

Genomic results spell out heifers' credentials and their likely role in the herd

Paint a clearer picture

Genomic reports provide heifer 'CVs', well ahead of their start date in the milking herd. With a reliability of 70% – far higher than the parent average reliability at 35% – two producers explain why genomically testing heifers is now an integral part of their herd management.

text **Karen Wright**

Axminster-based producer Phil Bird has 'flirted' with genomic testing in his 250-cow pedigree Holstein herd for the past four years. He now has 25 genomically tested first- to fourth-lactation cows. He is pleased with their performance and has found that they've matched their genomic reports very closely, helping to increase average yields to 9,800kg of milk at 4.01% fat and 3.2% protein, and a somatic cell count (SCC) of 158,000/ml. "I can see a strong correlation between the genomic test results and these cows'

performance," says Phil. "It's really increased my trust in genomics." So in January 2018 he started testing all his heifers at three weeks old.

Phil has bred all his maiden heifers to sexed semen for the past six years. "In theory, we should be breeding from the best," he adds, "but there have been occasions when three months into milk we find a heifer is not performing as well as we'd anticipated, based on parent averages. And we've no reliable way of knowing what her fertility or cell count score is likely to be."

Phil will use the genomic test results

to set breeding criteria and he will use sexed semen on those heifers and first- and second-lactation cows that meet these criteria. "There might even be some older cows that are good enough," he adds, admitting that it's early days, with only about 35 genomically tested heifer calves to date.

Breeding benchmarks

The average £PLI of these 35 heifers is 288, with a fertility index of 3.3 and SCC index of -11. "I will set benchmarks

Phil Bird: "Genomic tests can spring some surprises"



Phil Bird has about 35 genomically-tested heifers in the herd so far





Roger Hildreth: "PLI improvements here are mainly down to using genomic results"

once I know what the averages are for the year group, looking at mammary traits, SCC, production and fertility index. I may also consider legs and feet because there is scope to improve this within the herd."

A committed GeneTracker user, Phil finds taking tissue samples at the time of ear tagging much easier than sending off hair samples. He also likes the flexibility of the results on the GeneTracker web site in NMR's Herd Companion. "I can rank the data, alter the criteria and set benchmarks," he adds. "I feel I can really make the most of the data through this site."

Phil admits that, at first, you must hold your nerve when you are using genomic test results. "They can spring some surprises," he adds. "Some heifers don't look anything special, but their genomic test shows that they have great potential. The reverse can also be true. You have to trust the results and, in my experience, it has proved to be the right decision."

With conception rates from sexed semen at 66% for the past two years, Phil will limit its use to 65 to 70 heifer calves and the rest of the herd will be bred to a beef bull to avoid over-stocking the unit.

"We're in a TB area so we can't guarantee being able to move animals off the farm and we're not in the business of getting rid of dairy bull calves – it's far easier for us to keep and rear beef cattle."

It also means that less dairy semen is used and more beef bulls. "We're using more straws at £5 and fewer at £25. This soon covers the cost of the genomic testing and that's before we consider the other benefits."

Rapid progress

Roger Hildreth, from Hessay near York, has also seen the advantages of genomic testing in his pedigree Holstein herd. He started using GeneTracker in 2015 and takes tissue samples from heifer calves soon after birth.

Despite low milk prices in the early days,



Roger Hildreth's genomically tested heifers are in the top 5% of heifers nationally

that could have caused him to waiver, he stuck to his plans and now has 89 genomically tested animals among the 186 head of dairy cattle on the farm. He attributes the increase in the herd's £PLI, from 230 to 314, mostly to using genomics as a selection tool.

"It's allowed us to select which heifers we rear and breed replacements from," says Roger. "We've been able to progress far more rapidly and breed a more uniform herd by taking out the bottom end."

He calculates that his annual genomic testing costs will be covered by identifying just one heifer calf that isn't meeting his selection criteria from a crop of about 40. He looks to keep about 32 heifers.

Above threshold

Roger runs the 72-hectare dairy unit with wife Judith and son Tom. He's enthusiastic about cow pedigrees, but breeding decisions here are based mainly on genomic tests. He studies the GeneTracker results with his Genus breeding adviser Thomas Tiffin.

"Thomas gets the specialist details on inbreeding and heritability detection lists from the GeneTracker reports. Meanwhile, I compare results with our benchmarks for PLI, fertility index and life span. We look to rear those heifer calves with genomic tests above our thresholds.

"For example, for gPLI we look for

heifers with a test result above 275. Those not making the grade will be sold and reared for other dairy herds – they are all of a high standard and consequently we have a good market for them," adds Roger.

While the emphasis on milk yields, and milk quality, is important for his milk buyer, Arla, Roger doesn't ignore type. "We will deselect a heifer if she's negative on type merit – except for stature. We don't want to breed very tall cows."

The herd currently yields 10,600kg on twice-a-day milking, with 4,400kg of milk from forage, on a housed and grazing system. Its genomic average of £PLI 314 and weight of fat and protein of 14.46kg and 11.25kg, respectively, with a somatic cell count of –10, put them well within the top 5% of heifers nationally.

Sexed semen is used on maiden heifers and early calving cows and a beef bull is used on the rest of the herd. "We aim to minimise the number of dairy bull calves that are born on the farm and our beef-cross calves are sold to a beef rearing unit."

"We're using the data to breed longer-lasting cows with the potential to produce more milk of improved quality," adds Roger. "It's the way forward. I can't understand why anyone wouldn't use genomic testing as a management tool these days." |