Terms of Reference

Nomination of methane-inhibiting feed additives for evaluation within MLA project P.PSH.1260 "Screening feed additives for methane mitigation using in vitro studies"

Summary

Meat & Livestock Australia (MLA), in agreement with the University of Queensland, intend to screen feed additives for methane mitigation using in vitro methodologies as part of foundational work in the CN30 initative. In support of this project, MLA is seeking nominations from industry partners to supply select feed additives with potential antimethanogenic properties suitable for use in the redmeat value chain.

Background

The Australian Red Meat Industry has set the aspirational target to be carbon neutral by 2030 (CN30). MLA's role in CN30 is to support industry to reduce greenhouse gas emissions and increase stored carbon through R,D,E&A and marketing of new and existing technologies and practices.

Currently, 78% of GHG emissions are from pasture raised beef, followed by 18% from sheep meat, 4% from feedlots and <1% from goats (Mayberry et al, 2018). Most of these emissions are from enteric methane, which is gas exhaled by ruminants as a natural part of the digestion process. Recent advancements in technology for reducing enteric methane emissions are promising. Natural feed additives, such as marine macro algae, have been shown to nearly eliminate enteric methane emissions under research trial conditions (Kinley, 2018).

The project P.PSH.1260 "Screening feed additives for methane mitigation using in vitro studies" is a collaborative effort between MLA and UQ. The project seeks to establish a high throughput laboratory screening methodology to identify potential feed additives that mitigate enteric methane production, whilst maintaining favourable ruminal digestion and fermentation.

This ToR is a call for organisations and individuals to nominate promising antimethanogenic agents that, if selected, may qualify for future commercial feasibility analysis and animal experimentation.

The evaluation process will involve a review of available literature on up to 30 potential additives, in vitro batch culture fermentation on a shortlist of 10 additives (which will be provided as blind samples to UQ), and in vitro evaluation of the two most promising candidates via rumen simulation technique (RUSITEC) fermentation.

Process

Interested parties are invited to submit a nomination form and agree to the terms of MLA's material transfer agreement. Submitted nominations will be scored against the selection criteria set out in this Terms of Reference. MLA will acknowledge receipt of each nomination. Nominators will be advised in writing of the success of their nomination.

Confidentiality and IP:

By submitting a nomination form, the nominator will disclose information to MLA's employees, agents, contractors and advisors, for the purposes of this nomination process and any legal or MLA policy requirement. Nominators must identify any information that they consider should be protected as confidential information and provide reasons for this.

We do not anticipate that any IP interest for the project will need be negotiated, however, nominators should identify any Background IP that is being brought to the project.

Material Transfer Agreement

A material transfer agreement (MTA) has been prepared for this call for nominations and will be required to be signed and submitted by the nominator if their additive is selected for *in vitro* batch fermentation analysis. Negotiations to the MTA will <u>not</u> be accepted by MLA. By submitting a nomination, nominators are agreeing that:

- They will sign MLA's MTA if their additive is selected for *in vitro* batch fermentation analysis
- They own background IP and any IP improvements made in the project
- If their nominated product is proven efficacious, they will acknowledge MLA during commercialisation
- MLA can publish the results of the project; MLA will embargo results for 30 days to give nominators time to lodge patent protection for their product.

Conflict of interest:

Nominators with any potential conflicts of interest, should outline these in their nomination form, including how they propose to manage them, if applicable.

Selection Criteria:

Nominations will be reviewed by MLA, and selection will be based on assessment of the proposed additive against the following criteria:

1. Defined or proposed biological mode of action
2. Cost (product manufacture and shelf price)
3. Potential animal, environment, and/or human safety implications
4. Approval status in Australia and/or overseas or ability to demonstrate the same
5. Ease of manufacture and description of manufacturing facilities if they exist in Australia
6. Proposed dietary inclusion rate to achieve a 15% reduction in methane production (under exceptional circumstances, such as very high efficacy, robustness/reliability, cost effectiveness, and available delivery mechanism to grazing herd, a lower percentage reduction is acceptable)
7. Stability and storage requirements (the additive needs to remain stable for 6 months and storage requirements to ensure this stability need to be outlined, including provision of Material Safety Data Sheets (MSDS) if applicable).
8. Timeframe for being able to provide samples of material if selected for inclusion in the in vitro experiment stages.

Nomination submissions:

MLA nominations must be lodged electronically as Word document to:
kcampbell@mla.com.au

Further Information:

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