

## Genomics help to boost breeding in Western Australia

### Haddon family

**Region:** Western Australia

**Topic:** Genomic testing

When it comes to breeding dairy cows, most decisions on the Haddon family's dairy farm involve genomic data.

West Australian dairy farmer Elaine Haddon uses the information from the DNA of each animal to inform breeding, culling and mating choices.

According to Elaine, using data to underpin farm business decisions provides more certainty.

But, most importantly, she said making the most of this data ensured the business received the maximum return for its investment in genomic testing, heifer rearing and breeding.

"It costs a lot of money to rear a heifer, it costs a lot of money to AI them and we do synchronisation programs and that's not cheap," Elaine said.

"It's a big job milking cows, so if you are going to keep a heifer you need to make sure she is a good one. It costs the same amount of money to rear a good heifer as one that's average or below average."

Elaine, her husband Neville and son Garry milk up to 1,400 cows at Yoongarillip near Busselton.

Their Holstein herd produces a total of 12-12.5 million litres a year or about 9,000 litres/cow.

Operating a dryland farm, they are especially conscious of feed costs throughout summer and autumn as the need for supplementary fodder means it is uneconomical to retain additional stock.



*Elaine and Neville Haddon*



Genomics, combined with a visual evaluation of heifers, determines which will remain on-farm.

Generally, the bottom 10% of each group of heifers based on their Balanced Performance Index (BPI) – a breeding index generated by DataGene – are sold to export markets at 6-8 months of age.

“We want to put our effort into our best heifers, make sure they keep growing and we can feed them properly,” Elaine said.

Up to 1,800 of the Haddon’s animals have been genomically tested. During the first few years of testing, DNA was taken from heifers just before mating. But now, ear notch samples are collected when calves are 6-8 weeks old, at the same time they receive vaccinations and are disbudded.

### Insight into breeding direction

Thanks to genomics, Elaine was able to identify areas of her breeding program which needed improvement.

“Looking through my DNA results, I picked-up that I had been focusing on fertility, mastitis and teat length and had taken my eye off milk production,” she said.

“I hadn’t realised that until I started getting genomic results back.”

Now, the Haddon’s use genomics, in addition to a computer breeding program, to guide individual mating.

“For example, if a sire has short teats and a heifer’s DNA has come up with short teats, well I’m not going to use that bull on that heifer because I don’t want short teats,” Elaine said.

“I pick out the worst couple of traits according to the genomic test results and then I make sure that the bull that is going over can correct those faults. We are just trying to correct the traits we have issues with, basically, correct the worst limiting factor and all the cattle are different.”

The Haddon’s top BPI heifers, determined by genomics, are mated to sexed semen with the remainder of the herd joined to conventional semen.

## 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](#).

### Parentage identification made easy

With such a large milking herd and the use of synchronisation programs for breeding, the Haddons often have 400 to 500 cows calving within six weeks.

Due to the scale of the operation and the number of calves born at once, some calves are mis-tagged at birth.

Parentage verification is a standard inclusion in Australian genomic services, enabling the Haddons to accurately rectify any parentage errors when the calves are still young.

With the goal of using genomics to ensure they breed and retain their best heifers; the technology will remain a mainstay of the Haddon’s business.

Elaine said the most productive choice they have made is to use the information derived from genomics across as much of their business as possible.

“It is costly to do it, there’s time collecting the ear notches and packing them up and sending them away,” she said.

“Farmwest are great; they help us do that and we know that in the long-run it will be worth it.

“After all, there’s no point in doing genomic testing if we don’t use the data.”

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