

## Genomics and breeding underpin dairy business

**Dairy farmer: Sam Simpson**

**Region: Western Victoria**

**Topic: Heifer genomics**

Sam Simpson's dairy breeding philosophy has always been simple – increase the components in the vat and make sure each cow stays in the herd long enough to deliver the business a return on its investment.

After all, she said, these were the profit drivers of a commercial dairy farm.

Now, thanks to genomic testing, breeding delivers much more value.

“We are seeing a lot more information and are able to breed an animal that is better at putting milk into the vat with high components with less effort on our part,” she said.

“For example, we might not have to work as hard with that animal, if she is a fantastic feed converter. Maybe we don't have to run as many cows to put the same amount of milk in the vat and then we don't have to feed more mouths and that's going to have an impact on our feed costs. Genomics isn't fundamentally changing what we are doing, but it is giving us a lot more information about the animals that we are breeding and that may have flow-on affects in other areas of the business.”

Sam and her husband, Mark Billing, milk 430 cows (Craiglands Holsteins) at Larpent, near Colac in Victoria. They started genomic testing in 2015 as part of DataGene's Improving Herds project. Now they use genomic results to select the calves they want to retain as replacements and which heifers and cows they want to join to sexed, conventional or beef semen.

For the maiden heifers, genomic information plays a big role in breeding decisions. Sam uses the DataVat web

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portal to rank heifers based on their genomic result for Balanced Performance Index (BPI).

“This information gives us the confidence to be able to make those decisions about who gets what semen,” she said.

For Sam, this practice was not only improving their herd’s genetics, but it was also financial management.

“I’m able to be a lot more in control of where our money is being spent, because at the end of the day, that’s what it comes down too,” Sam said. “Buying semen and buying sexed semen is a costly adventure when you have 400 plus cows. You want to make sure you are using it in the best way possible.”

### **Mating decisions made easy**

Genomic data has been Sam and Mark’s “mating starting point” but isn’t the only information used to guide decisions.

“We’ve been a reasonably data-driven business for a long time, doing herd testing for many, many years and on a regular basis so we have got very good records of the herd’s health status and parentage anyway,” Sam said. “The genomics part of it is just another layer.”

Sam and Mark now have more information than ever when it comes to managing their Holstein herd.

***“We are getting a better herd genetically, but we are also improving our overall business because we will no longer just be a monoculture tied to milk, we can spread out our risk. That’s all to do with genomically testing our cows.”***

**Sam Simpson, 430 cows, Craiglands Holsteins, Western Victoria**

“I sit down before every joining season and work out who’s who and where they rank and what bulls there are and how they are going to match up; that takes time,” Sam said.

“But I think, from the investment of time that I am putting in, I’m going to get a good return out of it. I’m seeing that in my figures so far. Once you get into it, it becomes easier and quicker because you know what you are trying to achieve, and you know where your cut off mark is going to be (for BPI). Then from there, you are able to possibly ignore a whole cohort of animals because they are all going to get beef.”

Looking ahead, Sam anticipates gaining time and cutting costs due to making more informed decisions with genomics.

“I’m not using 50 bulls over 50 cows, but I’m in a position

where I can pretty much tailor what bull is going over what cow and I know why. I know that the bull is going over that cow because of components, because of litres, mastitis resistance, feed saved or whatever else it is that I want to measure. I know that's why I'm using that bull over the cow, so I get a calf that is going to project those traits going forward. In the past, I didn't know that. I'd use a bull because someone told me it was a good bull."

These days Sam's breeding decisions are more informed, drawing upon the *Good Bulls Guide*, herd improvement information and discussions with industry representatives.

### Simple sampling

Taking hair samples from calves was the first way Sam and Mark started genotyping, but in recent years they have changed to taking ear notches from calves.

"With the tail hair, we found there was too much margin for error for us," Sam said.

"The tail hairs would be too long and there would be some sort of contaminant on the sample and the chance they were DNA testing bacteria or grass was just as high as the chance they were testing the hair sample. We had a number of tests where we had to resample animals. But the ear notching is almost foolproof.

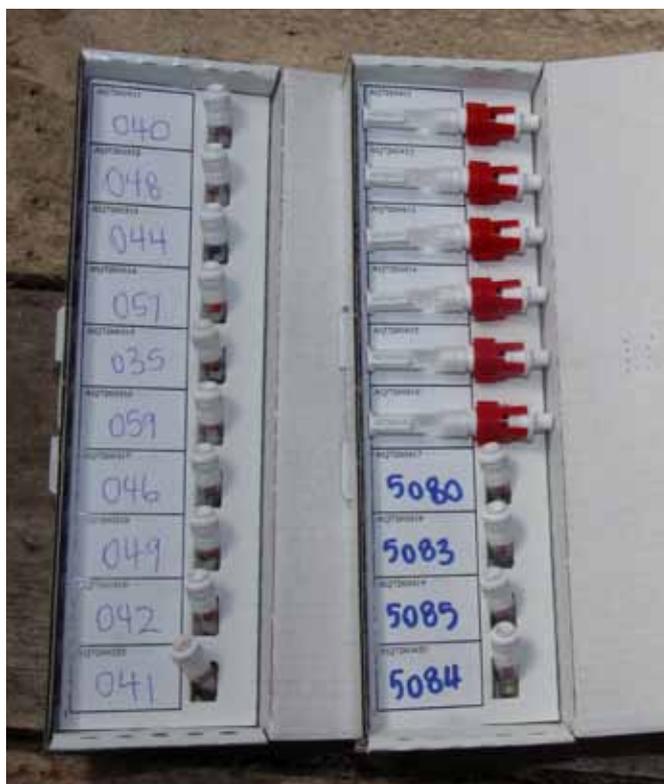
"If you can put an ear tag in an animal, you can take a good, clean DNA sample."

The ear notching occurs when the calves are disbudded under anaesthetic. The hole where the DNA sample was taken is then used for the animal's national livestock identification system (NLIS) tag.

Sam and Mark have even genotyped their natural service bulls.

"We don't lose that genetic information and because we are registering, we don't want to go backwards in the appendix status," Sam said.

"Genomic testing bulls, we know exactly who's covering who. For the bulls we use on heifers, genomic testing gives us calving ease and gestation length information."



*Sam Simpson and Mark Billing take ear notches from calves while they are under anaesthetic for disbudding. The ear notch tissue is sent away for DNA testing.*

### Future focus

The rise of data within the industry is delivering additional income and diversity to Sam and Mark's business thanks to their increase in dairy-beef production from the bottom of their herd.

"We've got milk as the primary source of income, that's not going to change," Sam said. "But for the cow's where we don't want their genetics, and it was costing us money and time, we can put beef (semen) into them and take advantage of the really good beef market now."

"We are getting a better herd genetically, but we are also improving our overall business because we will no longer just be a monoculture tied to milk, we can spread out our risk. That's all to do with genomically testing our cows."

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