

## Genomics makes breeding decisions easy

### White family

**Region: Gippsland, Victoria**

**Topic: Genomic testing, parentage verification**

Making accurate breeding decisions doesn't have to be hard work. Just ask Holstein breeder Les White.

The Leongatha South dairy farmer has used genomics to cull the bottom 10% of his family's dairy herd for the best part of the past decade.

He also uses the technology to verify parentage of calves – to avoid any mix-ups in the calving paddock – and to accurately identify sires used in the family's artificial breeding program, as they always inseminate embryos with two semen straws from different sires.

For Les, the information generated by the DNA derived from a calf's ear-notch has taken any guess work out of breeding decisions.

“It makes things so easy to keep improving your herd,” he said. “The decisions are easier; they are virtually made for you, or they are staring you in the face. All you have to do is make it happen.”

This past year, the Whites used genomics to decide which heifers to export. Those with the lowest Balanced Performance Index (BPI) – an independent breeding index developed by DataGene – are targeted for sale first, followed by heifers with the lowest breeding values for udder traits and fertility.

Picking heifers to sell hasn't been an easy task though,



*Les White uses genomic results from young calves to confirm their parentage and make early decisions about which calves (male and female) to keep and which to sell.*



with the White family's Dilee Holstein herd improving all the time thanks to genomics – and their increased use of sexed semen means they have more to choose from.

It's a similar story with choosing herd bulls to retain for sale to local farmers. Les said genomics has enabled them to choose bulls earlier and with greater certainty about their future potential.

Holstein Australia requires all Holstein bulls that are sold for use in dairy herds to be genomically tested.

Although many of Dilee Holsteins clients don't ask for the genomic results, Les said having the information reassures him that he's selling quality animals.

"The good ones on genomics, they will be good once when they come in the herd," he said.

The Whites are particularly excited about the prospects for two heifers that have the highest BPIs their herd has ever recorded.

The heifers were born in January and March 2021, both Pembertons out of a Silverline. One has a BPI of 489 according to genomics and her full sister has a BPI of 501, putting them in the top 1% in Australia.

### Identifying value in genomics

Les, his wife Dianne, son Russ and his wife Amy were early adopters of genomics.

The decision to implement the technology nearly 10 years ago, has made some on-farm jobs easier, according to Les. Especially since the herd has grown to 340 cows. It's now a routine practice to sample calves at a few days old.

"Although we don't really need to know who a heifer is out of for a while, same for a bull as we don't sell them until they are 18 months old, genomics picks up the parentage really quickly," he said.

"In the calving paddock, you always get mistakes, but we didn't realise how many parentage mistakes we made until we did genomics."

### Simpler samples

A big game-changer for Les has been the move from using animal's tail hairs for genomics to taking an ear-notch sample.

## Parentage verification

Parentage verification involves cross checking an animal's recorded pedigree with genomic results to confirm its sire and dam. It is a standard inclusion with genomic results for animals tested through the Australian system. Parentage verification can be used to correct errors and/or fill gaps in records where data is unknown or has been lost.

DataGene's analysis shows that about 20% of Australian dairy cattle are recorded with incorrect parentage. Errors in the recorded parentage can occur at mating and embryo transfer through misidentified calves or mix ups when DNA sampling. For more information, refer to [DataGene TechNote 1: Parentage Verification](#).

He first saw the new way of taking a DNA sample while on a Holstein Australia sub-branch tour.

"The punch-hole is the best thing ever invented," he said. "We do them when they are born, so a group about every four to five days, it's extremely easy. It's much easier than an ear tag because it is a lot smaller hole."

After more than 60 years of milking cows, Les remains impressed with the rate of technological and genetic gain available for farmers willing to invest in the newest science.

He said industry breeding has evolved considerably – particularly the past 15 years.

While these improvements have helped the bottom-line of his family business, he didn't want to take a guess at what the future would hold for his 22-year-old grandson Rhys who recently joined the family business.

Rhys is the sixth generation to milk cows in South Gippsland, and Les said his grandson had stepped into the industry at a time of huge progress through increased knowledge and technology.

"I really don't know what the future is going to be, the number of changes that's happened over the last 20 odd years, what's going to happen in the future I wouldn't want to guess," he said.

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