

# Terms of Reference

## Effect of wet pen management strategy on feedlot cattle performance and carcass characteristics

### Summary:

Meat & Livestock Australia (MLA) in consultation with the Australian Lot Feeders Association (ALFA) is seeking expressions of interest from individuals, organisations or project teams with the capability to undertake research to determine the effect of wet pen management strategy on feedlot cattle performance and carcass characteristics.

### Background:

Providing feedlot cattle with dry areas to lie down and rest during periods of extended wet weather is essential to maximise animal welfare and productivity, as well as meeting consumer expectations of livestock production. As soon as mud levels exceed a comfort threshold, dry matter intake (DMI), average daily gain (ADG) and hot carcass weight of feedlot cattle decreases. In the Southern regions of Australia, it is not uncommon to see a 5-15% depression in DMI and ADG for *Bos taurus* cattle that are exposed to mud levels of 10-20 cm over the winter period. Severe mud conditions may depress DMI and ADG by up to 35%.

Mud that accumulates on coats (dags) reduces insulation and concurrently cattle expend more energy on thermoregulation in cold wet winter conditions. Cattle also expend energy carrying the extra weight of the dags on their coats. Dags may also pose a food safety risk, and necessitate cattle washing at the feedlot which represents a significant cost to the industry.

### Project Objectives:

1. Determine the effects of wet pen management strategy on feedlot cattle performance, animal health, indicators of animal welfare, and carcass characteristics.
2. Conduct a full economic analysis of the cost-benefit of the wet pen management strategy.

### Methodology:

Whilst not limiting the capacity of the applicant to develop any particular methodology or technique it is envisioned that the methodology may include an assessment of any of the following:

- Feedlot bedding types
- Pen engineering to improve surface stability and/or drainage

The duration of the project will involve on-feedlot pen-based research and will be limited to 1 major experiment.

Methodology presented in the full application, must be of a standard to be accepted into a leading scientific journal in Animal or Meat Science. The methodology adopted must be scientifically robust and achievable within the defined project period. Due care must be taken to ensure that experimental design has adequate statistical power to detect treatment differences for the desired level of response. Furthermore, a clear framework for statistical analysis of data must be presented with the full application.

The methodology must measure objective measures of animal welfare, animal health, feedlot performance (dry matter intake and body weight gain), and carcass value.

Additionally the final report must contain a full economic comparison of the wet pen management strategies addressing cost-benefit of pen cleaning, animal performance, cattle washing, carcass value and manure management.

Prior to submitting the MLA Full Application, the applicant must identify a feedlot collaborator that is willing to commit cattle to the experiment, allow randomisation of cattle at induction to treatment pens, and kill cattle across treatments at a standard day on feed (DOF) endpoint. Pens across treatments must be at a similar cleaning status at the commencement of the experiment. Feedlot collaborator fees should be included in the research budget.

**Process:**

The Expression of Interest should be submitted using an **MLA Full Project Application** supplemented with appendices as required, to address any specific requirements. The application must be submitted as a Microsoft Word Document. To access the project application template, go to [www.mla.com.au](http://www.mla.com.au) and follow the links to Research and development, then Funding opportunities and Research organisation funding to download the MLA Full application template and guidelines.

In particular, the proposal should:

1. Detail the approach that will be adopted to address the project objectives.
2. Detail the specific work activities proposed and timelines for their achievement.
3. Provide details of the information/data to be collected, collated and assessed and how these activities will be undertaken.
4. Include a detailed and fully costed budget that covers all the resources required to undertake the work, including details of basis for charging (daily fees, number of days, expenses, etc.).
5. Propose a payment schedule, taking account of the following:
  - Progress payments may be negotiated against project milestones if the size and timescale of the project warrant this. The proposal should propose milestones and payments if required.
  - A minimum of 20% of the project budget must be retained for payment against the final milestone.
  - Payment of fees will be upon MLA acceptance of the attainment of the project milestones.

**Selection Criteria:**

Applications will be reviewed by the ALFA Research & Development Committee and Meat & Livestock Australia, and selection of the successful proposal will be based on assessment against the following criteria:

1. Soundness of the method proposed to achieve the project objective;
2. Demonstration of the applicants knowledge and understanding of the relevant issues;
3. Track record of the applicant and proposed team members; and

4. The project budget, delivery timeline and assessed value for money.

**Reporting Requirements:**

The successful applicant will provide milestone reports (if required) and a final report giving full details of the results of the work. Milestone and final reports will be prepared in line with MLA report guidelines.

In addition to MLA standard reports, the following will also be provided to MLA at the time of delivery of the Final report:

1. a copy of all project data, including meta-data
2. a 600 word (maximum) magazine article with one high resolution image (>1MB file size)
3. a Microsoft Power-point presentation summarizing key project outcomes

The MLA Feedlot R&D program encourages publication of results in peer-reviewed scientific journals. Publication costs if required to be supported by MLA, should be included in the budget.

The applicant needs to allow for two half-day presentations/meetings with the MLA Feedlot Project Manager, one at project inception and one at the stage of delivery of the final report. The MLA project manager will travel to the applicant in both cases.

The successful applicant shall report directly to Dr. Joseph McMeniman, MLA Feedlot Project Manager.

**Confidentiality and IP:**

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.

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.

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

**Further Information:**

Dr. Joseph McMeniman  
Feedlot Project Manager  
On Farm Innovation and Adoption  
Meat & Livestock Australia

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**Project Proposal Submissions:**

Proposals must be lodged electronically as Word document to: [applications@mla.com.au](mailto:applications@mla.com.au)

Proposals must be received by 5pm Monday 3<sup>rd</sup> October, 2016.

Strict adherence to the time deadline for applications will occur.