Expressions of Interest

A new model for beef industry reference populations

MLA Donor Company co-funded initiatives

Purpose and Objective

Meat & Livestock Australia (MLA) through the National Livestock Genetics Consortium (NLGC) aims to create a financially viable, co-invested and scientifically robust reference population for beef cattle.
The purpose of this expression of interest is to find collaborators and participants to be involved in developing new reference projects and models to facilitate collaboration, co-investment and supply chain partnerships to support the long-term sustainability of reference populations. The NLGC envisages that these reference projects will possibly differ from a traditional model with a single research herd and management team, to expand and include other industry collaborators and herds.

Calling all Collaborators

Who should submit Expressions of Interest?

- Producers
- Feedlotters
- Processors
- Research stations
- Genotyping Companies
- Researchers
- Extension Professionals
- Project managers
- Retail and Wholesalers
- Other interested parties

The future success of industry reference populations relies on the collaborative effort of many in industry. Therefore, we are putting out a call to the key stakeholder groups to submit their interest in participating in the future of reference populations in beef cattle.
EOI's can seek to address as many of these stakeholder groups as they see fit in the online application. After the applications are reviewed the NLGC will assist in facilitating the connection of different EOI's for each component where necessary to develop a new reference population project/s.

Challenges and Opportunities

Specific challenges and opportunities to be addressed:
There are several identified challenges and opportunities with reference populations that should be considered in the expressions of interest.

- The current landscape: what traits and breeds do we have enough records for, where are the gaps such as multibreed datasets.
- Limited numbers of sites and projects across species and breeds
- High cost associated with running large scale reference populations
- Other potential data sources that could be captured
- The value proposition to industry participants to contribute to quality recording
- The metric/s to define the reference population and its improvement overtime
- The ongoing need for reference populations long term to maintain genomic prediction accuracy

(refer to page 7 for background on reference populations)

What are we looking for?

Project management

Who are you?
We seek organisations to express interest in managing reference population projects to coordinate the delivery of each component of the project. You will have a strong reputation for project management and industry exposure to many parts of the supply chain.
Why we need you?
Reference populations have many moving parts including animal management, site management, data collection and storage, sire purchase or AI program management, research and development, new and novel trait collection, transport logistics, meat science collection and general project management.
What is the benefit?
You will have the opportunity to develop new networks, translate science into industry outcomes, long term project development and management and additional professional development in the form of large scale project management and exposure to all parts of the supply chain.
What we expect?
Previous experience in managing projects, a demonstrated ability to coordinate and manage multifaceted projects, a broad range of industry connections, and strong communication skills.

Technical design and R&D
Who are you?
We seek organisations that would provide the technical support and design of reference populations along with preliminary research.
Why we need you?
Reference populations require good scientific design to ensure the data collected is of value including capturing the diversity of the population, contemporary group structures, enable multibreed comparisons and preventing bias. Reference populations also enable data collection on numerous key traits including new and novel traits. These traits will require preliminary research activity such as heritability and parameter estimation.
What is the benefit?
High level of industry engagement, ability to develop young research scientists with extended collaboration opportunities and long term work opportunities.
There is opportunity for organisations/researchers to use the reference populations for other new and novel or additional research such as novel trait collection, validating technologies for phenotype measurement, or feed additive or pasture trials. Organisations interested in using reference populations as a source for R&D are encouraged to submit an application.
What we expect?
Experience in and demonstrated technical capabilities in reference population design and skills in quantitative genetics. Commitment to a long-term research project and ability to work in a collaborative group.

Site hosts or Satelites (Producers and research sites)
Who are you?
We seek organizations that would be interested in becoming a site host as part of a reference population project. Existing sites are encouraged to apply.
Why we need you?
For large scale reference populations we need land, labour and animals to underpin the use of genomics and accelerate genetic gain in industry. For land we need farm sites where cohorts of animals can be hosted. These may be in the form of research stations or independent businesses (producers/corporate properties). For animals, different breed types or breed crosses that can be inseminated or joined with sires that are part of the reference program will be viewed favorably.
What is the benefit?
Producers or research sites that are involved in hosting the animals as part of the project will gain an understanding of the high performing genetics in the country both within and between breeds. This allows producers to understand and see the opportunities for new genetics in their own enterprises based on their performance in the research herd, ultimately assisting in understanding the genetics that suit different market specifications. Knowledge sharing and learning from dedicated research and project teams will be a key opportunity. High Quality data will be recorded and captured on animals that are part of the project, resulting in higher data quality for current and new and novel traits. Natural disaster planning is part of the project planning to assist in managing drought and floods.

What we expect?
A site host would need to be willing to host cattle from diverse genetic sources, conducting AI or natural mate programs with sires from different locations and/or breeds. Sites would need to be willing to collect and provide a certain level of quality data on a base level of traits. Further to this, other traits may be collected by research groups and other projects such as methane, requiring visitation to site from others. Site hosts would need to be willing to meet deadlines as part of the project criteria.

Processing Partner
Who are you?
We seek processing organisations to facilitate the slaughter of diverse reference population animals and enable data collection on carcasses.
Why we need you?
To support value creation in the supply chain by linking genetically superior animals to premium carcase quality. To facilitate this, we need options for regular slaughter of research animals as part of reference population projects to capture meat science traits. This can range from MSA data collection, cut purchase and collection, through to the collection of retail beef yield. Processors are an important part of the supply chain to facilitate carcase data collection and build client networks to share project outcomes.
What are the benefits?
Improving genetics is imperative to ensuring product supply will meet market specifications through carcass compliance and animal health and welfare outcomes. Processors will have a clear view of the variation of genetics in the country to see what is possible in terms of meeting market specs and generating new market opportunities. Through participating in new and novel trait collection beef processing plants can benefit from new branding opportunities such as sustainability. Supporting reference populations ensures the cattle of the future are exposed to faster rates of genetic gain through improved selection criteria. The benefit to processors is receiving product that meets market specifications more often.
What we expect?
Research kill events will require research teams to enter the facility assist with data collection on carcasses. The cattle that come through the processing facilities from these populations are often very diverse and can be challenging to fit into grid specifications. Additionally processing space allocation will be required regularly for different slaughter groups. Individual animal tracking will required which will be supported by the project cost. All carcass and animal data collected by the processing plant must be shared with the research group.

Feedlot Partner
Who are you?
We are seeking organisations that would host research animals in their feedlots and support the data collection required.
Why we need you?
We need long term sustainable options for routine feeding of steers as part of reference population projects. Research traits are required to be collected on top of normal entry and exist traits, such as weights at certain stages, methane, feed intake, flight time or docility. Feedlotters are an important part of the supply chain to facilitate data collection and demonstrate to producers how different genetics perform in the feedlot.
What is the benefit?
Feedlotters will first hand be able to see how different genetics perform in the feedlot within and across breed in the same cohorts. Working with a feedlotter can also introduce new and novel trait research that assists in future compliance in the feedlot such as immune competence. Whilst the group itself will have varied performance this will help improve the quality and performance of industry animals entering the feedlot pathway in the longer term.
What we expect?
The cattle that come through the feedlot from these populations are often very diverse and may result in variable performance in the feedlot. Feedlot pen allocation will be required for regular feeding groups. Sharing of all animal data from the research animals will be required. Some new and novel trait collection may require research teams to work onsite to collect new phenotypes or set up equipment such as methane units, and require the collection of blood samples for immune competence.

Communication and Extension

Who are you?

We seek new or existing organisations/service providers to coordinate and deliver communications and extension activity.

Why we need you?

Reference populations provide a great opportunity to communicate and extend core genetics concepts, new and novel research and the value of collecting data. We need organisations to be involved to disseminate this new information to industry to help improve annual genetic gain.

What is the benefit?

The opportunity to be involved and seen to be involved in big industry initiatives, the ability to engage with new and existing clients on new technologies, and to develop new supply chain partnerships.

What do we expect?

The ability to present information without bias, and present the information as widely as possible across industry using a range of activities. The applicant must have previous experience and capabilities in extension and communication.

Genotyping provider

Who are you?

We seek organisations who specialize in servicing the market with genomic products to support the ongoing need for genotyping of reference animals.

Why we need you?

All animals in the reference populations need genotyping. The purpose of the reference population is to underpin the use and development of genomic tools to maximise the genetic progress of the Australian red meat industry. We need a coordinated and collaborative approach with limited fragmentation to support these goals.

What is the benefit?

The value producers and clients receive from genotyping is dependent on a well resourced, and scientifically robust reference population to support highly accurate breeding values for beef cattle. For all reference population projects genotyping the progeny is a core component of the projects. Currently throughput is up to ~4000 head of cattle and ~2000 sheep per annum. These projects enable the ongoing use of genomics and development of new products.

What do we expect?

All animals in the projects will require genotyping on an agreed platform and chip density. The genotypes must be provided to the database host. There may be opportunity for additional add-on services such as parentage.

Retail and wholesalers

Who are you?

We seek organizations such as supermarkets or meat retailers to support the project through market insights, customer feedback and funding support of the reference populations.

Why we need you?

To provide quality assurance of high value product and to increase sustainability and animal welfare outcomes to match consumer trends and preference.

What is the benefit?

Able to increase the rate of adoption and therefore the quality of supply of products. Minimise risk of gaps in supply and understand the potential for new branded product opportunities.

What is the expectation?

Financial contributions to assist and support the collection of data that informs the selection of animals to produce better quality product. Provide insights to shape and inform the collection of new and novel traits. To share the costs across the supply chain.

Other interested parties

If your organisation is not described above, but there is an opportunity for your organisation to engage in the development, delivery or funding of a reference population please do not hesitate to contact MLA or submit an expression of interest via the online application.

This could include but is not limited to Breed Societies, animal health providers, software providers, technicians (scanners, vets), genetic evaluation providers and agricultural tech service providers.

The process from here

The vision is the EOI will attract interested parties from one or more of the categories outlined above. The NLGC and MLA will then assist in bringing together those interested parties to contribute to a collaborative reference population project addressing the current gaps in beef cattle.

Stage 1. Expressions of interest will be reviewed by the NLGC as a online preliminary application. Each EOI will be notified in writing of the result of their application by the end of August.
Stage 2. Due to the nature of the EOI, The NLGC will facilitate the connection of different EOI's to collaborate on the development of a full proposal.
Stage 3. Full proposal submitted to the NLGC by collaborators.
Stage 4. Review of Full proposals by the NLGC. Each applicant will be notified in writing of the result of their application.
Stage 5. Contracting of successful projects. Proposed project start dates July 2026.

Funding

This expression of interest is to identify opportunities for funding through the MLA Donor Company. Information and guidelines on the MLA Donor Company can be found on the MLA website.

Per MLA Donor Company guidelines, applicants (individually or as a collective) will be expected to contribute 60% of the total project costs, with the remaining 40% of project costs covered by MDC.

Projects would be contracted under MLA Standard Terms available at: https://www.mla.com.au/about-mla/mla-agreements/

Project concepts for all values are encouraged and value for money will be determined based on the impact the project delivers.

Selection criteria

Expression of interest will be based on the assessment against the following criteria:

- Experience of individual/team in the delivery or previous involvement in reference populations.
- Relevant knowledge of the individual/team in relation to their stakeholder segment.
- Knowledge of livestock genetics and its application within livestock industries
- Knowledge of the challenges and opportunities associated with reference populations

Confidentiality

By submitting an EOI, the applicant will disclose information in the preliminary application form to MLA's employees, agents, contractors and advisors, for the purposes of this tender process and any legal or MLA policy requirement. Applicants must identify any information that they consider should be protected as confidential information and provide reasons for this.

Expressions of Interest

Please submit an EOI using the online application form or contact MLA to discuss prior to submitting an EOI.

Link to online application: Expressions of Interest - A new model for industry reference populations

All EOIs are to be submitted by **30th July**

Further information

Clara Bradford
Project Manager – Livestock Genetics
cbradford@mla.com.au
0437 370 170

Livestock Genetics: livestockgenetics@mla.com.au

Background information on reference populations

Reference populations or information nucleus herds have been invested in by several organisations including Meat and livestock Australia (MLA), Universities, State departments, Beef and Sheep CRC's, Breed associations and pastoral companies. There have been a mix of co-investments through MDC, Levy and independent investments. The focus of these populations has been to introduce the use of genomics as a genetic selection tool in Australia's routine genetic evaluations (BREEDPLAN and OVIS). To build industry reference population projects it has taken a collaborative effort and a significant investment.

A reference population is simply animals that have been recorded for a trait, have known relationships to selection candidates (either derived by pedigree or genomics) and have known management information. The creation of a reference population for a hard to measure trait has 3 key principles:

1) build accuracy of selection
2) understand correlations between important traits,
3) provide tools to breeders to select for improvement in important traits in a large part of the population (diversity)(reference).

These reference populations have successfully enabled the integration of genomic information into majority of our beef and sheep genetic evaluations. However we are now at a crossroad as to how best to continue to underpin the use of genomics in these evaluations in a sustainable way, enable the collection of new and novel hard to measure traits, and develop new tools and products to facilitate greater genetic gain in the livestock industry. The NLGC has developed a strategy to assist in guiding investments in reference populations and help facilitate moving to a collaborative and financially viable model (appendix 1).

Although the integration of genomics has occurred for majority of breeds, there are still gaps in the datasets including, number of records for certain trait groups such as reproduction or methane, the number of breeds represented, head to head comparisons on different beef breeds, and data on crossbred animals.

Reference populations are deemed an important part of MLAs genetics portfolio, however the diverse range of genetics in industry and the need to maintain the current evaluations whilst investing in new and novel R&D, indicates that a strategic approach to how we build and allocate funds to this investment area is required.

These projects deliver industry wide benefit through facilitating data collection that underpins enhancements to our genetic evaluations, products and service delivery ultimately improving genetic gain across our livestock sector.

Reference population Plan on a page

Vision

Reference populations continue to underpin the use of genomics and world leading genetic evaluations to facilitate 2% Annual Genetic Gain.

Purpose

Create a financially viable, collaborative, and scientifically robust reference population model for beef and sheep, supporting highly accurate breeding values

What will be the focus

TECHNICAL	VIABLE	DATA	ADOPTION
1 Capture diversity of animals within and across breeds	4 Industry see value in participating in the reference	7 Centralised data for R&D and breeding value development	10 Build new Supply Chain Partnerships
2 Increase/maintain prediction Accuracy of key traits	5 Industry co-investment in reference populations	8 Phenotype and genotype capture for key traits on informative animals	11 Increased industry ownership of reference populations
3 Underpin development/ improvement of Multibreed Genetic evaluations	6 Value based pricing structure for reference data	9 Inclusion of new data sources where there is value including commercial data	12 New relevant products and service delivery for seedstock and commercial producers

Strategic objectives

- Increase accuracy by trait group overtime
- Increase Industry contribution to references through data and dollars
- Increase the number of data points contributing to the reference through existing or new data sets
- Increase the proportion of industry animals related to reference populations

Enablers

- **Collaboration**
- **Co-Investment**
- **New Data Sources**
- **Supply Chain Partnerships**