Australian Pork Limited
ABN: 83 092 783 278

PO Box 4746
KINGSTON ACT 2604

P 02 6285 2200
F 02 6285 2288

www.australianpork.com.au

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Committee Secretary
House of Representatives Standing
Committee on Agriculture and Industry
PO Box 6021
Parliament House
Canberra ACT 2600

Via email: AgInd.reps@aph.gov.au

Dear Sir/Madam

Inquiry into Agricultural Innovation

Australian Pork Limited (APL) welcomes the opportunity to provide a brief submission into Agricultural Innovation and in particular the role of technology in increasing agricultural productivity in Australia.

APL is the national representative body for Australian pork producers. APL is a producer-owned not-for-profit company combining marketing, export development, research and innovation and policy development to assist in securing a profitable and sustainable future for the Australian pork industry.

The Australian pork industry employs more than 20,000 people in Australia and contributes approximately $2.8 billion in gross domestic product to the Australian economy. The pork industry contributes approximately 2.13 per cent of total Australian farm production with roughly 1500 pig producers producing around 4.7 million pigs annually.

A key challenge faced by the Australian pork industry is the need to maintain local production of high quality food for a reasonable price and return on production capital invested, without negatively impacting pig welfare, the environment or the health of the consumer. Profitable pig producers are dependent on safeguarding the health and wellbeing of the pig herd, while reducing input costs and improving productivity.

APL acknowledges Australia is a participant in a global trading environment that brings inherent risks, including the spread of exotic diseases. Australia's pig herd is dependent on strong science-based biosecurity arrangements at the border, and on farm, to protect against disease incursions that could decimate naïve herds, and the industry. This high herd health is an asset underpinning the industry's reputation for quality and safety.

However, there is a negative consequence of having a "closed" genetic herd, which means that the importation of new genetic lines with higher productivity is prohibited. The result is that Australia's productivity lags behind those of major competitors such as the U.S.A., Canada and the European Union.

In order to close this gap, APL maintains strong investment in programs that underpin continuous productivity growth, with a focus on reproductive performance and progeny viability. New biotechnologies are enabling the Australian pork industry to improve the number of piglets born per sow. More recently APL has invested in recombinant technologies to increase the number of female pigs in each litter. If successful these outcomes will be a world-first and will allow the Australian pork industry to go a long way in bridging the productivity gap between our competitors.

The CRC for High Integrity Australian Pork through innovative, collaborative, whole value chain research, development and education programs continues to enable the pork industry

to address the welfare and productivity issues associated with Confinement-free Sow and Piglet Management. The Pork CRC's on-farm innovation has enabled the Australian pork industry to optimise sow and piglet welfare in confinement-free systems while maintaining production efficiency.

The industry's on-farm quality assurance program, APIQ✓®, is a key platform providing confidence to our consumers, regulators, markets and the Australian public that our production standards are of a high level. APIQ✓® is an independently audited program which verifies industry compliance with management, animal welfare, food safety, and biosecurity and livestock traceability standards. Whilst not affecting on-farm productivity per se, the introduction of electronic on-line auditing of farms has resulted in significant efficiencies for producers whilst strengthening the integrity of the independent auditing systems.

APL also undertakes a number of activities to underpin the Pork - Australian Export Meat Inspection System (Pork-AEMIS) and address food safety issues to enable the Australian pork industry to maintain market access, assure community and consumer trust in the safety of Australian pork and pork products.

While the Australian pork industry contributes only 0.4 per cent to Australia's Greenhouse Gas Emissions (GHG), the industry has invested in innovations to drive reductions to its emissions profiles, with an objective to achieve a target of 1 kg/CO_2-e per kg of pork produced.

APL biogas projects, together with the Pork CRC bioenergy program, have assisted with 26per cent of available production or 11per cent total production capturing or utilising biogas. Currently, there are 18 systems across Australia, with four of these systems participating in the Carbon Farming Initiative (CFI) - generating approx. $2 million in CFI credits and abating over 101,000 t CO_2. Four sites have been successful in the new Emissions Reduction Fund (ERF) scheme contracting 0.3 million tonne of CO_2 abatement worth $4.3 million in credits.

Traditional effluent management systems involve an anaerobic pond and associated storage ponds prior to evaporation or reuse of liquid/solids on site. Whilst the pork industry has also successfully explored and exploited the capture and use of renewable energy (biogas) on farm, mostly through covered anaerobic ponds. A better understanding of the composition of the wastewater stream entering these systems is needed to develop linkages between the waste stream with aspects of waste minimisation, production, nutrient recovery or biogas output. This understanding has the potential to save production costs and generate additional revenue or offsets from energy and fertiliser use.

APL is currently investing in projects to either use direct or indirect measurements of composition or composition inferred by indirect measurements e.g. neural networks (artificial intelligence) to allow the Australian pork industry to better understand the strength and composition of the waste water and links to production and/or biogas which may include management of covered ponds, key inhibitors and a understanding of nutrient loading for environmental and beneficial nutrient use and/or recovery.

APL was successful in being the lead agency in the Federal Government's Rural R&D for Profit project 'Waste to Revenue: Novel fertilisers and Feeds' worth $2 million. This project is also supported by Dairy Australia (DA), Sugar Research Australia Ltd, Meat & Livestock Australia and Rural Industries Development Corporation (Meat Chickens). The project, being carried out by University of Queensland and University of Western Australia, aims to develop new waste technologies that utilise algae, purple phototrophic bacteria and chemotrophs to recapture nutrients in waste as fertiliser and feed products. It will also investigate alternative soil improvers generated from low compost and cleaner composting technologies. Generating these new products will improve the sustainability, productivity and profitability of primary industries through the generation of new revenue streams and reduced input costs.

The Australian pork industry, like other industries, is also looking to new IT solutions to better engage with its producers. The APL Tech Toolbox 'App' has been developed and is designed to quickly disseminate key APL research outcomes, best management practice information and coming events to all levels of industry. The App will also be a key to gaining industry feedback on adoption levels and rates of APL R&D information and help APL to further target its information delivery systems.

A world first traceability technology for the Australian pork industry is Physi-Trace. This enables the rapid and cost-effective trackback of a pork sample back to the farm of origin. Physi-Trace is a traceability tool that uses trace element profiles, chemical and organic markers to discriminate between pork samples based on region of origin. Trace metal analysis was conducted on imported and Australian processed ham and bacon samples and used to verify Country of Origin Labelling (CoOL), demonstrating Physi-Trace's ability to verify label claims e.g. PorkMark and Product of Australia.

Revised sampling and analytical plans have been implemented to deliver Physi-Trace to industry at a cost of $0.05/pig. These plans require the sampling and storage of between 0.5–1.5 per cent of annual slaughter by each establishment and 5 per cent of these samples are randomly selected on a monthly basis for Physi-Trace analysis to build the database for raw pork. Physi-Trace is also being used to differentiate between ham and bacon made from Australian or imported pork, supported by the Physi-Trace ham and bacon database.

APL, supported by Department of Agriculture funding, has implemented PigPass, a live pig traceability system. PigPass integrates the National Vendor Declaration for pigs (PigPass NVDs) with movement reporting. Movement reporting has implemented for property to property, abattoirs, and saleyards, with showground reporting under development. As PigPass is an integrated system, it can recognise NVDs which are not legitimate original documents. Through PigPass, APL has mapped all producers, including their quality assurance status, abattoirs and saleyards. In the future, PigPass will facilitate levy reconciliations and assist with verification of members levy contributions for the purposes of its three year membership process. This is required for membership statutory declarations and is a much maligned part of the membership process by members, particularly small producers.

The integration of Physi-Trace with APIQ✓® and PigPass (the industry's live pig traceability system) supports traceability and provenance claims of Australian pork to be verified through the Trust in Australian Quality Pork program.

APL has invested in an integrated system (Microsoft CRM) to manage its "big data" systems. CRM is an innovative tool that combines the organisations various contact databases, PigPass, APIQ✓®, SharePoint, the new TT&A App, Muddy Boots (the online auditing tool), Physi-Trace, events management system, survey tool, and a shopping cart. CRM continues to be a point of innovation. Ongoing management of the regulatory environment around privacy and security is a key challenging going forward, not just for APL but also through to producers and supply chain. The industry must have confidence in both the systems and APL's management of big data.

In May 2012, the Australian pork industry has also launched PorkScan, an AUS-MEAT approved system for measuring carcase quality. Close to a decade ago, the Australian pork industry recognised the need for stronger market signals around pork quality founded on improved carcase measurement systems.

The PorkScan system measures fat and muscle depth at the P2 site on a pig carcase using an ultrasound probe. PorkScan captures and stores measurements for every carcase on the slaughter floor, allowing producers to query results for particular carcases with their processor if required.

While the P2 fat depth measure provides an effective replacement for other mechanical measurement probes, fat depth is only 60 per cent reliable in predicting carcase lean meat yield. Research into a laser light striping system to measure lean meat yield of pig carcases was also conducted as part of the consortium project.

This system involves laser light beams being emitted onto the surface of a carcase. Image analysis software determines the amount of curvature of these beams at particular sites on the carcase. This information is then incorporated into a complex algorithm to accurately predict lean meat yield. Currently, this system is being refined for future commercialisation as part of a new Pork CRC project moving to 3D imaging cameras as an alternative to laser light striping to improve system robustness.

One of the major challenges for the pork industry is access to skilled labour. In an Australian agricultural industry first, APL was able to develop and have approved a pork industry labour agreement. This will assist producers' to access overseas skilled labour under the 457 visa program. That said, access to labour remains a challenge, given the requirements of managing animals in an intensive system.

In terms of barriers to technology adoption, these can be listed as;

1. Availability of skilled labour;
2. Internet access;
3. Infrastructure changes to adopt new technologies;
4. A high number of small producers, geographically dispersed, and growing in number, and for whom pork production is not the primary source of income; and
5. Management of privacy and security for the industry's "big data".

Before concluding this submission, it would be remiss not raise the importance of agricultural levies. Agricultural levies exist for many commodities, including pork, for very sound reasons relating to market failure. That is, levies overcome a lack of investment in important industry initiatives as individual farmers and producers do not have the capacity to obtain a return on their individual investments (research and development and marketing are good examples). In other words, the leverage of many producers to fund industry wide activities is far more than the outcomes that might be derived from individual producer investment.

Ultimately, rural industries are today more successful and larger due to the returns on investment from levies, resulting in better efficiencies, lower costs, more appropriate products and greater market understanding.

Society more broadly has benefited from the expenditure of levies by rural industries through cheaper produce, improved food safety and security, more competitive Australian rural industries offering employment opportunities, regional development and as a result, environmental protection and the better care of farm animals. In particular, the Government matching funds are a focal point for the wider public good benefit in industry specific R&D.

RDC collaboration is part of the culture at APL. Of note is the value derived for the Australian pork industry through its involvement with the CRC program, and specifically through the two iterations of the Pork CRC. In addition, the Rural R&D for Profit program continues to address additional industry R&D needs. APL also continues to champion collaboration across RDCs such as through the Council of RDCs. APL notes improvements are being delivered in these areas that will underpin investment in other areas such as innovation.

APL would be happy to provide additional information should this be required.

Yours sincerely

Deb Kerr
General Manager, Policy