

Using genetics to reduce emissions

This fact sheet is part of the Profitable Dairying series - *Good business management reduces greenhouse gas emissions.*

The Australian dairy industry has committed to reducing greenhouse gas emissions intensity (emissions per L milk produced) by 30% by 2020.

In the context of greenhouse gas emissions intensity, reproductive efficiency has a vital role in improving the emissions per L milk produced.

Over 50% of dairy farm emissions come from cows burping methane. For the dairy industry to achieve a reduction in emissions intensity, every cow needs to be producing milk. Cows not producing milk are effectively “passengers” because they still have a carbon footprint and also a cost to the business.

They cost more to feed, relative to high feed conversion efficiency cows. They produce the same methane emissions but for less milk.

There are potentially significant gains to be made with:

1. Herd management **(nurture)** to ensure “In calf, on time, every time”
2. Genetics **(nature)** to breed more efficient herds.



Photo: Ashley Hobbins

“We put a lot of effort into the right cow for our farm. It is a wet farm in winter and we want hardy cows that cope well with the conditions. Above all, we breed for fertility and longevity in our herd. Cows that get in calf, calve well and over many years - that’s better for our business and better for the environment. You can’t take it for granted though - you have to breed for it and you have to manage your herd with a lot of attention to detail.”

Brian and Michele Lawrence,
Meander, Tasmania.

[Click here](#) for more about how they are managing emissions intensity on their farm.

[Click here](#) for Profitable Dairying in a Carbon Constrained Future fact sheets.



Managing the herd to achieve “in calf, on time, every time”

From the first suck of colostrum to body condition score at mating and bull management - there are just so many things that dairy farmers must manage well to achieve good reproductive efficiency in their herds. In the context of greenhouse gas emissions intensity, reproductive efficiency has a vital role in improving the emissions per L milk produced. Vets, artificial insemination (AI) technicians, herd testing and the Dairy Australia [In Calf](#) and [Heifers on Target](#) programs can give farmers practical advice to achieve “in calf, on time, every time”.



“There is a lot that has to come together right for a calf to be born. We put a lot of effort into our herd, looking after the cows is the most important thing we do.”

Chelsea Connor, Mt Compass, SA.

“Our breeding program aims to achieve a cow with large capacity to convert intake into milk. Looking for spring of rib, ideal chest width and a large muzzle all of which assists the cow to have a high feed intake and high production

Farmers today have access to a wide range of genetic information derived from genomic testing that can assist in selecting for cows with high efficiency of feed conversion per unit of intake, milk composition, high growth rates etc.

This genomic information is a valuable source of information for a farmer when selecting for improved performance.”

Gino Pacitti, Hindmarsh Tiers, SA.



Breeding for feed conversion efficiency – the Feed Saved Australian Breeding Value (ABV)

Dairy farmers can now identify bulls with Feed Saved ABVs of at least 100kg DM (dry matter) difference. Farmers have been making gains in feed efficiency over the last 10 years through better nutrition and intense selection on milk production. Modern cows have become more feed efficient in the sense that their substantial increase in milk production has had the effect of diluting their maintenance requirements. The Feed Saved ABV allows farmers to breed cows in a new way: by identifying the cows that eat less for the same amount of milk produced.

The Feed Saved ABV is included in the ADHIS’ three new indexes: Balanced Performance Index (BPI), Health Weighted Index (HWI) and Type Weighted Index (TWI), published for the first time in April 2015. On average, farmers will find more bulls with a positive Feed Saved ABV on the HWI. By choosing bulls that are positive for Feed Saved from the top of the BPI or HWI, the saving will be 50-100 kg feed (DM) per cow per year in 10 years time. [Click here](#) for comprehensive information about the Feed Saved ABV. Currently the Australian research has only been done for Holstein genetics.

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