

Value adding through genetics and data

IMPROVING
HERDS

Anthony and Wendy Eccles
Purnim, Western Victoria



Genetics Case Study

Anthony and Wendy Eccles have a passion for breeding productive, profitable dairy cows and an analysis of their herd by the ImProving Herds Project has shown their investment in genetics is a major contributor to their bottom line.

The Eccles milk 440 registered Holstein cows under the Purnim prefix, in a split-calving herd at Purnim in Western Victoria.

Their farm was one of 27 dairy farms across Australia that recently underwent detailed analysis by the ImProving Herds project to investigate the contribution of genetics to dairy businesses.

The study identified the top and bottom 25% of each herd, ranked on Balanced Performance Index (BPI), the genetic index for profit used by the Australian dairy industry and compared their performance in terms of production, longevity and financial contribution.

Ten years of historical performance data, plus recent farm financial data from the Eccles' herd records were analysed to look at the difference in contribution to the farm business between the top and bottom BPI groups in the herd.

The study found the top 25% of the Eccles' herd, ranked on BPI, produced 744 more litres of milk per cow per year, as well as 55 more kilograms of fat and 42 more kilograms of protein than the bottom 25%.

The extra milk production from the top 25% of cows ranked on BPI resulted in an extra milk income after feed and herd costs of \$482/cow/year compared with the bottom 25% of the herd.

Farm stats (July 2018)

HERD SIZE

440 cows

BREED

Holstein

FARM SIZE

240 ha milking areas plus 80 ha for young stock

CALVING PATTERN

Split 60% autumn 40% spring

DAIRY

44-stand rotary

STAFF

3 full-time and one part-time working with the Eccles as well as two casuals who help with milking on weekends

FEEDING SYSTEM

Individual feeding in the dairy

HERD TESTING

Always herd tested



“Genomic testing heifers has taken the guess work out of deciding which heifers to sell.”

Anthony Eccles, Western Victoria

On average the top 25% of cows also lasted in the herd 12 months longer than the bottom 25%.

Breeding

The differences in the cow performance based on genetic merit was no surprise for the Eccles, whose herd has a 50-year history of using artificial insemination, which started with Anthony's father who was an inseminator.

"We have a closed herd and have used AI on everything for a long time," Anthony said.

"Having a closed herd has allowed us to also have Johne's Disease free status, which is invaluable when selling surplus stock for export markets and to other farmers who value the effort we have made in our genetics."

The herd split calves, with 60% calving down in autumn and 40% in spring and all cows have collars for identification and heat detection.

"We have a 44-unit rotary with a computer system that reads each cow's collar when she comes onto the platform and then allows the cow to be fed individually according to her stage of lactation – whether she has just calved, is in mid lactation or in late lactation," Anthony said.

"It allows us to feed high producing cows to their genetic potential, which is important when you breed for production."

The herd is joined to 100% AI, to a mix of sexed and conventional semen with bulls selected for high BPI, high daughter fertility and good type (medium size animals with good legs and feet).

High ranking genomics cows are selected for breeding with sexed semen. Sexed semen is used on approximately 90% of the heifer joinings.

All bulls used in this year's bull team – across cows and heifers – are genomically tested with an average BPI of 335.



“In recent years we’ve decided to go down the A2 path and have been using A2 bull teams to increase the A2 content in our herd,” Anthony said.

“I’m really interested in breeding, so we also flush our best cows to maximise the number of offspring they produce. The first flush will be to sexed semen and then the second flush will be to conventional semen.”

Genomics

The Eccles have been genomically testing all heifer calves for the last four years and used the results, along with assessment of each heifer’s pedigree and conformation to identify replacements.

“Genomic testing heifers has taken the guess work out of deciding which heifers to sell,” Anthony said.

“Genomic testing has the added advantage of verifying a calf’s parentage, which can sometimes be a bit of an issue when you have a lot of cows calving on one day.”

Tail hair sampling coincides with disbudding at 6-8 weeks of age and the genomic results are typically available within one to two months.

The tail hairs also go through the A2 gene test to identify suitable heifers for the transition to an all A2 herd.

The Eccles also rear 12-20 bull calves a year that result from flushing the best cows in the herd.

“We don’t use mop up paddock bulls with the herd, but we do use semen from our own bulls. We use the semen collected from our bulls on cows we do not wish to breed from for our herd due to age or type,” Anthony said.

These bull calves are also genomically tested, with potential future sires identified, or grown out to 10 months of age and sold to other dairy farmers as mop up bulls. Higher genetic merit bulls may be purchased by semen companies if they are suitable.



Replacement heifers

Around 180 heifer calves are reared a year and grown out to 8-10 months, with 90 selected to go into the herd.

“We pick out the heifers we want to keep based on their genomic results for BPI, their cow families and their conformation,” Anthony said.

The replacement heifers are joined to sexed semen and the surplus heifers sold before they need to go out on agistment.

“When it comes to joining our replacement heifers, I’ll also look at their genomic results; if a heifer is a bit low on fertility then I might give her conventional semen rather than join her to sexed semen,” Anthony said.

“We aim to grow out all our heifers really well, so we have good conception rates in our heifer replacements and our surplus heifer are looking good when we are selling them to other farmers at 10 months.

“We haven’t sold surplus heifers into the export market for the past three years because we have other dairy farmers who want to buy them.

“We can show these farmers each heifer’s pedigree, their genomic ABVs, their A2 content, their disease-free status and their dam’s herd test data.

“When you have that sort of information, it’s easy to sell good quality heifers and we have farmers who are repeat buyers because they can see the value of our breeding program and the difference it makes in their herds.”

The Eccles also sell surplus cows to maintain the herd size and these cows are often sold off as younger milkers who are culled on type.

“We’ve taken an approach where we try and add value to our surplus stock and are aiming for sales of heifers, surplus cows and bulls to be 20% of our total farm income,” Anthony said.

“Our accountant likes the approach we have taken – it looks good on paper because we have a high-value herd that has become a significant asset.”

ImProving Herds pays dividends



IMPROVING
HERDS

ImProving Herds was a three-year project that studied the contribution of herd improvement to Australian dairy businesses.

At the heart of the project were 34 inspiring Focus Farmers who agreed to put their farm, herd and financial records under the spotlight. Seven were Herd Test Focus Farmers and 27 were Genetics Focus Farmers. This is one of a series of case studies about their experiences as ImProving Herds Focus Farmers.

ImProving Herds has shown that:

- *The daughters of High Balanced Performance Index (BPI) bulls perform better under Australian conditions, across dairying regions and feeding systems.*
- *Cows in the top 25% for BPI in a herd outperform cows in the bottom 25% for production, fertility, longevity and contributed on average an extra \$300 income over feed and herd costs.*
- *The benefits of using genomic breeding values to guide heifer selection decisions were demonstrated on the Focus Farms, where the performance of genotyped heifers aligned with their genomic breeding values.*
- *Information from herd testing gave Focus Farmers confidence to make data-driven decisions for routine management and to respond to high pressure events.*

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