

Genetic gain drives profit at Bamawm

Brendan Martin
Bamawm, Northern Victoria

IMPROVING
HERDS



Genetics Case Study

Sexed semen and genomic testing are giving a Northern Victorian dairy herd a major boost in keeping herd age down, production up and lifting the value of stock sales.

Brendan Martin manages an 800-cow herd for Allanby Pastoral on a 470 ha irrigated farm at Bamawm in Northern Victoria.

“We’ve been using sexed semen for the last few years and been selecting sires for health traits and production,” Brendan said.

“It means we have more heifer calves to choose from so we can put more selection pressure on our replacement heifers and our existing cows.”

The Allanby Pastoral herd 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 to the farm business.

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

The study found the top 25% of the Allanby Pastoral herd produced 638 more litres, 68 more kilograms of fat, and 39 more kilograms of protein per cow per year than the bottom 25% of the herd.

Farm stats (July 2018)

HERD SIZE

800 cows

BREED

Holstein and 20% crossbred

FARM SIZE

470 ha with 1,100 ML

CALVING PATTERN

Split 50:50 autumn:spring

DAIRY

60-unit rotary

STAFF

5 full-time staff

FEEDING SYSTEM

7-8 kg/cow/day or 2.4 t/cow/year

HERD TESTING

8,500 litres and 640 kg solids per cow



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Brendan Martin, Northern Victoria

The top 25% of the herd, based on BPI, also last 11 months longer – equivalent to an extra lactation.

The extra milk production from the top cows resulted in a marginal milk income after feed and herd costs of \$410/cow/year more than the bottom group.

“Being involved in the ImProving Herds Project has meant we’ve had greater access to data, which allows us to evaluate our performance and see if we are on the right track,” Brendan said.

“It’s good to be able to track our progress.”

Joining program

Every cow on the Bamawm farm is joined to AI with three rounds for both the autumn and spring joining. The breeding program is totally reliant in AI and no bulls are kept on the property.

Fresh sexed semen has been used for the first round on selected cows, followed by conventional dairy semen on the second round of AI, then beef semen in the third round.

Cows identified as recipients for sexed semen must have been in milk 70-100 days and have no mastitis or health issues in the lead up to joining. These cows are synchronised for joining with a double ovsynch program.

Cows that fall outside the criteria for sexed semen undergo a presynch ovsynch program and are joined to conventional semen on the first round.

“We have a few logistical challenges using fresh sexed semen as it comes from Terang in Western Victoria so we need to be organised and have it booked well in advance, but once we have it on farm it is very quick and easy to use,” Brendan said.

“Last joining we programmed 400 cows and used 180 doses of sexed semen. We ended up joining them all in around 2½ hours.

“We are running at a 65-70% in calf rate after 6 weeks. Any cow that fails to get in calf after the three rounds is evaluated and a decision is made whether to carry her over to join in the next group or cull her when her production falls off.





The key selection criteria for sires used in the AI program are health and production traits and BPI. Semen fertility and quality are also important factors to ensure maximum conception rates.

“I’m using the Alta Advantage program to generate a bull list from the traits I type into the list. It allows me to plug criteria in for the traits I want in our sires, then I get a list of bulls to choose from.”

A Genetic Progress Report prepared by DataGene for the Allanby Pastoral herd shows that bulls used in the herd over the past 10 years have produced Holstein cows with genetic trends that have increased profit, production, overall type, longevity, fertility and mastitis resistance in the herd.

The rate of genetic progress for longevity, mastitis resistance, fat production and protein production traits have all increased substantially since 2015 and are well above the national average.

Replacement heifers

Around 450 Holstein heifers are reared each year, of which about half will be sired by sexed semen.

“We generally only need 200 heifers as replacements but having lots of heifers means we have lots of options – we can increase our selection pressure on our replacements and the herd; we can put more heifers into the herd if we need; or sell heifers for export,” Brendan said.

“We keep all our heifers until 12 months of age before we make any decisions – by that stage they weigh a couple of hundred kilos and we can look at what is on offer for the export market.

“I generally pull out the bottom 25% of the heifers, based on their weight and parent average – these heifers tend to be from the second round of the AI program.

“The remaining heifers are genomically tested to identify which heifers are replacements and which are surplus to our requirements.

“When we get the results, we rank the heifers on BPI and look at health traits and production and take the surplus heifers from the bottom of the list.

“The genomic testing also verifies their parentage of each calf. We calve a lot of cows down in a short time period with our synchronised joining program – we can get up to 160 due to calve on one day.

“While we do our best to match calves to cows as soon as they hit the ground, there are always a couple of errors, which are sorted out with the genomic testing.”

Stock value

The use of sexed semen, combined with genomic testing has had multiple benefits to the business, according to Brendan.

These include:

- greater selection pressure on the pool of available heifers to identify replacements
- a faster turnover of cows in the herd with large number of heifers coming into the herd
- an increase in the herd’s rate of genetic gain
- reduced issues associated with fertility, mastitis and metabolic issues by lowering the average age of cows in herd
- an increase in the total value of stock sales by increasing the number of surplus heifers that can be sold for export
- fewer low-value Holstein bull calves.

“Depending on the season we will keep our bull calves and our beef cross calves and grow them out, or cash them in at seven days,” Brendan said.

“But even across most seasons, a dairy heifer calf will be worth more at 200 kg than any beef calf, with a similar cost to rear them to that age.”

ImProving Herds pays dividends

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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.*

Funded by the Gardiner Dairy Foundation, the project was a collaboration of Dairy Australia, Agriculture Victoria, DataGene, Holstein Australia and the National Herd Improvement Association of Australia (NHIA).

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