

Terms of Reference

Feedlot Induction Automation

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 identify and evaluate automation technologies for feedlot induction.

Background:

When cattle arrive at a feedlot they undergo a process termed 'feedlot induction' or 'arrival processing'. Cattle are moved on-foot or by horse from holding pens, up a curved alleyway which enters a raceway to a processing 'chute' or 'crush'. At the chute a number of processes may be applied which include (but are not limited to) scanning of National Livestock Identifications Scheme (NLIS) tag, application of a visual tag, weighing, determination of dentition, breed and sex, application of injectables and hormonal growth promotants, drenching, pregnancy testing, trimming of excess tail hair, horn tipping and corresponding data entry.

Computer systems have been well integrated into the process with data feedback from weigh scales, manual data entry and NLIS readers. These systems then drive automatic drafting systems to sort cattle into specific sort pens. Whilst, these processes are well automated, many of the tasks involved in feedlot induction are manual. It is essential feedlot induction is conducted efficiently and effectively to limit animal stress, ensure correct application of treatments and measurement procedures, maintain integrity in data records, maximise occupational health and safety of staff and minimise labour cost per animal processed. The feedlot industry wishes to explore potential opportunities to automate these manual tasks.

Project Objectives:

1. Determine the level of automation of individual processes of feedlot induction currently in operation in the Australian feedlot industry.
2. Determine the labour requirements, cost and efficiency of feedlot induction at Australian feedlots (both overall and segmented to individual tasks).
3. Conduct a technology screen for automation solutions to manual tasks
4. Report costs and feasibility of identified technology not currently utilised by the Australian feedlot industry, and if further R&D or prototype development is required to implement the technology into the induction process.

Project Outcomes:

If economically feasible automation processes are identified, possible outcomes may include:

1. Continuous improvement in animal welfare
2. Increased feedlot productivity and profitability
3. Minimising the impact of endemic disease through correct and judicious application of animal health treatments.

4. Improved occupational health and safety.

Methodology:

Without limiting the ability of the applicant to develop and apply any particular approach or methodology, it is envisaged that the project may involve literature searches, surveys and phone interviews. Some travel to feedlot sites or technology providers may be expected.

Knowledge of electrical or mechanical engineering and/or cattle handling and feedlot induction is desirable.

Process:

The Expression of Interest should be submitted using the MLA Full Application form, supplemented with appendices as required, to address any specific requirements. To access the project application template, go to 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 the basis for charging (daily fees, number of days, expenses, etc.);
5. Propose a payment schedule, taking account of the following:
 - o 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;
 - o A minimum of 20% of the project budget must be retained for payment against the final milestone;
 - o Payment of fees will be upon MLA acceptance of the attainment of the project milestones.

Selection Criteria:

Selection of the successful proposal will be based on 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.

The applicant needs to allow for two half-day presentations/meetings with the committee, one at project inception and one at the stage of delivery of the final reports.

The successful applicant shall report directly to Dr. Joseph McMeniman.

Confidentiality and IP:

This project will be funded with grain-fed levies. Potential applicants must identify any background IP they are bringing to the project.

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:

If you have questions regarding this project, contact:

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

Phone: 0447 264 341

Email: jmcmeniman@mla.com.au

Project Proposal Submissions:

Proposals must be lodged electronically as Word document to: applications@mla.com.au

Proposals must be received by 5pm (Qld time) Friday 28th October, 2016