APL R&D Priorities for 2014–2015
R&D Priorities for 2014-2015 have been identified by the R&D Specialist Groups (SG) and approved by the R&D Advisory Committee.

SG1 – Marketing, Supply Chain and Product Quality

- **Regular Market Performance Data (including advertising tracking)**
  This data is used to measure performance and Return on investment of both APL and supply chain in-market activities. It also forms the fact base on which we engage with supply chains, retailers and consumers.

- **Eating Quality Monitoring**
  Identifying our current levels of eating quality and consistency is a critical determinant of consumer satisfaction and repeated purchase. Measurement of consumers perceived eating quality allows engagement with retailers and supply chains to improve eating quality and therefore sales.

- **Product Integrity and Provenance Claims Compliance Monitoring**
  Demonstrate the industry’s commitment to providing high quality and trustworthy products as well as holding the supply chain to account for the provenance claims that they make.

- **How To Communicate with Premium International Pork Consumers**
  Identify the ideal way to launch Australian pork in high end niche markets in Asian cities including supply chain route to market, identification of key target consumers, and identification of market barriers.

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SG 2 – Genetics, Reproduction and Welfare

- **Improving Reproductive Efficiencies**
  Pigs/sow/year has often been used as a useful indicator of sow performance but this indicator does not encompass lifetime productivity of the sow which has a much greater impact on farm profitability. Optimising the lifetime performance of the sow gives a producer the best chance of optimising profitability.

- **Breeding More Females**
  Identify strategies for production of boars which produce only X bearing sperm resulting in production of only females, and effective treatment of semen to result in a predominance of female progeny produced in the subsequent litter after insemination.

- **Welfare Interventions**
  Identify requirements for practical and humane euthanasia welfare protocols for all classes of pigs and identification of stockperson attitudes to various euthanasia practices. Additionally, undertake welfare methodology investigations in eco-shelters to determine risk factors.

- **Community Engagement and Understanding**
  Intensive pig production is a controversial issue for some sections of the community. Community concerns can impact on pork producer’s social licence to operate. There is also pressure upon the Australian pork industry to demonstrate that the production systems it uses provide appropriate level of animal care and enable pigs to satisfy their needs. The aim is to Strong relationships with Community groups so that
they develop a trust of industry as regards their expectations of farming, improve the Community’s understanding of pig farming provide non-technical factsheets regarding pig industry for dissemination to Community groups and develop recommendations for provision of enrichment substrates for different classes of pigs.

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SG3 – Nutrition, Health and Physiology

- **Optimising of Gilt Progeny**
  When more gilts are retained to maintain the mating volumes, whole herd feed efficiency inherently worsens due to higher feed consumption and the reduced output of progeny. A multifaceted approach is required to optimise the performance of gilt progeny by reducing variation and increasing margin over feed cost for the gilt herd by focusing on improving the performance of the gilt progeny, decreasing wean-sale mortality, the impacts of disease on the quality and yield of the carcase, and innovative technologies to increase feed efficiency.

- **Disease Expression**
  The impacts of pig losses during the grower-finisher phase needs to be quantified and strategies to diminish these effects are a priority. The impact of losing pigs of a heavier live weight reduces the efficiency of the production system, and has a greater impact on the cost of production and herd FCR than pre-weaning losses. Characterisation of the factors that affect disease expression and growth aspects of the progeny due to pathogen interaction need to be understood to develop strategies to achieve the objective of a reduction in post-weaning mortality by 1 percentage units and the impacts on carcase quality and carcase yield.

- **Feed Efficiency Innovations**
  Variation in weaner weight and grower-finisher weight is a major source of production losses. However as birth weight is highly correlated to weaning weight, reducing the variation in time to slaughter of the light and heavy weight piglets is difficult. Short term, innovative technologies are required to manipulate growth rate and increase the feed efficiency of the pig at all stages of the production system.

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SG4 – Industry Capability and Technology Transfer

- **Bringing Influencers Together**
  Producers rely on ‘key influencers’ – consultants, nutritionists, vets, fellow producers etc – for advice and assistance with adoption decision making. Forums that facilitate producers-talking-to-producers and producers-talking-to-influencers are proving most effective in achieving TT&A. Investment in this priority assists APL to host and sponsor a range of industry events that enable interaction among stakeholders and producers, and collection and processing of information on outcomes/technologies. Increasing capability across the value chain and the capacity by which the private sector (eg. advisors and suppliers) can influence producers, assists with ensuring that commercial partners are equally engaged in TT&A and are critical to this process.

- **Facilitating Technology Transfer and Adoption**
  Industry stakeholders, both across the value chain and within segments, vary in the way they access information. R&D outcomes therefore need to be disseminated through a range of channels to suit this breadth of audience. The use of information technology and social media can no longer be overlooked as an effective communication tool, particularly in reaching various segments of industry. A focus on
bridging skill and knowledge gaps between the different industry sectors will be
complemented by the provision of educational sessions and materials advising how to
best utilise these new communication tools. The self-tracking abilities of these
modern methods will allow tailored communication with target audiences and assist
with better investment of resources.

- **Fostering New Capability**
  Consumer image of the pork industry together with difficulties in attracting and
  retaining a capable and skilled workforce are difficult issues, both in production and
  the service industries such as R&D. By supporting two distinct components of new
capability, school students and postgraduates, the industry will be better placed to
raise awareness and influence these perceptions. There is a need to develop specific
pork production educational resources to increase student awareness of primary
industries, and more specifically, the pork industry. As many of APL’s current
postgraduate students are due to finish shortly, continuing effort to attract potential
candidates to the pork industry and contribute innovative research to the industry.

- **Building Technical Capacity**
  Pork production is an increasingly complex business requiring highly technical skills.
  With high staff turnover and higher standards of production, there is a continual need
for training and developing production staff. APL must develop a framework for
promoting training resources and opportunities, such as ProHand and the Diploma of
Pork Production, to broaden the skill sets of stockpeople. Supporting this priority
ensures that these resources are kept current and relevant and training participation
rates are maximised. This framework for improved staff training and development
will lead to decreased turnover, reducing direct search and training costs for
producers; lower indirect costs of management time, need for short term labour
requirements; and improved work practices.

- **Corporate Communication and Influence**
  APL has an obligation to engage with its members and keep them informed of its
activities, particularly around R&D initiatives and outcomes. By virtue of this R&D
component, a proportion of corporate communications are covered by R&D funds.
In addition, research into current industry practices and trends is required for APL to
effectively influence stakeholders’ views on the industry. Investment in this priority
assists to ensure members are engaged and aware of APL R&D programs and how
they address industry issues. APL protects and/or advances industry’s position across
a range of areas through its ability to access and utilise such information.

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**SG5 – Environment Management**

- **New and Emerging Technologies – Waste Management**
  Traditional effluent management practises such as pond systems and on site reuse
often have a large eco and site footprint, are the main odour and emission source and
a concentrated source of nutrients on a piggery. This priority aims to look beyond
current practises to more effectively utilise the valuable properties of the waste by
considering alternative technologies which could provide opportunities to assimilate
not only the nutrients but also the water and energy value of the liquid effluent and
solids.
• **Innovation and Uptake of BMP’s**
The Australian pork industry has invested significant funding over the years into research to improve the environmental management of piggeries and has subsequently generated a large body of industry environmental data. This priority will develop technology transfer programs and materials that encourage the uptake of technologies and BMP’s into the piggery business or decision making process whilst increasing industry capability to disseminate information to producers and various other stakeholders.

• **Validation of Industry Environmental Data**
Currently modelling, unvalidated assumptions and international data is being used in many cases to represent the Australian pork industry. This may impact on the reputation of the industry and may not be representative of Australian specific conditions and practises. Australian specific data is needed to determine appropriate best practises, mitigation strategies and technologies to effectively address the specific drivers and needs of our industry. This priority will address the development of techniques and collection of industry-specific data and that can be used and accepted by stakeholders to develop protocols and calculation methods, validate the industry’s environmental credentials, enhance reputation, improve efficiencies, and develop mitigation strategies, BMP’s and technologies that suit the needs and drivers of the Australian Pig Industry.

• **On-Farm GHG Mitigation**
Most on farm GHG emissions are generated from the manure management system, land application of manure and emissions generated in the sheds. To date, limited research has been conducted to quantify emissions and mitigations from manure management in Australia. This priority will generate of GHG data and information that has previously not been explored on Australian pig farms or by end-users of pig manure to develop GHG mitigation strategies and technologies from alternative and improved management systems. This knowledge will be used to generate CFI methodologies and subsequent carbon credits for Australian producers as well as improve government reporting protocols and calculations.

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SG6 – Food Safety, Biosecurity and Quality Assurance

• **Zoonotic Biosecurity R&D**
This priority is focussed on those zoonotic diseases, already present in Australia, that present risk to the Australian pork industry, particularly in terms of market access, public health and assuring community trust of Australian pigs, pork and pork associated products.

• **Exotic Disease R&D**
The ability of Australia to maintain our biosecurity status is of paramount importance, particularly given the increasing prevalence and spread of diseases exotic to Australia, including Porcine epidemic diarrhoea virus (PEDv) and African swine fever (ASF), and their significant impact on pig production in North America and eastern Europe as well as Foot and Mouth Disease (FMD). This priority will deliver up-to-date information to defend both our biosecurity status and our pork markets.

• **Pork Supply Chain Integrity Program/ NLIS/ Physi-Trace integration**
APL, the pork industry together with Government have made significant investment in the development of NLIS (Pork) and Physi-Trace to protect markets from threats to the Australian pork industry. These threats include: an exotic disease outbreak; detection and traceback of chemical residues in Australian pork products; verification
of label compliance of pork products sold on the domestic market and, defend industry against costs associated with any threat of mandatory use of electronic identification devices for pigs.

- **Major Review of APIQ® 2014/15 Major Review**
  This review will fulfill the requirement for a four yearly major review of APIQ®. The major review is important to maintain the program’s credibility, integrity and robustness with all stakeholders.

- **Food Safety R&D**
  The activities within this priority directly underpin Pork AEMIS and address food safety to enable the Australian pork industry to maintain market access and assure community and consumer trust in the safety of Australian pork and pork products. These activities will provide outcomes to support reforms to regulatory systems to reduce the cost burden to industry associated with inspection, verification and export certification.

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