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2025 NATIONAL BREEDING OBJECTIVE REVIEW FOR AUSTRALIAN DAIRY CATTLE: INSIGHTS FROM STAKEHOLDER CONSULTATION

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SUMMARY

DataGene conducts a comprehensive review of the National Breeding Objective (NBO) every five years to ensure breeding cows meet the evolving needs of Australian dairy farmers. A key component of an NBO review is to explore perceptions, attitudes, and usage of Australian breeding values and indices among farmers and herd improvement (HI) industry personnel. This review employed a mixed-method approach, including a quantitative survey of 217 dairy farmers and 38 HI personnel, alongside 20 qualitative in-depth interviews with dairy farmers. The survey specifically targeted dairy farmers using artificial insemination (AI). The results were further discussed at 28 stakeholder events involving 138 participants, providing additional perspectives to inform breeding strategies. The Balanced Performance Index (BPI) remains highly influential across regions, breeds, and production systems. While there is clear demand for a pasture-based index, opinions on a Total Mixed Ration (TMR) index remain polarised. Farmers in hot and humid climates raised interest in a region's specific index. Jersey breeders demonstrated strong reliance on existing Australian indices, though a breed-specific index was deemed non-essential. These findings, together with economic and genetic reviews, will guide the refinement of breeding tools to better align with industry needs and enhance farmer engagement.

INTRODUCTION

The Australian Dairy National Breeding Objective (NBO) sets breeding priorities to improve net farm profit and ensure Australian dairy herds meet the future needs of farmers and the industry. To remain effective, the NBO must adapt to changing dairy business requirements, advancements in breeding technologies, new knowledge and consumers' preferences. DataGene reviews the NBO and its associated indices every five years, with additional reviews conducted as necessary. The current NBO focuses on increasing farm profitability while driving sustainability outcomes. This is delivered through three key breeding indices: Balanced Performance Index (BPI), Health Weighted Index (HWI) (Axford *et al*. 2021) and Sustainability Index (SI) (Nguyen *et al*. 2023). The BPI is an economic index that reflects most farmer preferences. It drives net profit through a balance of functionality, type and yield. The HWI puts extra emphasis on health and fertility. The SI fast-tracks the reduction in greenhouse gas emission intensity. These indices are critical tools for ranking bulls, cows and herds, enabling farmers to select superior genetics that deliver long-term productivity, profitability, and sustainability.

A key component of an NBO review is understanding perceptions, attitudes usage of genetics, breeding indices and traits among dairy farmers and herd improvement (HI) industry personnel. To gather the necessary insights, DataGene commissioned Down To Earth Research (DTER) to implement a mixed-method approach. A nationwide online survey explored: i) Current use of Australian indices, ii) The influence of Australian indices on breeding decisions, iii) Attitudes towards genetics and breeding, and iv) Trait preferences and future genetic priorities.

To delve deeper into emerging themes, qualitative in-depth interviews were conducted with dairy farmers. These discussions focused on perceived need for indices tailored to specific production

systems, regions, breeds, and future genetics priorities and requirements. The findings were discussed at a series of stakeholder meetings, providing additional perspectives into breeding strategies. This paper presents the findings of the online survey, in-depth interviews and stakeholder engagement meetings. These findings will inform the refinement of breeding tools to adapt to industry changing needs and enhance farmer engagement.

MATERIALS AND METHODS

Online survey. An online survey was designed using a structured questionnaire and was 'live' between late June and early July 2024. Key aspects of the methodology include:

- A survey notification email was sent to Dairy Australia levy payers (with an email address available) and DataGene's Genemail members informing them of the survey, benefits of participation and a unique link to complete the online survey.
- Survey promotion was undertaken by Dairy Australia and DataGene which included a generic link to enable completion of the survey.
- In total 296 dairy farmers and industry personnel participated in the online study. Once partial and poor-quality surveys were removed, 255 high quality surveys remained, 217 completed by dairy farmers and 38 by HI industry personnel.
- Online survey data was extracted and analysed by senior DTER consultants using IBM Statistical Package for Social Sciences (SPSS) and Q research software.

In-depth interviews. Initially, a series of 10 in-depth interviews were conducted with dairy farmers who completed an online survey and agreed to provide additional insights. Two interviews were conducted with dairy farmers representing each of the following segments: TMR, Jersey as main breed in the herd, pasture-based farms, Holstein as main breed in the herd, and sub-tropical farms. Additionally, to capture feedback from a different segment of farmers than DataGene may typically engage with, interviews targeted respondents with commercial dairy farms rather than those with registered cattle. To gain further understanding from the TMR farmers, where the survey participation was low, an additional 10 in-depth interviews were carried out. Key aspects of the in-depth interview process included:

- Interviews were completed during August 2024 and averaged approximately 20 minutes in duration.
- Respondents were typically passionate about herd genetics, represented a variety of locations, production and feeding systems and did not have registered cattle in their herd.
- To ensure open, honest discussion and feedback was provided to DTER, respondents were guaranteed full confidentiality, and a discussion guide was used rather than a structured questionnaire.

Stakeholder meetings. To gain additional perspectives to inform breeding strategies, the results of the online survey and the in-depth interviews were presented and discussed at 28 events, engaging 138 participants including bull companies, resellers, breed organisations, farmers, industry, and research.

RESULTS AND DISCUSSION

While the results reflect insights from a broad cross-section of the industry, the survey specifically targeted dairy farmers using artificial insemination (AI). This approach may introduce some bias, as participants with strong opinions – whether positive or negative – toward herd genetics may be more likely to respond. Consequently, the data represents the perspectives of respondents and may not fully reflect the views of the entire dairy farming population.

Breeding profile of milking herds. Nationally, 54% of dairy farmer respondents have at least some registered cattle and 46% are solely commercial dairy farms. Holstein are the most common

breed of cattle on respondent farms (61%). This is reflected across all regions, except among DairyTas respondents, where crossbred cows dominate. In total, Jerseys are the main breed of cows on 18% of respondent farms, crossbreds (17%) and red breeds (13%). The results are consistent with Dairy Australia survey data. Note that while the main breed of cow was requested, respondents were able to select more than one main breed.

Use of indices and breeding values. The majority of dairy farmers (88%) and HI industry personnel (92%) use at least one Australian indices or breeding value when selecting AI sires. The BPI is the most commonly used, followed by the HWI and SI. Index usage varies by breed and herd size, with 100% of Jersey breeders using indices compared to 72% of other breeds, and higher usage among larger herds. Feed systems influence preferences, with HWI favoured by farmers feeding less than 1.5 tonnes of grain. Additionally, 76% of farmers and 84% of HI personnel use Australian Breeding Values (ABVs), while 71% of both groups rely on the Australian production index (ASI). These findings highlight the widespread influence of Australian indices, particularly the BPI, across diverse regions, breeds, and farming systems.

Degree of influence of indices. When selecting AI sires, 43% of dairy farmer respondents say the BPI has a large influence on their decision making with a further 36% indicating it has little influence. Among HI industry respondents, 61% say the BPI has a large influence and 29% a little influence when choosing semen. Notably, HWI influences AI selection for a significantly greater proportion of respondents with commercial dairy farms than those with registered cattle (68% and 53% respectively).

Attitudes towards breeding indices for specific systems. Online survey and in-depth interview findings provide some evidence that there is a demand for a seasonal pasture-based index among those implementing a pasture-based feed system. Both the small number of farmers implementing a TMR and HI personnel support the need for a TMR index. Some in-depth interview respondents see the benefit of splitting housed versus pasture-based systems, while others believe cows will perform regardless, provided they are fed sufficiently. Unsurprisingly, while there is little demand among southern and western farmer respondents for a northern Australian index, there is demand in the sub-tropical region.

Perceived need for a Jersey specific index. Survey and in-depth interview results suggest that the current Australian indices are having substantial impact on AI sire selection among respondents whose main breed of cattle is Jersey and while there may be some interest in developing a Jersey specific index However, may be a ‘nice to have’ rather than ‘need to have’.

Trait preferences. When selecting AI sires, mammary system, daughter fertility and protein production (kg) are rated most important traits by dairy farmers and HI personnel. Dairy farmer respondents with registered cattle place a significantly higher emphasis on overall type than those without registered cattle. This is reversed for calving ease and feed saved. Farmers in seasonal calving/pasture-based systems rank fertility as a higher priority than other groups. Subtropical farmers place a higher emphasis on heat tolerance compared to the overall respondent average.

Future needs. While seasonal conditions, financial conditions and other factors may change perceptions in future, survey results suggest animal health, calf vitality, lameness and beef-on-dairy are key areas that genetics may assist dairy farmers. Robotic milking and beef-on-dairy appear to be less of a concern. However, these may represent opportunities for genetic improvement and are likely to be more highly rated among those with robotic dairies and selling dairy beef.

Between August and October 2024, DataGene conducted meetings with stakeholders from bull companies, resellers, breed organisations, farmers, industry, and research. These sessions aimed to present findings from the survey and phone interviews, gather feedback on key themes, and gain new insights. Feedback largely aligned with previous results, highlighting four main themes:

- Production remains key for farm income, explaining the unpopularity of negative milk L bulls ABV. Exacerbating this, the negative weighting applied to milk litres in the BPI formula (reflecting feed cost) is poorly understood.
- Simplicity is preferred, as farmers favour a manageable number of traits applicable across feeding systems.
- Feed Saved ABV is not well understood, lacks credibility due to low reliability, and requires extension support for wider adoption. However, feed efficiency was viewed to be important, further highlighting the confusion around this trait.
- Support for the base change was noted.

CONCLUSION

In conclusion, the stakeholder consultation for the 2025 NBO review, conducted by DataGene through an online survey, in-depth interviews, and stakeholder meetings, revealed the following key insights. Stakeholders expressed strong support for the Balanced Performance Index (BPI). They also showed clear support for a seasonal calving/pasture-based index. There was high support for a specific index tailored for hotter regions. Views on the need for a specific index for TMR herds were polarised. Support for a Jersey-specific index remained limited. These findings, together with economic and genetic reviews, will help guide the refinement of breeding tools to adapt to industry needs.

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