Case Study

DataGene
Solutions for Herd Development

Breeding for lower emissions at Nirranda South

Tim and Marie Humphris

Region: South-West Victoria

Topic: Sustainability

Tim Humphris was convinced the greenhouse gas emissions from his south-west Victorian dairy farm would be dominated by diesel consumption and power usage.

It was a "real eye opener" when he learnt his herd of 550 cows contributed to more than 50% of emissions.

"You look at the classic comments, that you hear around, such as 'It would be safer to be locked in a garage with a cow, rather than with a running car," the Nirranda South dairy farmer joked.

"But whether we think it's fair or just, I don't think at the end of the day it really matters. We still need to face-up to the fact that we need to address it, change our mindset, to reach consumer expectations."

Tim and Marie Humphris, with a Melbourne-based equity partner, milk 550 cows on a farm.

They were inspired to calculate their farm's emissions as part of a recent grant application.

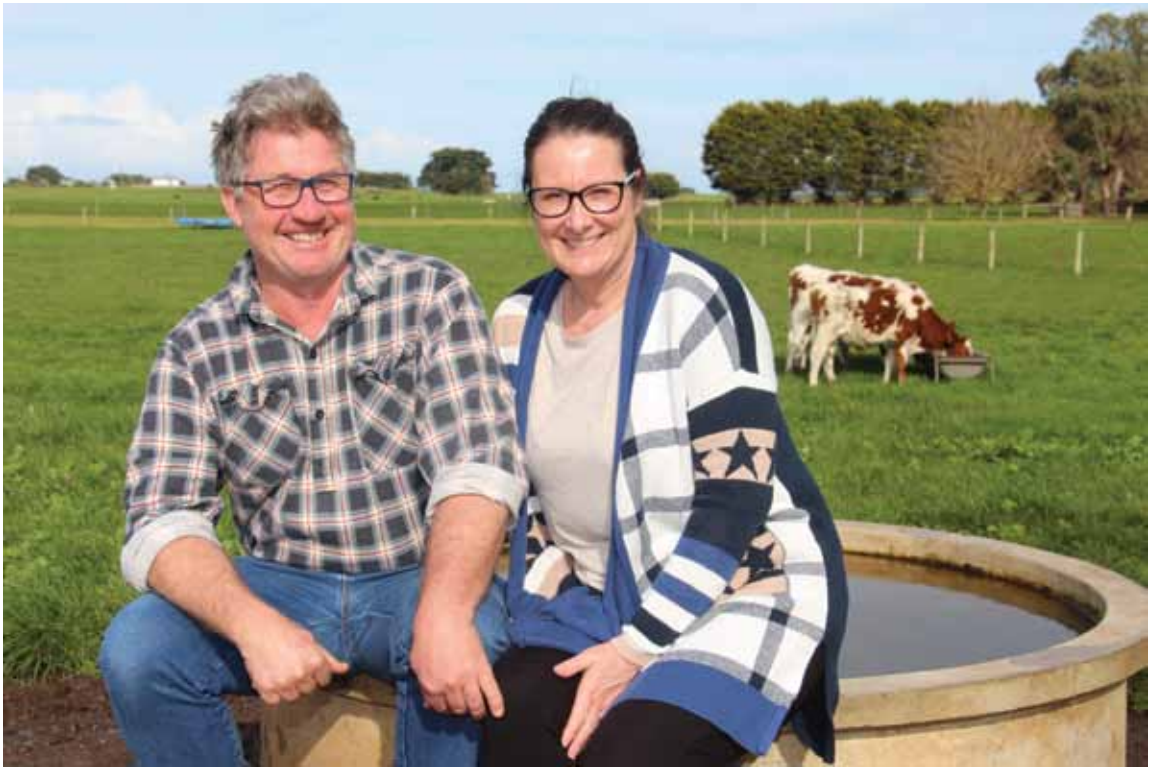
Reducing their cows wasn't an option to address their total emissions, so Tim and Marie started to look at what they could do to reduce the farm's emissions intensity.

Emission intensity is calculated by dividing the amount of carbon emitted by the amount of milk produced. Dilution is central to reducing emissions intensity, decreasing the amount of carbon emitted relative to milk production.

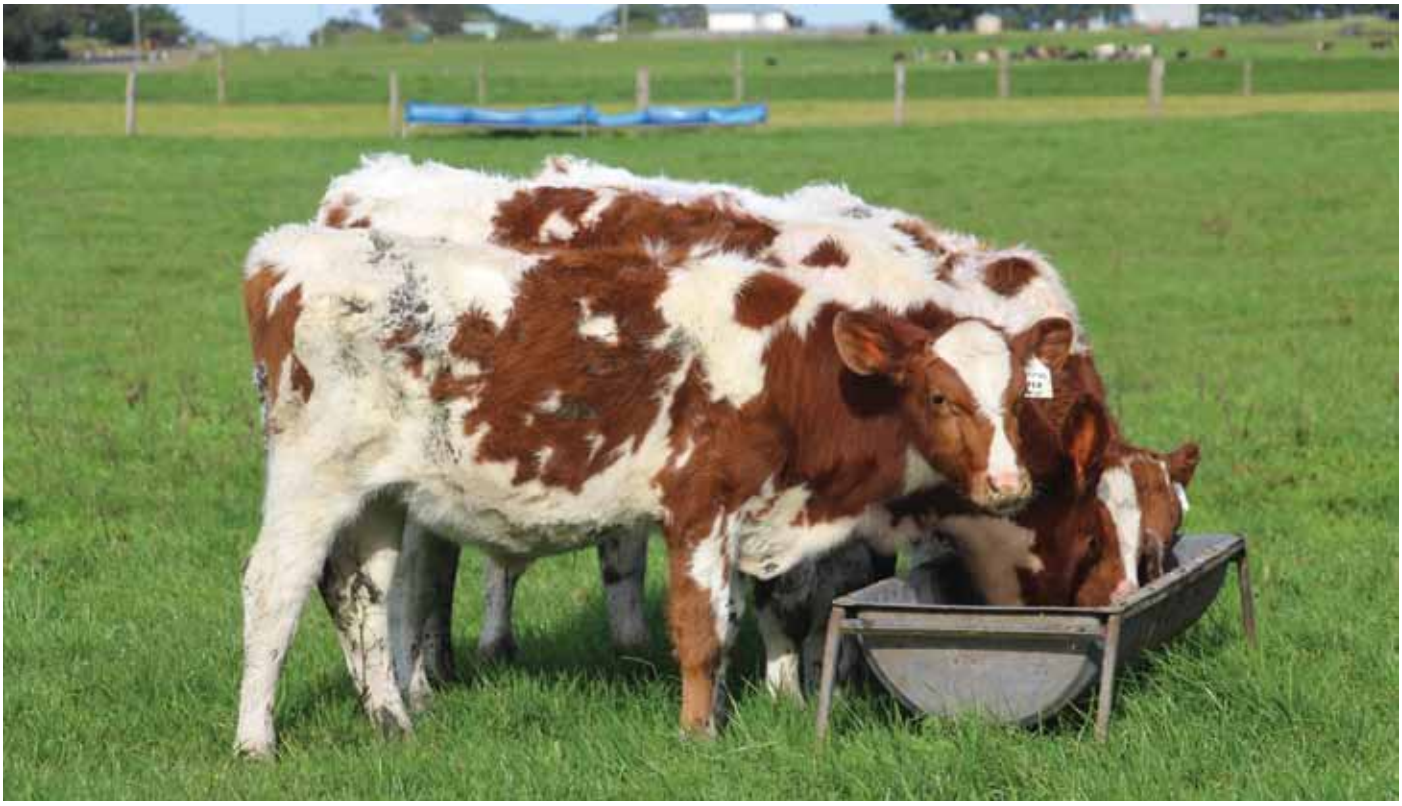
For Tim and Marie, this requires a focus on animal efficiency.

"We have to make sure every animal is productive," Tim said. "The conflict comes in when the ideal cow – one that lasts a long time and produces a lot of milk – is contradictory to keeping a young herd, something considered best for animal welfare and combating challenges such as poor fertility and lameness."

"Navigating through that is where breeding becomes important. It's possible to breed for mastitis resistance and



Tim and Marie will use DataGene's new Sustainability Index as an additional tool to reduce their farm's emissions intensity.



breed for production, so I think that's where our breeding is going to have a real impact on our emissions."

Tim and Marie will use DataGene's new Sustainability Index as an additional breeding tool to reduce their farm's emissions intensity.

The Sustainability Index is a standalone index that makes it easier to select animals to fast-track breeding for reduced greenhouse gas emissions intensity.

Tim and Marie believe "the building blocks" of the Sustainability Index address the need for a combination of animal longevity and production to reduce emissions intensity.

But Tim is realistic about what breeding, alone, can achieve.

"By breeding a cow that survives longer, we can reduce our emissions and also lower our replacement rate," he said. "So, it's a combination of management overlayed with genetics that's going to drive the change."

Tim and Marie haven't settled on clear emissions reduction targets yet, rather the couple want to concentrate on incremental change, working towards a "philosophical target" of reducing emissions intensity while navigating this new business concept.

In addition to breeding, the couple have earmarked other business changes to address their emissions output, such as solar power, reducing effluent production in the dairy and using genomics to select the best animals to breed to high Sustainability Index bulls.

Looking ahead, Tim's hopeful that starting to address farm business emissions now could open additional, and perhaps premium, markets for their milk in the future.

He said it was also something he, Marie and their equity partners valued.

"We will have the ability to hold our heads high and say 'yes, we know we have emissions, and we are actively addressing those emissions'," he said.

"For my wife and I and our business partners, it is important for all of us to be able to say when talking to connections with no exposure to the dairy industry, that 'yes, we are dairy farmers, and this is what we are doing'."

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