

# Final report

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## **BREEDPLAN: an evaluation of new business models for breed societies**

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## **1. Abstract**

This report is the final report from a significant and consultative review into the business models that currently deliver BREEDPLAN – Australia’s premier beef cattle quantitative genetics evaluation service - to the Australian beef industry. The review identifies significant constraints and issues associated with the current business models that deliver BREEDPLAN to market from the perspective of commercial and seedstock producers, breed associations, the Animal Genetics Breeding Unit (AGBU) and Agricultural Business Research Institute (ABRI).

The review identifies a strong industry desire for the current BREEDPLAN delivery framework to change, including significantly in some respects, and sets out recommendations as to the changes that are required to meet commercial and seedstock producer and breed association needs and, ultimately, to deliver a more competitive quantitative genetics service to Australian beef cattle producers.

## 2. Executive summary

### Background

A competitive, effective and widely used national quantitative genetics platform is a critical element in ensuring the competitiveness of Australia's \$13.5 billion per annum beef industry. For the past 35 years, BREEDPLAN has been the Australian beef industry's premier and until very recently, only quantitative genetics evaluation platform.

Over the course of the past decade several reviews of BREEDPLAN have identified a range of concerns held by customers and other stakeholders in BREEDPLAN, many of which are the result of, or at least significantly associated with, the supply chain and business models through which BREEDPLAN is delivered to market – a framework that has not changed much over the course of the past three-and-a-half decades.

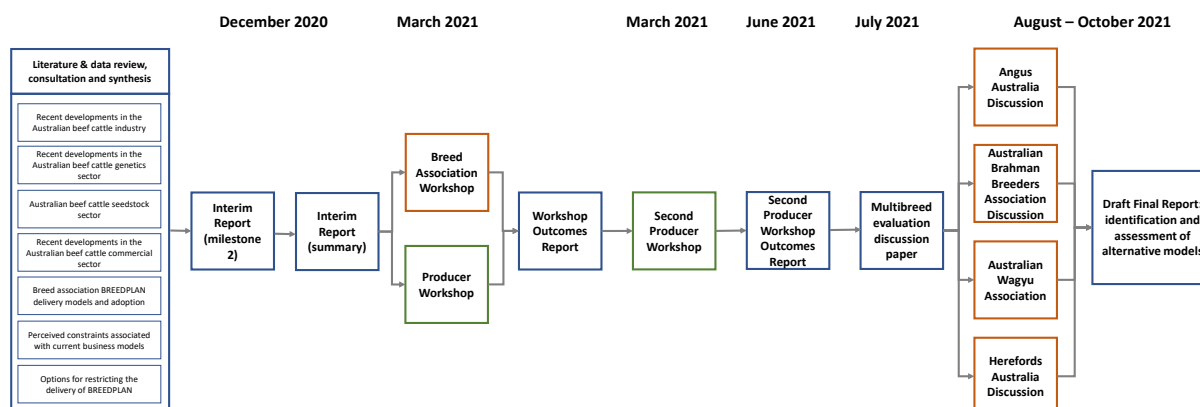
Various issues with BREEDPLAN identified by customers, delivery agents and the owners have recently escalated to the extent that competition for BREEDPLAN has successfully entered the Australian market, threatening fragmentation of the Australian beef quantitative genetics database<sup>1</sup>, potentially undermining the effectiveness of BREEDPLAN and ultimately, the competitiveness of the Australian beef industry.

### Objectives

The objectives of this review are to identify changes that can be made to the business models that currently deliver BREEDPLAN to market to render it a more competitive product in the marketplace, ensuring the impact of competition is minimised and BREEDPLAN can continue to make a significant contribution toward Meat and Livestock Australia's (MLA) objective of doubling the rate of genetic gain in the Australian beef industry.

### Methodology

The observations and recommendations the subject of this study is the result of an 18-month process of literature and data review and analysis, consultation with industry and synthesis undertaken in accordance with the process illustrated in the following figure.



<sup>1</sup> Whilst a single 'Australian beef quantitative genetics database' does not exist in a technical sense, the fact that currently the vast majority of Australian beef cattle pedigree and phenotype data that resides in separate breed association and other databases is processed through a single entity (ABRI) means that the data can be more efficiently accessed and potentially aggregated when required.

The consultation has included the owners of the BREEDPLAN core analytical software, the BREEDPLAN delivery agents, breed associations representing 83 percent of registered producers and 92 percent of primary and secondary calf registrations and 38 seedstock and commercial producers that collectively account for approximately 4.5 percent of the national herd.

### Structural constraints

Most likely designed with an intent to ensure ongoing control over delivery, to capitalise on an obvious and important channel to market and to support the development of the livestock genetics innovation ecosystem at the University of New England (UNE), the supply chain that delivers BREEDPLAN has no doubt been a significant contributor to the development and market penetration of BREEDPLAN historically. However, this and previous reviews have identified a widespread perception that as the result of changes in technology, industry and market conditions, the current BREEDPLAN supply chain has become increasingly problematic:

- **BREEDPLAN is outsourced rather than commercialised** - terms of the licensing agreement and other contractual arrangements and the nature and culture of organisations along the supply chain enforce and encourage 'industry good' objectives that result in sub-commercial behaviours. With the exception of the end customers (seedstock and commercial producers), no participants in the BREEDPLAN supply chain are commercial organisations in the sense they have owners that are expecting to receive a competitive financial return from the business activities of that participant and a notable academic-oriented professional culture pervades the culture of many participants in the supply chain.
- **Supply chain length and complexity** – the supply chain that delivers BREEDPLAN to market is relatively long and complex for a reasonably simple software product and service and, in comparison with other genetic evaluation offerings. This length and complexity results in embedded costs, suboptimal customer engagement in innovation and product development, no central point of control or accountability and misalignment between the strategic intent and primary duties of care of the participants.
- **Product integration** – the ability of the Agricultural Business Research Institute (ABRI) to cross sell higher margin software products that enhance a user's BREEDPLAN experience is understood to be important to the viability of ABRI as the delivery agent. Furthermore, breed associations and producers are almost compelled to use at least some of these software products in order to achieve functionality from BREEDPLAN. This has two implications. Firstly, it serves to 'lock' customers into ABRI as a supplier of complementary BREEDPLAN software products. Secondly, if the complementary software products are perceived as underperforming, this experience affects customer attitudes toward BREEDPLAN more broadly.
- **Existing contractual rights and obligation (and lack thereof)** – the nature of the BREEDPLAN license agreement, Animal Genetics and Breeding Unit (AGBU) research agreement, agreements between ABRI and breed associations and between breed associations and their members, as they are understood, are such that collectively they reinforce a lack of optimal alignment between participants, facilitate a lack of supply chain accountability, reinforce issues associated with misaligned innovation and product development and generally speaking render it difficult to implement significant change to the supply chain without mutual consent or coercion by the major funder of BREEDPLAN innovation, MLA.

## Key issues

The analysis and consultation in this review has identified eleven key perceived issues and constraints that serve to compromise the effectiveness of BREEDPLAN in the marketplace:

- Transactional approach to breed association and other customer engagement
- Deteriorating quality of ABRI software and customer service
- Deteriorating quality of support from SBTS and TBTS
- Misaligned and lagging innovation in product development and R&D
- Waning promotion of BREEDPLAN
- Perceptions as to the technical veracity of BREEDPLAN
- Clearer perspective on a BREEDPLAN multibreed evaluation
- Cost of BREEDPLAN

Variably, producers and breed associations have different perspectives as to the relevant importance of each of these identified issues or constraints.

Solutions designed to address these identified issues and constraints will need to navigate the structural constraints addressed above as well as an environment where:

- There is variability in adoption across the sectors
- There is increasingly clear segmentation of the registered sector, characterised primarily by growing dominance of the larger breed associations who, by virtue of their resources, offer their members a richer and better value-for-money BREEDPLAN service
- There will likely be limited appetite among industry and other stakeholders for another review of BREEDPLAN that does produce outcomes
- The marketplace is characterised by competition for BREEDPLAN from commercial providers and where existing and potential users of BREEDPLAN have demonstrated a propensity to use other systems for genetic evaluation.

## Guiding principles for recommendations

To assist in developing recommendations that are workable without significant, risky disruption to the current BREEDPLAN supply chain and that are practical and actionable, a set of guiding principles have been developed to assist with the development and shaping of the recommendations:

- **Assumption that MLA wants to retain some control over BREEDPLAN as a delivery mechanism for its investments in genetic research** – even though the delivery of BREEDPLAN is outsourced, it is a major instrument through which MLA is able to influence genetic gain across the Australian herd. Furthermore, MLA makes significant investments in beef industry genetics research and BREEDPLAN is the key channel through which the outcomes of genetics research funded by MLA are delivered to market. Having some degree of control over BREEDPLAN enables MLA to ensure that BREEDPLAN can continue to perform these key functions.
- **There is a burning platform for meaningful change** – the desire by customers and key stakeholders to have the identified issues addressed has escalated over the past several years most likely as a result of a shift from a purebred focus across the industry (albeit there remains a significant purebred sector), growth in genomics, entry of competing genetic evaluation platforms in the market and greater end user expectations from software products more generally. Customers and stakeholders expect meaningful solutions to be implemented from this review.

- **The right amount of disruption** – significant disruption naturally implies technical and market risk. From a practical perspective, existing contractual rights along the supply chain and the fact that MLA is the only organisation with adequate leverage to drive significant change through coercion, implementing significant disruption without mutual consent is problematic.
- **Angst over breed association control is real, but not the main game** – there is no question that some changes to BREEDPLAN that have been proposed would disrupt aspects of breed association business models and that there is a desire by some industry to see that disruption take place. However, this issue is largely secondary, with breed association rationally seeking the BREEDPLAN solution that is valued by their members (as they perceive it), other customers wanting a BREEDPLAN solution that is optimised for their business needs (as they perceive it) and other stakeholders seeking a solution that achieves an optimal outcome for the wider industry.
- **The value of data will become increasingly important** – with the growth of genomics and the prospect of a multibreed evaluation that operates external to the current breed association centric phenotype data pipeline, maintaining currency in phenotype and pedigree databases will likely prove increasingly challenging. Any changes to BREEDPLAN will need to contemplate avenues for addressing this issue which may include compensating producers that generate meaningful volumes of high-quality data, commissioning producers to operate specific reference herds, establishing networks of industry-government funded reference herds or transferring the responsibility for reference herds to individual breed associations.
- **Two paramount alignments** – any changes to BREEDPLAN must align with two key stakeholder groups being, the owners (particularly MLA given its majority interest and ongoing investment in BREEDPLAN) and existing and prospective BREEDPLAN customers (including breed associations and their seedstock and commercial producer members who use BREEDPLAN, as well as other seedstock and commercial producers who want access to an effective BREEDPLAN service but under the current arrangements are unable to access such a service – all of whom pay levies to MLA).
- **Two issues that aren't likely to go away** – the two most contentious issues associated with the current delivery of BREEDPLAN are the absence of a BREEDPLAN multibreed evaluation product that generally speaking is not a priority of breed associations, but is sought after by commercial producers, some seedstock producers and MLA, and an evidently increasing desire by larger breed associations to have greater control over the BREEDPLAN service that is delivered to their members. It is very likely that if significant progress is not made toward adequately addressing these two issues by the outcomes of this review, they will persist and escalate and potentially result in the loss of actual and prospective market share for BREEDPLAN.
- **A less contested outcome will require trade-offs** – a solution that satisfies the espoused needs of all customers and stakeholders completely is not possible. Therefore, any progress from the *status quo* will require trade-offs and compromise.

## Recommendations

The recommendations can be categorised under four key themes:

- Meeting customer expectations on the whole BREEDPLAN product
- Meeting customer expectations on BREEDPLAN innovation
- Revitalised BREEDPLAN marketing campaign
- Delivering a BREEDPLAN multibreed evaluation

Summarised in the below table, these recommendations should be considered in the detailed context that is provide in Section 5.

<b>Meeting customer expectation of the whole BREEDPLAN product</b>	
<b>Rec 1: An immediate review of AGBU and ABRI</b>	<p>MLA, UNE and New South Wales Department of Primary Industries (NSWDPI) should immediately commission an independent expert to undertake a review of AGBU and ABRI under terms of reference that identifies a range of options, determines the viability of those option and assesses their impact on the viability of AGBU and ABRI, addressing:</p> <ul style="list-style-type: none"> <li>▪ Automation of the data pipeline</li> <li>▪ APIs that allow direct access for qualified customers to the BREEDPLAN core analytical software</li> <li>▪ Scope of an optimal standardised baseline BREEDPLAN product and service</li> <li>▪ A commercial service agreement-oriented research and development and product development framework</li> <li>▪ Mechanisms for improving the efficiency and accountability of operating arrangements between AGBU and ABRI</li> <li>▪ Mechanisms and channels for delivering more effective BREEDPLAN user support</li> <li>▪ Options for incentivising performance recording and ensuring access to adequate phenotype data</li> </ul>
<b>Meeting customer expectations on BREEDPLAN innovation</b>	
<b>Rec 2: BREEDPLAN Innovation Steering Group</b>	<p>MLA, AGBU and ABRI should agree to establish a BREEDPLAN Innovation Steering Group that will replace existing advisory structure and be:</p> <ul style="list-style-type: none"> <li>▪ Independently chaired with representation from breed associations, producers, MLA, AGBU and ABRI</li> <li>▪ Party to an in-principle agreement with MLA that MLA will take direction from the BREEDPLAN Innovation Steering Group on the BREEDPLAN research and development investment priorities and specific research project investments</li> </ul> <p>The BREEDPLAN Innovation Steering Group will have the following Terms of Reference:</p> <ul style="list-style-type: none"> <li>▪ Development of and custodianship of the BREEDPLAN Research Priorities Plan (see Recommendation 3)</li> <li>▪ Provision of advice to MLA on specific projects to be undertaken in accordance with the BREEDPLAN Research Priorities Plan (see Recommendation 3)</li> <li>▪ Development of frameworks under which owners of phenotype and pedigree data can comfortably provide data to AGBU for the purposes of supporting research</li> </ul>
<b>Rec 3: BREEDPLAN Research Priorities Plan</b>	<p>Under the direction and custodianship of the BREEDPLAN Innovation Steering Group (see Recommendation 2), a BREEDPLAN Research Priorities Plan should be developed that replaces the existing AGBU and relevant aspects of the ABRI Workplan and sets out research priorities at a thematic and programmatic level, including strategic fundamental, industry-wide applied and breed and sector specific research priorities. MLA and the BREEDPLAN Innovation Steering Group should agree, in-principle, to only invest in BREEDPLAN research that is clearly aligned with the priorities set out in the BREEDPLAN Research Priorities Plan. The BREEDPLAN Research Priorities Plan will be reviewed according to a set timeline.</p>

<b>Rec 4: Set funding allocations and co-investment</b>	At the commencement of the first BREEDPLAN Research Priorities Plan and at the commencement of each review period, MLA and the BREEDPLAN Innovation Steering Group should agree to a research budget set for the period of the current BREEDPLAN Research Priorities Plan and allocate amounts to fundamental strategic research, applied industry-wide research and research for individual breed associations and other customer groups. Breed associations, seedstock and commercial producers, owners, AGBU, ABRI and other stakeholders should be invited to co-invest (in-kind and cash) with MLA thematic, programmatic or project level.
<b>Rec 5: Multilateral research contracts</b>	Where appropriate, all research projects funded in accordance with the BREEDPLAN Research Priorities Plan should be the subject of multilateral research contracts that set clear obligations, intellectual property rights and KPIs. Parties to these contracts will variably include the funder (MLA), any other financial or in-kind contributor (including breed associations, producers, the owners and other stakeholders), ABRI, AGBU and other research providers or industry or government partners.
<b>Revitalised BREEDPLAN marketing campaign</b>	
<b>Rec 6: BREEDPLAN Marketing Taskforce</b>	MLA should establish a temporary BREEDPLAN marketing taskforce that is independently chaired and has representation from breed associations, commercial producers, AGBU, ABRI and independent agricultural marketing professionals whose remit is to advise BREEDPLAN supply chain participants on the implementation of a revitalised BREEDPLAN marketing campaign.
<b>Rec 7: Revitalised BREEDPLAN marketing campaign</b>	<p>In accordance with advice from the BREEDPLAN marketing advisory group, participants in the BREEDPLAN supply chain should collaborate, co-invest and share responsibility in a revitalised BREEDPLAN marketing campaign that includes the following elements:</p> <ul style="list-style-type: none"> <li>▪ <b>Competitive market orientation</b> - faced with agile commercial competition, BREEDPLAN marketing efforts must not only convince actual and potential customers to use objective measurement, but also that BREEDPLAN is the best product in the market for doing so.</li> <li>▪ <b>Effective targeting</b> – scarce customer acquisition and market share protection marketing resources should be focused on market segments where outcomes are most likely and if achieved will have the greatest impact.</li> <li>▪ <b>The right channels for the right customers</b> – marketing efforts targeting customer segments should use the most effective channels to reach those customers.</li> <li>▪ <b>Customer trusted voices</b> – a combination of market respected technical experts, advisors and like-minded producers should be engaged to support the delivery of the marketing effort.</li> <li>▪ <b>Collaboration, co-investment and shared responsibility</b> – all stakeholders in the BREEDPLAN supply chain should take ownership of the marketing effort, with collaborative, co-investment (in-kind and cash) models used to target specific market segments.</li> </ul>
<b>Delivering a BREEDPLAN multibreed evaluation</b>	
<b>Rec 8: Agreement on the pathway to a multibreed evaluation</b>	UNE, NSW DPI, MLA, AGBU, ABRI and breed associations should agree that subject to successful outcomes of ongoing research designed to support the delivery of a BREEDPLAN multibreed evaluation, that the delivery framework for that evaluation will be a framework that is not materially different to Model C.
<b>Rec 9: Multibreed evaluation implementation planning and feasibility</b>	Concomitant with and subject to the outcomes of continuing research and development and software development that facilitates a BREEDPLAN multibreed evaluation and working in collaboration with the review that is the subject of Recommendation 1, AGBU and ABRI should establish an operating plan to deliver a BREEDPLAN multibreed evaluation under a framework not materially different to that of Model C and assess the viability of implementing that plan.



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# 1. Introduction and Background

In 2019-20, the Australian beef industry produced Gross Value of Product (GVP) of \$13.4 billion, equivalent to approximately 20 percent of total Australian agricultural GVP. Just under half of Australian beef production is derived from Queensland, with New South Wales and Victoria the next largest producers, accounting for around one-fifth of total production each. Australia's beef production is equivalent to 4 percent of total global production, ranking it as the world's sixth largest beef producer. However, with approximately three-quarters of Australian beef production destined for export, Australia accounts for 17 percent of global beef exports, rendering it the second largest beef exporter behind Brazil (22 percent).

As a cornerstone of the Australian agricultural industry, the beef industry will play a central role in the in achieving the Australian agricultural industry's vision of \$100 billion in farm gate output by 2030.

As is the case for many of Australia's competitors in the global beef market, Australia's competitiveness has been underpinned to a large degree by decades of industry and government investment in genetics science, ensuring that producers have access to genetic information that allows them to make well-informed cattle purchase and breeding decisions, ensuring cattle are optimally productive given their production environment and beef products are competitive in the global marketplace. Optimal capability in this regard is only going to become more important as global competition intensifies.

For the past almost four decades, BREEDPLAN has performed a fundamental role for the Australian beef industry in this regard. Supported by decades of investment in strategic fundamental and applied research, funded primarily by Meat and Livestock Australia (MLA), BREEDPLAN is the national and until very recently, only quantitative genetics evaluation platform available to Australian beef producers.

Even though there is significant variability in the usage of BREEDPLAN across the Australian beef industry – a greater portion of seedstock producers use it compared to commercial producers, a greater portion of registered seedstock producers use it compared to unregistered seedstock producers and even within the registered seedstock sector, usage across breed associations is variable – BREEDPLAN has had a profound impact on genetic progress in the Australian beef industry (see Appendix 1).

For most of the past 35 years, BREEDPLAN has been delivered to industry via what is, for such a product, a relatively long, complex and increasingly not optimally aligned supply chain, comprised of not-for-profit organisations that take the form of university owned companies, a university - government agency joint venture and numerous membership organisations. Several reviews<sup>2,3,4</sup> of BREEDPLAN conducted over the course of the past seven years identify a growing and discernible level of dissatisfaction with different aspects of the BREEDPLAN service and related products from the different perspectives of producers, breed associations and the organisations that deliver BREEDPLAN to market.

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<sup>2</sup> Woolaston, R. (2014), *Review of BREEDPLAN Commercialisation Model*, Project B.BFG.0064, Meat and Livestock Australia

<sup>3</sup> Australian Venture Consultants (2017), *Development of a New/Revised Commercialisation Strategy and Delivery Plan for BREEDPLAN*, Project L.GEN.1709, Meat and Livestock Australia

<sup>4</sup> Australian Venture Consultants (2021), *BREEDPLAN: Evaluation of new business models for breed societies*, Project L.GEN.2002, Meat and Livestock Australia (the review the subject of this report)

This should not be surprising. There has been significant change in the Australian beef industry, the markets it serves, genetics technology and ICT more generally over the past three and half decades, but the BREEDPLAN supply chain has changed little over this time. However, this most recent review<sup>5</sup> has identified a significant escalation of these concerns over the course of the past several years.

These heightened concerns coincide with the entry of competition into the Australian beef cattle quantitative genetics evaluation landscape – competition that threatens to disaggregate the industry quantitative genetics database, ultimately undermining the ability of industry drive genetic progress across traits that will underpin future competitiveness of the industry.

The current circumstance is such that many, if not most stakeholders, believe that if the key concerns and issues are not adequately addressed with a sense of urgency, that in the best case BREEDPLAN's efficacy as an evaluation platform will be compromised, and in the worst case it will be totally undermined.

In this regard, there is a clear multi-stakeholder call to action.

### 1.1. Terms of Reference

The intellectual property (IP) that underpins BREEDPLAN, the BREEDPLAN core analytical software, is jointly owned by the University of New England (UNE) (24.5 percent), New South Wales Government Department of Primary Industries (UNSW DPI) (24.5 percent) and MLA (51 percent). It is fair to assert that of the owners, MLA has the greatest vested interest:

- MLA is the majority owner of the BREEDPLAN core analytical software
- Over the past 35 years, MLA and its predecessor organisations have invested tens if not hundreds of millions of dollars of levy-payer and Australian Government funds in research, development and extension that has underpinned the development and delivery of BREEDPLAN
- MLA's key constituent, Australian beef producers, are the customers and intended beneficiaries of BREEDPLAN

In the context of this significant interest in BREEDPLAN, MLA has commissioned this current review with the objectives of identifying clear pathways for:

- Ensuring BREEDPLAN has greater industry impact in the form of doubling the rate of genetic progress, with more industry operators using BREEDPLAN
- Delivering a service and product that is more accessible and easier to use, including more automated data capture, submission and retrieval of data products
- More rapid implementation of new technologies and research and development
- Using commercial animal data for reference populations, including crossbred and composite cattle
- Genotype only EBVs for seedstock, commercial (e.g. heifers, steers and feedlot cattle) and herd benchmarking
- Multibreed EBVs

To meet these objectives, the following Terms of Reference were issued for this review:

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<sup>5</sup> *ibid.* 3

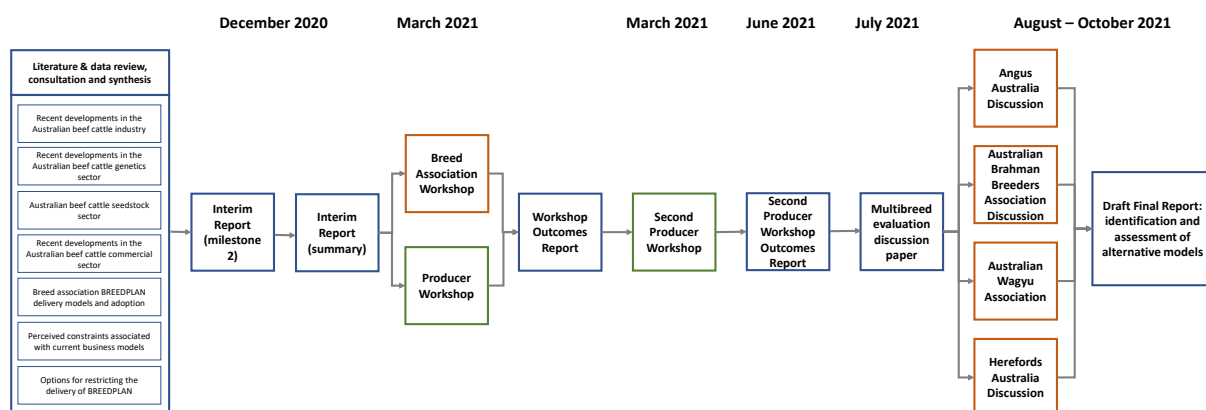
- Understand recent trends in the Australian beef cattle seedstock and commercial producer sector, as well as trends in the adoption and usage of BREEDPLAN and its products
- Examine in detail the current business models used by the main Australian beef cattle breed societies with respect to delivering BREEDPLAN to their members and assess risks, opportunities and limitations for the individual breed society and BREEDPLAN with respect to those business models
- Propose modifications to these business models, as well as new business models that could enhance adoption through existing breed society channels, better engage the unregistered sector and increase the scope for usage of BREEDPLAN for cross and multibreed cattle
- Test potential new business models with the breed society sector

## 1.2. The review process

This current review commenced in May 2020 and in accordance with its initial scope was scheduled for completion in December 2020. Completion of the review was initially delayed by the impact of national COVID-19 travel restrictions which delayed necessary in-person workshops and then subsequently by a revision of the scope of the project in March 2021.

The following **Figure 1** illustrates the process (inclusive of the revised scope) that has been undertaken to deliver this final report.

**Figure 1 – Review process**



### 1.2.1. Consultation

Consultation with the organisations that comprise the BREEDPLAN supply chain and its customers has been a fundamental input to this review.

Across Australia, there are approximately 45,700 agricultural operations with some involvement in the beef cattle industry, of which around 20,600 are substantial operations, running a total of 22.4 million head of cattle. The registered beef cattle seedstock sector is comprised of 6,900 breed association members belonging to 34 separate breed associations, registering approximately 200,000 calves each year.<sup>6</sup>

The consultation that has been undertaken to inform this review has included:

<sup>6</sup> Australian Venture Consultants (2020), *An evaluation of new business models for breed societies: milestone 2 report*, L.GEN.2002, Meat and Livestock Australia

- The owners of the BREEDPLAN core analytical software (UNE, NSW DPI and MLA)
- Organisations that comprise the upstream supply chain – the software licensee and research provider
- Breed associations that represent approximately 83 percent of registered producers and 92 percent of primary and secondary calf registrations
- A sample of seedstock and commercial producers that while representing only approximately 4.5 percent of the national herd, is a meaningful sample in that it includes a range of producers in terms of scale (Australia’s largest producers down to producers selling 20 bulls per annum), multiple breeds and multiple production environments.

The following **Table 1** lists organisations that have been consulted for the purpose of this review.

**Table 1 - Consultation**

Owners	Seedstock and Commercial Producers
1. Meat & Livestock Australia	1. 5-Star (Senepol & Adapted Taurus)
2. New South Wales Department of Primary Industries	2. Ascot Cattle Co (Charolais & Angus)
3. University of New England	3. Australian Agricultural Company (Wagyu)
Upstream Supply Chain	4. Baldblair Angus (Angus)
1. Agricultural Business Research Unit (ABRI)	5. Ben Nevis Angus (Angus)
2. Animal Genetics and Breeding Unit (AGBU)	6. BN & JM Bell & Sons (Hereford)
Breed Associations	7. Cree Pastoral (Santa Gertrudis)
1. Angus Australia	8. Day’s Whiteface (Hereford)
2. Australian Brahman Breeders Association	9. Eidsvold Station (Santa Gertrudis)
3. Australian Wagyu Association	10. Gylanda (Santa Gertrudis)
4. Charolais Society of Australia	11. Hicks Beef (Composite & Red Angus)
5. Herefords Australia	12. Irongate Wagyu (Wagyu)
6. Red Angus Society of Australia	13. JC Cattle Co.
7. Santa Gertrudis Australia	14. Lawsons Angus (Angus)
8. Simmental Australia	15. Nagol Park Shorthorns (Shorthorn)
9. Speckle Park International	16. Nindooibah (Brangus)
	17. Northern Pastoral Company (Composite)
	18. Paraway Pastoral (Brahman, Brahman X, Angus and Angus X Wagyu)
	19. Pelican Rise (Limousin)
	20. Rennylea Pastoral Company (Angus)
	21. Rosedale Charolais (Charolais)
	22. Rosevale (Santa Gertrudis)
	23. Rowanlea Cattle Co. (Brahman & Santa Gertrudis)
	24. Roxborough Brahman (Brahman)
	25. SC Grazing (Droughtmaster)
	26. Simon Cattle Company (Brahman)
	27. Talbalba Herefords (Hereford)
	28. Te Mania Angus (Angus)
	29. The Grove Shorthorns (Shorthorn)
	30. Thring Pastoral Company (Angus)
	31. Tremere Pastoral (Belmont & Composites)
	32. Trentbridge (Wagyu)
	33. Triple B (Brangus)
	34. Turanville Shorthorns (Shorthorn)
	35. Warringa Herefords (Hereford)
	36. Wirruna Poll Herefords (Hereford)
	37. Yavenvale Herefords (Hereford)
	38. Yuligbar Pastoral Co (Santa Gertrudis)

### 1.2.2. Interim Report (Appendix 1)

In November 2020, an interim report (also a milestone report) was completed (the 'Interim Report')<sup>7</sup>. A summary of this Interim Report is contained in Appendix 1.

Based on extensive desktop and data analysis, consultation with breed association executives and some seedstock and commercial producers, the Interim Report:

- Describes the BREEDPLAN product and related products and services and the supply chain that delivers those products and services to the market
- Recent trends and developments in the Australian beef industry and market for Australian beef
- Recent developments in the Australian beef cattle genetics sector
- An overview of the registered and unregistered seedstock sector and commercial producer sector
- Trends in the adoption and usage of BREEDPLAN and genomics technology and the business models used to deliver BREEDPLAN to members by Angus Australia, Herefords Australia, Australian Wagyu Association, Australian Brahman Breeders Association, Charolais Society of Australia, Droughtmaster Stud Breeders Society, Santa Gertrudis Australia, Australian Limousin Breeders Society, Simmental Australia, Australian Brangus Cattle Association, Speckle Park International and Red Angus Society of Australia
- Identified 14 perceived issues and constraints associated with the current supply chain and business models that deliver BREEDPLAN to market

Based on a synthesis of this analysis and further consultation, the Interim Report identifies and critically assesses five broad options for consideration as pathways toward addressing the identified issues:

- **Continuing under the current arrangements**  
On the basis that all options require some additional investment and all disruption carries risk, the option of continuing under a 'business as usual' arrangement was canvassed.
- **Adopting a strategic partnership structure along the BREEDPLAN supply chain**  
A core recommendation of a previous review of BREEDPLAN<sup>8</sup>, a more strategic approach the managing the BREEDPLAN supply chain involves a range of initiatives designed to increase transparency along the supply chain, diversify ownership and responsibility for BREEDPLAN delivery, provide stakeholders with greater control over key aspects of the BREEDPLAN product and its delivery and implement leadership across the entire BREEDPLAN supply chain.
- **Investments by MLA targeting specific issues that are conditional on specific outcomes being achieved**  
Based on the observation that many of the issues and constraints identified by the Interim Report (see Section 3) could be addressed through additional investment, this option involves

<sup>7</sup> Australian Venture Consultants (2020), *An evaluation of new business models for breed societies: milestone 2 report*, Project L.GEN.2002, Meat and Livestock Australia

<sup>8</sup> Australian Venture Consultants (2017), *Development of a New/Revised Commercialisation Strategy and Delivery Plan for BREEDPLAN*, Project L.GEN.1709, Meat and Livestock Australia

MLA making those investments on the condition that certain objectives are met such as a clear pathway toward implementation of a BREEDPLAN multibreed evaluation.

- **MLA acquiring the equity and license interests of third parties along the BREEDPLAN supply chain**

This option revolves around MLA acquiring all existing equity and license interests of other parties along the BREEDPLAN supply chain, effectively affording MLA total control of BREEDPLAN delivery and the option of internalising delivery under a model similar to that used to deliver SHEEP GENETICS (the Australian sheep industry equivalent to BREEDPLAN) to market.

- **MLA investing in a new beef cattle genetic evaluation platform**

Generally seen as a last resort if issues are unable to be resolved, this option involves MLA investing in a new genetics evaluation platform that has a greater focus on genomics as a delivery mechanism and gradually divesting in BREEDPLAN.

These options were verbally presented to the breed associations and producers consulted in the development of the Interim Report, with an overwhelming majority indicating that a hybrid approach involving a combination of a strategic partnership approach to managing the BREEDPLAN supply chain combined with strategic conditional investments by MLA being the preferred option for addressing the issues and constraints. Detailed in the Interim Report, the key aspects of this hybrid approach are summarised in the following **Table 2**.

**Table 2 – Preferred pathway identified by the Interim Report**

<b>Strategic approach to managing the BREEDPLAN supply chain</b>	Similar to a recommendation of a previous review of BREEDPLAN <sup>9</sup> , this involves moving away from the current more transactional-oriented framework, particularly as it applies to the downstream aspects of the supply chain, to a more partnership and whole-of-supply-chain leadership- oriented model. Specific instruments might include a more whole-of-supply-chain oriented governance framework, a supply chain leadership function, equity participation along the suppl chain, supply chain key performance KPIs and accountabilities, pricing and supply chain surplus transparency and a whole-of-supply-chain owned R&D and product development plan.
<b>Targeted conditional investment by MLA</b>	On the basis that adopting a strategic approach to managing the BREEDPLAN supply chain would require additional resourcing and that a significant portion of the issues identified by the review can be addressed through additional resourcing, the notion that MLA (and potentially other organisations) would make targeted investment to improve customer service, product development, supporting R&D, BREEDPLAN user support and the promotion of BREEDPLAN seemed to be supported.

### 1.2.3. March 2021 breed association and producer workshops (Appendix 2)

Following the completion of the Interim Report (see Section 1.2.2) and allowing for COVID-19 travel restrictions, two separate workshops were held – one attended by breed association executives and

<sup>9</sup> Australian Venture Consultants (2017), *Development of a New/Revised Commercialisation Strategy and Delivery Plan for BREEDPLAN*, Project L.GEN.1709, Meat and Livestock Australia



one attended by seedstock and commercial producers. Both workshops were attended by the MLA executive. UNE, NSW DPI, Animal Genetics Breeding Unit (AGBU) and Agricultural Business Research Institute (ABRI) participated in the first session of each workshop. A detailed summary of the Interim Report was provided to participants as pre-reading. The detailed report from these workshops<sup>10</sup> is contained in Appendix 2.

As an interim step in the process, these workshops were intended to:

- Interrogate the findings of the Interim Report
- Ensure that the issues and constraints identified represent a comprehensive list and that those issues and constraints and their implications are understood
- Confirm that the hybrid pathway forward as discussed in Section 1.2.2 above is the agreed pathway forward
- To further detail how that pathway might be achieved.

The outcome of these workshops identified a number of barriers to progressing the project in accordance with the initial scope:

- There was significant divergence as to the relative importance of identified issues and constraints, particularly between the breed association and producer workshops (see Appendix 2 and Section 3 below)
- Many breed association executives and some producers expressed a concern that the discussion around a prospective BREEDPLAN multibreed evaluation product could not proceed further without a better understanding of why a multibreed evaluation is being pursued, how it might be delivered and its potential cost-benefit
- By the end of each workshop, participants had decided that the hybrid pathway identified by the Interim Report and initially validated as being the best pathway forward was no longer a suitable direction
- Concern was raised by breed association executives that the participants in the producer workshop did not constitute an adequate representation of Australian seedstock and commercial producers

Therefore, while these workshops were invaluable from the point of view of better understanding each of the issues and constraints identified by the Interim Report and their implications, an outcome of the workshops was a rescoping of the project rather than expedited pathway to an outcome. The review was rescoped to include:

- A second producer workshop in order to increase the size and diversity of the sample of seedstock and commercial producers consulted for the purposes of the review (see Section 1.2.4)
- Development of a discussion paper on a BREEDPLAN multibreed evaluation (see Section 1.2.5)
- Further direct one-on-one consultations with individual breed associations (see Section 1.2.6)

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<sup>10</sup> Australian Venture Consultants (2021), *BREEDPLAN: an evaluation of new business models for breed societies – producer and breed association workshops – report on outcomes*, Project L.GEN.2002, Meat and Livestock Australia

#### 1.2.4. Second producer workshop (Appendix 3)

In accordance with the rescoping of the project that followed the March 2021 workshops (see Section 1.2.3) a second producer workshop was held in Brisbane on 15<sup>th</sup> June 2021. The attendance at this workshop increased the consultation with seedstock and commercial producers to a total of 38 representing around 1 million head of cattle, or approximately 4.5 percent of the national herd. The report summarising the outcomes of this second producer workshop<sup>11</sup> is contained in Appendix 3.

The workshop was attended by MLA executive. However, UNE, NSW-DPIRD, AGBU and ABRI were not invited to participate in this second producer workshop. Generally speaking, the deliberations at the workshop pertaining to the identified issues and constraints further validated the relative importance placed on each of those issues and constraints by the March 2021 producer workshop.

This workshop also, for the first time, introduced three potential high-level frameworks for delivering a prospective BREEDPLAN multibreed evaluation product, with (at the participant's request) a significant portion of the workshop spent discussing these frameworks. While there was widespread (although not unanimous) support for the delivery of a BREEDPLAN multibreed evaluation product by workshop participants, there was a wide range of views as to how the delivery of a BREEDPLAN multibreed evaluation product should be structured.

Further, the workshop rejected each of the specific options proposed by the Interim Report as pathways forward, demonstrating wider support for a different approach that for some comprised elements of each of these options revolving around the delivery of a multibreed evaluation product and for others, total disruption to the current BREEDPLAN delivery framework.

#### 1.2.5. Multibreed evaluation discussion paper (Appendix 4)

In accordance with the rescoping of the project that followed the March 2021 workshops (see Section 1.2.3) AVC prepared a discussion paper on a potential BREEDPLAN multibreed evaluation product<sup>12</sup>. Contained in Appendix 4, this discussion paper explores:

- Trends in the prevalence of crossbreeding in the Australian beef industry
- The perspectives of key breed associations on the prospect of a BREEDPLAN multibreed evaluation product
- The perspective of producers on the prospect of a BREEDPLAN multibreed evaluation product
- The history of development of multibreed functionality for BREEDPLAN and technical progress toward a BREEDPLAN multibreed evaluation capability
- Types of multibreed evaluation products and services
- Structural challenges to a BREEDPLAN multibreed evaluation
- Case studies of cross and multibreed evaluations in other livestock industries including the New Zealand, United States and Republic of Ireland beef industries
- Perceived benefits and drawbacks of a BREEDPLAN multibreed evaluation
- Possible frameworks for delivering a BREEDPLAN multibreed evaluation

<sup>11</sup> Australian Venture Consultants (2021), *BREEDPLAN: an evaluation of new business models for breed societies – second producer workshop – outcomes report*, Project L.GEN.2002, Meat and Livestock Australia

<sup>12</sup> Australian Venture Consultants (2021), *A BREEDPLAN Multibreed Evaluation: Discussion Paper*, Project L.GEN. 2002, Meat and Livestock Australia

A draft of this discussion paper was shared with each of the organisations consulted in the process for comment and feedback prior to finalisation.

### **1.2.6. Additional individual breed association consultations**

In accordance with the rescoping of the project following the March 2021 workshops (see Section 1.2.3), the review undertook additional direct consultation with each of the executive, boards and key members of the Tier 1 (four largest) breed associations – Angus Australia, Australian Wagyu Association, Herefords Australia and the Australian Brahman Breeders Association. Collectively, the Tier 1 breed associations account for approximately 51 percent of breed association members, 62.5 percent of primary registrations and 65.1 percent of secondary registrations.

It was intended that the same direct consultations would take place with the executive, boards and key members of the Tier 2 and some Tier 3 breed associations. However, these have proved difficult to organise and have not taken place. The Tier 2 breed associations are comprised of Charolais Society of Australia, Droughtmaster Australia, Santa Gertrudis Australia, Shorthorn Society of Australia, Australian Limousin Breeders Society and Simmental Australia and collectively account for approximately 27 percent of breed association members, 24 percent of primary registrations and 26 percent of secondary registrations. The Tier 3 breed associations are comprised of Murray Grey Beef Cattle Society, Australian Brangus Cattle Association, Speckle Park International and Red Angus Society of Australia and collectively account for approximately 12 percent of breed association members, 8 percent of primary registrations and 3 percent of secondary registrations.

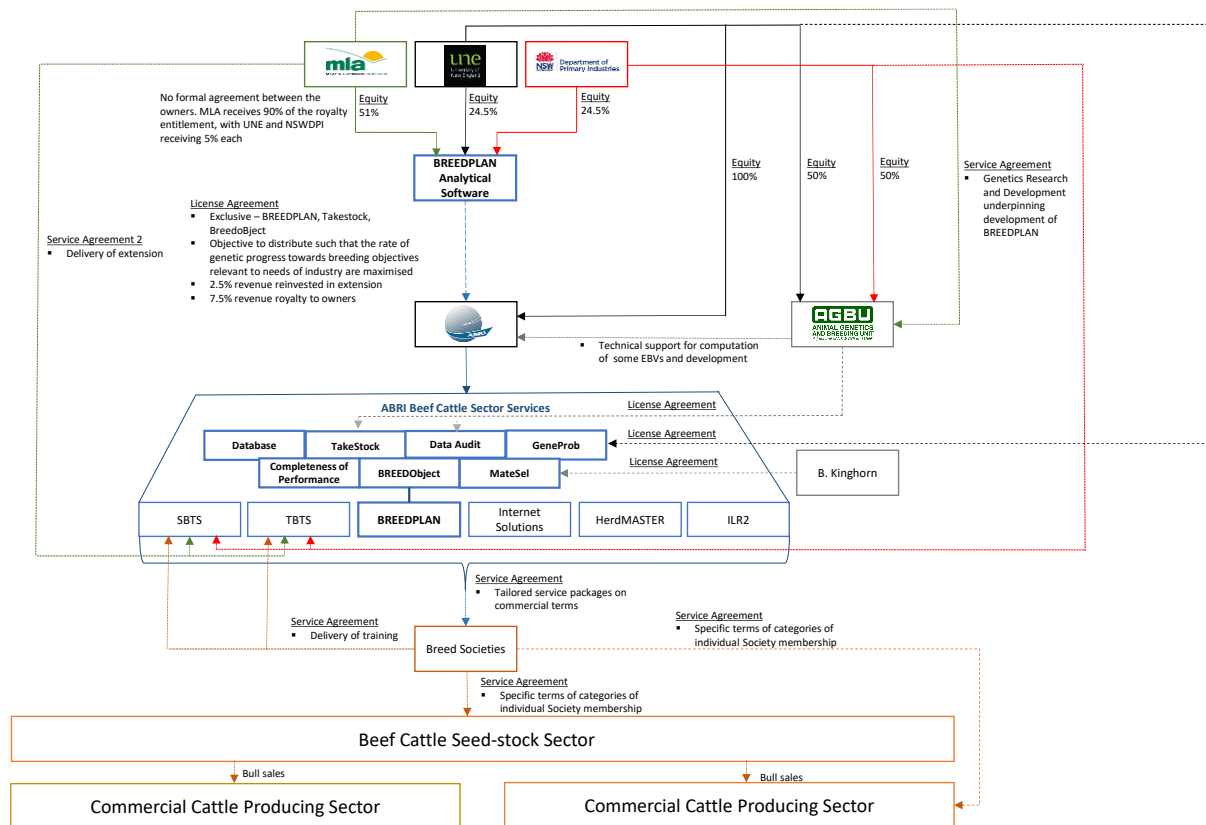
### **1.3. This final report**

This final report provides a synthesis of the key observations of the analysis contained in Appendices 1, 2, 3 and 4, establishes a set of principles that have been used to guide the Review's final recommendations and details those recommendations. For the purposes of utility, this final report does not repeat the analysis in Appendices 1, 2, 3 and 4 to any great extent and should be read in conjunction with the Appendices.

## **2. Current BREEDPLAN supply chain structural constraints**

Explained in detail in the Interim Report (see Appendix 1), the following **Figure 2** illustrates the supply chain that delivers BREEDPLAN to market.

Figure 2 – BREEDPLAN supply chain



The nature and structure of the supply chain that has delivered BREEDPLAN to market for the past 35 years was recognised as the likely source of a significant number of perceived issues and constraints prior to this current review<sup>13</sup>. However, this review and previous reviews have failed to identify why a decision was made three and a half decades ago to structure the BREEDPLAN supply chain in such a way. It is highly likely that for reasons not dissimilar to the following, it was at least a sensible, if not optimal way to achieve adoption and support ongoing development of the BREEDPLAN product:

- At the time, breed associations were the only organisations routinely collecting the pedigree details required as the basis for a genetic evaluation, and therefore using breed associations as the channel to market reduced duplication of effort to some extent.
- The historical almost exclusive purebred nature of the Australian beef industry meant that breed associations were the logical pathway to market, providing a direct channel to the customer (breed associations remain an important channel to market).
- It allows MLA (and its predecessor organisations) to maintain some control over the delivery of BREEDPLAN, enabling it to ensure the extension of its investments in genetics research and pursuit of industry genetics objectives.
- It supported and fostered the then emerging livestock genetics innovation (research and software development) ecosystem that revolves around UNE.

Most certainly, this structure has delivered significant outcomes for industry. BREEDPLAN has facilitated significant genetic gain across the Australian beef industry and the genetics innovation

<sup>13</sup> Australian Venture Consultants (2017), *Development of a New/Revised Commercialisation Strategy and Delivery Plan for BREEDPLAN*, Project L.GEN.1709, Meat and Livestock Australia

ecosystem that revolves around UNE in Armidale is world-class and a significant asset for the Australian beef industry.

However, the market that BREEDPLAN operates in now is substantially different to that 35 years ago. Indeed, aspects of the nature and structure of the BREEDPLAN supply chain are now the source of a range of issues and constraints that collectively threaten the future of BREEDPLAN. Somewhat ironically, these very aspects are also significant barriers to the implementation of solutions.

## **2.1. BREEDPLAN is outsourced rather than commercialised**

While intellectual property (IP) commercialisation transactions can include a wide range of terms and conditions (including constraints), generally speaking, the term commercialisation refers to the granting of a license to a third party or parties in order for those third parties for those third parties to gain access or control over that IP for strategic or financial benefit under relative laissez-faire conditions.

The owners of the BREEDPLAN core analytical software (UNE, NSW DPI and MLA) have licensed the right to 'commercialise' BREEDPLAN to ABRI. This transaction is often described by BREEDPLAN stakeholders as BREEDPLAN having been 'commercialised'. This is a somewhat misleading description that creates the perception that ABRI (and other supply chain participants) is a commercial organisation, that delivers BREEDPLAN for entirely commercial reasons and is able to act entirely commercially.

In fact, specific terms of the license agreement, the nature of ABRI and other agents involved in the delivery of BREEDPLAN to market and the relationship between those organisations means that the licensing transaction is better described a service delivery outsourcing arrangement.

This is the source of a number of the identified issues and constraints and is a factor that has to be considered and navigated in the development and implementation of solutions. Key aspects of this are discussed in the following subsections.

### **2.1.1. Industry good objective**

Neither this review nor previous reviews have been privy to the BREEDPLAN core analytical software licensing agreement. However, it is understood that the agreement includes terms that provide mechanisms for the owners to retain significant control over the nature of the BREEDPLAN product that is delivered to market and therefore maintain some control over ensuring that they are able deliver on industry-good strategies. For example, several breed associations would prefer greater control over the parameter settings in evaluations. However, it is understood that the license agreement specifically prevents ABRI from changing evaluation parameters without the consent of the owners.

Additionally, ABRI does not price BREEDPLAN consistently across the breeds, using surplus derived from the higher throughput associated with larger breed associations to subsidise access to smaller breed associations. While undertaken to drive increased adoption, this represents an opportunity cost whereby those surpluses could be reinvested in further development of BREEDPLAN, or the resources used to support price premiums, used by larger breed associations for their priorities.

Similarly, while AGBU undertakes specific research projects for individual breed associations, the majority of its industry funded research, naturally, is designed to deliver wider industry good outcomes and not necessarily targeted at specific espoused needs of a customer segment.

This does not imply that the upstream supply chain, including ABRI, doesn't act with economic rationality. It just does so within the limits imposed by the industry-good constraints of the license agreement and culture of the upstream supply chain and therefore not in a purely commercial way.

### 2.1.2. Non-commercial supply chain participants

There is not a single participant in the BREEDPLAN supply chain that is a commercial business in the sense that it has owners who expect to receive a competitive financial return from the business activities of that supply chain participant.

For example:

- **Ownership of the BREEDPLAN core analytical software**  
The BREEDPLAN core analytical software is owned by a University (UNE) and state government department (NSW-DPI) and a rural research and development corporation (MLA).
- **Licensee of the core analytical software**  
The licensee of the BREEDPLAN core analytical software, ABRI, is a company limited by guarantee under the jurisdiction of the *Corporations Act 2001* (Cth) with its sole member being UNE. In accordance with the law this structure prohibits ABRI from paying a dividend to UNE, compelling it to invest any surplus in the purpose of ABRI (which can include building cash reserves). Further, while the ability of UNE to directly control ABRI is somewhat constrained under a company limited by guarantee structure, ABRI is a subsidiary of UNE and UNE is its ultimate controlling entity.
- **Research provider**  
The main provider of research that supports the development and operations of BREEDPLAN, AGBU, is a business unit of a university (UNE) and an unincorporated joint venture between a UNE and state government department (NSW-DPI), receiving the vast majority of its financial resourcing from a rural research and development corporation (MLA).
- **Primary channel to market**  
With the exception of approximately 25 individual seedstock and commercial producer customers, BREEDPLAN is delivered to the Australian beef cattle industry through breed associations. Breed associations are not-for-profit membership-based organisations that are typically structured as companies limited by guarantee under the jurisdiction of the *Corporations Act 2001* (Cth) or incorporated associations under various state legislation.

Indeed, every participant in the supply chain is a not-for-profit entity, with the only commercial operations being the end customers – seedstock and commercial producers. Again, this doesn't imply that the upstream supply chain participants don't behave with economic rationality, just that their behaviour isn't driven entirely by commercial rationale.

### 2.1.3. Academic-influenced culture

While not entirely within the academy, the supply chain is reasonably influenced by an academic professional and workplace culture that is derived from two characteristics:

- **Significant presence of UNE**

UNE is an owner of the BREEDPLAN core analytical software and ABRI and the administrating entity of and joint venture partner in AGBU. While ABRI operates as an arms-length business unit, AGBU is fully immersed in UNE's human resources systems and academic culture and characterised by academic measures of merit.

- **Key component of a research ecosystem**

As the main channel to market for much of the genetics research outcomes from the UNE/Armidale beef genetics innovation ecosystem, BREEDPLAN is naturally embedded in the academic culture that is characteristic of that ecosystem.

- **Academic nature of the space**

Livestock genetics, and particularly quantitative livestock genetics, is a highly specialised area of science requiring deep knowledge of biological sciences, mathematics and livestock production – it tends to attract students and researchers of particularly high acumen. These professionals are not only employed in the AGBU academic environment, but in leadership roles across the owners of the BREEDPLAN core analytical software, ABRI and several of the breed associations. While not unusual in a supply chain that has delivered university developed intellectual property to market (particularly in the biological sciences space), having been trained and socialised in an academic environment, elements of an academic culture are evident, to varying degrees, through various organisations along the BREEDPLAN supply chain. This manifests itself in more scientific approaches to understanding and addressing commercial issues, a desire for high levels of quantitative evidence to support decisions and actions, discounting of the importance of customer perception and a hesitancy to rely more on commercial acumen. Further, the pervasiveness of this culture along the supply chain, means that a scientific approach to understanding and resolving commercial issues is often accepted and endorsed by decision-makers across the stakeholders over those based on commercial judgement.

It must be stressed that this observation is not intended to be a criticism of universities, the academic or scientific professions or any individuals or organisations in the BREEDPLAN supply chain. It is very unlikely that BREEDPLAN would have achieved all that it has in terms of development and market penetration without this academic influenced culture and the professional dedication of all the scientific professionals involved. Regardless, it is a factor that further removes from the commerciality of the BREEDPLAN supply chain.

## **2.2. Supply chain length and complexity**

Most certainly, many software based services involve long and complex supply chains. However, these tend to support relatively complex products and services. Most would argue that the supply chain that delivers BREEDPLAN to market is relatively long and complex for what is a fairly simple product and service offering, particularly when it is compared to other similar products such as its competitors in the Australian beef industry (IGS) and its counterpart in the Australian sheep industry (SHEEP GENETICS)

Supply chains exist because, as a result of the productivity benefits that can be derived through the economic constructs of specialisation and economies of scale, firms can enter into vertical and

horizontal supply arrangements that result in a more competitive product being delivered to the market and greater individual margins than would be the case if the supply chain did not exist. When BREEDPLAN was established these fundamental underpinning concepts of specialisation and economies of scale were no doubt critical in achieving initial market penetration, driving growth in adoption and achieving ongoing development of the BREEDPLAN product in an ‘industry-good’ environment. However, for the following reasons, now that BREEDPLAN operates in a competitive landscape, the current length and complexity of the supply chain is likely to prove increasingly problematic.

### **2.2.1. Cost**

This review and past reviews have not had access to detailed financials pertaining to the BREEDPLAN supply chain. However, from the limited external analysis that has been conducted, it is understood that the license fee paid by ABRI (approximately \$100,000 per annum) accrues almost entirely to MLA (90 percent) and represents a very small portion (around 10 percent) of the investment MLA makes in direct research and development that supports BREEDPLAN each year and a negligible amount of its total beef genetics investment, and that the overall supply chain surplus is also small and concentrated with ABRI and is largely (if not entirely) reinvested in the development of BREEDPLAN and related products.

However, even if any supply chain surplus is small and reinvested, the inclusion of the overheads of each supply chain participant associated with their BREEDPLAN functions presents minimum cost base that needs to be covered, that would likely be less if BREEDPLAN was delivered by a less lengthy and simpler supply chain. This together with costs associated with the inefficiencies that will inevitably occur as a result of the complexity of the supply chain is undoubtedly contributing to perceptions of relative high cost. Where the supply chain is delivering what is perceived by some as a lesser quality product at an embedded high cost, this will become increasingly problematic in a competitive marketplace.

### **2.2.2. Separation from customer in innovation and product development**

It has been understood by industry innovators for decades that the deep involvement with intended users of the outcomes of research through the entire research cycle – ideation, project development, project implementation and outcomes translation – is best practice. In industries that service competitive markets, it is the only way competitive products can be developed.

The BREEDPLAN supply chain presents a challenge in this regard. Under current arrangements AGBU is separated from users, without any channel for direct ongoing engagement with users – breed associations, seedstock or commercial producers – forcing it to consult directly with a select number of customers. While ABRI has direct ongoing engagement with breed associations, it has only limited engagement with seedstock and commercial producers.

This structure presents significant limitations with respect to ensuring adequate user input to the innovation process, both research and development and product development and there is no formalised structure across these organisations to ensure adequate user engagement with the innovation process. This will become increasingly problematic in the face of highly customer focused competition.



### 2.2.3. No central point of control or accountability

Under the current BREEDPLAN supply chain, no single entity or individual has control over the delivery or is accountable for the delivery of the whole-product. This isn't unusual in a supply chain arrangement but is typically mitigated by the existence of fairly tight supply chain agreements and in some instances, a supply chain leadership function. The absence of both in the case of the BREEDPLAN supply chain presents two specific issues:

- It is difficult for any specific supply chain participant to deliver on customer needs, simply because they do not have any control over or means of significantly influencing the whole-product delivery
- The customers or owners are unable to hold a single entity or individual accountable for customer satisfaction or delivery of objectives.

Again, this issue will become increasingly problematic in the face of more nimble competition in the marketplace that is able to respond quickly and effectively to customer product and service requirements.

### 2.2.4. Suboptimal alignment

As discussed in Section 2.1.1, the BREEDPLAN supply chain was constructed primarily (or at least substantially) to deliver an industry-good objective. However, from a primary duty of care and therefore overall strategic perspective, the participants in the BREEDPLAN supply chain are not optimally aligned:

- **Meat and Livestock Australia**  
As the Rural Research and Development Corporation for the Australian red meat industry, MLA owes its primary duty of care to Australian beef (and sheep and goat meat) producer levy-payers (including all seed-stock and commercial producers) and the Commonwealth Government. This is reflected in a strategy that revolves around making research, development, extension and marketing investments designed to improve the sustainability, competitiveness, productivity and profitability of the Australian beef industry, of which driving genetic progress across the Australian beef cattle herd is a component through a wider beef industry benefit lens.
- **New South Wales Department of Primary Industries**  
NSWDPI operates one of the largest agricultural research functions in the nation and owes its primary duty of care to the New South Wales Government. New South Wales hosts a significant portion of the Australian cattle industry (approximately one-fifth of the national herd) and a significant portion of the seedstock sector. While this interacts with the national Australian beef industry, its strategy reflects benefits to the State of New South Wales.
- **University of New England**  
As an institute of higher education, UNE's primary duty of care is to the Commonwealth Government, its students and staff. This translates to strategic objectives that are typical of a university – measures of academic merit such as publication, grant, industry engagement and commercialisation productivity, student performance and experience and infrastructure that

supports these objectives. Its participation in the BREEDPLAN supply chain is primarily about supporting these outcomes in the livestock genetics related disciplines.

- **Agricultural Genetics Breeding Unit**

Managed as an operating unit of UNE and as a joint venture between UNE and NSW DPI, AGBU owes its primary duty of care to these organisations, as well as to MLA as its primary funder.

- **Animal Business Research Institute**

As a company limited by guarantee with its single member being UNE, ABRI owes its primary duty of care to UNE. As a company limited by guarantee, ABRI is prohibited at law from distributing any profits to UNE. Its primary purpose is as a vehicle for industry engagement and translation of university and other research.

- **Breed associations**

Breed associations are membership organisations established by members to maintain the integrity of and promote a specific breed of cattle. Breed associations owe their primary duty of care to their members and their strategies reflect initiatives designed to develop and promote a specific breed of cattle and protect and advance their members' interests.

While each of these organisations have a strong shared interest in BREEDPLAN, the somewhat misaligned primary duties of care and resulting strategies serve as obstacles to achieving certain innovation, product development and market outcomes.

In purely commercial supply chains, a mandate from owners for optimised financial returns, combined with market forces typically drive stronger supply chain partner alignment.

### 2.3. Product integration

As discussed in Section 2.2.1, while the surplus associated with delivering BREEDPLAN to market is likely concentrated with ABRI it is understood to be minimal. However, ABRI's main business is the sale and support of a range of software products targeting breed associations and producers across multiple livestock industries, across the globe.

In the Australian beef industry this includes:

- **HerdMASTER** – an on-farm herd recording software application for the collection, storing and analysis of livestock data. It helps producers more easily report to cattle data to BREEDPLAN, National Livestock Identification System (NLIS) and breed associations.
- **Ilr2** – a breed register software application that can be used by breed associations and other organisations in the beef, dairy, sheep, goat, alpaca, horse, elk, buffalo and wildlife sectors.
- **Internet Solutions** - a software application that allows breed associations to extend access to selected databases, decision support, other relevant functionality and information to their members online via the internet. Functionality that can be extended includes animal or member searches and inquiries (including animal lists, pedigrees, performance information such as EBVs, progeny lists, etc.), sale catalogues, semen lists, registrations and inventory

updates, mating prediction services, inbreeding coefficient calculation and access to publications

- **Decision support tools** - including a range of software products that can be used by breed associations and producers to enhance the functionality of BREEDPLAN, such as BREEDObject, MateSel, BREEDPLAN Completeness, GeneProb, TakeStock and DESIREBULL.

Using BREEDPLAN at any scale or sophistication without access to at least some of these complementary software products is highly problematic for breed associations and producers alike. Further, the surplus that is generated from these higher margin software products is understood to be an important factor the ability of ABRI to deliver BREEDPLAN from a financial perspective.

This degree of product integration has two implications. Firstly, it serves to effectively 'lock' customers into ABRI as the supplier of software products that complement BREEDPLAN, making it difficult to use competing software applications if they want access to the capability of the BREEDPLAN core analytical software and databases. Secondly, if the customer perceives the complementary software as underperforming, that experience affects customer attitudes toward BREEDPLAN as a whole.

Again, in a competitive marketplace, this will become an increasingly significant challenge.

## **2.4. Existing contractual rights and obligations (and lack thereof)**

While details of the full contractual framework that governs the relationship between participants in the BREEDPLAN supply chain has not been cited by this Review or previous reviews, the extent to which it is understood indicates a framework that in some instances reinforces the lack of alignment discussed in Section 2.2.4, in others facilitates a lack of accountability that reinforces issues associated with misaligned innovation and product development and generally speaking renders it difficult to implement significant change to the supply chain without mutual consent of the BREEDPLAN supply chain participants or major coercion by the BREEDPLAN supply chains main innovation funder, MLA.

### **2.4.1. BREEDPLAN license agreement**

The specific terms of the license agreement between the owners of the BREEDPLAN core analytical software and ABRI are considered commercial-in-confidence. It is known, however, that prior to the previous review of BREEDPLAN ABRI's license was exclusive. Approximately 24-months ago, the owners renegotiated the exclusivity, with that exclusivity now subject to meeting several undisclosed performance KPIs, which are understood to be fairly broad in nature, resulting in effective exclusivity.

This means it is difficult for the owners to grant a license to another party in addition to or instead of ABRI without ABRI's consent, effectively locking it in as the delivery agent.

### **2.4.2. AGBU research agreement**

Funding provided to AGBU to continue to develop BREEDPLAN is provided by MLA under a service agreement between AGBU and MLA. AGBU does not have any direct contractual relationship with ABRI, breed associations or other customers with respect to undertaking specific research projects or achieving innovation targets.

### **2.4.3. BREEDPLAN – breed association service delivery agreements**

The agreements between ABRI and breed associations that allow breed associations to offer BREEDPLAN to their members are commercial-in-confidence. However, it is understood that they are variable in terms of services delivered and pricing of specific services.

Importantly, these agreements only permit ABRI to use data provided to it by the breed association or its members through mechanisms established under that agreement for purposes that are approved by the breed association. In all cases the approved purpose is limited to within-herd or within-breed evaluations, and in a limited number of cases limited crossbreed analysis and approved research purposes. Furthermore, the intellectual property associated with any BREEDPLAN data products produced by AGBU and ABRI from the breed association data automatically vests with the specific breed association.

This arrangement provides breed associations with significant control over the nature of BREEDPLAN data products that can be delivered, including limitations to a BREEDPLAN multibreed evaluation product (see Section 3.1.1 and 5.4).

It is also understood that agreements do not contain any material terms with respect to product performance or development KPIs or penalties with respect to not meeting those KPIs.

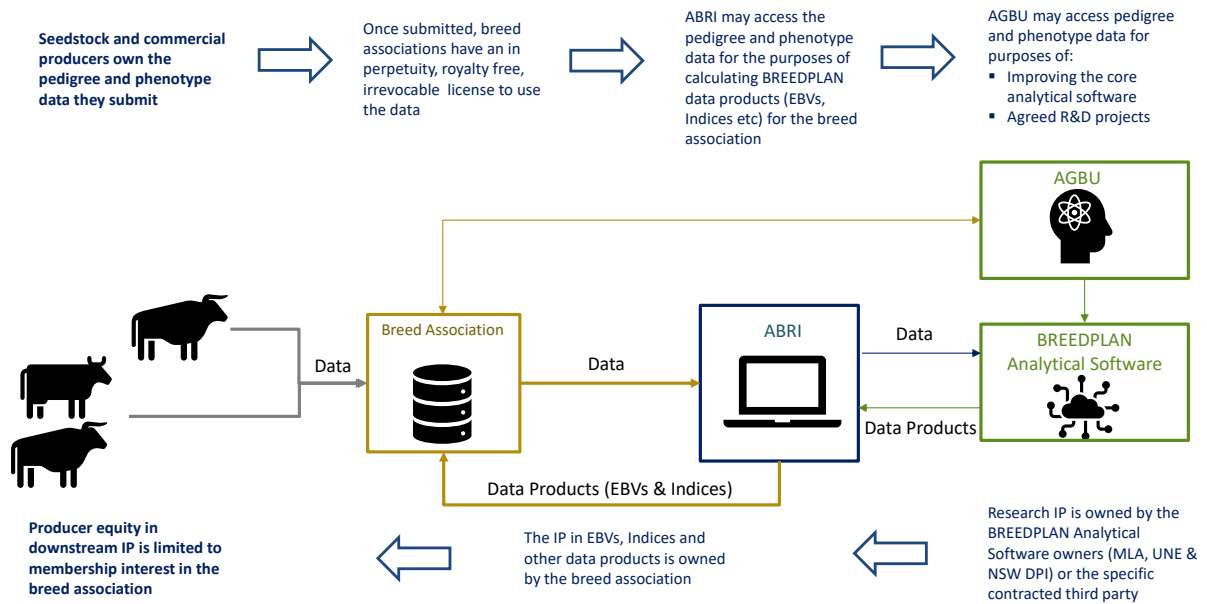
### **2.4.4. Phenotype data intellectual property agreements**

Seedstock and commercial producers own, in perpetuity, the intellectual property associated with all phenotype measurements that they record. However, the terms between a breed association and its members are such that once a producer submits data to their breed association or a database managed by ABRI on behalf of a breed association, they automatically grant the breed association a royalty free, in perpetuity right to use that data.

In other words, a producer can always use their data however they wish and can stop submitting data to a breed association. But once they have submitted their data, they cannot prevent the breed association from continuing to use the submitted data.

The following **Figure 3** summarises the intellectual property arrangements pertaining to phenotype data and BREEDPLAN data products.

**Figure 3 – BREEDPLAN data intellectual property arrangements**



### 3. Key issues

#### 3.1.1. Identified issues and their perceived importance

The analysis and consultations undertaken in the development of the Interim Report (see Appendix 1) identified 14 perceived issues and constraints associated with the current delivery of BREEDPLAN. Each of these themes was the subject of deliberations at the breed association and two producer workshops, with the workshop participants ranking each issue through a poll as being ‘not an issue’, ‘not important’, ‘somewhat important’, ‘important’, ‘very important’ and ‘critical’.

Detailed in the Interim Report (see Appendix 1) and Workshop Outcomes Reports (see Appendices 2 and 3), the following **Table 3**, summarises each of the identified issues and constraints and the average importance ranking from each of the workshops.

**Table 3 – Key issues identified by the Interim Report and relative importance assigned by breed associations and producers**

Issue/Constraint	Breed Association Workshop	First Producer Workshop	Second Producer Workshop
<p><b>1. Implications of clear segmentation of the registered sector</b></p> <p>There is increasingly clear segmentation of the registered seedstock sector. Tier 1 breeds (Angus, Hereford, Wagyu and Brahman) account for 63 percent of registrations and 51 percent of members. Tier 2 breeds (Charolais, Droughtmaster, Santa Gertrudis, Shorthorn, Limousin and Simmental) account for 25 percent of registrations and 27 percent of members. Tier 3 breeds (Murray Grey, Brangus, Speckle Park and Red Angus) account for 8 percent of registrations and 12 percent of members. This segmentation has the following implications:</p> <ul style="list-style-type: none"> <li>▪ Tier 1 breed associations operate a better resourced, more ‘corporate-style’ of business model and can offer their members an enhanced, better value for money and richer BREEDPLAN service</li> <li>▪ Tier 1 breeds have a greater purebred focus because they hold a significant share of purebred and cross markets and in the case of Angus and Wagyu, they are branded at the consumer level meaning competitive advantage is gained by producing the best purebred cattle</li> <li>▪ There is a greater incidence of very large seedstock and integrated producers among the Tier 1 breeds who sometimes hold views on specific BREEDPLAN issues that is contrary to that of their breed association</li> <li>▪ Tier 1 breeds are more significant users of genomics and have access to a greater range of genomics products and the economics of genomics is enhanced by carcase premiums and breed association economies of scale</li> <li>▪ Tier 2 breeds are more susceptible to BREEDPLAN’s competition because they typically operate on tighter margins and have less resources available to enhance their customer’s BREEDPLAN experience</li> </ul> <p>Growth patterns across the breeds indicate that over time, some of the Tier 1 breeds may crowd out some of the Tier 2 and 3 breeds.</p>	Somewhat important	Very important	Very important
<p><b>2. Transactional approach to breed association and other customer engagement</b></p> <p>Many breed associations and their members consider themselves to be ‘partners’ in BREEDPLAN on the basis of the investments they have made in promoting and supporting the delivery of BREEDPLAN and in the case of producers, investing in the provision of phenotype data that underwrites BREEDPLAN’s capabilities. However, many breed associations and their members perceive themselves as being treated as mere customers by the upstream BREEDPLAN supply chain on a transactional basis:</p> <ul style="list-style-type: none"> <li>▪ Negotiated prices for access to BREEDPLAN are perceived as being based on ABRI’s assessment of what an individual breed association can afford to pay, rather than a consistent market price across the industry</li> <li>▪ As a result, large breed associations are subsidising the access of small breed associations and there are mixed views among large breed associations as to whether or not this should be the case</li> <li>▪ Producers who invest heavily in rigorous phenotype measurement and recording, provide data that benefits all users of BREEDPLAN regardless of their investment in phenotype recording which is not reflected in BREEDPLAN pricing</li> </ul>	Important	Important to very important	Important
<p><b>3. Deteriorating quality of ABRI software and customer service</b></p> <p>There is a widely held view that the ABRI and BREEDPLAN software, particularly as it pertains to customer interface functionality and automation of the data pipeline, is antiquated, difficult to use and lacking functionality and that requests for improvement are met with resistance. There is also a view that ABRI lacks a customer service culture and is not adequately responsive to many of its customers. There is an acknowledgement that this is likely a resourcing and structural issue and that the emergence of competition has potentially exacerbated concerns in this regard.</p>	Somewhat important to important	Very important to critical	Important

<p><b>4. Deteriorating quality of support from SBTS and TBTS</b></p> <p>While this pertains more to SBTS than TBTS, there is a widely held view that these services have become less effective in providing extension and support for BREEDPLAN. In the instances of more advanced users of BREEDPLAN, these services are not able to offer higher-end advice and in most cases there are concerns that the services have become less accessible.</p>	Somewhat important	Important	Important
<p><b>5. Misaligned and lagging innovation in production development and R&amp;D</b></p> <p>There is a widely held view that while the BREEDPLAN R&amp;D and product development priorities across breed associations and BREEDPLAN users vary, the projects that are undertaken by AGBU and ABRI in this regard and the future pipeline of projects is generally not aligned with breed association and other user priorities. From an R&amp;D perspective, variously different breeds want expedited development of specific new EBVs, parent verification functionality and rapid progress toward availability of single step analysis where it is not available. From a product development perspective, commonly cited priorities include increased automation of data submission, cleaning and reporting pipeline and development of APIs that allow breed associations to develop their own BREEDPLAN interface software. Concern has also been expressed with respect to significant lags in time in the commencement and completion of R&amp;D and product development.</p>	Important	Very important	Important
<p><b>6. Emergence of competition</b></p> <p>In recent years several sources of competition to BREEDPLAN have become available to breed associations and producers including IGS, services operated by genomics companies and international within breed evaluation platforms. Opinions on this issue seem divided between those who believe competition is good because it results in choice and motivates all suppliers (including BREEDPLAN) to improve customer value. Others believe that in the case of BREEDPLAN competition is problematic because the 'quasi-commercial' nature of the BREEDPLAN supply chain will not be adequately responsive and competition will therefore ultimately lead to fragmentation of the national beef genetics database, undermining the ability of platforms to optimally facilitate genetic gain across the Australian beef industry.</p>	Somewhat important to important	Very important	Important
<p><b>7. Waning promotion of BREEDPLAN</b></p> <p>It is widely acknowledged that there has been a sustained decline in the promotion and communication of BREEDPLAN and its benefits to industry and there is a perception that this is likely a significant factor in plateauing or declining adoption in some breeds and the entry of competition. This has been attributed to the overall decline in State government extension programmes, a focusing of limited State government extension budgets on other important issues such as natural resource management and animal welfare and the increased promotion of genomics, which while related to BREEDPLAN is not necessarily promoted as such.</p>	Somewhat important	Very important	Very important
<p><b>8. Perceptions as to the technical veracity of BREEDPLAN</b></p> <p>Historically, there has always been a perception that BREEDPLAN is a technically superior quantitative genetics platform, a perception underpinned by its peer reviewed nature. While it would seem that a majority of customers still hold this perception, its validity seems to increasingly be questioned and even among some that continue to consider BREEDPLAN to be a superior platform, are questioning how much technical superiority really matters from a commercial perspective.</p>	Somewhat important	Somewhat important to important	Important
<p><b>9. Market saturation</b></p> <p>While it is by no means a widely held view, there are some who believe BREEDPLAN may have reached market saturation. This view is either based on the notion that BREEDPLAN has reached maximum adoption among those who hold an objective breeding philosophy and to drive further adoption would require those not using it to change breeding philosophy, or adoption won't increase until there is clear and sustained market pull from the feedlot/abattoir down. Many will argue that it is the constraints described in this table that are limiting the growth of BREEDPLAN.</p>	Somewhat important	Not important	Very important

<p><b>10. Clearer perspectives on multibreed</b></p> <p>Across the breed associations there are quite clear perspectives on multibreed. Across Angus Australia, Australian Brahman Breeder Association, Australian Wagyu Association and Herefords Australia the breed associations either oppose a multibreed evaluation or do not consider it to be a priority for their members. Across Charolais Society of Australia, Droughtmaster Stud Breeders Association, Australian Limousin Breeders Society, Red Angus Society of Australia and Speckle Park International, the principle of a multibreed evaluation is supported, but breed associations and their members require more information on how it will be developed, delivered and priced before making a decision. Simmental Australia supports a multibreed evaluation. The vast majority of commercial producers and a number of larger seedstock producers consulted in this project support a multibreed evaluation.</p>	Somewhat important	Critical	Very important to Critical
<p><b>11. A disenfranchised unregistered sector increasingly doing its own thing</b></p> <p>As the result of growing frustration with respect to many of this issued identified in this table there is increasing concern that the number unregistered seedstock and commercial producers doing their own thing using different evaluation platforms will increase. There is also concern that some larger producers will disengage from breed associations and do likewise.</p>	Somewhat important	Important	Important
<p><b>12. Concerns over IP leakage</b></p> <p>There is some concern that some R&amp;D being undertaken by the upstream supply chain using data provided by breed association members is being used to develop products for competing breeds within Australia and overseas. There is also some concern as to the security of producer data.</p>	Somewhat important	Somewhat important	Not important to somewhat important
<p><b>13. Cost</b></p> <p>Perceived high cost of BREEDPLAN has been a longstanding issue with many users. This is driven by a commercially rational general propensity of primary producers to lower input costs, a comparison with a demonstrably cheaper Sheep Genetics product and the entry of competition which is perceived by some as being cheaper or representing better value for money than BREEDPLAN.</p>	Very important	Important	Important
<p><b>14. Reviews create uncertainty</b></p> <p>Finally, the fact that this is the third review of BREEDPLAN in less than a decade, with few changes having followed the previous reviews has raised concern that reviews of BREEDPLAN create unnecessary uncertainty and are a pointless exercise if they aren't acted on.</p>	Somewhat important	Very important	Important

### 3.1.2. Consolidated themes for action

Initially identified in the Interim Report (see Appendix 1), the dialogue and deliberations around these themes in the workshops (see Appendices 2 and 3) concluded that:

- Issue 12 (concerns over IP leakage) is not a material issue and the specific event that triggered this concern has been resolved.
- Issue 1 (implications of clear segmentation of the registered sector) and Issue 14 (reviews create uncertainty) are contextual in that they are environmental constructs that need to be considered when formulating solutions to the problematic issues.
- Issue 6 (emergence of competition), Issue 9 (market saturation) and Issue 11 (a disenfranchised unregistered sector increasingly doing its own thing) are consequences of the other eight problematic issues and constraints.

Solutions to the remaining eight problematic issues and constraints can be categorised as issues or constraints that are addressed by the following categories of initiatives:

- Meeting customer expectations on the whole BREEDPLAN product
- Meeting customer expectations on BREEDPLAN innovation



- Revitalised BREEDPLAN marketing campaign
- Delivering a BREEDPLAN multibreed evaluation

This is illustrated in the following **Figure 4**.

**Figure 4 – Categorisation of the identified issues and constraints**

CATEGORY	ISSUE OR CONSTRAINT
Not an Issue	12. Concerns over IP leakage
Contextual	1. Implications of clear segmentation of the registered sector
	14. Reviews create uncertainty
Consequential	6. Emergence of competition
	9. Market saturation
	11. A disenfranchised unregistered sector increasingly do its own thing
Meeting customer expectations on the whole BREEDPLAN product	2. Transactional approach to breed association and other customer engagement
	3. Deteriorating quality of ABRI software and customer service
	4. Deteriorating quality of support from SBTS and TBTS
	13. Cost
Meeting customer expectations on BREEDPLAN innovation	5. Misaligned and lagging innovation in product development and R&D
Revitalised BREEDPLAN marketing campaign	7. Waning promotion of BREEDPLAN
	8. Perceptions as to the technical veracity of BREEDPLAN
Delivering a BREEDPLAN multibreed evaluation	10. Clearer perspectives on multibreed

## 4. Guiding principles for the recommendations

As discussed in Section 2, as a result of existing structural arrangements, most significant changes to BREEDPLAN will, in the absence of significant coercion from MLA, require a critical mass of support from stakeholders. Further, noting the lack of appetite for another review of BREEDPLAN, recommendations must result in practical and actional initiatives that produce tangible improvements with respect to the identified issues and constraints.

To assist with guiding the recommendations in these respects, a series of guiding principles have been developed.

### 4.1. Assumption that MLA wants to retain some control over BREEDPLAN as a delivery mechanism for investments in genetic research

MLA and its predecessor organisations have invested in BREEDPLAN and the research that has enabled it since its inception. BREEDPLAN performs two very important functions for MLA. Even though the delivery of BREEDPLAN is outsourced:

- It is a major instrument through which MLA is able to influence genetic gain across the Australian herd.

- The BREEDPLAN supply chain is the principal channel through which genetics research that is funded by MLA is delivered to market.

Control mechanisms in the licensing agreement combined with MLA's majority shareholding in the BREEDPLAN core analytical software provide it with some control over the nature and quality of quantitative genetics services that are delivered and therefore the effectiveness of fulfilling these two important functions.

For these reasons, MLA wishes to retain a degree of control over the delivery of BREEDPLAN that is not materially dissimilar to that which it currently has.

## 4.2. There is a burning platform for meaningful change

Dissatisfaction with various aspects of BREEDPLAN from the perspective of producers, breed associations and other stakeholders has only escalated over the course of the past decade, as evidenced by the three reviews. As highlighted by the analysis in the Interim Report (see Appendix 1) and validated through the workshops (see Appendices 2 and 3), there are different perspectives from different customers and stakeholders. It is also clear from the consultation that there will not be much appetite for a third review (see Section 3.1.1).

Over the course of the past several years, a number of developments have likely driven a more acute focus for a need for change:

- **Shift from the purebred focus**  
Compared to many other livestock industries whose primary product is protein, the Australian beef cattle industry has had and for some segments continues to have a strong pure-bred focus. This is evidenced by the significant breed association sector, the significant institutional role that some breed associations perform and the role that breed associations perform in delivering BREEDPLAN to market. However, over the course of the past few decades, cross breeding has become substantially more prominent across both northern and southern producers (see Appendix 4), creating greater demand for a multibreed evaluation product.
- **Genomics**  
While access to and use of genomics technology and single-step BREEDPLAN is variable across breeds, it is now economically accessible for the major breeds, improving EBV accuracy and ease of assessing a cattle, facilitating more effective international comparisons and potentially facilitating a more effective multibreed evaluation. Genomics also reduces the motivation for producers to performance record<sup>14</sup>, presenting a potentially significant disruption to the databases that support the capability of BREEDPLAN, a risk that will need to be pre-emptively mitigated. Further, for those breeds that do not have access to single-step BREEDPLAN, it is typically their highest priority from an innovation perspective.
- **Competition for BREEDPLAN**  
Until only a few years ago, BREEDPLAN was the only quantitative genetics platform available to the wider Australian beef cattle industry. In the last few years significant competition has

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<sup>14</sup> Australian Venture Consultants (2020), An evaluation of new business models for breed societies: Interim Report, L.GEN.2002, Meat and Livestock Australia

emerged including International Genetic Solutions (IGS) (which has already taken the Shorthorn Society of Australia business from BREEDPLAN, with others including Simmental Australia evaluating IGS), various genetic evaluation platforms offered by genomics companies such as Neogen and other international evaluation platforms. This competition threatens to disaggregate the national quantitative genetics database developed through 35 years of BREEDPLAN usage by the industry.

- **Greater familiarity with software and online products**

Generally speaking, because online and other software products now pervade almost every aspect of our personal and professional lives, BREEDPLAN users have certain expectations as to the nature of the user interface in terms of it being intuitive, functional and automated and with respect to a level of customer service that is provided to support its use. Increasingly, customers benchmark their BREEDPLAN whole product against these experiences.

- **There won't be appetite for a third review**

Because the two reviews prior to this review have identified similar issues and limited action has been taken to address the issues, inaction from this current Review will likely see limited appetite from industry to genuinely engage in another review. Having said this, action should not be taken for actions-sake – it must result in tangible improvements that are valued by at least the key stakeholders (see Section 4.6).

### 4.3. The right amount of disruption

Noting the arguments set out in Section 4.2, there is limited appetite across most stakeholders for massive disruption to the business models that deliver BREEDPLAN. This is rational from both a perceived risk and very practical perspective.

- **Risk**

Most disruption entails technical and market risk. In the case of BREEDPLAN, the more severe the disruption the more likely significant segments of the market will become alienated and leave the service, resulting in disaggregated databases and ultimately a decline in the effectiveness of BREEDPLAN.

- **Practical**

There are two aspect the practical element of this principle. The first is that while the current supply chain structure may not be optimal in the new industry environment, it has created contractual rights that are valuable to the beneficiaries of those rights. Those beneficiaries are not likely to just relinquish those rights. Secondly, with the exception of arguably MLA, no single participant in the supply chain has an adequately large carrot or stick to force change. Even in the case of MLA, the only leverage that it really has is to defund the innovation system that supports BREEDPLAN, which would be a drastic action that has impacts across the wider beef industry.

#### 4.4. Angst over breed association control is real, but not the main game

There is no question that, depending on how they are structured, some changes to BREEDPLAN that have been proposed (such as a BREEDPLAN multibreed evaluation) represent a threat to the current control that breed associations have over the nature and delivery of BREEDPLAN products. There is also no question that the implementation of some of the changes that disrupts that control is desired by some in industry.

But from the perspective of both sides of this argument, it is not the main game. Ultimately, breed associations want to be able to offer their members a genetic evaluation platform and associated products and services that are valued by those members – that is how they will maintain membership. Other producers want to be able to access an evaluation platform and related products and services that meet the requirements of their businesses. Whereas other stakeholders want to ensure that an effective BREEDPLAN product is available to all levy-payers, delivering benefits to the wider industry.

#### 4.5. The value of data will become increasingly important

BREEDPLAN is underpinned by phenotype data and therefore producers that rigorously performance record have always been critical stakeholders in BREEDPLAN. It is very likely that quality phenotype data is going to become increasingly valuable:

- **Growth of genomics**

As discussed above, the penetration of genomic testing and single-step reduces the motivation for producers to performance record. This will likely ultimately reduce the volume and quality of phenotype data going into datasets, potentially undermining the effectiveness of BREEDPLAN.

- **Multibreed evaluation in the absence of breed association datasets**

It is likely that many (including the larger breed associations), if not all breed associations will resist allowing their members data to be used in a multibreed evaluation. While some members may choose to provide their specific data regardless, it is likely that steps will need to be taken to ensure multibreed evaluations are underpinned by adequate datasets.

This means that any changes to BREEDPLAN must contemplate avenues for addressing these issues which may include compensating producers that generate meaningful volumes of high-quality data, commissioning producers to operate specific reference herds, establishing networks of industry-government funded reference herds or transferring the responsibility for reference herds to individual breed associations.

#### 4.6. Two paramount alignments

Both ABRI and AGBU are strongly committed to BREEDPLAN and the leadership and staff of both AGBU and ABRI make professional investments in the development and delivery of BREEDPLAN that is often 'above and beyond the call of duty'. There is no question that the expertise in AGBU and ABRI and their commitment to BREEDPLAN has been a major component of its success to date.

However, with respect to whom the principal duty of care resides in terms of alignment with the outcomes of any changes to BREEDPLAN there are two principal categories of stakeholder with whom the outcomes must align:

- **BREEDPLAN owners and particularly MLA**

While all three owners of the BREEDPLAN core analytical software have an interest in BREEDPLAN and continue to support its development and operations, it is MLA that, by virtue of its majority ownership and the quantum of levy-payer funds that it invests in BREEDPLAN innovation, is the key stakeholder among the owners.

- **Customers – commercial producers, seedstock producers and breed associations**

As with all supply chains, at the end of the day the BREEDPLAN supply chain is established to deliver a product to customers. If the customers don't use that product and use it effectively, the supply chain does not have purpose and any benefit of the investment in it is lost. For the purposes of clarity, this includes producers who pay levies and would like access to an effective BREEDPLAN product, but as the result of the current structural limitations, issues and constraints, is unable to access that product.

#### **4.7. Two issues that aren't likely to go away**

The two most contentious issues associated with the current delivery of BREEDPLAN are not likely to go away:

- **BREEDPLAN multibreed evaluation product**

While most breed associations are either resisting a multibreed evaluation product to varying degrees or do not consider it to be a priority largely on the espoused basis that there isn't adequate evidence to support it on a cost-benefit basis or there isn't adequate information as to how it will operate (see Appendix 4), there is significant support from a range of commercial producers, some significant seedstock producers, MLA and other key stakeholders.

- **Greater product control for major breed associations**

Increasingly, the larger breed associations are seeking greater control over the BREEDPLAN service that they offer their members. This varies and includes direct access to the core analytical software with all functions downstream from that managed by the breed association, control over evaluation parameters, a very specific service package delivered under commercial contract arrangements with performance KPIs and underperformance penalties and more direct control over innovation and product development priorities and their delivery. In most instances, minimising the cost of wholesale access to the service is a paramount concern.

Regardless of cases prosecuted against a BREEDPLAN multibreed evaluation or for not providing breed associations with more direct control, these issues are not going to go away and unless adequately addressed will likely see an increasing number of BREEDPLAN users leave the service for competing alternatives and prospective users adopting competing services.

#### **4.8. A less contested outcome will likely require trade-offs**

In terms of solutions required to address all of the identified issues discussed in Section 3.1.1 in the context of the structural constraints discussed in Section 2, there is not a set of solutions that will

ensure that all stakeholders are perfectly satisfied. As such the solution package will require trade-offs and compromise from most if not all stakeholders across the issues. Obviously, these compromises and trade-offs should only be made if the solution package is going to materially improve outcomes.

## 5. Recommendations

### 5.1. Meeting customer expectations on the whole BREEDPLAN product

The ‘whole’ BREEDPLAN product refers to the collective product attributes that deliver the customer BREEDPLAN user experience and includes the BREEDPLAN core analytical software, data management tools, decision-support tools, user support services, customer service and cost.

As summarised in Section 3.1.2, the recommendation under this theme seeks to address the following identified issues/constraints:

- Transactional approach to breed association and other customer engagement
- Deteriorating quality of ABRI software and customer service
- Deteriorating quality of support from SBTS and TBTS
- Cost

#### A review of AGBU and ABRI

For the most part, detailed structural, operational, commercial and financial aspects of the participants in the BREEDPLAN supply chain have not been made available to this Review or previous reviews.

While identifying the nature of actions that can be taken to address these issues/constraints is relatively straight forward, it is not possible to make specific recommendations with any conviction without a competent understanding of the extent to which initiatives that address these issues can be implemented within current structural, operational, commercial and financial parameters within each of ABRI and AGBU and between these organisations, as well as how those changes might impact existing operational processes, commercial obligations and particularly the financial affairs of those organisations.

Recommendations to address the abovementioned issues can only be made competently with an evidence-based understanding of their viability and impact on AGBU and ABRI and if structural changes need to be made to facilitate the recommendation, whether those structural changes can be realistically made and the impact of those changes on other interdependent systems.

Noting, the resistance to another review of BREEDPLAN, this information can only be acquired from a review of AGBU and ABRI that has access to internal information that those organisations consider to be commercial-in-confidence.

#### Authorisation of an external review of ABRI and AGBU

Ideally, both AGBU and ABRI would engage in the proposed review with the enthusiastic support of their executive, peak decision-making and advisory bodies and owners, particularly given the risk associated with failure to address these issues (see below).

In the event there is resistance by these organisations to participate in such a review, the following should be considered:

- AGBU is an operating business unit of UNE and an unincorporated joint venture, the equal partners in which are UNE and NSW-DPI. Therefore, UNE and NSW DPI could, through due process, compel AGBU to participate in such a review.
- ABRI is incorporated under the jurisdiction of the *Corporations Act 2001* (Cth) as a company limited by guarantee with its sole member being UNE. It would be unusual for ABRI to resist a request from UNE to cooperate with a review of this kind. However, UNE could, through due process, ultimately compel ABRI to participate in such a review.
- While the specific terms of the license agreement between the BREEDPLAN core analytical software owners and ABRI have not been cited, the extent to which the spirit of that license agreement is understood (i.e. an ‘outsourcing’ arrangement rather than ‘commercialisation’) suggests that a request for such a review is not unreasonable in the context of asking the question whether the current arrangement remains fit for purpose and is capable of resolving the issues that are the subject of this recommendation.
- There is a complicating factor in that BREEDPLAN is a component of a wider operational profile of both AGBU and ABRI. It would therefore be appropriate and reasonable for any detailed review of these organisations to be confined to the structural, operational, commercial and financial aspects of those organisations that pertain only to BREEDPLAN. The challenge with this is that elements of the structural, operational, commercial and financial aspects of these organisations associated with BREEDPLAN will also intersect with other aspects of their business, rendering it somewhat difficult to isolate BREEDPLAN when assessing the impacts of specific initiatives.

### **Need for independence**

Theoretically, the proposed review could be undertaken by AGBU and ABRI executive without the need for an independent external reviewer. However, the existence of other businesses within the portfolio of both AGBU and ABRI, the interdependence of those businesses with their BREEDPLAN business (particularly in the case of ABRI and cross selling of its software products as discussed in Section 2.3) and the other business interests of members of their respective peak decision-making bodies, independence is required from at least an ‘optics’ perspective and very likely from the perspective of achieving an effective outcome from the review.

### **Scope of the review**

Generally speaking, the scope of the review is to understand the technical and commercial details of potential solutions to the abovementioned issues and the viability of those solutions in the context of existing structural, operational, commercial and financial parameters within each of AGBU and ABRI and between those organisations, as well as the impact of those solution on the viability of both AGBU and ABRI.

Specific issues that should be addressed in this regard are:

- Transition of the current data processing pipeline to a process that is seamless, automated and real-time in nature

- Development of Application Programming Interfaces (APIs) that allow adequately resourced breed associations direct access to the BREEDPLAN core analytical software, including terms and conditions that would need to apply to such access
- Scope of an optimal base-line standardised BREEDPLAN product and service package for breed associations not directly accessing the BREEDPLAN core analytical software, including minimum product and service standards
- Implementation of a research and development and product development framework that is based on commercially-oriented service contracts with specific KPIs and non-performance penalties
- Arrangements to improve the efficiency and accountability of service delivery between AGBU and ABRI
- Mechanisms and channels for delivering more effective and targeted BREEDPLAN usage support to customers, tailored for different customer segments
- Options for incentivising performance recording and addressing potential future shortfalls in phenotype data generation.

### **Sense of urgency**

Noting the concern held by stakeholders over reviews that do not result in action and the current critical status of BREEDPLAN, this independent review of ABRI and AGBU should be commissioned immediately.

### **Consequence of an unsatisfactory outcome**

It should be noted that if viable solutions are not identified for the issues targeted by this recommendation, BREEDPLAN stakeholders will need to contemplate the possibility that these key concerns cannot be addressed under the current delivery model and will therefore need to consider either significant disruption or continuing with the current delivery framework under the likely prospect of losing customers (including significant customers) to competition.

#### **Recommendation 1:**

MLA, UNE and NSW DPI should immediately commission an independent expert to undertake a review of AGBU and ABRI under terms of reference that identifies a range of options, determines the technical and commercial viability of those options and assesses their impact on the viability of AGBU and ABRI, addressing:

- Automation of the data pipeline
- APIs that allow direct access for qualified customers to the BREEDPLAN core analytical software
- Scope of an optimal standardised base-line BREEDPLAN product and service
- A commercial service agreement-oriented research and development and product development framework
- Mechanisms for improving the efficiency and accountability of operating arrangements between AGBU and ABRI
- Mechanisms and channels for delivering more effective BREEDPLAN user support
- Options for incentivising performance recording and ensuring access to adequate phenotype data



## 5.2. Meeting customer expectations on BREEDPLAN innovation

As summarised in Section 3.1.2, the recommendations under this theme seek to address the issue of misaligned and lagging innovation in product development and research and development.

The principle thrust of this recommendation is to address a mutual desire of both BREEDPLAN customers and AGBU, as well as implanting process that is consistent with world-best-practice innovation management:

- **BREEDPLAN customers** – breed associations, their members and other producers – want greater input to the identification and prioritisation of research projects, both those which are of relative exclusive benefit to themselves and those which target broader industry application.
- **AGBU** – as the supply chain participant with the main responsibility for undertaking research and development that improves BREEDPLAN, AGBU desires much greater interaction with customers in the development, implementation and translation of outcomes from research projects.
- **Best practice innovation management** - direct involvement of users in the full research and development cycle is long standing standard best-practice in industry-oriented research and development process.

### Research governance

MLA is by far the largest investor in research and development that supports the ongoing development of BREEDPLAN. As the custodian of levy-payer and Commonwealth funds, MLA has a prudential responsibility to maintain control over how these funds are invested. As a result, MLA cannot fully delegate investment decisions to another organisation or body.

Noting this caveat, a research investment governance mechanism should be established that provides BREEDPLAN users with much greater input to the BREEDPLAN research priorities and the nature of research projects that are undertaken. Both necessary and beneficial, MLA, AGBU and ABRI will perform a key function in this framework, as will representation from each of the four major breed associations, collective representation from the Tier 2 and 3 breed associations and the commercial sector.

This would take the form of an independently chaired BREEDPLAN Innovation Steering Group. While MLA cannot entirely delegate investment decisions to that group, MLA should undertake to be substantively guided by the advice of that group with respect to the BREEDPLAN research investment strategy and specific project investments, only deviating from that advice with sound reason that is fully disclosed.

It is intended that the BREEDPLAN Innovation Steering Group will replace and differ substantially from the current BREEDPLAN Advisory Group in both scope of responsibility and authority.

The specific terms of reference for the BREEDPLAN Innovation Steering Group should include:

- Development and custodian of the BREEDPLAN Research Priorities Plan (see below)
- Provision of advice to MLA on specific projects to be undertaken in accordance with the BREEDPLAN Research Priorities Plan
- Development of frameworks under which owners of phenotype and pedigree data can comfortably provide data to AGBU for the purposes of supporting research

### **User driven research priorities plan**

The first task of the BREEDPLAN Innovation Steering Group should be to establish the BREEDPLAN Research Priorities Plan. This BREEDPLAN Research Priorities Plan should set out the BREEDPLAN research investment priorities at a thematic and programmatic level, as determined by the BREEDPLAN Innovation Steering Group. It should adopt a ‘balanced-portfolio’ approach, including:

- Strategic fundamental research that underpins the future competitiveness of BREEDPLAN
- Industry-wide applied research that benefits all (or at least a majority) of BREEDPLAN users
- Breed and sector specific research, the outcomes of which benefit a single breed or sector, or smaller number of breeds or sectors.

MLA should approve the BREEDPLAN Research Priorities Plan and the BREEDPLAN Research Priorities Plan should replace the existing AGBU Workplan and relevant parts of the ABRI Workplan.

Once set, and subject to MLA’s obligations to levy-payers and the Commonwealth, any recommendations made by the BREEDPLAN Innovation Steering Group to MLA with respect to BREEDPLAN research investments, should be consistent with the priorities set out in the BREEDPLAN Research Priorities Plan and MLA should only invest in projects that are aligned with the BREEDPLAN Research Priorities Plan. The BREEDPLAN Priorities Plan should have a set horizon (likely in the vicinity of three-to-five years) and should be formally reviewed one year prior to its scheduled expiration.

A mechanism should be in place whereby investments may be deviated should an unanticipated issue emerge that in the reasonable opinion of MLA requires research investment which is outside of the scope of the Research Priorities Plan, and MLA should seek and receive the advice of the BREEDPLAN Innovation Steering Group in this regard.

For the purpose of transparency, the BREEDPLAN Research Priorities Plan should be a public document, as should each of its reviews.

### **Set allocated funding and co-investment**

For the purposes of efficient research planning and transparency, at the commencement of the BREEDPLAN Research Priorities Plan and the commencement of each of its revision periods, funding should be allocated at a portfolio level with specific allocations to:

- Fundamental strategic research (likely in the order of 30 percent)
- Applied industry-wide research (likely in the order of 40 percent)
- Individual breed associations and other customer groups

The BREEDPLAN Innovation Steering Group should advise MLA as to how funding is allocated across themes, programmes and projects in accordance with this set allocation.

Breed associations, seedstock and commercial producers, owners, AGBU, ABRI and other stakeholders should be able to, at their option, co-invest (in-kind and cash) with MLA at a thematic, programmatic or project level.

### **Multilateral research contracts and user participation**

Projects that are undertaken to deliver on the BREEDPLAN Research Priorities Plan should, where appropriate, be subject to multilateral agreements between the relevant parties, setting out clear obligations, intellectual property rights and KPIs. The parties to these contracts will variably include

the funder (MLA), any other financial or in-kind contributor (including breed associations, producers, the owners and other stakeholders), ABRI, AGBU and other research providers.

All projects should seek to include direct BREEDPLAN user input in project scoping, design, execution and outcomes translation.

Research contracts may include research expertise that is outside of AGBU.

### **Recommendation 2: BREEDPLAN Innovation Steering Group**

MLA, AGBU and ABRI should agree to establish a BREEDPLAN Innovation Steering Group that will replace the existing BREEDPLAN advisory groups and is:

- Independently chaired and has representation from breed associations, producers, MLA, AGBU and ABRI
- Party to an in-principle agreement with MLA that MLA will take direction from the BREEDPLAN Innovation Steering Group on the BREEDPLAN research and development investment priorities and specific research project investments

The BREEDPLAN Innovation Steering Group will have the following Terms of Reference:

- Development of and custodian of the BREEDPLAN Research Priorities Plan (see Recommendation 3)
- Provision of advice to MLA on specific projects to be undertaken in accordance with the BREEDPLAN Research Priorities Plan
- Development of frameworks under which owners of phenotype and pedigree data can comfortably provide data to AGBU for the purposes of supporting research

### **Recommendation 3: BREEDPLAN Research Priorities Plan**

Under the direction and custodianship of the BREEDPLAN Innovation Steering Group (see Recommendation 2), a BREEDPLAN Research Priorities Plan should be developed that replaces the existing AGBU and relevant aspects of the ABRI Workplan and sets out research priorities at a thematic and programmatic level, including strategic fundamental, industry-wide applied and breed and sector specific research priorities. MLA and the BREEDPLAN Innovation Steering Group should agree, in-principle, to only invest in BREEDPLAN research that is aligned with the priorities set out in the BREEDPLAN Research Priorities Plan. The BREEDPLAN Research Priorities Plan will be reviewed according to a set timeline.

### **Recommendation 4: Set funding allocation and co-investment**

At the commencement of the first BREEDPLAN Research Priorities Plan and at the commencement of each review period, MLA and the BREEDPLAN Innovation Steering Group should agree to a research budget for the duration of the current BREEDPLAN Research Priorities Plan and allocate amounts to fundamental strategic research, applied industry-wide research and individual breed associations and other customer groups. Breed associations, seedstock and commercial producers, owners, AGBU, ABRI and other stakeholders should be invited to co-invest (in-kind and cash) with MLA at a thematic, programmatic or project level.

**Recommendation 5: Multilateral research contracts**

Where appropriate, all research projects funded in accordance with the BREEDPLAN Research Priorities Plan should be the subject of multilateral research contracts that set clear obligations, intellectual property rights and KPIs. Parties to these contracts will variably include the funder (MLA), any other financial or in-kind contributor (including breed associations, producers, the owners and other stakeholders), ABRI, AGBU and other research providers.

**5.3. Revitalised BREEDPLAN marketing campaign**

The recommendation under this theme addresses issues and constraints 7 – waning promotion of BREEDPLAN and 8 – perception as to the technical veracity of BREEDPLAN. The intent of the recommendation under this theme is to:

- Increase adoption of BREEDPLAN in breeds where adoption is low, as well as sectors where adoption is low such as the commercial sector and the northern industry more broadly
- To mitigate the risk of competition taking market share from BREEDPLAN.

**Temporary BREEDPLAN marketing taskforce**

MLA should establish a temporary BREEDPLAN marketing taskforce that is independently chaired and has representation from breed associations, commercial producers, AGBU, ABRI and independent agricultural marketing professionals whose remit is to advise BREEDPLAN supply chain participants on the implementation of a revitalised BREEDPLAN marketing campaign.

**A shift in marketing orientation**

For the vast majority of the 35 odd years that BREEDPLAN has been offered to the Australian beef industry, the primary focus of marketing efforts has been on encouraging producers to introduce objective measurement to their breeding and cattle purchase decisions and therefore using BREEDPLAN, the only tool available to support such decision-making. Given adoption remains suboptimal across numerous breeds and in the commercial sector, this remains an important focus of marketing efforts that support BREEDPLAN.

However, BREEDPLAN now operates in a marketplace characterised by competition and this competition is in the form of private sector organisations that operate competitive, customer acquisition-oriented marketing programmes. BREEDPLAN will not only need to increase its marketing efforts but increasingly shift the focus of those efforts to maintaining and growing market share in a competitive environment.

**Effective targeting**

For the purposes of both effectiveness and efficient expenditure of limited marketing resources, marketing efforts should be targeted at segments and sectors where the best value for money in terms of new customer acquisition or market share protection is likely to be achieved.

- **Breed associations**  
The primary target of marketing to breed association members should be those breed associations that are characterised by say less than say 80 percent adoption, are in the middle

two quartiles of registrations and whose registrations demonstrate growth or they are in the bottom quartile, but adoption of BREEDPLAN by members is demonstrating growth and the breed association board is supportive of BREEDPLAN. There is little value in spending scarce marketing resources targeting small numbers of stagnant registrations or a breed association where the board and executive are not advocates for BREEDPLAN.

- **Commercial producers**

Commercial producers are relatively limited users of BREEDPLAN. Greater adoption of BREEDPLAN by commercial producers will not only result in improved industry-wide production outcomes but will also increase demand for BREEDPLAN data products from the seedstock sector, resulting in greater derived demand from seedstock producers.

- **Feedlots and abattoirs**

While it has proved challenging, efforts to encourage feedlots and abattoirs to link pricing to objective measurement and to promote BREEDPLAN as the best tool for achieving premiums based on objective measure will assist with market pull for the service.

### **Right channel for the target customer**

For the same reasons of effectiveness and efficiency, marketing efforts should use the most effective existing channels to reach customer segments:

- **Breed association members**

In the case of most breed association members, the most direct channel through which they can be reached is their breed association. As such, for the existing registered sector, the majority of marketing effort is likely most effectively driven through the breed associations. Further, the extent to which that marketing effort is effective is a function of the level of support for BREEDPLAN given by the breed association board and its executive. As such, marketing of BREEDPLAN to the registered sector should be determined and primarily driven by the breed associations.

- **Commercial producers and wider-industry**

While some commercial producers are members of breed associations, the vast majority are not. Targeting this important and unrepresented sector is very much a wider industry remit and thus the principal responsibility of MLA. MLA should seek to engage with channels that have direct influence on commercial producers such as advisors. MLA should also be responsible for promoting the integration of BREEDPLAN into pricing mechanisms for abattoirs and feedlots.

### **Customer trusted voices**

As is common with the adoption of on-farm technologies, 'trusted voices' perform an important role in convincing producers to adopt technologies. There are three specific categories of trusted voices that are important in promoting BREEDPLAN:

- **Technical experts**

Historically academic, industry-oriented geneticists have performed a significant role in promoting BREEDPLAN. They have been critically important in acquiring innovator and early adopter users and remain so, for the introduction of new BREEDPLAN products. They will also likely perform a revitalised role in the competitive marketplace, where clear explanations as to the technical advantages of BREEDPLAN over competing products need to be communicated, as well as with the potential introduction of a BREEDPLAN multibreed evaluation product (see Section 5.4). However, this voice needs to be balanced with commercial respected voices.

- **Advisors**

Many producers seek the advice of a range of consultants and advisors including general farm consultants, agronomists, stock salesman, genetics consultants and veterinarians. For some producers, particularly early majority like producers these advisors are important ‘trusted-voices’ and should be engaged to perform a greater role in promoting BREEDPLAN, particularly given genomics companies who engage directly with commercial producers are a key competitor to BREEDPLAN.

- **Respected and like-producers**

For a majority of producers, other producers who operate similar businesses and have a similar business philosophy, or are admired producers are the best trusted voice.

### **Collaboration, co-investment and shared responsibility**

All participants in the BREEDPLAN supply chain have a vested interest in BREEDPLAN maintaining its market share and growing. While they can lend important in-kind support to marketing efforts, ABRI and AGBU are unlikely to have adequate cash resources to have a significant impact on marketing efforts.

With respect to breed associations, the boards and executives of those organisations have significant control over the extent to which and how effectively BREEDPLAN can be marketed to members through a breed association channel. Further, BREEDPLAN is an adequately mature product that breed associations should be able to determine if there is appetite (or appetite can be generated) from a greater number of their members to use BREEDPLAN. As such, breed associations should take full responsibility for marketing BREEDPLAN to their members, potentially under a co-investment model with MLA and from an in-kind perspective, AGBU and ABRI.

#### **Recommendation 6: BREEDPLAN Marketing Taskforce**

MLA should establish a temporary BREEDPLAN Marketing Taskforce that is independently chaired and has representation from breed associations, commercial producers, AGBU, ABRI and independent agricultural marketing professionals whose remit is to advise BREEDPLAN supply chain participants on the implementation of a revitalised BREEDPLAN marketing campaign.

**Recommendation 7: Revitalised BREEDPLAN marketing campaign**

In accordance with advice from the BREEDPLAN Marketing Advisory Group, participants in the BREEDPLAN supply chain should collaborate, co-invest and share responsibility in a revitalised BREEDPLAN marketing campaign that includes the following elements:

- **Competitive market orientation** - faced with agile commercial competition, BREEDPLAN marketing efforts must not only convince actual and potential customers to use objective measurement, but also that BREEDPLAN is the best product in the market for doing so.
- **Effective targeting** – scarce customer acquisition and market share protection marketing resources should be focused on market segments where outcomes are most likely and if achieved will have the greatest impact.
- **The right channels for the right customers** – marketing efforts targeting customer segments should use the most effective channels to reach those customers.
- **Customer trusted voices** – a combination of market respected technical experts, advisors and like-minded producers should be engaged to support the delivery of the marketing effort.
- **Collaboration, co-investment and shared responsibility** – all stakeholders in the BREEDPLAN supply chain should take ownership of the marketing effort, with collaborative, co-investment (in-kind and cash) models used to target specific market segments.

**5.4. Implementing a BREEDPLAN multibreed evaluation product**

It has been proposed that multibreed evaluation functionality could be delivered to market through a relatively simple adjustment table product, similar to that which is available in the United States or has previously been offered to a limited extent by BREEDPLAN (see Appendix 4). However, such multibreed products are characterised by limited functionality or utility.

The BREEDPLAN Multibreed Evaluation Discussion Paper (see Appendix 4) identified three high-level models under which a genuine multibreed evaluation product could be delivered to market using the BREEDPLAN genetic evaluation platform:

- **Model 'A'** - whereby the current within-breed Group BREEDPLAN analysis provided by ABRI in partnership with Breed Associations is replaced by a single or small number of evaluations that are delivered against within breed and multibreed benchmarks
- **Model 'B'** – whereby ABRI launches a new multibreed evaluation service in partnership with agreeable breed associations that operates in parallel to existing within-breed Group BREEDPLAN; and
- **Model 'C'** – whereby a distinct, new multibreed evaluation service that operates entirely separately from existing delivery partnerships between ABRI and breed associations is established.

**The preferred framework for a multibreed evaluation product is not implementable under current BREEDPLAN supply chain arrangements**

As discussed in the BREEDPLAN Multibreed Evaluation discussion paper, from the perspective of an optimal multibreed product and efficiency of delivery of both multibreed and within-breed evaluations, a single (or likely North and South) evaluation that produces a single set of EBVs and other data products with both within-breed and multibreed benchmarks, Model A, is the best option. However, without breed associations and their members agreeing for their databases to be used for this purpose, this model is not achievable.

Similarly, Model B is unlikely to be supported by a critical mass of breed associations, with the further disadvantage that the unregistered sector is unlikely to demonstrate propensity to join a breed association to access what would be a sub-optimal multibreed evaluation product.

**The only pathway is an independent multibreed evaluation that is delivered concurrently with the existing within-breed services**

Given these circumstances, and whilst it has the disadvantage of resulting in some cattle having two sets of EBVs – within-breed and multibreed EBVs (or ‘two sources of truth’), the most likely framework through which an optimally effective BREEDPLAN multibreed evaluation product can be delivered in Model C.

Model C is designed for circumstances whereby there is adequate demand from seedstock and commercial producers for a multibreed evaluation, but breed associations and a majority of their members refuse to provide historical and future pedigree and phenotype data for the purposes of supporting a multibreed evaluation or evaluations.

Under Model C, the existing framework of breed association controlled within-breed evaluations would continue unfettered. However, seedstock and commercial producers who are members of breed associations or otherwise would be provided direct access to a separate multibreed evaluation. This would require those individual producers to provide their historical and future pedigree and genotype data to the multibreed evaluation platform so that a reference database can be established. However, whereas research reference herds are used in all evaluations for the purposes of ground-truthing, it is likely that under this model C likely deficiencies in data will need to be complemented by a more robust network of reference herds.

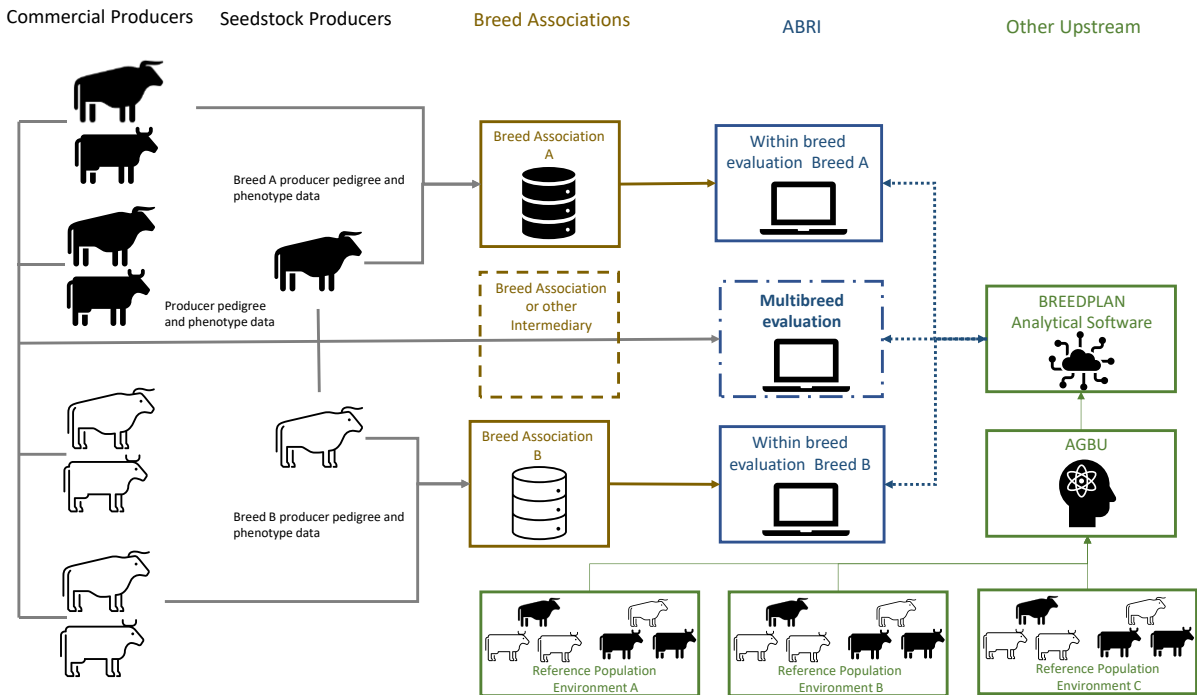
Under model C, an intermediary (which could include breed associations or advisors) could sit between the producer and the multibreed evaluation platform for the purpose of adding value to the service and supporting its use by producers.

Model C also provides future flexibility – if a multibreed evaluation does not achieve adequate market penetration it can be terminated without disrupting the existing within breed evaluation product. Similarly, if over time a multibreed evaluation product took significant market share from within breed evaluations, it could be relatively smoothly transitioned to the more efficient Model A - like delivery framework.

The data submission framework for Model C is illustrated in the following **Figure 5**.

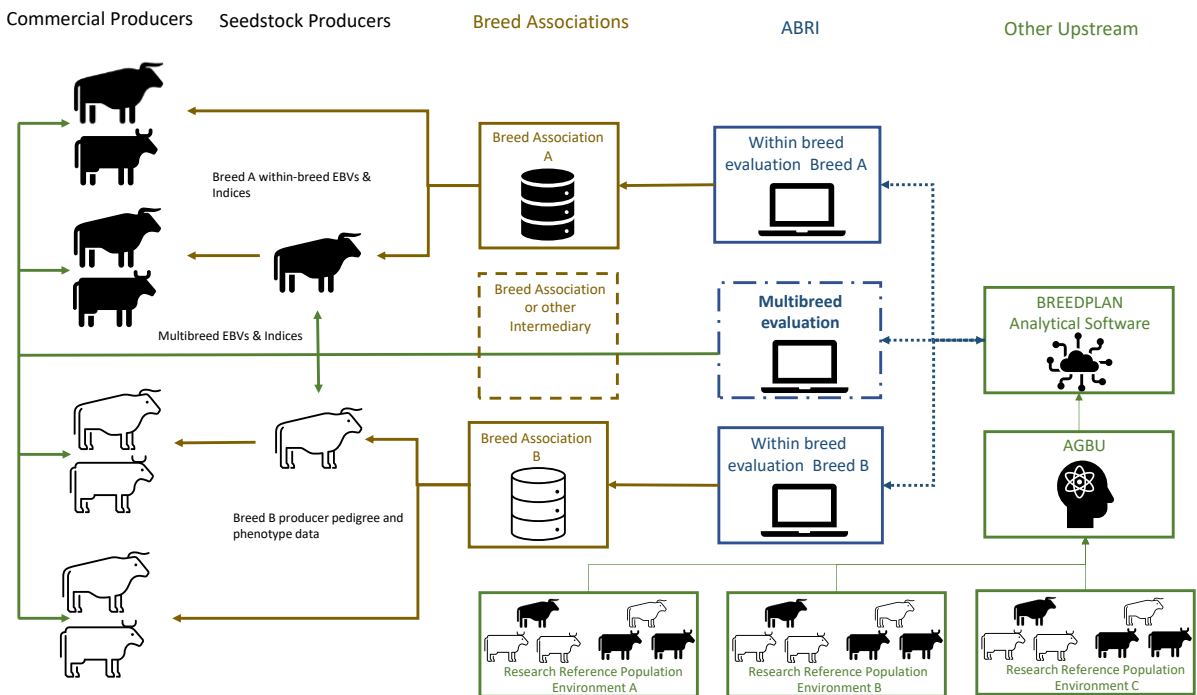


**Figure 5 – BREEDPLAN Multibreed Evaluation – Model C delivery framework: data submission**



The data product delivery framework for Model C is illustrated in the following **Figure 6**.

**Figure 6 – BREEDPLAN Multibreed Evaluation – Model C delivery framework: data product delivery**



An extension in the evolution of Model C, could see existing participating producer datasets and a more extensive research reference herd network focusing more on genomics-based services and ultimately transitioning to a model that requires producers to take fewer genotype measurements, relying more extensively on the research reference herds genomics technology.

Under Model C, the existing intellectual property arrangements would apply to the breed association delivered within-breed evaluations. It is likely that the intellectual property associated with the multibreed evaluation service would be retained by MLA or another industry-based body.

**There is need for an agreed pathway forward**

While it is clear that there is currently limited support for a multibreed evaluation product from breed associations (and presumably a significant portion of their members), it is also abundantly clear that there is a critical mass of support from commercial producers, some seedstock producers and MLA. As discussed in Section 4.7, actions to progress a multibreed evaluation will persist and it is important that progress continues in accordance with a rational process that makes substantial advance toward delivery of a multibreed evaluation product, without significant disruption to the delivery of existing BREEDPLAN products. This overall framework needs to be agreed by the stakeholders and progressed.

**Recommendation 8: Agreement on the pathway to a multibreed evaluation**

UNE, NSW DPI, MLA, AGBU, ABRI and breed associations should agree that subject to successful outcomes of ongoing research designed to support the delivery of a BREEDPLAN multibreed evaluation that the delivery framework for that evaluation will be a framework that is not materially different to Model C.

**Recommendation 9: Multibreed evaluation implementation planning and feasibility**

Concomitant with and subject to the outcomes of continuing research and development and software development that facilitates a BREEDPLAN multibreed evaluation and working in collaboration with the review that is the subject of Recommendation 1, AGBU and ABRI should establish an operating plan to deliver a BREEDPLAN multibreed evaluation under a framework not materially different to that of Model C and assess the viability of implementing that plan.