Australasian Pork Research Institute Ltd (APRIL) Strategic Plan 2019-2022

Background

The Australasian Pork Research Institute Ltd. (APRIL) operated the highly successful CRC for an Internationally Competitive Pork Industry from July 2005 to June 2011. APRIL was succeeded by the CRC for High Integrity Australian Pork (Pork CRC Ltd.), which is due to complete its objectives by June 30th, 2019.

The CRC for an Internationally Competitive Pork Industry and the CRC for High Integrity Australian Pork have delivered on the research, education, training and commercialisation objectives, and while operational, the latter will continue to deliver a wide range of relevant research outcomes for the Australian pork industry. In total, these CRC programs have represented a combined total investment of more than $210 million in pork industry research. Their establishment reinvigorated pork industry research in Australia and demonstrated the value of collaborative research investment to Australian producers and ancillary businesses.

In addition to research outcomes directly applicable on farm and post-farm gate, the CRCs have delivered numerous commercial outcomes that will generate financial returns to APRIL beyond the operational life of the CRC for High Integrity Australian Pork. The Industry has acknowledged the need for continued investment in collaborative research and development that complements Australian Pork Limited's work and so APRIL will once again invest and manage collaborative research and development, and education and training, for the benefit of the Australasian pork industry, using the significant intellectual capital and facilities established by the two CRCs.

This document defines the strategic directions for APRIL from 2019 until 2022. These directions pertain to key operational elements of the APRIL business as well as priority research, education and training, and commercialisation initiatives.

Vision

Collaborative, timely and effective industry-funded and directed research, education and training, and commercialisation activities focused on priorities and deliverables that ensure the sustainability of Australasian pork production.

Mission

Facilitation of high priority research, education and training programs, and commercialisation opportunities, allied to effective investment management to generate optimal returns for all pork industry stakeholders.

Strategy

Strategic imperatives for APRIL are:

Relevance: APRIL must be robust, agile and current in developing its research, education and training, and commercialisation programs and initiatives. Research should be a balance of applied versus basic and short versus long-term research, as well as meeting stakeholder expectations.

Leverage: APRIL is a catalyst for innovation, and will always seek leverage its limited funds against additional investment in priority research, education and training, and commercialisation programs to achieve necessary scale.

Alignment: APRIL is aligned with Australian Pork Ltd. activities and residual Pork CRC Ltd. functions to avoid overlaps and duplication.

Investment and Growth: APRIL is not a final funder (it is a co-funder) and will only actively invest in programs whose objectives cannot be achieved without our support.

Collaboration: APRIL will ensure its activities are collaborative, inclusive and informed across the stakeholder base.

Returns: Measurable returns to stakeholders through research outcomes.

APRIL will achieve its strategies by:

- Embarking on a number of key transformative R&D initiatives.
- Being an active investor in key production-driven research, education and training, and commercialisation priorities that meet Member and Industry expectations.
- Building and maintaining research and development, education and training, and innovation capability.
- Developing a culture within research providers that embraces innovation, leveraging principles, collaboration and commercialisation (if appropriate).
- Communicating and promoting, or commercialising, research, education and training outcomes to maximise value to Industry.
- Focussing on a strong and transparent value proposition that maintains and promotes on-going member and stakeholder investment in the program.

Values

- **Innovation**: APRIL always look for solutions.
- **Focus**: APRIL's members and the pork industry are the highest priority.
- **Excellence**: APRIL strives for the best in research, management, education and training, and commercialisation opportunities.
- **Opportunity**: APRIL will take considered risks to achieve desired outcomes.
- **Networks:** APRIL will collaborate locally, nationally and internationally to enhance capacity to solve local challenges and meet goals.
- **Communication**: APRIL will build strong relationships through open communications.

APRIL - Operating Environment

Opportunities

- Solving key issues constraining pork industry profitability and sustainability through market driven collaborative research and development.
- Commercialisation and adoption of new technology – nationally and internationally, both within and outside the pork industry.
- Building the next generation of research capability within industry and universities.
- Leveraging funding through collaborations and seed investment.

Challenges

- Managing the boundaries (what is done, what is not done).
- Increasing funding sources to invest in research, training and education, and commercialisation.
- Managing member expectations.
- Retaining and growing research, education and training capability.
- Being agile and responsive.
- Managing stakeholder relations including APL.
- Generating new ideas.
- Minimising administration and research costs.

Strengths

- Reputation and track record – excellent history of delivering and honouring commitments to stakeholders.
- Momentum from existing Pork CRC research programs.
- Strong pipeline of new scientists and production-oriented staff trained through Pork CRC research programs.
- Cohesive industry willing to work together to solve common problems.
- Strong stakeholder support evidenced through foundation membership of APRIL.

Extra Focus

- Communication across the entire pork industry supply chain.
- Synergistic management of APRIL and APL research programs and processes.
- Optimisation of existing APRIL commercialisation programs.
- Efficient utilisation of resources and the cost of conducting research.
- Recognising areas of “market-failure” from a research perspective and minimising overlaps with commercial research programs.

Core Strategies

Core Strategy*	Timeline
1. Prepare a 3-year strategic plan for APRIL and a base research and development investment framework.	June, 2019
2. Ensure existing and future commercialisation processes are efficient and are generating optimal returns.	2019-2022
3. Develop organisational and research management models that utilise existing APL resources while maintaining operational independence for APRIL.	2019-2022
4. Seek additional investment in relevant research programs through strategic funding opportunities (e.g. CRC-P programs; State and Federal Regional Growth and Development Funds).	2019-2022
5. Initiate a communication framework that effectively disseminates the objectives of APRIL and the outcomes from relevant research programs.	2019-2022
6. Develop research priorities and balance strategic research domains with innovative research opportunities, low and high-risk projects, and projects with high potential for APRIL commercial income versus direct stakeholder returns.	2019-2022
7. Assist with human capacity building in the Australasian pork Industry.	2019-2022
8. Key deliverables and indicators to measure the overall performance of APRIL as a business and the effectiveness of the research program.	November, 2019

*Core strategies are not presented in priority order.

Core Strategies

Core Strategy 1: Prepare a 3-year strategic plan for APRIL	
Task	**Key Deliverables**
1.1 Consult with members and stakeholders to develop an understanding of key expectations for APRIL as a business and potential research areas.	• Member and stakeholder consultation (completed June 2017). • Identification of broad overview of potential research gaps and areas for research focus (completed September 2017). • Investment Round I (completed in first half of 2018, underway in early 2019).
1.2 Update the draft APRIL strategic plan for consideration by the APRIL Board and the R&D Advisory Committee.	• Revised Strategic Plan to be considered by the APRIL Board in first half of 2019.
1.3 Promote the ratified APRIL Strategic Plan.	• Finalised 3-year Strategic Plan to be effectively communicated as broadly as possible.

Core Strategy 2: Ensure existing and future commercialisation processes are efficient and are generating optimal returns	
Task	**Key Deliverables**
2.1 Review all existing commercialisation projects and ensure those with greatest potential are adequately resourced.	• Allocation of adequate resources to ensure commercial income is realised in a reasonable timeframe. • Targets: • Commercial income available for reinvestment of $650,000 by July 2020, $750,000 by July 2021, $1.0 million by July 2022.
2.2 Progress licensing of AusScan calibrations via AuNIR in China.	• Capture a wider market using a Chinese base (i.e. Ao Bo Biotechnology Pte Ltd) and significantly increase income from AusScan technologies. • Development of a strategic partnership in China for delivery of other research outcomes. • Targets: • More than 500 scans for DE and AME in cereals for pigs and poultry to Chinese customers by July 2021, and more than 3,000 reactive lysine scans for oilseeds for Chinese customers by July 2021.
2.3 Grow AB Vista business, and extend service to one additional product.	• Scans generated by AB Vista increase 10% annually from June 2018. • Agreement/licence for at least one other product by January, 2021.
2.4 Develop a commercialisation pipeline and process from project submissions to project delivery and beyond.	• Clear understanding of commercialisation potential from the existing and future research program. • Revised Commercialisation Project proposal (20% cash investment), to facilitate greater interest in commercialisation of research (and not just from the pork Industry). • Formal Commercialisation Report becomes a Standing item at each APRIL Board meeting.
2.5 Allocate some research resources towards product development with commercial partners.	• Commercial income of $100,000 from investment in product development that can be reinvested in the APRIL R&D program (by June 2021).

Core Strategy 3: Develop organisational and research management models	
Task	**Key Deliverables**
3.1 Develop a transition plan for management of APRIL administration and research programs via APL.	• Consolidated Pork CRC Ltd/APRIL staffing and research management processes finalised from June 2018. • Finalisation of new Management Services Agreement (from July 2019).
3.2 Establish the need for employment of part-time program leaders to ensure integrity of large research programs.	• Employment of program leaders/auxiliary staff (if deemed necessary) (from June 2019).

Core Strategy 4: Seek additional investment in the core APRIL objectives of research, education and training, and commercialisation	
Task	**Key Deliverables**
4.1 Examine external opportunities for co-investment in core APRIL objectives that contribute to the mission and strategy of APRIL.	• An understanding of available external funding opportunities. • Development/submission of at least two CRC-P program and (or) ARC-Linkage grant application, by July 2020.
4.2 Establish relationships with relevant commercial investors to advance progress in key APRIL research priorities.	• Non-member funds invested in core APRIL research and development programs.
4.3 Increase utilisation of the subcommittee of the R&D Advisory Committee to assist in the exploration and development of applications on behalf of APRIL for external funding of research, education and training, and commercialisation.	• Coordinated approach with R&D Advisory Committee members to solicit greater external investment on behalf of APRIL. • Additional funds available for use in the APRIL research program.

Core Strategy 5: Initiate a communication framework	
Task	**Key Deliverables**
5.1 Present regular updates of APRIL's progress at producer and scientific forums.	• Presentation of APRIL objectives and research outcomes to representatives of a wide pig producer base in Australia and New Zealand, and to international forums (where appropriate). • Present at a minimum of two member-based conferences, by November 2019.
5.2 Implement Director-Member buddy system	• Established as Standing item on Board agenda (June 2018).
5.3 Convene an annual Stakeholder Day for all APRIL members.	• Direct contact with APRIL members to extend latest results and receive direct feedback on progress. • First Stakeholder day convened November 2018.
5.4 Arrange annual one-on-one meetings with APRIL members to understand needs and promote outcomes.	• Face-to-face meetings (Chair, Board members and (or) the Chief Scientist) convened with all members at least annually (commenced June 2018).
5.5 Conduct an annual membership survey to ensure APRIL research remains relevant.	• First annual membership survey completed by November 2019, requesting feedback on the performance of APRIL. • Refined priorities for use in development of new research programs.
5.6 Keep industry and stakeholders informed of research, education and training, and commercialisation activities and outcomes.	• Bi- or tri-monthly column in Australian Pork Newspaper. • Media releases (as appropriate). • Quarterly newsletter to all members commencing June 2019.
5.7 Establish an independent website for promotion of APRIL activities.	• APRIL website established and linked to the APL website in June 2018, for communication of research, education and training and commercialisation outcomes, and APRIL news. • APRIL to maintain the Pork CRC website (after July, 2019).

Core Strategy 6: Research Priorities	
6.1: Transformational Projects	
Task	**Context and Key Deliverables**
6.1.1 Enhanced antimicrobial stewardship in the Australian pork industry through targeted reduction of in-feed medications without adverse health consequences.	Judicious use of antibiotics is a high priority for the Australasian pork industry. One of the best ways to reduce total use of antibiotics in pig production systems is to limit the use of in-feed medications. When antibiotics are included in feed, every pig on that feed receives a dose whether they need it or not, and dosage continues until the batch of feed is consumed. Arguably, this contributes to elevated overall use of antibiotics, an increased number of doses per pig and potentially an increase in the mg of active constituent administered per kg of pork produced. While antibiotic use in agriculture has not contributed significantly to antimicrobial resistance to date, the Industry does have an obligation to minimise any chance that application of antibiotics in pork production systems renders any registered agents or high or medium importance ASTAG (Australian Strategic and Technical Advisory Group on Antimicrobial Resistance)-classified antibiotics unsuitable for use in human medicine. This priority has been identified as a transformational project because of the multidisciplinary nature of the challenge. Reduction of in-feed medications will potentially require a higher reliance on vaccines, novel use of other nutritional mechanisms to control disease, enhanced capacity to apply pulse water medications, better systems for disease surveillance, capacity for targeted individual pig treatments, better piggery hygiene, higher health status herds and sources of genetics and, if in-feed antibiotics are not used, systems that allow efficient and targeted application of other antibiotics. Outcomes from this research portfolio will result in a demonstrable and sustained reduction in the number of in-feed doses of antibiotics administered by the Australasian pig industry each year.
6.1.2 Elimination of the need for tail-docking in Australasian pork production systems. .	Tail-biting is an insidious and costly manifestation that can occur without warning and indiscriminately within commercial pork production systems. Occurrence extends across the entire industry. The cause of tail-biting is not understood but is likely to be an interaction between behaviour, environment, management, nutrition, housing and health status, among others, with no one factor necessarily contributing more than another. Costs of tail-biting extend to compromised pig welfare, negative behavioural traits, sub-optimal growth rates and feed conversion efficiency, carcase damage and loss of a potentially marketable product (i.e., the tail). Current interventions for the control of tail biting are generally effective yet inconsistent, but involve the removal of all or a portion of the tail shortly after birth without the use of anaesthesia. Other invasive husbandry procedures such as teeth-clipping and ear notching have largely been eliminated from many production systems already, and there is increasing pressure to cease tail docking. However, to date, the industry has resisted without any alternative approach to eliminate tail biting. As a priority, the pork industry should be focussed on understanding the causal factors and interactions that contribute to tail biting with a view to eliminating or managing these factors, as opposed to investing in research that justifies tail-docking based on minimal pain responses or through the introduction of anaesthesia options. The significant current

	and future costs of tail biting and its management should not be underestimated, nor should the multi-faceted challenge of understanding the causal factors, which is why APRIL has identified elimination of the need for tail docking in commercial production systems as a transformational project. Consortia will be required to assemble structured, multidisciplinary research teams to tackle the problem. Outcomes from this research will include a detailed understanding of the causal factors that interact to induce tail biting (and arguably be able to demonstrate that tail-biting can be induced experimentally), mechanisms to predict and control tail-biting, total elimination of the need for routine tail-docking in commercial production systems, enhanced pig welfare, growth rates and feed conversion, and increased carcase yield.

6.2: Industry Priority Projects	
Task	**Key Deliverables**
6.2.1 Effective monitoring of foreign disease incursions in Australasia.	• Develop new diagnostics and tools / adapt existing diagnostic and tools, to reduce risks of foreign diseases entering commercial herds. • Joint funding applications with Australian Government/APL.
6.2.2 Novel approaches to allow increased use of food wastes in pig diets.	• Establish sustainable and cost-effective methods for recovery of energy and nutrients from human food waste streams. • Better application of manufacturing / additive technologies to generate and (or) conserve energy and nutrients from food waste streams. • Maintenance and (or) improvement in feed conversion efficiency. • Joint funding applications with the CRC Fight Food Waste/other partners.
6.2.3 Making pigs more tolerant to heat.	• Enhanced resilience of pigs (especially sows) to heat. • Enhanced productivity and welfare of pigs (especially sows and litters) caused by greater heat tolerance.
6.2.4 Improved water quality for use/re-use on-farm and in processing facilities.	• Establish optimum water quality standards for better productivity and health under commercial conditions. • Optimise the quality of water as a delivery mechanism for water-soluble additives.
6.2.5 Alternate methods to control/eradicate endemic diseases.	• Alternative management methods/technologies to reduce the presence of economically significant diseases in commercial herds.
6.2.6 Development of real time monitoring and surveillance technologies under commercial conditions.	• More efficient feeding/management systems and (remote) monitoring of the environment, performance, feed consumption (and waste), and health and welfare of pigs. • Early detection of health and welfare challenges.
6.2.7 Detecting sow reproductive state more efficiently and effectively.	• Establish/validate new methods/technologies that reliably and cost effectively confirm reproductive state in sows.
6.2.8 Establish pork as an integral part of a healthy lifestyle.	• Greater awareness of the role of pork as a key food component in a healthy lifestyle.
6.2.9 Reducing variation in lifetime performance.	• Establish/validate new reproductive and (or) management technologies, strategies and nutrient requirements that reduce weight variability from birth to finish.

	• Improved feed conversion efficiency.
6.2.10 Biodegradable packaging solutions for pork products.	• Develop cost-effective, biodegradable packaging products for pork.
6.2.11 Heavier carcasses.	• Optimising the value of carcasses from heavier pigs. • Establishing customer acceptance and value pathways for rind-off products, larger primals and export competitive pieces.
6.3: Innovation Projects	
Task	**Key Deliverables**
6.3.1 Support Innovation Projects.	• Funding support for smart, innovative and 'out of the box' projects that have real potential to make a difference for the Australasian pork industries. • Involvement of personnel/organisations outside of the pork industry. • Two annual calls for Innovation Projects.
6.4: Commercialisation Projects	
Task	**Key Deliverables**
6.4.1 Support Commercialisation Projects.	• Funding support of projects for increasing commercial returns to APRIL.

Core Strategy 7: Assist with human capacity building in the Australasian pork Industry.	
Project	**Key Deliverables**
7.1 Industry Capacity Building	• APRIL support for PhD/MSc (MS), either through project support funds or 'top-ups'. • Two postgraduates being trained and (or) employed in industry by 2022. • Four undergraduate students competed their Honours degrees by June 2021 and six by 2022. • Postgraduate students embedded in APRIL research projects. • Investigate co-funding opportunities for postgraduate students (e.g., APRIntern). • APRIL support of Honours students in APRIL and associated/related projects. • Continued support of the Industry Placement Program (first placements by February 2019).

Core Strategy 8: Key deliverables and indicators to measure the overall performance of APRIL as a business and the effectiveness of the research program.		
Strategic Imperative	**Key Deliverables**	**Indicators/Targets**
8.1 Relevance	• APRIL is robust and agile in the development of research programs that meet stakeholder needs with a balance of applied versus basic and short versus long-term research. • APRIL has a greater 'freedom to operate' incorporating a strong collaborative culture among members, flexibility in the flow of funds enabling multi-year projects, ability to access sources of funding not (readily) open to APL, and a willingness to invest in projects that are thought to be more transformational.	• Monitor research investment to ensure an appropriate portfolio of projects allocated to Transformational, Industry Priority, Innovation, and Commercialisation projects. • The targets will be reassessed after each funding round and calls for future proposals adjusted accordingly and as required.
8.2 Leverage	• Generation of external income to co-support all programs. • Using this revenue to leverage additional investment in priority research programs.	• Leverage the APRIL investment in research and commercialisation by a minimum of 25% through co-investment in projects and funds from other research organisations.
8.3 Alignment	• APRIL becomes aligned (where appropriate) with Australian Pork Ltd activities and residual Pork CRC Ltd functions, without overlaps.	• Investment of Pork CRC funds into the appropriate APRIL research portfolios. • Annual review of projects to ensure no direct overlap of projects with APL. • Joint funding of projects.
8.4 Collaboration	• Ensure activities are collaborative, inclusive and informed across the stakeholder base.	• All projects to involve at least two Foundation/Associate Member organisations. • Stakeholders invited to attend APRIL annual conference • Annual update to APL delegates. • Progress and outcomes regularly reported through industry seminars/meetings, rural press and member's newsletter
8.5 Investment and Growth	• Expand the income base, research capacity and breadth of the overall research, education and training, and	• Additional revenues used to expand investment by 30% by 2022 (from 2018 base). • Maintain and if required expand/modify base-funded facilities.

	commercialisation programs.	
8.6 Returns	• Measurable returns to stakeholders.	• Satisfaction surveys. • In 2022, judged by willingness to continue support of APRIL.