

Updates to BPI, HWI, SI October 2025

Technote 26

HIGHLIGHTS

- DataGene updated its breeding indices in November 2025 to better reflect industry needs.
- The base has also been updated; and will be update every five years from 2025.
- A new model for the Survival ABV was also implemented.
- These updates affected animal rankings.

Updated indices

The Australian dairy industry's breeding indices were updated from November 2025. These refinements reflect the industry's evolving breeding priorities which were reviewed in 2024 and 2025. The key refinements are listed below (refer appendix for trait weightings in the updated indices). Indices updated include the Balanced Performance Index (BPI), Health Weighted Index (HWI), Sustainability Index (SI) and Australian Selection Index (ASI).

1. Update pricing in all indices, for all breeds

To reflect changes in the market, pricing for milk components and input costs was updated. Specifically, this means:

- Changing the protein:fat ratio from 2:1 to close to 1:1.
- Updating feed costs but keeping the same ratio with milk.
- Shifting to using forecast milk prices.

2. Health Weighted Index

The HWI was enhanced to better reflect the needs of seasonal herds with pasture-based systems by adding calving ease and gestation length.

3. The base (the average animal for breeding values)

The base (or average animal for breeding values) was updated. From 2025, it will be updated every five year in line with international best practice (Interbull).

Additional changes

Two additional changes were implemented at the same time as the updated indices:

- Updated model for Survival ABV
- Changes in expression of type traits with intermediate optimums.

Follow these links for more information

- [Type Fact Sheet](#) (a quick read)
- [Type Tech Note](#) (with more detail)
- [Survival Tech Note](#) (updated version to be published soon)

Expected impact

Balanced Performance Index (BPI)

The BPI balances the economic contribution of production, mastitis resistance, fertility, type, workability survival, mastitis resistance and feed efficiency.

There is some re-ranking of bulls for BPI which is largely driven by the change in the protein:fat ratio. The relative contributions of health and fertility traits remains similar to the previous BPI.

Jerseys: As is the case for the BPI for other breeds, the change in protein:fat ratio has the greatest impact on Jersey bull re-ranking. As in the past, the Jersey BPI does not penalise low feed efficiency, allowing animals with higher live weight ABV (low feed efficiency) to rank highly if they rate well for other important traits.

Health Weighted Index (HWI)

Like the BPI, the change in protein:fat ratio is the key driver of bulls and cows reranking for the HWI. The addition of Calving Ease and Gestation Length signal that this is the index for seasonal producers, however, the inclusion of these traits has only a small impact on bull rankings.

Sustainability Index (SI)

The Sustainability Index is the tool that best identifies animals that excel for reductions in carbon emissions intensity. It does this by emphasising production and survival as a way of reducing the amount of carbon used to produce every kg of milk solids. As is the case for the BPI, the updated

protein:fat ratio has the greatest impact on animals re-ranking.

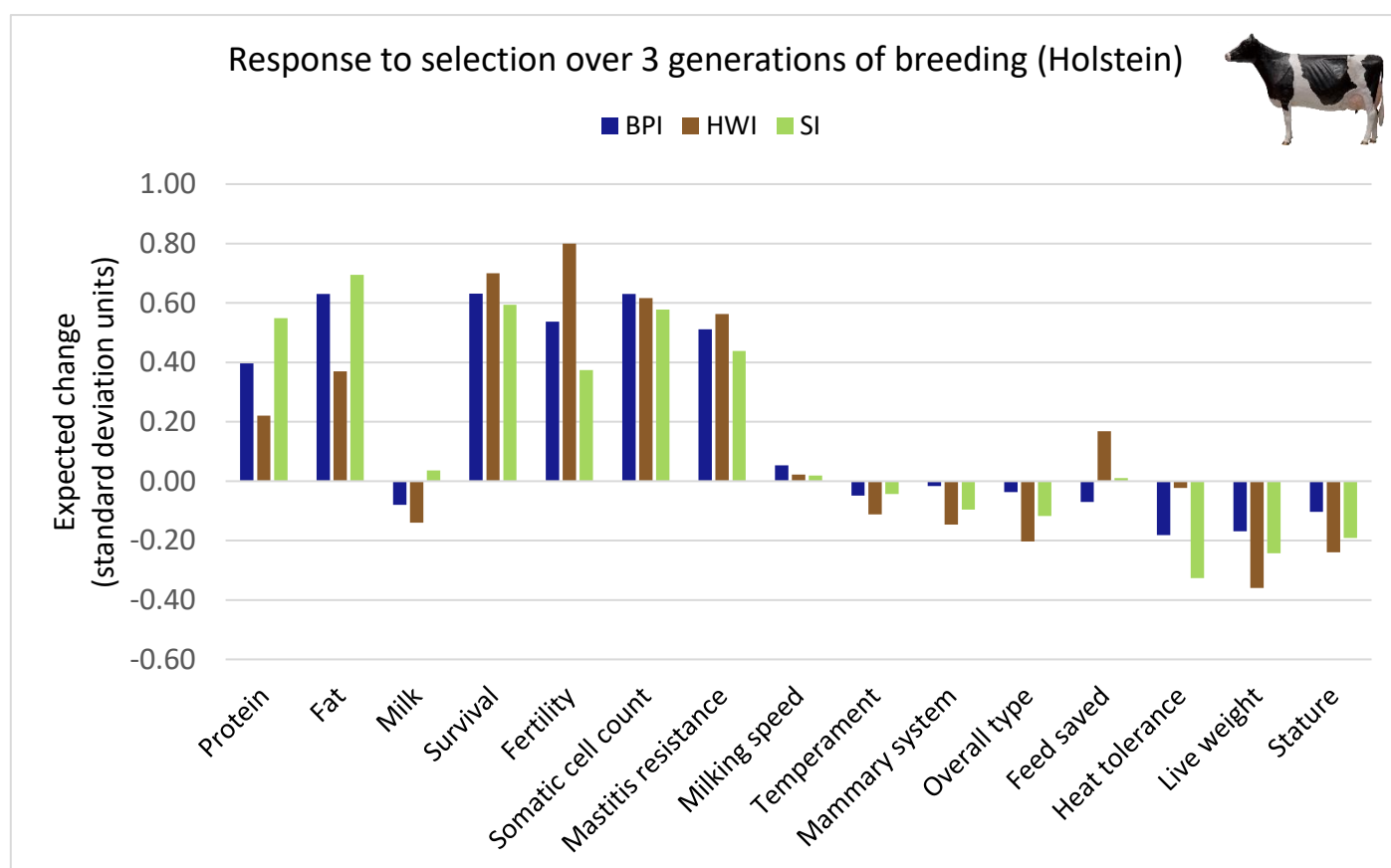
Response to selection

A good way to compare the impact of the BPI, HWI and SI is to look at the response to selection using an index over time. Response to selection is breed specific because of differences in the range of ABVs for traits and their heritability as well as the correlations between traits. Responses to selection are shown in bar charts over the page.

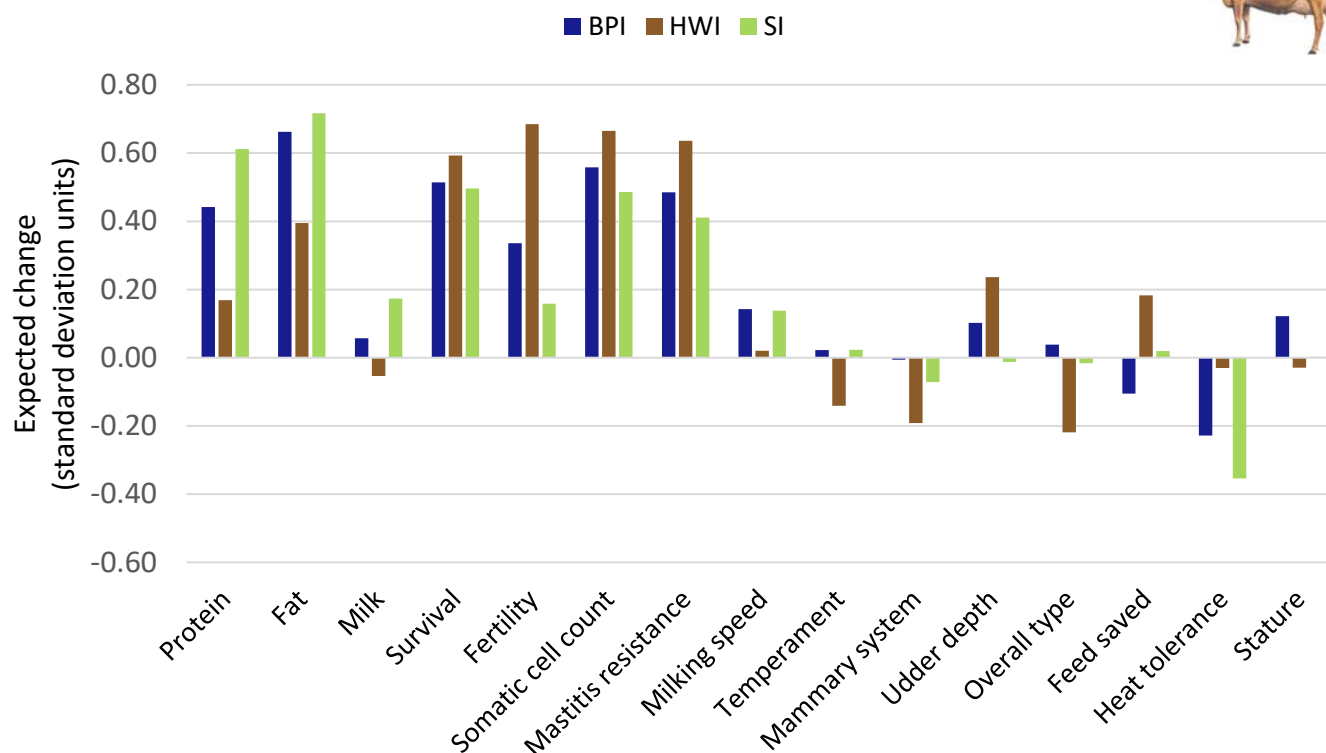
BPI: As expected with the changed production ratio, there is a greater response to selection for fat yield and lower for protein yield in the new BPI compared to the previous BPI. For the Holsteins, response to selection for most other traits changes minimally. In the Jerseys, expect to see slightly elevated response for Fertility and slightly lower response for Overall Type.

HWI: As was the case with the previous HWI, selection with the updated HWI in all breeds is predicted to have higher gains than the BPI in survival, fertility, mastitis resistance, and feed efficiency, with trade-offs of reduced gains in production and type traits.

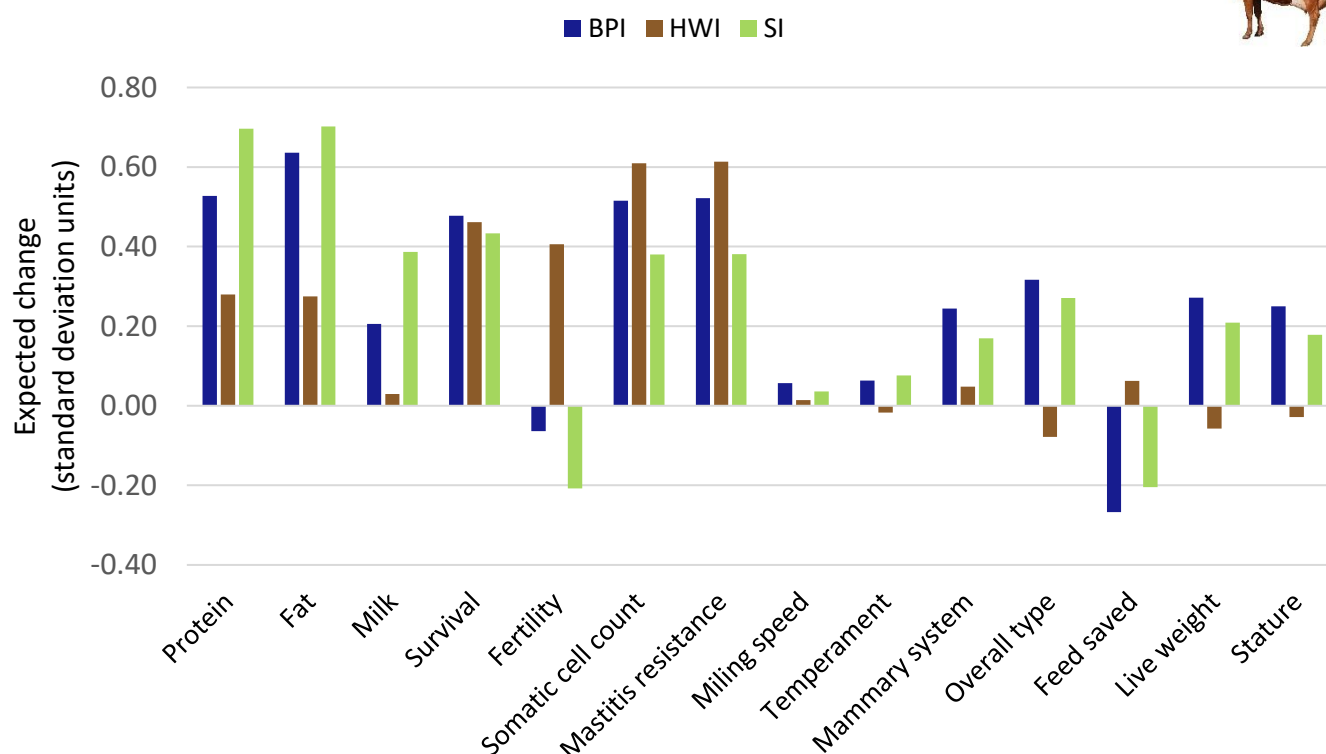
SI: The dilution effect created in the SI means that response to selection for production traits is much higher in the SI than the BPI. Response to selection for Survival is slightly lower, while Fertility and Mastitis resistance response is less again. The heavy weighting on production and its negative correlation with Heat Tolerance, means that the response for this trait is somewhat reduced. When compared to the old SI, the main change is in the production area.



Response to selection over 3 generations of breeding (Jersey)



Response to selection over 3 generations of breeding (Red breeds)



Milk payment trends

Fat, protein, feed and labour values have been updated based on a combination of historical and projected costs and returns. This has resulted in a protein:fat ratio that is close to 1:1 compared to the 2:1 used in the previous model. When feed costs are considered and noting that fat requires more energy to produce, the final ratio pushes out a bit in favour of protein, but not to the same extent as the previous indices (see graph below).

Review

These updates are the outcome of a review of the National Breeding Objective undertaken in 2024/25. The National Breeding Objective defines an agreed group of desirable traits providing direction for breeding dairy cows and bulls. It is expressed through the main dairy breeding indexes used by the Australian dairy industry. [Read more](#)

The chart below shows how the relative emphasis of Australia's index has evolved over time (for Holsteins).

Read more

National Breeding Objective review outcomes

[https://www.journalofdairyscience.org/article/S0022-0302\(17\)30901-3/fulltext](https://www.journalofdairyscience.org/article/S0022-0302(17)30901-3/fulltext)

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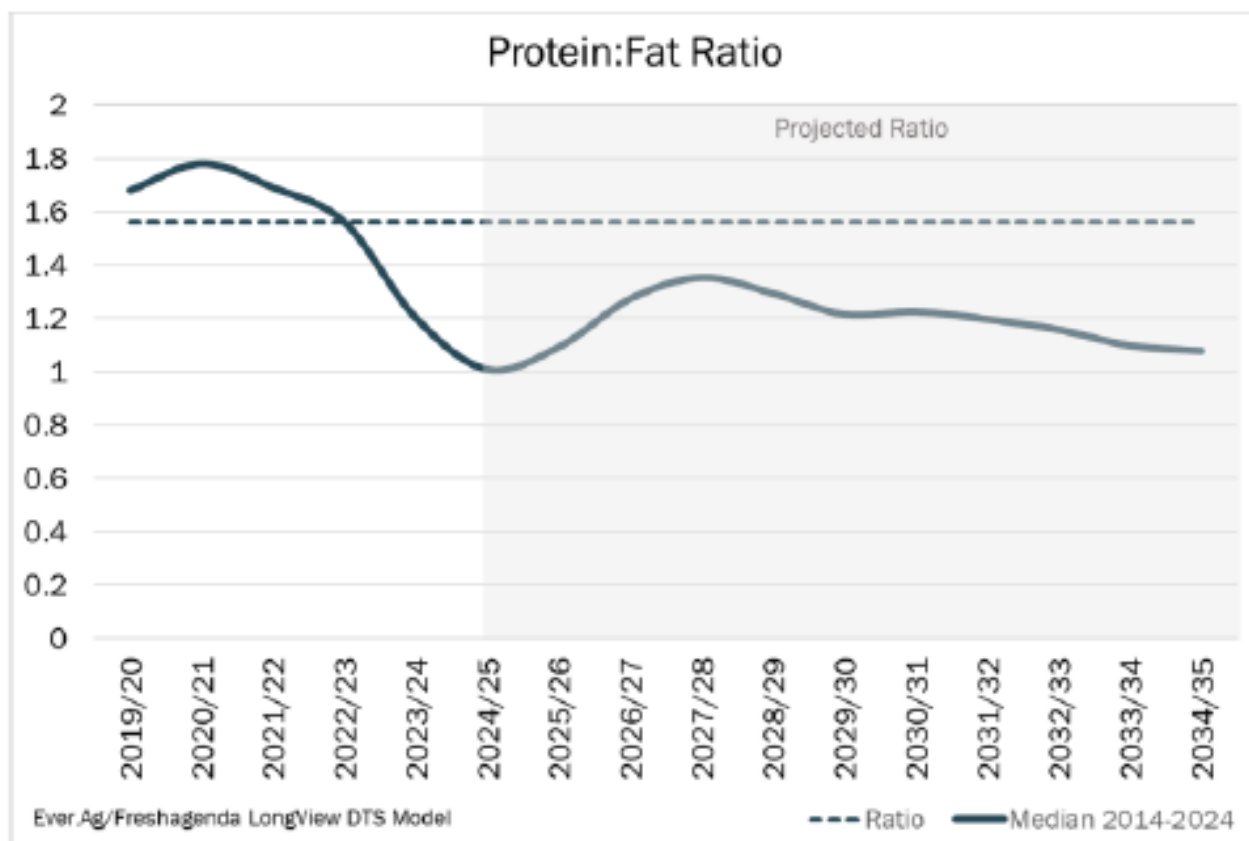
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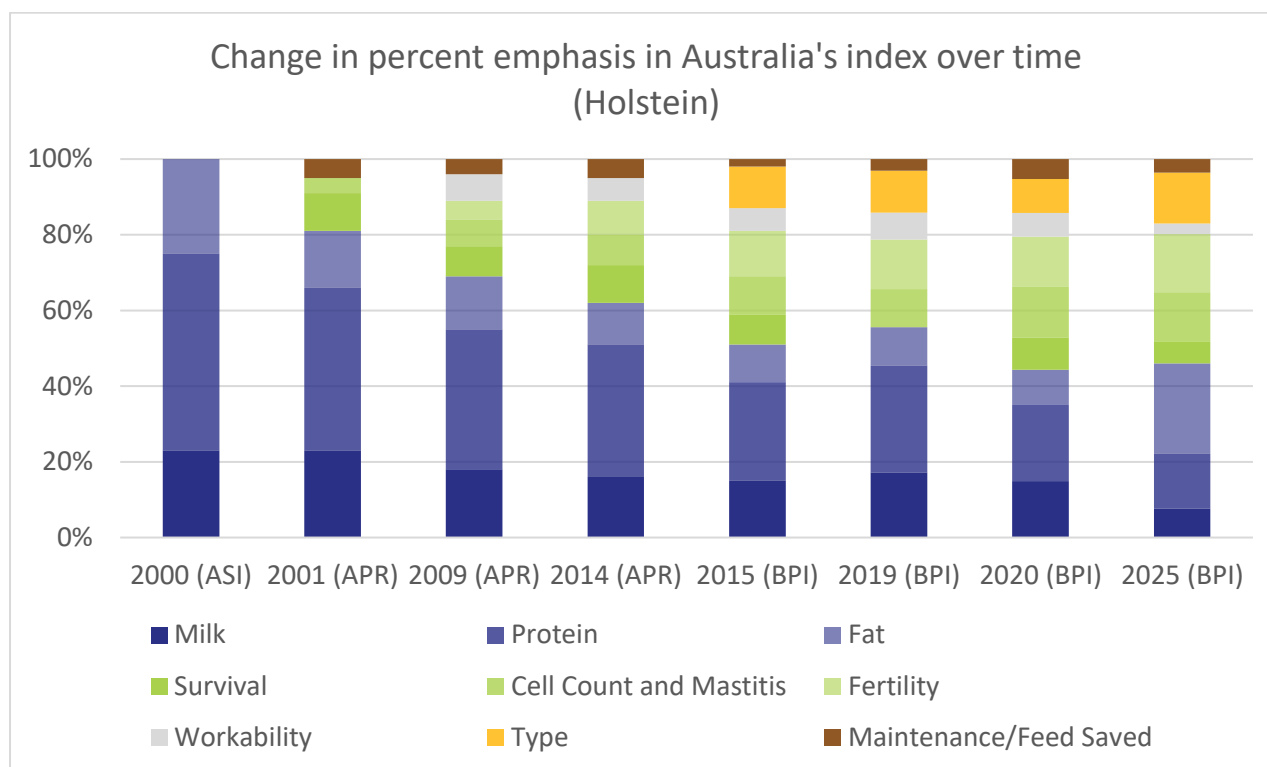
November 2025

Acknowledgement

DataGene is an initiative of Dairy Australia and the herd improvement industry. DairyBio provides the research pipeline to develop and maintain Australian Breeding Values.

.... See over page for more charts





Appendix: Trait weightings by breed

The BPI, HWI and SI each account for the traits that affect a cow's lifetime contribution to the dairy business: production, health and fertility, feed saved, workability and type.

The difference between them is the relative emphasis given to each trait. The HWI is weighted to fast-track genetic gain in fertility and health traits, with production secondary. The Sustainability Index is weighted to fast track genetic gain for reduced emissions intensity

The relative emphasis given to traits in the indices is consistent across breeds, with the exception of the Jersey BPI which excludes feed saved.

However, breed differences occur when the relative emphasis of traits is expressed as a percentage, for example in a pie chart. Expressing as a percentage accounts for the genetic variability (standard deviation) within the breed; for example, the Australian Holstein breed has more genetic variation for fertility than Jerseys and it is therefore easier to improve fertility in Holsteins. The pie charts show the relative emphasis of traits used for the BPI, HWI and SI from November 2025.

