

Australian Pork Limited

AUSTRALIAN
Pork™

REQUEST FOR PROPOSAL

ENVIRONMENTAL CARBON PROGRAM RESEARCH PROPOSAL – SHORT HYDRAULIC
RETENTION TIME

October 2022



Request for Proposals

Program objective – to provide producers with further options to reduce greenhouse gas emissions arising from effluent ponds

Australian Pork Limited

Australian Pork Limited (APL) is the national representative body for Australian pig producers. APL is a producer-owned not-for-profit company combining marketing, export development, research, innovation and strategic policy development to assist in securing a profitable and sustainable future for the Australian pork industry. It is one of 15 rural research and development corporations (RDCs) providing research to Australian agriculture.

Funded by pig farmers, APL is paid to do what farmers can't do for themselves. This includes:

- a. Building demand for pork meat products
- b. R&D to reduce costs, improve product quality and value chain efficiency
- c. Interaction with government on farmers' behalf

Background

As part of our 2020-2025 Strategic Plan, APL has committed to driving towards carbon neutral or better on behalf of the pork industry. To further this goal we developed a low greenhouse gas pork roadmap to identify actions that industry can take now and future research needs in order to reduce emissions on farm. Of the research needs identified, the APL Environmental Technical Panel prioritised two for investment this financial year – making **short hydraulic retention time** more adoptable on farm.

Current projects

Short Hydraulic Retention Time

Short Hydraulic Retention Time (SHRT) is the practice of storing effluent for a shorter period, typically in a tank for a maximum of 30 days. This concept has been proven in previous Australian research (McGahan et al 2016) where SHRT had 79% lower emissions compared to a typical pond system. New technologies have also been developed overseas such as high rate anaerobic digestion in membrane bioreactors which can reduce retention time to 1 day (Jiang et al 2020). The carbon roadmap identified SHRT as a potential adoption push but further consultation has indicated that there wasn't enough confidence that the technology is fully tested. Therefore this request for proposal is seeking interested parties to **develop a project to demonstrate to producers the value of this technology across varying production scales and climates**. The project needs to focus on the value of this technology both for larger producers where covered ponds (considered gold standard to reduce emissions by industry) may be in use but not across all ponds due to energy needs and for smaller producers where covered ponds are not feasible.

There is preference for projects that can deliver quick results in an extension ready format (eg SHRT guide) however, as this is a priority focus there is scope for a longer project if it can be justified. Projects should include a short tech review as well as demonstration of techniques across several sites over both summer and winter periods. Projects should consider emissions changes, pond loading, feed wastage, changes in NPK in sludge residues and anecdotal odour changes between the SHRT methods and previous pond management, which can be included through a management survey of farm managers. SHRT technology or methods used are not prescribed but must be justified in the proposal (eg Australian availability, proven track records, developed in project).

Proposals that demonstrate significant evidence to support using this technology for an application to the Clean Energy Regulator (CER) for a emissions reduction methodology will also be considered (can include consideration of whether it fits under the current animal effluent method).

Budget for 22/23 is limited to \$50K but future budgeting is a possibility if the project is over multiple years (within reason)

Proposed Project Scope:

- Two levels of focus – large producers who may have some covered ponds and smaller producers where covered ponds are not viable/feasible
- Extension ready outcomes – SHRT guide as an output?
- Technical Review
- Demonstration at several sites across both summer and winter
- Measurement – emissions, loading, feed wastage, sludge NPK, odour, management, maintenance
- CER application/review

Extension

Preference will be given to proposals that present meaningful extension outputs which could include (but is not limited to):

- peer reviewed journal articles,
- management guides,
- factsheets,
- infographics.

At a minimum the successful applicant will be requested to present the results in a webinar for industry but proposals with other extension opportunities will be highly regarded, especially those with strong links to on ground service providers or other place-based extension networks.

Key research objectives

Objectives and Outputs

1. Provide evidence to give producers confidence to adopt SHRT technologies.
2. Provide a producer resource for alternative ways to reduce emissions from ponds through biogas.
3. Extension outputs for both projects that provide clear succinct direction for producers.

Methodology

The consultant is to recommend the best methodology to achieve desired outcomes with the following considerations:

1. Both projects must preference Australian available information and technologies or contextualise global information to the Australian operating context.

Evaluation criteria

- Scientific quality and research relevance
 - Scientific foundation of the project proposal and quality of the research plan.
- Project proposal feasibility
 - Realism and feasibility of the research (with respect to the planned time, objectives, intended results, risks, proposed costs and resources available).
- Applicant and research environment quality
 - Scientific competence and research contributions of the applicant, research institute and/or team members in the proposed area (based on previous accomplishments and international relationships).
 - Proven ability to generate adoptable strategies for industries on ambitious targets
 - Applicant familiarity with producer extension pathways considered an advantage
- Adoption and additional analysis options
 - Options/Development of extension material on project outcomes considered an

advantage.

References

McGahan, EJ; Phillips, FA; Wiedemann, SJ; Naylor, TA; Warren, B; Murphy, CM; Griffith, DWT; Desservettaz, M 2016 'Methane, nitrous oxide and ammonia emissions from an Australian piggery with short and long hydraulic retention-time effluent storage', Animal Production Science, 56(9), DOI 10.1071/ANI5649

Jiang, M; Westerholm, M; Qiao, W; Wandera, SM; Dong, R 2020 'High rate anaerobic digestion of swine wastewater in an anaerobic membrane bioreactor', Energy, 193, DOI 10.1016/j.energy.2019.116783

Timeline

Date	Activity
11 October 2022	Applications open
25 November 2022	Applications close 5pm
9 January 2023	Notification of proposal review outcome
23 January 2023	Issue of Provider Agreement for successful applications and commencement of project***

***Note** Applications with long timeframes should include a minimum of 1 progress report every six months.

*****Note** For proposals over \$200k will be subject to Board approvals and processes which may take longer than advised.

Submissions

Before submitting, applicants are strongly advised to refer to the guidelines for research application on the APL website at <https://australianpork.com.au/funding-and-resources>

How to make a submission:

Register or log in via PigConnect - <https://pigconnect.australianpork.com.au/>

- Submit and manage Project Applications
- View and manage your in-progress Projects
- Review Project Applications referred to you

Submissions close 5pm Friday 25th November 2022

Contact

If you are interested in submitting an application, please contact

Gemma Wyburn

Climate Friendly Farming Program Leader

0419 610 212

gemma.wyburn@australianpork.com.au



PO Box 4746 Kingston ACT 2604 Australia
T: 02 6270 8814 | F: 02 6285 2288
www.australianpork.com.au

ABN 83 092 783 278