Terms of Reference
Breeder productivity for sheep and cattle

Summary

Meat & Livestock Australia (MLA) is seeking Preliminary Proposals from individuals, organisations or project teams with the capability to undertake work leading to a better understanding of issues and the development of tools or practices to improve productivity of sheep or beef cattle.

Productivity and reproductive success has potential to deliver on a number of sheepmeat and grassfed beef priorities identified in red meat industry plans (Table 1) and through regional consultation.

In addition to ensuring that project outcomes achieve a tangible impact, proposals that also support growing industry capability and capacity (R&D) for the future growth of the red meat industry will be considered favourably.

Table 1:   **Key industry performance indicators addressed by this ToR**

	MLA 2020	**MISP 2020**	**SISP 2020**	**BISP 2020**
Pillar	Productivity and profitability	Productivity and profitability	Production efficiency in farms and in intensive finishing systems	Productivity and profitability
Priority / theme	Production efficiencies in farms and feedlots	Production efficiency in farms and feedlots	Increasing livestock productivity through new research	Production efficiency on farms
Imperative / activity / program		Increasing livestock productivity through new research	Increasing livestock productivity through new research	Increasing livestock productivity through new research
KPI	By 2020, improvement in total factor productivity of: 1.75% (southern beef); 0.5% (northern beef); 0.5% (sheep meat)	Increasing whole sector productivity growth above baseline through new research – Northern Beef: 0.5%, Southern Beef: 1.75%, Sheep 1.5%.	Reduction in the cost of on-farm sheep meat production ($/kg liveweight) by 1.5% by 2020, and 5% by 2030	Increasing productivity growth above the baseline: — Northern beef production of 0.5% by 2020 and 2.5% by 2030

Background

Enhanced reproduction and animal growth can lead to productivity improvements and, in turn, to economic benefits for the industry. In seeking improvements in productivity it is important to consider whole animal production systems including dam survival, reproductive performance, nutrition where it relates to meeting reproductive goals, and reducing mortality of dam and offspring. Technologies, including digital agriculture have the capacity to enhance management

through improved data capture and decision tools. On farm adoption for improved productivity with measureable benefits is the goal of this work and should include producer participation and engagement.

In the sheep industry reproductive success, including both lamb and ewe survival, remains a key priority due to its impact on profitability, and as a key welfare issue. Given completed and current research has established management activities that can significantly improve reproductive success it is recommended that investment be weighted to D&A activities to continue to improve the on-farm application of breeding and management practices known to impact ewe and lamb survival.

In the beef industry priorities for RD&A are to improve weaning rates through improved in-calf rates (herd management, breeding technology) and testing practical and relevant interventions to reduce calf loss. Included in herd management and calf loss projects the development of producer groups into producer innovation networks to increase producer participation, communication and adoption is required to deliver on farm practice change.

Objective

MLA is seeking preliminary RD&A proposals to conduct research, development and promote adoption that improves profitability in beef and sheepmeat production. Outcomes will substantially contribute to achieving MISP 2020 goals in Table 1.

In particular, proposals are sought for developing and executing collaborative and participative programs of work. Elements of these proposals will include building on the existing knowledge base, alignment of whole farm systems, enterprise profitability, efficiency of input use, and specific interventions to enhance productivity, where applicable. In addition, proposals may test examples of technologies that assist in reducing labour inputs and improving decision making. Proposals should also provide a clear pathway(s) to adoption and include adoption activities and targets. The emphasis is on breeder herd/flock efficiency and excludes grazing and genetic improvement *per se*, except where these are intrinsic to the animal management being considered.

For sheep, proposals should address ewe flock management to contribute to delivering the MISP 2020 objective and specifically address the SISP 2020 theme outcome described in Table 1.

Generally:
- Non-intrusive/non-destructive methodologies to estimate on-farm animal productivity
- Development of whole of on-farm data/information capture and analytics for improved production efficiencies
- Improving producers understanding about how carcase feedback can be used to improve on-farm decision making.

For sheepmeat:
- reduce reproductive wastage through improved monitoring of ewes and the feedbase (e.g. hands-off remote condition scoring, pasture measurement tools, on-farm feed analysis)
- data collection at mob/paddock scale or race-side and its efficient use in decision making
- deliver innovative adoption approaches for existing knowledge that improves weaning rates in sheep, including improving ewe and lamb, and replacement ewe survival.

For beef:
- improved breeder performance resulting in improved weaning rates
- enhanced management of heifers to improve reproductive performance
- reduction of calf loss by two per cent on properties in north Australia
- and demonstrate innovative adoption approaches which incorporate producer Networks
- effective technologies to improve artificial breeding such as artificial insemination, embryo transfer and in vitro fertilisation.

Scope

The work is national in scope although the applications and solutions within each project may be regional and focused on enterprises growing grassfed cattle and sheepmeat.

Duration of projects will typically be 1-3 years and in some cases up to five years, especially where several generations of animals are studied.

Collaborative teams across institutions are encouraged to apply to take advantage of complementary skills including research, development, adoption and expertise in the use of technologies.

Participation of producers and formal producer Innovation Networks is encouraged, especially in setting and reviewing the direction of research, development and adoption of practical, on-farm practices.

Output/s

Proposed RD&A activities will meet agreed milestones which will identify progress (2017-2020) in achieving one or more of the objectives identified in this ToR. Outputs specific to each project must be clearly identified in the proposal and include:
- Results of testing technologies, developing prototypes and introducing management changes in the field which involves producer collaboration and networking and are backed by economic analysis of the benefits.
- Practical tools to improve the productivity and profitability of beef and sheepmeat breeding enterprises that contribute to MISP 2020 targets
- Innovative management practices and/or tools to reduce cow, calf, ewe and/or lamb loss, developed through producer collaboration and networking leading to improved productivity, animal welfare and demonstrated profitability
- Guidelines and management strategies to optimise reproductive efficiency (and minimise reproductive wastage) in accordance with regional / climatic limitations.
- Development and deployment of technologies that enhance individual animal and/or herd/flock management with a clear impact on decision making and add economic value. This can include eID and feedback on carcase value. Project reports including data, analysis and future plans for development.
- Scientific publications.

Outcome/s

Within these terms of reference, proposals will be at different points across research, development and adoption, depending on the area and emphasis:
- improving the productivity and profitability of beef and sheepmeat breeding enterprises that contribute to MISP 2020 targets

- reduction of cow, calf, ewe and/or lamb loss, leading to improved productivity, animal welfare and profitability
- enhancement of individual animal and/or herd/flock management with a clear impact on decision making and add economic value.

Proposed budget and timeframe

Projects with budgets ranging from $50,000 to $500,000 per year across 3-5 years will be considered.

For sheep, it is likely that only one project can be supported through levy funding from this Open Call.

Confidentiality and intellectual property

Successful projects will be funded with sheepmeat and/or grassfed beef levies.

Applicants must identify any background intellectual property (IP) they bring to the project.

All data and cited references must be acknowledged appropriately in the final publication and it is the sole responsibility of the applicant to ensure copyright laws are not breached.

Where further information is available which may assist the successful applicant in meeting the requirements of the project, MLA will provide such information to the successful applicant.

The successful applicant will be required to enter into a standard agreement with MLA.

MLA will share and discuss this proposal with producers, technical experts, other research organisations and research and development corporations. Please acknowledge this freedom to operate.

Deadline for submissions

Preliminary proposals must be received by MLA before 6.00pm (NSW time) Monday, 30 October 2017. Late proposals will not be accepted.

Use the preliminary proposal template to submit proposals electronically to MLA at: projectcall@mla.com.au

Preliminary Proposals will be acknowledged and recorded on the MLA project information system. Applicants will be advised in writing of the success or failure of their Preliminary Proposal in January 2018.

Further information

If you have questions regarding these terms of reference, contact:

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