Genomic testing young heifers paves the way to rapid and reliable progress

Spot your top girls early on

Genomically testing young dairy heifers will be as important as AI in the next decade. Whether you're running a large-scale or a family-sized unit, pedigree or purely commercial, using genomic testing on heifer calves is cost-effective. Lucy Andrews-Noden explains how one simple test can steer the direction of the herd.

text **Karen Wright**

Every producer's aim is to breed and rear heifers that out-perform their older herd mates and to minimise the risk of any disappointing stragglers. And this ideal scenario is all the more achievable in herds that are genomically testing young heifers where potential performance data is available at four months old; data that would previously not have been available until the end of her second lactation when she is, at best, four years old.

"We're providing producers with a CV for their young heifers," says Lucy Andrews-Noden, who has helped to develop NMR's GeneTracker service. "You'd want to see a CV for a new member of staff before you committed to employing them. So why not extend this to the milking herd and make sure that the young heifer is going to earn her keep and make you some money?"

Tissue sample

GeneTracker is hassle-free and uses a tissue sample from the calf's ear from four days old without leaving any tag or plastic behind. This sample is enough to provide predictions for 31 UK traits, including a Profitable Lifetime Index (PLI), Type Merit and key health and management criteria. The sample can also be used for a BVD test.

"How the producer and breeding adviser use the genomic report depends on the herd policy," adds Lucy. "No two herds are the same and their breeding goals

Lucy Andrews-Noden: "Genomic reports are essentially a CV for each heifer"

Andrew and Jenny Jones are now using genomic tests on young dairy heifers

and targets will vary. While some may focus on PLI, others may want to target cell counts, fertility or lifespan more specifically. Every producer needs to identify their goals. Then they can look at the young heifers' genomic report and see if they are likely to meet the grade."

She points out that it's not a 'pass or fail' report. "It's a breeding tool – it will identify those heifers that you may want to use more expensive sexed semen on, for example, to secure the highest quality replacements. It can also ID heifers that look good, but not exceptional, which you can justify rearing but would put to AI or those you would put to a beef bull."

Using genomic daughter information in herd breeding programmes can shorten the genetic interval and improve genetic gains. "Importantly, it is a means of controlling costs by rearing fewer but higher quality animals."

With the cost of each heifer genomic test around £30, 100 young heifers could be tested for £3,000. "If 3% were identified as 'poor' and taken out of the herd, then significant savings could be made. Based on rearing costs of £1,500 to £2,000 per dairy heifer, this would save between £4,500 and £6,000, making a net saving of between £1,500 to £3,000 after the cost of the test. And there are also the longer-term financial benefits of breeding a more efficient and healthy dairy herd to factor in."

Good base

Lucy also stresses that you don't need to be a cattle breeding expert to take advantage of genomic testing of heifers. "Don't let the wealth of genetic information put you off," she says. "A predicted PLI for each heifer is a good base for making improved breeding decisions. And it's very straight forward."

But for those wanting to look at particular traits and make improvements in specific areas then they can refer to these predictions on the genomic report. "The information on each heifer can be used for corrective matings. So if she's got great yield and fertility predictions on her genomic report, but is slightly down on somatic cell count or a type trait prediction is a bit out of kilter, the appropriate sire can be selected for her mating. You can make sure you are protecting against any 'minuses' in the herd."

For GeneTracker customers, the CV doesn't just stop at the 31 traits. "We're including results on key genetic recessives, like fertility haplotypes, polled and coat colour plus many other traits, free of charge," adds Lucy.

Actual prediction

The test will also verify parentage and if a mistake with the AI sire selection has been made, then the results will help to suggest a bull that will correct the earlier mating. "And, for those cattle breeding enthusiasts, they can also access International indexes such as GTPI and Net Merit."

Having 'dabbled' with genomics, Wrexham-based Andrew Jones, from Rossett Holsteins, is already convinced that it has a role to play in his young female heifers. Andrew and his wife Jenny have 100 milkers, producing A2 milk and they also sell surplus dairy young stock.

"We've tested a group of young heifers through GeneTracker and the results give us a detailed and reliable picture of the animal. It means that we're looking at the actual animal's prediction, rather than a prediction based purely on her ancestors," he says.

"Genomics has dominated the male population for the past five years. In another five years I can see it dominating the female side too."

Andrew got off to a good start – he tested five one-month-old heifers and one came back with a type prediction putting her in the UK's top 50. "I'd never have known this without her genomic test report – not until she reached about three years old and her classification came back well above the breed average. Knowing her true potential this early makes a difference in my breeding decisions.

"It's another management tool – and it's not restricted to pedigree breeders and those selling young stock. It's good for any dairy producer to know the make-up of these young heifers and set them against the herd's own goals, whether it's production, health fertility or lifespan. It means that we start to look forwards rather than referring to historic data."

Andrew knows that, for him, genomic testing of heifers stacks up, even with the current low milk price.

"It will be even better if and when milk prices improve. It means that any herd with genomic reports on young heifers has the potential to make far quicker progress towards our business goals than in the past. We'll be genomically testing more heifers from now on." |

GeneTracker

- Available to all officially milk recorded herds
- Ear notch tissue sample taken from four days old
- Specially designed GeneTracker packs to streamline the service
- Validated test results available between four and six weeks
- Report provides predictions for 31 UK traits, including PLI and Type Merit
- iReports via NMR web site can be customised with specific herd breeding targets
- Report includes genetic recessive data, such as polled and coat colour, and for diseases including BLAD and DUMPS
- Additional data is available for lethal recessives, major genes, congenital disorders and international indices such as GTPI and BVD

For more information on GeneTracker, visit the web site: www.genetracker.co.uk