



AUSTRALIAN PORK LIMITED
Call for tenders – 2017/2018 Research,
Development & Extension (RD&E) Program
April 2017



Background

Australian Pork Limited's (APL) four Specialist Groups met in February 2017 to determine research, development, technology adoption and industry capability priorities for funding in 2017/18. The Specialist Groups are comprised of expert participants from industry, producers, research providers and APL Managers. The priorities have been incorporated into business plans that have now been reviewed by APL's R&D Advisory Committee (RDAC) and have been recommended by the RDAC to the APL Board.

Priority Areas

This is a combined call for tender for research priorities for 2017/18 across the APL RD&E portfolio, including:

- Production and Welfare
- Environmental Management
- Food Safety, Biosecurity & Quality Assurance

APL is seeking to fund research programs/projects in the following key priority areas. All proposals must be submitted via APL's online portal PigNet by COB 22 May 2017. To register or log in to an existing PigNet account please follow this [link](#).

Basefunding

APL, together with the Pork CRC (and in 2018/19 through the Australasian Pork Research Institute Limited (APRIL)), significantly invest each year to provide access to research facilities through base funding. These facilities include Rivalea, SunPork North, SunPork South, PIWA Medina and Roseworthy.

If your proposed project requires the use of base funded facilities, it is essential that you discuss and confirm availability with the contact person at each facility before submitting your proposal. If you're not certain if your proposal should include base funding, please contact the relevant APL R&D Manager to discuss.

Details on the base funded facilities including, location, availability, and costs that will be incurred above what is offered by the base funding facility, can be obtained from:

- Rivalea: Dr Rob Smits (RSmits@rivalea.com.au)
- SunPork North: Robert Hewitt (robert.hewitt@sunporkfarms.com.au)
- SunPork South: Dr Kate Plush (kate.plush@sunporkfarms.com.au)
- PIWA Medina: Emalyn Loudon (emalyn@live.com.au)
- Roseworthy: Dr Cameron Ralph (Cameron.Ralph@sa.gov.au)

When submitting your R&D proposal, you will need to upload a basefunding spreadsheet as an attachment to your proposal. This can be found on the APL website or by clicking [here](#). If this spreadsheet is not submitted with your APL R&D proposal, and your proposal is utilising base funding, your proposal will not be entered into the APL R&D review process until this has been completed.

Project Commissioning Process

In order to facilitate the timely execution of agreements following notification of a successful application please review the Australian Pork Limited Project Agreement, prior to submission of your tender. This can be found on the APL website or by clicking [here](#). The Terms and Conditions within this agreement are those which all successful research projects will be commissioned.

Specialist Group 2 - Production and Welfare

Improving herd feed conversion

Seasonal infertility

The summer can be one of the most challenging times of the year for maintaining reproductive performance as the combination of high temperatures and increased day-length create environmental conditions that can be difficult to cope with and manage. Over time, significant effort has been spent on understanding and ameliorating the effects of seasonal infertility, which varies markedly from farm to farm, even within the same area and with similar genotypes. However, every year, seasonal infertility remains an issue for most producers and impacts on productivity. Nevertheless, we should not consider these issues to be inevitable or unchangeable and there is a need to continue research on this issue. The elimination of seasonal infertility would dramatically improve productivity and therefore have a transformative industry impact. The issues of the magnitude of genetic variation of seasonal infertility and the disparity between outdoor and indoor-housed sows, as to when they experience seasonal infertility, need to be investigated. These aspects of seasonal infertility were regarded as a gap in our understanding by SG2.

This tender seeks to:

- Investigate the magnitude of genetic variation between sows experiencing seasonal infertility and; determine if we can implement selection strategies for sows that are tolerant to changes in photoperiod and high ambient temperatures in summer resulting in minimal effects on reproductive performance of the breeding sow during summer. Timeline < 2 years.
- Investigate the effect and causes of a disparity between outdoor and indoor housed sows as to when they experience the effects of seasonal infertility and the magnitude of this effect. Timeline < 2 years.

Heat stress

When environmental conditions exceed thermal neutral zones, and especially during extreme summer conditions, energy is diverted away from protein synthesis to the maintenance of body temperature and thereby reducing efficiencies. Economic losses caused by heat stress can include reduced and inconsistent growth rates, poor reproductive performance, increased mortalities, decreases in carcass composition and value. In the 2016/17 tender round, activities were supported to improve our understanding of the underlying heat stress biology, and how this may be counteracted with feed additives to improve productivity in grower-finishers in summer production. The research question, which still needs investigation, is in relation to the effects of heat stress experienced *in utero* on the offspring. Growing scientific evidence on a phenomena termed 'foetal programming' is demonstrating that stressful intrauterine environments cause permanent and deleterious effects on the growth and development of developing foetuses. Therefore, further understanding is sought on the effects of *in utero* heat stress on offspring through to slaughter and practical strategies to combat these potential deleterious effects. This tender seeks to:

- Investigate the effects of *in utero* heat stress on offspring through to slaughter in the Australian pork industry and practical strategies to combat these deleterious effects. Timeline < 2 years.

For further information on these priorities please contact Dr Robyn Terry, Manager, Production Innovation at robyn.terry@australianpork.com.au or phone 0427 423 869

Specialist Group 3 – Environmental Management

Innovation and Uptake of BMP's

Development of Planning Resources

The pig industry has experienced growth in both indoor and outdoor production systems over the last few years. This growth is being significantly impacted upon in regulatory and planning decisions by the misinterpretation of requirements, shifting and inconsistent regulations and outdated or consolidated guidelines and policies. This project seeks to develop sets of standard planning conditions for both conventional and outdoor piggeries that can be used as a basis for planners when issuing a planning permit. The project also seeks to develop and run a pilot training course for planners, regulators and consultants on the assessment of piggery applications and the industry tools to assist the decision making process.

Timeline < 1 year

Development of an Online Training Package for Rotational Outdoor Piggeries

A previous APL outdoor awareness project developed materials for a one day outdoor production environmental workshop for producers with a focus on land and nutrient management. These materials and other APL extension tools and information are to be packaged into an online training package in order to access a wider producer base. This training package will include other key production practices relating to outdoor producers. This project seeks to develop an online training package relating to outdoor production that may include workshop recordings, adding voice overs and links to other relevant materials.

Timeline < 2 years

Pork Water Balance Model

While PigBal 4 provides comprehensive design recommendations for primary anaerobic effluent treatment ponds, it does not currently provide any quantitative guidance to assist in the sizing of secondary or wet weather storage ponds. The sizing of these ponds is crucial for minimising the risk of pond spills (overtopping events) and potential land and water contamination. The dairy industry has a similar program that could be used as the basis for a piggery specific model. A proposal is sought to develop a piggery specific water balance model to assist in designing secondary or wet weather storage ponds that meet design spill or overtopping frequencies specified by regulatory agencies.

Timeline < 1 year

Validation of Industry Environmental Data

Odour Emission Rate Validation Study

The Australian pork industry is continually modernising its infrastructure, practices and technologies to ensure best practice and to maximise productivity. Odour remains a significant issue for the industry. Current odour emission rates, models and separation distances are based on odour emission rate (OER) data generated prior to 2002 and therefore may no longer reflect newer designs, practices and technologies. The lack of OER data for modernised systems and new technologies, such as biogas, is presenting challenges for proponents. Planning applications and subsequent modelling is being based on outdated data which is potentially overestimating the impacts of Australian piggeries. This project seeks to develop a program to generate new OER data that is representative of current infrastructure and management. The project should also examine the most commonly used models and make recommendations of key parameters that should be

considered when utilising these models for the use of assessing odour impacts from Australian piggeries.

Timeline < 3 years

Environmental Pathogen review

An increased regulatory focus on the possible environmental health risks of effluent reuse has highlighted the need for industry to demonstrate low impact pathogen risk to decision makers. This project will review the results from APL's previous research, including more recent metagenomic studies, and international literature (if relevant) to provide APL with an overview of the research outcomes with a particular focus on risk and identify any gaps in knowledge.

Timeline < 1 year

For further information on these priorities please contact Janine Price, Manager, Environment at Janine.price@australianpork.com.au or phone 0429 899 845

Specialist Group 4 – Quality Assurance, Biosecurity & Food Safety

Exotic Animal Diseases (EAD)

Update previous APL reviews concerning EADs

One of the greatest threats to the sustainability of the Australian pork industry is the mounting pressure for importation of fresh pork into Australia and the potential biosecurity risks this presents. In 2012, APL investigated the risk and consequences of PRRSV introduction into Australia by fresh pig meat imported under conditions similar to those described in the New Zealand Import Health Standards (IHSs), through the commissioning of a review and modelling project.

To ensure that the information required is at hand and up to date, APL must investigate both the potential and risk of a number of exotic pig pathogens, including PRRS, being introduced into Australia through fresh pork imported under conditions similar to those described in the New Zealand IHSs. This is needed to ensure that we have the most current, scientifically robust data to protect the biosecurity status of our industry. This project will build upon earlier APL reviews.

The successful proposal for this tender must:

- Conduct a review of the current scientific literature to determine the risks of carriage of exotic pig pathogens and subsequent infection of the domestic herd. This should include a critical review of the likely effectiveness of the three mitigation strategies described in the New Zealand IHSs for fresh pig meat for their potential effectiveness in negating the carriage of other exotic pig pathogens;
- Estimate the risk of exposure and subsequent release of viral pathogens to an Australian pig-holding under conditions specified in the New Zealand IHS, relative to these risks under current Australian importing conditions.

Timeline < 1 year

For further information on this priority please contact Dr Pat Mitchell, Manager, Production-Stewardship at pat.mitchell@australianpork.com.au or phone 0402 794 912