larger batches of tests purchased. Please contact GeneTracker Customer Services to discuss your exact requirements.

All of our invoicing is retrospective based upon completed tests in the previous month, including those pending parentage validation.

Do I get any other information besides production, health, fertility and type traits?

Yes, the customer also receives results for a whole suite of known 'genetic recessives' included in the price. Most notably these include such recessives as BLAD, Kappa Casein 1&2, coat colour (red factor) etc.

Polled, CVM, Brachyspina and Beta Casein A1 & A2 testing are also available but will attract an additional 'Royalty Fee' because private companies own the rights to these. The costs for these extra tests are available within the pricing schedule.

A Recessives Tests Information pack is available online or by request.

Are there any optional health tests available?

Yes, the CLARIFIDE plus service includes 6 adult health traits (Mastitis, Lameness, Displaced Abomasums, Ketosis, Metritis, Retained Placenta) along with three calf health traits (Respiratory Disorders, Scours and Survivability) and then combines all results into a lifetime profitability score. This service also includes all Holstein haplotypes.

Can I receive a US gTPI evaluation?

Full US CDCB results are an inclusive part of the CLARIFIDE plus package above. These include the internationally recognised GTPI and net merit scores plus all other US trait evaluations.

Can I do a parentage validation?

Yes, the GeneTracker test will identify AI sires or UK pedigree sires.

The details are submitted in advance as part of the sample enrolment process. There are cases where the details of the submitted sire and the actual sire shown in the DNA do not match. The most common reasons for this is mismatching of calves to the dam or incorrect semen straws being selected from the flask. The Zoetis system will automatically update the result to the 'DNA corrected sire'.

What will I receive in the post after I order?

A Tissue Sampling Unit (TSU) for each animal.

The TSU is individually bagged and labelled and specifically bar-coded and attributed to that animal. This system has been put in place to minimize sampling errors and help to avoid extra costs incurred for re-sampling.

In terms of the ear punch system, can I use my existing ear-tag applicator?

No.

Allflex have produced a particular applicator specifically for GeneTracker. A free applicator will be supplied with all new orders of 20+ tests; any additional applicators will attract a charge.

How long do the results take to come back?

Genomic evaluations are run every month and results are published on the first Tuesday of each month.

Results could be back within a month of testing providing samples have been taken correctly, no parentage conflicts are found and the sample submission deadlines are met.

If the submission deadline to the lab is missed, then samples will have to wait for the next testing cycle which could delay results for a further 4 weeks.

Delays may occur if an incorrect Sire or Dam is identified. The sample submission data will be checked and corrected then re-submitted but, in some cases, it may delay evaluation until the following month.

A full list of submission dates and deadlines can be found on page 1.

How does the customer view their results?

NMR has a range of reporting options available to assist you with extracting maximum value from your genomic testing. Our main focus is on the InGENEious reports which allow you to quickly assess the animals in your herd. There are many options within this to allow group analysis, either by age, genomically tested, breed or the complete herd. Our previous Ireports GeneTracker results allow more in depth analysis at trait level where required in the familiar Ireports format. We also have all results presented in the Zoetis SearchPoint platform.

SearchPoint allows many of the features of the NMR reporting but also gives tools to create groups, set up bespoke indexes for your herd and to track your sample progress through the lab and testing stages of the process. We believe that our reporting options set us apart from other genomic testing services.

Genomic testing produces a huge amount of data that can deliver a very strong return on your investment, not having the tools or the support to optimise this value will reduce the benefits gained from your herd improvement program.

For all new users, part of the service is a remote online session to show you how to access the results and use the tools that are available to you. We do not give breeding advice but showing you how best to use the data you have available will allow you to make the informed decisions and work with your current breeding advisor on a much better selected group of animals to deliver greater business efficiency

Follow these steps to access your Genetracker results:

1. Go to www.nmr.co.uk and log in using your normal credentials, if you have not used Herd Companion before please contact Customer Services for assistance in setting this up (03330 043043)
2. Once in Herd Companion click on the **Breeding and Fertility** header.
3. In the drop down menu that appears, all of the main reporting tools for genetic and genomic evaluations are grouped in the top left corner.
4. **Herd status** - Shows an overview of how your herd currently compares with the AHDB UK standards plus the reliability of the genetic evaluations in your herd.
5. **Genetic progress**
 - **Genetic trends** - Allows you to review trends in your breeding progress. There are a range of traits available by using the tick boxes to add or remove them from the graph. You can also add a long term trend line by ticking the second box on any trait.
 - **National comparison** - Quickly compare your results against the AHDB UK results across a range of traits. The reports feature a drop down for comparison groups, ie Holstein heifers, so you can review your comparative progress against national benchmarks across age groups. The results for your herd are shown in a separate box below the main grid, the highlighted sectors in the national average grid and the sector chart show your comparative centiles.
 - **Spread** - Allows you to see the spread of results in your herd across a range of traits. Once you have used the animal evaluation tool these become active and allow you to see the effects that removing specified breeding groups will have on the various traits within the herd.

6. Animal evaluation

- **Animal Selection** - This is the main tool for quickly and easily selecting breeding groups within the herd or from specific groups within the herd. The sliders allow you to set criteria for red, amber and green breeding groups such that animals contained in those must meet specific minimum criteria. You can choose as many or few traits as you want, the “Animals selected for analysis” drop down box allows you to divide the herd by age, breed or proof type. The pie chart shows the proportion of the analysis group which meet the criteria for each group. Once you have set the sliders, simply click on “Apply slider changes to Grid” and the grid below is updated with the breeding groups. This grid also allows you to manually shift animals across the groups where you consider them to have better or lower overall breeding worth to you. Please note that if you move the sliders any changes to the grid below will be lost. Once you have completed the manual changes, click on “apply grid changes to the pie chart” to see how the ratios look, if OK, click on “save selections”.
 - **Animal summary** - Here you can view the averages across traits of your breeding groups, you can also use the button above the grid to export to a selection of formats so you can send to a breeding advisor or keep for your own records.
7. **Herd PTA/PLI's** - Our standard iReport allowing you to compare group and rank on a range of production traits and PLIs. These reports feature all of the selection and ranking tools associated with the other ireports for recording services
 8. **GeneTracker results** - Features all traits available within a drop down selection at the top of the grid or you can simply use the standard reports by ticking the options at the top. Traits can be added and removed to set up a custom grid of just those results that matter to you. These traits can then be ranked, grouped or exported to Excel for further analysis. Clicking on an individual animal ID opens her bespoke genomic test report with all details in a linear assessment format.
 9. **SearchPoint** - A dynamic added value toolset allowing you to further analyse, group and create bespoke indexes so that you can optimise your breeding choices.
 10. ***Optional Specialist Consultancy** - Zoetis train vets UK wide in the use of genomics to drive health and productivity in the modern dairy herd. As a GeneTracker powered by Clarifide user, you are able to draw down upon this expertise if required. A list of vets who are suitably trained is available at <https://www.zoetis.co.uk/clarifide/vet-finder.aspx> .

* This is an additional cost item not organised or billed by NMR, you should discuss your requirements, costs and billing arrangements with the practice when you make contact
 11. For all new users we offer a remote training session to review these tools, further assistance can be received through any of the NMR field staff or our Customer Services team can organise someone to assist as required.

Where can I find more information?

All the information you should need can be found at www.nmr.co.uk/GeneTracker this includes the submission dates, result release dates, explanations of the genetic recessives, example reports etc. However if you cannot find what you are looking for and still have questions, please call the GeneTracker Customer Services number: 03300 241 334 alternatively please email orders@geneTracker.co.uk