



There *is* a Difference



Advanced DNA testing solutions for Hereford cattle

The Fastest Way to **Better Results**

Scan to learn more today!



Premium Genomic Testing for the Australian Hereford Industry

Neogen is proud to partner with Herefords Australia to offer comprehensive and cost-effective genomic solutions tailored specifically for Hereford seedstock cattle in Australia.

Our comprehensive suite of genomic tools provide valuable insights to help you:

- ✓ Assign parentage and/or reduce parentage errors
- ✓ Make faster rates of genetic gain in a breeding program
- ✓ Make more accurate selection decisions
- ✓ Make selection decisions earlier in an animal's life, and with more confidence
- ✓ Make selection decisions for traits that can't be routinely measured on-farm
- ✓ Fast track introgression of favourable qualitative traits into a herd
- ✓ Streamline the management of recessive genetic conditions
- ✓ Benchmark the genetics of a beef breeding enterprise, and track genetic progress over time



Premium genomic testing
delivered in collaboration with



HEREFORDS
Australia

So why should you test with Neogen?...

Because ‘There *is* a Difference’



1. Australia Based Genotyping Laboratory

Why send your samples offshore for testing when you can utilise a world-class genomic laboratory based right here in Australia?

Neogen's new, \$11 million, state-of-the-art genomics laboratory is located at Ipswich, west of Brisbane in Queensland, and is the largest livestock genomics laboratory in the southern hemisphere.



2. Comprehensive & Cost-Effective Product Range

Neogen offers a comprehensive range of premium genomic solutions, ensuring Hereford breeders can find a genomic testing option that suits their individual needs.

Rather than rely on generic genotyping platforms, Neogen's genomic test offering for Hereford cattle includes the genomic profiling of animals with Neogen's premium, proprietary genotyping array, GGP Bovine 100K.

The GGP Bovine 100K contains approximately 100,000 markers, known as single nucleotide polymorphisms (or SNPs), and is ideal for the calculation of genomically enhanced breeding values, particularly for seedstock animals, along with use for parentage assignment, and the management of genetic traits and conditions.

Neogen also retails sample collection equipment, such as Allflex TSUs and TSU applicators, offering customers a 'one-stop-shop' for all their genomic testing needs.



3. Unparalleled Testing Turnaround Times

Neogen understands that time is money and prides itself on offering the fastest testing turnaround times of any livestock genomics laboratory.

By leveraging the operational strength, size and efficiency of our state-of-the-art genotyping laboratory in Ipswich, Queensland, coupled with utilisation of the latest high-end genomic analysis tools and robotic processing, the vast majority of genomic testing is completed within 3-4 weeks of when samples arrive at the lab.



4. Nationwide Network of Genomic Territory Managers

Neogen's genomic solution portfolio is supported by our experienced sales, technical support and customer service teams who are on hand to offer guidance and support every step of the way.



5. Long Term Partner of Herefords Australia

Neogen is proud to be the sole, long term provider of genotyping services to Herefords Australia.

Neogen continues to be the Australian Hereford industry's genotyping laboratory of choice for research and commercial genotyping services, with many thousands of Hereford and Hereford influenced animals in the Beef Information Nucleus program, Black Baldy trial, and Southern Multibreed Project being genotyped through the Neogen laboratory.

Genomic Solutions for Hereford Seedstock Cattle

Neogen's comprehensive range of genomic tests, ordered through Herefords Australia, include:

- ✓ Genomic profiling
- ✓ Parentage assignment
- ✓ Screening for genetic conditions and traits of relevance to the Hereford breed
- ✓ Incorporation of genomic profiles into Hereford BREEDPLAN for the calculation of genomically enhanced breeding values.

Genomic Testing Options

Genomic Test Bundles

Commercial Bundle - Includes genomic profiling (GGP Bovine uLD), parentage verification, and genomically enhanced EBVs*. TSU samples only.

Replacement Heifer Bundle - Includes genomic profiling (GGP Bovine 100K), parentage verification, genomically enhanced EBVs*, and bovine horn/poll.

Sale Bull Bundle - Includes genomic profiling (GGP Bovine 100K), parentage verification, genomically enhanced EBVs*, bovine horn/poll, and screening for four common genetic conditions in the Hereford breed (Hypotrichosis, Dilutor, Idiopathic Epilepsy, Maple Syrup Urine Disease).

Show and Sale Bundle - Includes genomic profiling (GGP Bovine 100K), parentage verification, genomically enhanced EBVs*, bovine horn/poll, screening for six common genetic conditions in the Hereford breed (Hypotrichosis, Dilutor, Idiopathic Epilepsy, Maple Syrup Urine Disease, Delayed Blindness, Mandibulofacial Dysostosis), and BVDV (PI).
*Analysis completed by BREEDPLAN

Standalone Genetic Traits & Conditions

(Can be ordered as standalone testing i.e. not in association with one of the genomic test bundles)

Bovine Horn/Poll

Maple Syrup Urine Disease (MSUD)

Dilutor (DL)

Mandibulofacial Dysostosis (MD)

Hypotrichosis (HY)

Delayed Blindness (DB)

Idiopathic Epilepsy (IE)

Standalone Parentage Verification

(Can be ordered as standalone testing. Includes genomic profiling (SeekSire) and parentage verification only.)

Seeksire Cattle Parentage (543 SNPs)

BVDV (PI) (Must be requested in association with another test)

Bovine Viral Diarrhoea Virus (BVDV) - Includes screening for animals persistently infected (PI) with BVDV. TSU Samples only



GGP Bovine 100K

Designed specifically for *Bos taurus* and *Bos taurus* influenced cattle.

Contains approx. 100,000 Single Nucleotide Polymorphisms (SNPs).

Genomic Profiling With A Difference

Rather than utilising generic genotyping platforms, Neogen's genomic test offering for Hereford cattle includes the genomic profiling of animals with Neogen's premium, proprietary genotyping array, GGP Bovine 100K.

The GeneSeek Genomic Profiler (GGP) Bovine 100K genotyping array contains approximately 100,000 markers, known as single nucleotide polymorphisms (or SNPs), and is designed specifically for *Bos taurus* and *Bos taurus* influenced cattle.

The GGP Bovine 100K lassos the knowledge of industry leading scientists, combined with Neogen's leading SNP selection processes, to precisely choose the most informative 100,000 SNPs for *Bos taurus* cattle.

The GGP Bovine 100K delivers more accurate evaluation of genetic merit, genome wide selection, comparative genetic studies, and higher density imputation.

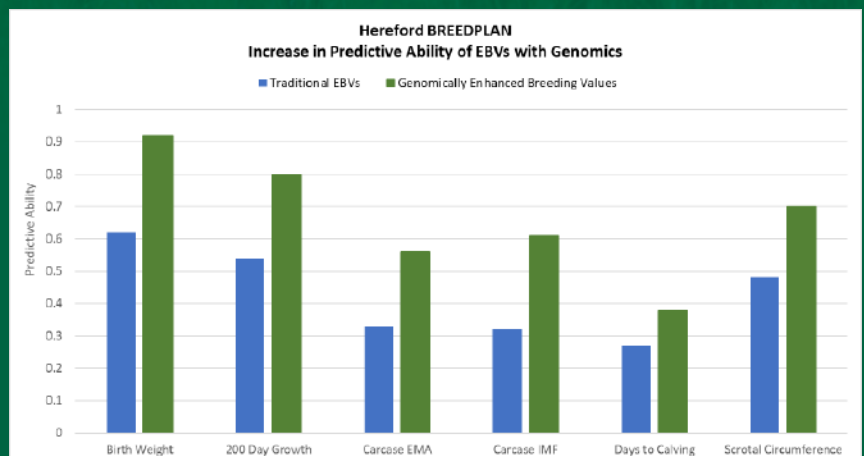
Traits Evaluated

GGP Bovine 100K genomic profiles are incorporated into the calculation of genomically enhanced breeding values in Hereford BREEDPLAN for the following traits.

BIRTH	Calving Ease Direct, Calving Ease Daughters, Birth Weight, Gestation Length
GROWTH	200 Day Growth, 400 Day Weight, 600 Day Weight, Milk
FERTILITY	Scrotal Size, Days to Calving
MATERNAL	Mature Cow Weight
CARCASE	Carcase Weight, Eye Muscle Area, Rib Fat, Rump Fat, Retail Beef Yield, IMF
EFFICIENCY	Net Feed Intake

Genomically Enhanced Breeding Values Are More Accurate

Research conducted by the Animal Genetics & Breeding Unit (AGBU) has shown that the inclusion of genomic information in Hereford BREEDPLAN improves the predictive ability of EBVs by 25%, on average, clearly demonstrating the benefit of undertaking a genomic testing program in a Hereford seedstock breeding enterprise.



The Genomic Testing Process

Genomic testing for Hereford seedstock cattle should be ordered from Herefords Australia (HAL) using the process below:

Get Organised

- Contact the relevant Neogen Australasia Territory Manager to identify the genomic testing that best fits the needs of your breeding program.
- Purchase your TSU applicator and TSUs from the online store on the HAL website.
- Ensure your calves are recorded with HAL. All animals must be calf recorded with HAL prior to genomic testing.

Collect DNA Samples

- Collect DNA samples from your animals.
- TSUs are the most common form of DNA sample, however tail hairs or semen straws can also be submitted for testing.

Submit Your DNA Order

- Complete the Excel based 'DNA Test Request Spreadsheet'. Forms are available for download from the HAL website. On your application form, make sure you complete the TSU barcode, animal ident, sex and the test required, and if parentage verification is required, the ids of the possible sire/s and dam/s. If sires and dams are not nominated, parentage verification will not be conducted.
- Email an electronic copy of the application form to registrar@herefordsaustralia.com.au
- Upon receipt of your request form, HAL staff will load your order into their computer system, submit it to Neogen for processing, and email you an acknowledgement letter.

Submit Your Samples

- Print the acknowledgement letter (emailed from HAL) and mail a hard copy of the acknowledgement letter, along with your DNA samples to the Neogen Australasia, 14 Hume Drive, Bundamba, QLD 4304.
- The Acknowledgement letter does not need to be mailed to the lab if you are requesting a test from a sample that is already stored at Neogen. Complete the spreadsheet with the sample type as 'Done'. The paperwork sent from HAL to Neogen will begin the testing process.

Genotyping & Analysis

- Genotyping of your samples will be undertaken, any subsequent analysis of the genomic profiles conducted (e.g. parentage verification), and results (e.g. genomic profiles, parentage and genetic condition results) will be returned to HAL.
- Where applicable, genomic profiles will be provided to ABRI for inclusion in the Hereford BREEDPLAN genetic evaluation.

Access results

- Results will be provided to you via email by HAL.
- Parentage and genetic condition results are usually available within 3-4 weeks.
- Subject to the Hereford BREEDPLAN genetic evaluation schedule, genomically enhanced EBVs are usually available within 6-8 weeks.

To find out how we can help your business grow, contact your local Neogen territory manager today.

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