

# Request for proposal

Environmental Program – Updating PigBal and Improving Free Range Nutrient Management



July 2024 - Australian Pork Limited



# Request for proposals

**Project 1 objective – to improve understanding of manure management, ground water protection and groundcover maintenance in free range pork production.**

**Project 2 objective–**

- **to update the PigBal tool with current knowledge of manure production, pig nutrition and emissions factors**
- **future proof the tool design**

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

### **Project 1 - Understanding nutrient movement and management in outdoor piggeries**

As part of our 2020-2025 Strategic Plan and through the Pork Sustainability Framework, APL has committed to improving the pork industry's environmental social licence and our nutrient management. A recent update of the National Environmental Guidelines for Piggeries (NEGP) and increased focus by regulators on improving waste management across industries, particularly on manure management in the pork industry, has highlighted a research gap and data deficiency on nutrient risks associated with outdoor and free-range pig farming.

The recent regulatory and research review conducted as part of the update of the NEGP has identified the following opportunities for further research and improved tools:

- research on paddock management for outdoor systems, particularly groundcover, electromagnetic (EM) surveys and leaching and runoff potential (lysimeter monitoring) and local hydrological studies in conjunction with management to assess impacts.
- nutrient storage capability of different soil types for outdoor systems.
- nutrient dynamics under different stocking densities and management.
- ideal pig and crop-forage-pasture rotation lengths for different soil types, including stocking densities.
- pasture / groundcover options for pig phase e.g. more resilient species.
- effects of running pigs on different soil types and benefits to the pigs being on the soil.
- soil biology in outdoor systems.

- Identifying crops for maximum nutrient stripping and their effect on residual nutrient levels
- Development of a database where outdoor producers / consultants can enter soil test data to verify how the guidelines recommendations compare with practice.
- Improved guidance on nutrient management in outdoor systems.
- demonstration sites, especially for outdoor systems.

This shows a clear need to do long term strategic research into outdoor and free range systems to generate the data needed to ensure effective policy and regulation can be supported. Research into these systems has not been prioritised in recent years with the last EM survey being completed in 2011. There is a need to understand how the nutrients in these systems are behaving, particularly under the effects of climate change and more extreme weather to ensure best management practice guidance can be developed.

## **Project 2 – Update of PigBal**

Recent feedback has also indicated that PigBal (v4 2018), which is still widely used in industry including by regulators to assess likely manure amounts, is in need of an update. Several factors in the tool are outdated and consideration is needed to future proof the tool through potentially upgrading it beyond a spreadsheet or building in options to automate future updates of things like emissions factors.

## **Current projects**

APL is seeking proposals for two projects in this call. Applicants can apply for one or both of the projects but if applying for both, they must be in separate proposals.

- **Project 1 – Understanding nutrient movement and management in outdoor piggeries**

This project must cover several of the identified research gaps from the NEGP review as outlined in the background. This project must include on farm studies in WA, with those also incorporating Victoria also highly considered.

The project is envisaged to include:

1. Detailed data collection on nutrient flows in outdoor systems on farm, considering hotspots, slope, soil types, rainfall, leaching and soil biology
2. Evaluation of plant species and strategies to maintain ground cover over the pig phase without impacting ability to crop efficiently in following phases
3. Lab/small scale pilot testing of nutrient movement through common soil types in WA and Vic free range production areas
4. Optional - Field trials at farm scale of best practice management to reduce nutrient impacts and improve ground cover during pig phase
5. Evaluation of potential options for best practice for environmental outcomes AND costs of implementation for a producer at different scales and types of production eg 100 sow, 500 sow, 1000+ sow

6. Production of technical reports and best practice guidance on nutrient management and groundcover maintenance

Any options that fail to perform as needed on either environmental claims or costs should be highlighted as well as successful demonstrations. Any identified co-benefits eg soil health improvements should also be noted.

Involvement of a student in the project will be considered favourably.

This project is anticipated to run over multiple years to capture seasonal variance. Budget for 24/25 is flexible, with an approximate range of \$50-75K.

- **Project 2 – Update of PigBal**

The project is envisaged to include:

1. Review and update of the spreadsheet model of PigBal to ensure all calculations and factors are correct and reflect current understanding
2. Investigation of options to allow for automatic updates of basic information eg emissions factors for the model going forward such as through artificial intelligence
3. Propose alternative options for the tool beyond a spreadsheet model that maintains functionality
4. Develop a new user guide and example farm calculations for the updated model

Budget for the update (including potential upgrade from spreadsheet model) is capped at \$50K. Proposals can be developed in two parts with the upgrade costs separately for consideration in the future

## **Extension**

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

- Demonstration sites (biosecure) or documented (eg video) explorations of options
- peer reviewed journal articles,
- management guides,
- factsheets,
- infographics
- recorded webinars
- industry presentations.

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 in the states of WA and Vic.

## Research Purpose

### Project 1 objective

- Provide up to date evidence of the nutrient flows and ground cover options for outdoor and free range production
- Enable data driven decision making for nutrient management plans and ground cover plans
- Provide regulators with confidence that best practice management is being undertaken on outdoor and free range farms

### Project 2 objective

- Ensure that producers are able to accurately estimate amounts of manure, spent bedding and effluent to inform planning
- Give regulators confidence that the PigBal tool is an up to date and research backed tool to estimate effluent and manure impacts for planning

### Timeline

Date	Activity
19 July 2024	Applications open
9 August 2024	Applications close 5pm
6 September 2024	Notification of proposal review outcome
1 November 2024	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. Longer timeframes for this project may be considered, please contact to discuss.

**\*\*Note:** Projects over \$100k will be subject to Board approvals and processes which may take longer than advised.

### 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

### Contact

If you are interested in submitting an application, please contact:  
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