APRIL ANNUAL REPORT 2025

Australasian
Pork Research
Institute Ltd
APRIL

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WELCOME TO APRIL

THE AUSTRALASIAN PORK RESEARCH INSTITUTE LIMITED (APRIL) IS A NOT-FOR-PROFIT (TAX EXEMPT) COMPANY LIMITED BY GUARANTEE THAT OPERATED THE CRC FOR AN INTERNATIONALLY COMPETITIVE PORK INDUSTRY FROM JULY 2005 TO JUNE 2011. THIS WAS THEN SUCCEEDED BY THE CRC FOR HIGH INTEGRITY AUSTRALIAN PORK (PORK CRC LTD) THAT CEASED ITS ACTIVITIES ON 30 JUNE 2019.

BACKGROUND

APRIL was succeeded by the CRC for High Integrity Australian Pork (Pork CRC Ltd.), which completed its objectives on 30th June 2019.

The CRC for an Internationally Competitive Pork Industry and the CRC for High Integrity Australian Pork have delivered on research, education, training and commercialisation objectives to deliver a wide range of relevant research outcomes for the Australasian pork industry.

In total, these CRC programs represented a combined total investment of more than $210 million into the pork industry. Their establishment reinvigorated pork industry research and development and education and training in Australasia and demonstrated the value of collaborative research investment to pork producers and allied businesses associated with the value chain.

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 into the future.

In 2014, the Pork CRC Ltd. Board began discussions on a transition model after 30 June 2019. Industry acknowledged a need beyond the Pork CRC for continued investment in collaborative activities in research and development, education and training, and commercialisation, to continue the legacy of the two Pork CRC programs and complement Australian Pork Limited's work.

Australian Pork Limited (APL), representing Australian pork producers, along with the New Zealand Pork Industry Board, allied pork industry businesses, and tertiary and research organisations, determined that APRIL was an appropriate vehicle to continue these activities. As such, APRIL adds additional expertise and benefits to the Australasian pork industry through its diverse and broader base of membership that includes all sectors participating in the pork value chain.

Since 2019, associated with the Board's approval of APRIL's first Strategic Plan 2019–2022, APRIL has developed a solid collaborative investment portfolio that has been driven by end-users for the benefit of the Australasian pork industry. Resources associated with research and development, education and training, and commercialisation activities have been invested to ensure value chain sustainability and delivery. In turn, APRIL has successfully leveraged more money into the pork industry for these activities.

The second APRIL strategic plan covers the period up to June 2025, and this report covers the final year of that plan.

Each year, a group of producers, researchers, and industry stakeholders form the Pork Industry Insight Panel (PIIP) to discuss and identify current and future challenges and opportunities facing the Australian pork industry. The PIIP discussions enable the industry's Chief Scientist to develop a Green Paper and identify R&D priorities to

ensure that Australian pork research and development remains relevant and coordinated across both APL and APRIL.

The next APRIL strategic plan will be informed by this new Green Paper process.

VISION

APRIL will be a vehicle for change and innovation in the Australasian pork industry by:

- Working collaboratively with its participants to propose, address and solve key issues of concern and relevance for the Australasian pork industry.
- Successfully delivering innovative solutions and outcomes for the Australasian pork industry.
- Contributing to successful education and training programs that sustain the Australasian pork industry and engage future generations.
- Creating and fostering commercialisation opportunities that enhance end-user benefits.
- Enriching its membership and investment portfolio to ensure future security in delivering its objectives.
- Supporting Australian Pork Limited in building an industry shared vision to enable a thriving pork industry.

MISSION

Be a thought leader in the Australasian pork industry, to undertake new and high priority research and development, education and training, and commercialisation activities for the profitability and sustainability of the industry.

THE PORK INDUSTRY HAS ACKNOWLEDGED THE NEED FOR CONTINUED INVESTMENT IN COLLABORATIVE RESEARCH AND DEVELOPMENT SO APRIL WILL INVEST IN AND MANAGE:

• COLLABORATIVE RESEARCH AND DEVELOPMENT

• EDUCATION AND TRAINING

• EXPLORE COMMERCIALISATION OPPORTUNITIES

FOR THE BENEFIT OF THE AUSTRALASIAN PORK INDUSTRY

MESSAGE FROM THE CHAIR

THE 2024–25 YEAR HAS SEEN APRIL CONSOLIDATE ITS NEW STRUCTURE AND STRENGTHEN ITS PARTNERSHIP WITH AUSTRALIAN PORK LIMITED (APL). THE CLOSER ALIGNMENT BETWEEN THE TWO ORGANISATIONS IS ALREADY DELIVERING BENEFITS THROUGH JOINT CALLS FOR RESEARCH AND SHARED EDUCATION PROGRAMS, HELPING ENSURE THAT PORK INDUSTRY R&D IS BOTH COORDINATED AND FOCUSED SQUARELY ON CURRENT AND FUTURE INDUSTRY NEEDS.

The bedding-in of the new participant funding model has gone smoothly, with clear signs it is attracting renewed interest and participation from across the research sector. The model is delivering on its promise: ensuring participants receive genuine value and opportunities for collaboration while maintaining APRIL's hallmark of accountability to those who fund our work. Our voluntary resourcing base remains unique in Australian R&D—keeping us directly answerable to the stakeholders who choose to invest, and ensuring we deliver the highest possible value for their contribution.

The new arrangements for pork industry R&D—linking APRIL's independent, agile structure with APL's industry reach—create the framework for greater coordination and faster translation of research into industry practice. This collaboration embodies APRIL's founding intent: to make the most of every research dollar through smart partnerships and efficient delivery.

Dr John Pluske has continued to play a key leadership role as Chief Scientist for the pork industry and has now taken on a governance role as a Director of both APRIL and APL. His experience and insight continue to guide the integration of research priorities and the strengthening of the overall R&D system. Dr Charlie Rikard-Bell has continued to excel as Executive Officer, ensuring APRIL's operations remain responsive and effective, while our new Company Secretary/CFO, Ms Sally Vardy, has settled quickly into her role, maintaining the financial discipline our voluntary model requires.

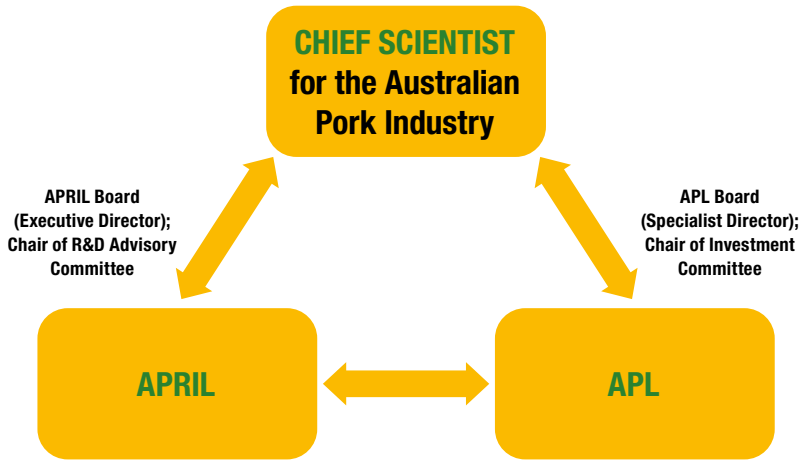
The year has again reminded us that science and innovation are central to the pork industry's success. Whether in welfare, nutrition, biosecurity or environmental performance, the industry's long-term commitment to evidence-based improvement remains one of its great strengths. As new policy and community expectations continue to evolve, APRIL's role as a trusted and responsive R&D partner will be more important than ever.

To our members, participants, scientists and students—thank you for your continued engagement and support. APRIL's flexibility and impact depend entirely on your involvement. Together, we are building a model of collaborative, industry-driven research that continues to serve Australian pork producers and the wider community with distinction.

Dr Tony Peacock
Chair, APRIL

MESSAGE FROM THE CHIEF SCIENTIST

THE TRIPARTITE AGREEMENT BETWEEN AUSTRALIAN PORK LIMITED (APL), THE AUSTRALASIAN PORK RESEARCH INSTITUTE LTD. (APRIL), AND SCIECONS CONSULTING FOR THE ESTABLISHMENT OF THE POSITION OF CHIEF SCIENTIST FOR THE AUSTRALIAN PORK INDUSTRY WAS SIGNED IN MID-AUGUST 2024. SUBSEQUENTLY, I WAS APPOINTED TO THE BOARDS OF BOTH APRIL AND APL AND, ON BOTH BOARDS (ALBEIT IN DIFFERENT CAPACITIES), CHAIR THE RELEVANT COMMITTEE INVOLVED WITH DISCUSSIONS AND RECOMMENDATIONS RELATED TO R&D INVESTMENT DECISIONS.



The tripartite arrangement allows for interaction and communication between the Chief Scientist and management of APRIL and APL, and vice versa, whilst keeping operational independence, and permits 'helicopter' oversight, visibility and influence of the broader R&D scene and directions across both organisations.

A prime function of the Chief Scientist is the coordination, conduct and delivery of the annual Green Paper for the Australian pork industry. This independent, non-binding document highlights the current state of the industry as perceived by a Pork Industry Insight Panel (PIIP). In short, it provides a sense check of the Australian pork industry at that moment in time.

The PIIP met for a second time in Melbourne in November 2024. Whilst the PIIP worked through a similar framework to 2023, the workshop was conducted in a different format. Key features included team-based activities with a designated Team Leader reporting to the PIIP after each activity. Teams and Team Leaders rotated through the activities, and there was opportunity for participants to reflect on earlier discussions and capture anything they thought was missed. There were excellent engagement, interaction and discussions, and feedback from the PIIP for this type of workshop format was positive. Thank you to all those involved, and especially Margo Andrae (APL) and Dr Charles Rikard-Bell (APRIL) for financial support.

A major deliverable from the Green Paper process is the identification of research and development (R&D) priorities that are closer aligned to current and emerging industry needs. Ultimately, research investment decisions made by APRIL and APL will enhance the pork industry. In this regard, the major R&D outcomes and findings from the 2024 Green Paper were presented to the joint Boards' meeting held in Canberra in February 2025. Eight research themes, with targeted research foci within each theme, were identified as R&D priorities through an additional joint Boards' meeting in March 2025. Together with Dr Charles Rikard-Bell and Dr Rebecca Morrison (General Manager, Research, Innovation and Extension, APL) we activated the R&D priorities through a call for Transformation Projects (APRIL) and a joint call for Expressions of Interest for Industry Priority Projects between APRIL and APL.

A key pillar of APRIL's current Strategic Plan (2022–2025) is to further build human capacity for the pork industry. Hence a key goal for APRIL, together with APL, is investment in education and training. Soon after commencing the role of Chief Scientist, I was asked by the Chairs of both Boards to prepare a briefing paper and recommendation considering a single (tertiary) education and training committee serving the Australian pork industry. This was reiterated by the PIIP at the 2024 Green Paper workshop, i.e., "Have a common industry Education Advisory Committee across APRIL and APL". Up to that point, APRIL (through the Education Advisory Committee) and APL functioned independently in offering awards and scholarships. The request emphasised a need for better external visibility, coordination, and efficiency of (tertiary) education and training awards and activities for the pork industry.

Following numerous discussions thereafter, the APRIL and APL Boards approved the formation of the Australian Pork Industry Education and Training Committee in April/May 2025. Membership comprises both APRIL and APL Board members (or their nominees). The APRIL Executive Officer, the APL General Manager (Research, Innovation and Extension), and the Chief Scientist are all *ex officio* members of the committee. I look forward to serving on this Committee and it contributing in a very positive way to assist in building human capacity for the Australian pork industry into the future.

A KEY FUNCTION OF THE CHIEF SCIENTIST IS TO PROVIDE RELEVANT ASSISTANCE AND ADVICE WHEN SOUGHT BY MEMBERS OF THE AUSTRALIAN PORK INDUSTRY

Other key outcomes from the 2024 Green Paper included a stocktake of other R&D and (tertiary) education and training occurring in the Australian pork industry not supported (or at least directly) by APRIL and (or) APL. A further priority was the identification of potential future collaborative projects that could be addressed through co-investment channels, e.g., CRC-Project (CRC-P) applications, Australian Research Council grant applications, other government and non-government funding schemes.

In this regard, a significant example of such collaboration was the CRC-P, *Eliminating pig tail removal to improve welfare and industry sustainability* (the Tails CRC-P) (Lead Applicant: SunPork Pty Ltd.), with other project partners being APRIL, APL, PIC Australasia Pty Ltd., Rivalea (Australia) Pty Ltd., RSPCA Australia, The University of Melbourne, The University of Queensland, and the University of New England. Whilst the bulk of the project concluded on 30 June 2025, postgraduate students will continue their research. Further, remaining funds from this project are available for relevant activities. As a project requirement, a Post-Project Management Committee (PPMC) was formed to assist in seeing these activities to completion. As the Chief Scientist, I act as chair of the PPMC, with other committee members being Dr Rebecca Morrison, Dr Charles Rikard-Bell, and Dr Darryl D'Souza (Observer).

A key function of the Chief Scientist is to provide relevant assistance and advice when sought by members of the Australian pork industry. Regular activities for APRIL and APL include meeting and working with the APRIL Executive Officer and (or) General Manager, Research, Innovation and Extension. Such activities include review of project quarterly and (or) final reports, specific involvement in APL, APRIL or joint APL and APRIL business and connecting with industry participants.

I would like to express my thanks to Dr Tony Peacock (APRIL Chair) and Mr Andrew Baxter (APL Chair) for their guidance and ongoing support during this period. I would also like to extend my thanks to all in the Australian pork industry who have provided their support, feedback and encouragement during the year.

Dr John Pluske
Chief Scientist for the Australian Pork Industry

MESSAGE FROM THE EXECUTIVE OFFICER

THIS REPORTING YEAR 2024–25 HAS PROVIDED QUITE A FEW FIRSTS FOR ME AS I TRANSITIONED INTO THE EXECUTIVE OFFICER ROLE AND DR JOHN PLUSKE ACCEPTED THE INAUGURAL CHIEF SCIENTIST ROLE FOR THE AUSTRALIAN PORK INDUSTRY. UNDER A NEW STRUCTURE AND OPERATING MODEL APRIL HAD ANOTHER PRODUCTIVE YEAR IN COLLABORATIVE, INNOVATIVE AND EFFECTIVE RESEARCH AND DEVELOPMENT, EDUCATION AND TRAINING, EXTENSION AND COMMERCIALISATION ACTIVITIES FOCUSED ON PRIORITIES AND DELIVERABLES TO ENSURE THE SUSTAINABILITY OF AUSTRALIAN PORK PRODUCTION.

The APRIL Board ratified the new participant model in June 2024 and as such APRIL has administered both a research call and education and training awards under the new model for this reporting period. The rights and benefits to both APRIL participants and non-participants became clearer as research agreements and education awards came to fruition and highlighted that the participant model is a tiered system offering greater scope to meet the needs of current organisations working with APRIL but also indicating the value of APRIL to those organisations wanting to join the company. The outcome from organisations consenting to join the participant model included 7 Gold and 3 Bronze with 5 organisations electing to retain their ordinary membership. This included the addition of The University of Adelaide as a gold participant. APRIL also established the new Corporate Partner level and welcomes Jefo Australia transferring from the discontinued Associate Membership and Elanco Australasia, for which their support is much appreciated.

Prior to implementing a call for Innovation projects in October 2024, the APRIL Board advised that in addition to the traditional call for innovation in "*any field*", APRIL was willing to invest in projects addressing four key priority areas in the pork industry as outlined in the 2023 Green Paper. A total of 20 submissions were received, of which 50% were in any field and the remainder in the following key priority areas:

- Two proposals covering *"Low-cost, non-straw and effluent-friendly, evidence-based enrichment options for use at all phases of production to improve welfare"*
- One proposal for *"Objective measures of odour, and its application to both new and established piggeries"*
- Three proposals for *"Limiting the use of in feed antibiotics and enhancing the effectiveness and efficacy of water medication (in accord with the Australian Strategic and Technical Advisory Group on Antimicrobial Resistance (ASTAG))"*
- Four proposals for *"Enhancing antimicrobial stewardship"*.

The projects were initially assessed for compliance with the participant model before allocation to external and internal reviewers, with final recommendations to the APRIL Board made by the Research and Development Advisory Committee (RDAC). A total of 13 innovation projects were approved to commence after July 1st, 2025. Eligibility for a seat on the RDAC requires the ogranisation to be either a gold participant and/or an ordinary member of APRIL. The committee is chaired by the Chief Scientist for the Australian pork industry, Dr John Pluske.

The 2024 Green Paper was endorsed by both the APRIL and APL Boards in the first quarter of 2025 and was the

culmination of outcomes from the Pork Industry Insight Panel (PIIP) meeting held in November 2024 immediately after APRL stakeholder's forum. The panel discussions and identification of current and future challenges and opportunities facing the Australian pork industry enables the industry's Chief Scientist to develop the Green Paper and identify R&D priorities to ensure that Australian pork research and development remains relevant and coordinated across both APL and APRIL. A total of eight research priorities were identified, and the APRIL Board endorsed three key focus areas for APRIL's call for transformational project applications in June 2025:

- Priority #2. Pig Care and Wellbeing
- Priority #5. Pig Processing
- Priority #8. Data and Information

Additionally, APRIL and APL have committed to having a joint call for Expressions of Interest (EOI) in Industry Priority Projects, in which APRIL will include 2 more priority areas:

- Priority #3. Pig Health, Biosecurity and Antimicrobial Stewardship
- Priority #6. Feeding and Nutrition

It is envisaged that this process will improve the efficiencies of a research call as well as provide the research community with a clearer picture of each organisation's research priorities. Outcomes of the joint call will be reported in the next annual report.

This year a call for education and training awards opened on the 25 October 2024 and closed on 24 January 2025. In previous years, education awards were open to all Australian tertiary institutions and training awards such as the Industry Placement Program were open to production-based organisations and affiliated businesses. Under the participant model these awards are only available to APRIL Participants with the rights and benefits applying according to an organisation's tier of participation. This year APRIL offered for the first time a full PhD scholarship and were pleased to award this scholarship to Wendy Izedonmwen, from The University of Queensland. Wendy will commence her PhD under the supervision of Professor Eugeni Roura in October 2025. Other successful candidates were Mr Ashiqur Rahman (Murdoch University) and Ms Sarah James (The University of Adelaide) who were awarded PhD Top-ups.

APRIL continues to support several undergraduate and postgraduate scholarship awards at Australian universities (see page 68). A number of APRIL-supported students graduated from their studies with Dr Katelyn Tomas, whose Doctor of Philosophy thesis (*Early life experiences and stress resilience in pigs*) was conferred at The University of Queensland. A post graduate award (Masters of Agriculture) was granted to Isobel Stanley, The University of Melbourne (Major Project *Effects of Pre-Weaning Tail-Biting Behaviour of Piglets as a Predictor of Tail Damage*). Additionally, awardees of the Industry Placement Program (IPP), Dr Nandi van Wyk (APIAM Animal Heatlh) and Dr Maximiliano Muller (The University of Queensland), completed their placements in this reporting period.

IN MAY 2025 THE APRIL AND APL BOARDS APPROVED THE FORMATION OF THE AUSTRALIAN PORK INDUSTRY EDUCATION AND TRAINING COMMITTEE (APIETC) WHICH WILL PRESIDE OVER ALL EDUCATION AND TRAINING AWARDS AND SCHOLARSHIPS OFFERED BY THE PORK INDUSTRY

A key pillar of APRIL's current Strategic Plan is to further build human capacity for the pork industry, hence a key goal for APRIL, together with Australian Pork Limited, is investment in education and training. The APRIL Education and Advisory Committee (EAC) operated from September 2018 and met for the last time in January 2025 and through their recommendations a number of students were supported in the following qualifications: (4) DVM; (6) Honours; (2) MSc; (15) PhD (Top-Ups); (1) PhD (Full); (2) Post-Doctoral Fellowships; and (8) Industry Placement Program (IPP). I would like to thank the members of this committee for their work which involved the establishment of the terms of reference, determining the funding values for tertiary and training awards, and providing a robust assessment scheme. In May 2025 the APRIL and APL Boards approved the formation of the Australian Pork Industry Education and Training Committee (APIETC) which will preside over all education and training awards and scholarships offered by the pork industry (See Chief Scientist Report).

The APRIL AGM was held in November 2024 prior to the Stakeholders' Forum in which the meeting resolved to amend the company constitution such that the industry Chief Scientist is an Executive Director of the APRIL Board and that the maximum number of Directors changes from 8 to 9, including the Chairperson. Congratulations to Dr Jessica Craig, Dr John Pluske and Mr Neil Ferguson who were elected as Directors of the company. Following the AGM, Dr Robert van Barneveld opened the APRIL Stakeholders' Forum which provided an opportunity to showcase the new APRIL participant model to over 60 attendees. Dr Charles Rikard-Bell gave an overview of the rights and benefits characteristic of the new participant model particularly the funding opportunities open to gold, silver and bronze participants. Dr John Pluske, Chief Scientist for the Australian pork industry, detailed the research goals of the industry and commented that the research and development structure will now provide a more efficient and coordinated research program across the two main funding bodies.

The forum also provided opportunity to present the latest outcomes in APRIL funded projects. Dr. Jessica Craig (JBS Pork Australia (formerly Rivalea (Australia) Pty Ltd)) gave an update on the effectiveness of different heating sources in the farrowing house. The study demonstrated the positioning of heat mats under the creep area is comparatively a more effective and efficient method for improving early piglet survival than conventional heat lamps. Associate Professor Mark Nottle (The University of Adelaide) presented outcomes from his research on improving the fertility of extended boar semen. This ongoing research will help improve reproductive successes and ensure producers are meeting breeding targets in their herd.

Stakeholders were informed that AusScan Online continues a high adoption rate as it approaches its tenth year in the global market. Dr Jeremy Cottrell, (The University of Melbourne) provided insights into the commercialisation project designed to update the pig

ileal and faecal digestible energy calibrations with the addition of 16 maize samples to strengthen the AusScan Online predictions optimising feed costs and target growth rates. APRIL's commercialisation activities including future pipeline projects were also described.

Dr Sophie Ward chaired the education and training session which included reflections from past and present APRIL Award recipients. Dr Ryan Kristen (APRIL DVM scholarship) reflected on his experiences receiving this award with The University of Sydney, and how this passion for science translated into his current role as a pig veterinarian in South Australia. Dr Max Muller presented his recent project outcomes on the role of a palatable nutritional additive for combatting heat stress in sows. As part of the APRIL industry placement program, Dr Muller was able to conduct some of his research at JBS Pork Australia providing him greater knowledge of industry applied science. The final speaker for the education and training section was Post Doctoral Fellow, Dr. Gemma Zerna who presented some of her work on vaccine development with aims to provide more flexibility for incorporating antigens into drug delivery systems.

Closing out the Stakeholder Forum was the presentation of the 2024 APRIL Enterprise Award which was awarded to Sunpork Solutions, for their work on developing the Maternity Ring an alternative to the traditional farrowing crate providing more movement to sows without compromising on early piglet survivability. Dr David Lines, received the award on behalf of the SunPork Group and presented an overview of the evolution of the maternity ring design with production data, providing evidence of a commercially viable alternative to farrowing crates.

Thank you to all those who contributed to the success of the 2024 Stakeholders' Forum.

This reporting year saw several projects come to completion. Of note the transformational project *Eliminating pig tail removal to improve welfare and industry sustainability* (CRCPXI000037) End of Project Final Report was submitted to the Department of Industry, Science and Resources (DISR) on the 30 June 2025. The project's final budget totalled $7.965 million, which includes an Australian Government cash investment of $2.892 million, project partners' cash contribution of $1.629 million (APRIL $750K) and an additional leverage of $3.444 million of combined in-kind contributions from the partners. This represents leverage of 9 times APRIL's investment and demonstrates the value of APRIL in driving large scale industry collaborations. Congratulations to all the partners contributing to the project and the final report which includes APRIL, Australian Pork Limited, PIC Australasia P/L, JBS Pork Australia (formerly Rivalea (Australia) Pty Ltd), RSPCA Australia, The University of Melbourne, The University of Queensland, the University of New England and led by SunPork Pty Ltd. Briefly, the project focused on solutions by compiling the world's largest dataset (approx. 80,000 pigs with docked tails). Unlike any work to date, multi-factorial causal genetic, animal and environment factors and their interactions for tail biting were identified in an Australian context. Three PhD students continue to use the dataset to explore problems by using epidemiological and genetic concepts. APRIL was responsible for the development of a Decision Support Tool (DST) through Post Doctoral Fellow, Dr Sophie Ward, to help pig producers navigate risks associated with tail biting. The DST generates tailored tail biting risk information, visual cues, and summary reports. Two additional studies focused on pigs with intact tails. As part of a PhD project, an inducible model of tail biting informs research. Early life and the risk of tail biting has been explored by an early career scientist and a Masters student. Project outputs are expected to contribute to improvements in pig growth and welfare, less on-farm euthanasia and lower production costs and risk resulting in a direct annual economic benefit to industry of up to $20 million. The positive impact of education and training, and future research and extension outcomes will continue under the guidance of a Post Project Management Committee involving APL and APRIL. The project was admirably led Dr Darryl D'Souza, Executive General Manager Technical Services, SunPork Group.

CLOSING OUT THE STAKEHOLDER FORUM WAS THE PRESENTATION OF THE 2024 APRIL ENTERPRISE AWARD WHICH WAS AWARDED TO SUNPORK SOLUTIONS, FOR THEIR WORK ON DEVELOPING THE MATERNITY RING AN ALTERNATIVE TO THE TRADITIONAL FARROWING CRATE PROVIDING MORE MOVEMENT TO SOWS WITHOUT COMPROMISING ON EARLY PIGLET SURVIVABILITY

As part of the company's new structure, APRIL welcomed Dr Sophie Ward as its Extension Officer after her successful role as APRIL's Post Doctoral Fellow with the CRC-P Tails project. The Extension Officer role is split between APRIL and APL. This year extension activities have included the communication of APRIL activities through monthly APN articles, the development of a new APRIL Newsletter, short communications and management of the APRIL website. Dr Ward has also been involved in overseeing awardees of APRIL education and training programs.

During the reporting period, APIAM Animal Health did not transfer over to the new participant model and ceased their membership with APRIL. I would like to thank APIAM Animal Health for its support throughout its long association and membership with the Pork CRC and APRIL and wish the company all the best in its future endeavours.

I am extremely grateful to the APRIL staff in Dr Sophie Ward (Early Career Scientist, and later Extension Officer), Ms. Sally Vardy the Company Secretary, and Mr Geoff Crook continues to provide support as a Contracts Officer. I would also like to thank Dr John Pluske for his help and guidance during the transition period. To the staff at APL I would like to thank in particular Ms Kelly Goh, Dr Rebecca Morrison and Ms. Margo Andrae for their assistance and advice throughout 2024–25.

Finally, thanks to the APRIL Chair, Dr Tony Peacock, and APRIL Directors for their support, and encouragement during the year, it has been much appreciated.

Dr Charles Rikard-Bell
Executive Officer, APRIL

STRATEGIC PL

KEY OBJECTIVES OF APRIL

TO ACHIEVE APRIL'S VISION AND MISSION, APRIL HAS DEFINED THE FOLLOWING KEY OBJECTIVES THAT FORM THE FOUNDATIONS OF APRIL'S STRATEGIC PLAN (2022–2025):

Be a thought leader, strategic enabler, and strategic co-funder of research and development, education and training, and commercialisation activities for the benefit of the Australasian pork industry.

Act as a catalyst for innovation in the Australasian pork industry through strategic investments in research and development, education and training, and commercialisation activities.

Manage income arising from commercialisation activities, and generate further commercialisation activities and income.

Re-invest commercial income in research activities, and education and training, relevant to the Australasian pork industries.

Expand the total pool of funding available for research and development, education and training, and commercialisation.

Assist and be aligned with Australian Pork Limited in growing the overall science, infrastructure, and human capacity base in the industry.

AN SUMMARY

CORE VALUES OF APRIL

TO ACHIEVE THESE KEY OBJECTIVES, APRIL WILL APPLY THE FOLLOWING CORE VALUES:

INNOVATION

APRIL always looks for industry solutions.

FOCUS

APRIL's participants and the Australasian pork industry are its highest priorities.

EXCELLENCE

APRIL strives for the best quality in research and development, education and training, and commercialisation activities and opportunities.

NETWORKS

APRIL will collaborate locally, nationally and internationally to enhance capacity to solve local challenges and meet goals.

OPPORTUNITY

APRIL will take considered risks to achieve desired outcomes.

COMMUNICATION

APRIL will build strong relationships through open communications.

DEDICATION

APRIL staff and the APRIL Board are driven to deliver the APRIL Strategic Plan on behalf of the Australasian pork industry.

APRIL'S STRATEGIC PILLARS

BASED ON APRIL'S KEY OBJECTIVES AND CORE VALUES, THE FOLLOWING CORE STRATEGIES HAVE BEEN DEVELOPED:

PILLAR 1: FURTHER DEVELOPING THE APRIL BUSINESS

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	IMPLEMENTATION
Seek additional investment to deliver APRIL's activities	• Leverage APRIL investment in research and commercialisation by stakeholder co-investment in applicable projects.	Ongoing
	• Identify external opportunities for co-investment in APRIL activities and where feasible, and where appropriate, drive the bid process.	Ongoing
	• Monitor major external funding programs and strategically apply for funds as an applicant or as a co-applicant with e.g., a member or members: – Development/submission of at least two major Transformational Projects application (> 5:1 project leverage on APRIL funds) to an external funding body, per annum.	Ongoing
	• Exploit APRIL's 'freedom to operate' and strong collaborative culture among members to seek investment in its project portfolio from non-traditional funding sources.	Ongoing
	• Increase Member and non-Member revenue of APRIL: – At least two new Ordinary Members by February 2024 (over December 2021 membership). – Additional revenue (up to $100,000 per annum) from non-membership activities, including from external strategic investment of cash reserves.	Ongoing
Nurture and grow collaborative alliances	• Review member benefits and expectations to ensure APRIL can deliver appropriately and sustain support.	2022
	• Grow relationships/partnerships with relevant investors to advance progress in mutually beneficial activities.	Ongoing
Review operational capability to ensure management efficiency	• Operational resources and staffing are adequate to ensure all activities can be implemented according to this Strategic Plan.	Ongoing
	• Employees and consultants have effective and sustainable employment arrangements.	Ongoing
	• Suppliers that deliver services to, or on behalf of APRIL, enhance APRIL's ability to operate effectively and without conflict.	Ongoing

PILLAR 2: EFFECTIVE MANAGEMENT AND DELIVERY OF RESEARCH AND DEVELOPMENT AND EDUCATION AND TRAINING FOR THE AUSTRALASIAN PORK INDUSTRY

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	IMPLEMENTATION
Review the APRIL R&D activities portfolio	• Review research investment to ensure an appropriate portfolio of Transformational, Innovation, and Commercialisation Projects, with > 60% of the available funds for R&D directed to Transformational Projects. • Ensure research investments are not duplicative, but complementary, with Strategic Plans of APL and NZPIB. • Reassessed targets for investment after each funding round and adjust targets accordingly, e.g., balance strategic research domains with research opportunities, enable continuation of completed projects having high potential for industry outcomes, assessment of APRIL commercial income versus direct industry benefits.	2022, and then annually Annually Annually
Initiate key Transformational Projects for the Australasian pork industry	• Ensure at least four Transformational Projects, for longer-term, collaborative, inter- and multi-disciplinary 'big picture' projects, are prepared and submitted annually, with major external funding support sought where possible, in priorities to be determined.	Ongoing
Support for Innovation Projects	• Funding support annually (20–30% of applicable funds) for smart, innovative and 'out of the box' projects that stimulate change and innovation in the industry and can be a commercialisation pipeline. • Change the Innovation Project guidelines to make the (potential) path to commercialisation clearer.	Annually
Assist with human capacity building in the Australasian pork industry	• Make annual investments into maintaining and building education and training for the industry, to support undergraduate and postgraduate students and the Industry Placement Program (IPP): – Offer at least three full scholarship Masters or PhD awards per annum. – Four undergraduate students completed an Honours project by June 2022, with at least two Honours students completing a project per year thereafter. – Three DVM or BSc/BVMS students completed a project by June 2022, with at least two DVM or BSc/BVMS students completing a project per year thereafter. – Four postgraduate students working on APRIL or APRIL-related projects being trained by 2022, and each year thereafter. – A minimum of three IPP awardees embedded in industry organisations at any one time.	Ongoing
Support for Facility Funding	• Ongoing support for appropriate, diversified and cost-effective facility funding for the Australasian pork industry.	Annually
Support for Kickstart program	• Ongoing support for the Kickstart program, to provide funding to assist with the preparation and submission of a specific, targeted and agreed major external funding application (or applications) in partnership with APRIL and other partners.	Annually
Support for APRIL Enterprise Award	• Create an annual APRIL Enterprise Award to support on-farm creativity and innovation for practical application.	Annually

PILLAR 3: INDUSTRY RELEVANT COMMERCIALISATION ACTIVITIES FOR THE AUSTRALASIAN PORK INDUSTRY

ACTIVITIES	KEY DELIVERABLES	IMPLEMENTATION
Be the single point of contact, referral and guidance for commercialisation activity in Australia	• Formalise an agreement and processes with Australian Pork Limited to become the single point of contact, referral and guidance for commercialisation activities in Australia	Ongoing
Support a viable, innovative and expanding commercialisation business	• Effectively continue to manage current commercialisation arrangements to ensure they are sustainable and providing a return to APRIL: – Commercialisation income > $450,000 per annum, by 2025. – At least one new product/service successfully commercialised and generating revenue for APRIL, by 2025. • Conduct a Product Development Scheme program in conjunction with commercial partners to enhance investment and product adoption into the industry, and permit an acceptable financial return to APRIL: – Three new projects launched by 2025. – Reinvest up to $100,000 per annum into new product development. • Maintain the operation and function of the Commercialisation Advisory Panel. • Communicate a commercialisation report as a Standing item at each APRIL Board meeting.	Ongoing
Ensure commercialisation processes are efficient and are generating optimal returns	• Assess the commercialisation potential of relevant research activities or proposals and develop commercialisation plans for approved projects with commercial potential. • Review all existing commercialisation projects and ensure markets with greatest potential are adequately resourced, including potential to exploit overseas markets: – AusScan (China). – Sow Block (USA, Europe). – Lawsonia qPCR Test (USA, Europe). • Reinvest commercial income from investment in product development in applicable APRIL activities.	Ongoing
Support for Commercialisation Projects	• Funding support on a continuous basis for projects that increase APRIL's commercialisation pipeline and lead to greater commercial returns to APRIL and potential benefits to industry.	Ongoing
Continued engagement with growAG	• Continue engagement with growAG to promote commercialisation opportunities arising from R&D activities and ad hoc commercial opportunities.	Ongoing

PILLAR 4: CONNECTING WITH MEMBERS AND THE AUSTRALASIAN PORK INDUSTRY

ACTIVITIES	KEY DELIVERABLES	IMPLEMENTATION
Implement an effective and appropriate communication plan	• Initiate an appropriate communication framework that effectively disseminates APRIL activities and associated outcomes.	2022 and reviewed annually
Develop activities that are collaborative and inclusive across the member and stakeholder base	• All projects to involve at least one Member organisation. • Maintain the Board Director-Ordinary Member buddy system to enable one-on-one communication with Ordinary Members (4–5 times annually). • Invite Members and key stakeholders to attend the APRIL Annual Stakeholder Day (and other events as appropriate) to extend latest results and receive direct feedback on outcomes and progress. • Provide an APRIL update at APL Delegates' Forum events/annual joint APRIL–APL Board discussion (at least once annually).	Ongoing
Present updates of APRIL's activities and progress at producer and scientific forums	• Present on APRIL activities and outcomes to representatives of a wide member and producer base in Australia and New Zealand through industry seminars/meetings, and to international conferences and forums (where appropriate): – Present at a minimum of one international conference per annum, from March 2022. – Present at a minimum of two member-based conferences per annum, from March 2022.	Ongoing
Participate in strategic sponsorship/partnerships	• Raise and reinforce APRIL's contributions to the Australasian pork industry by providing strategic sponsorship or partnerships (e.g., APSA conference, State field/industry days, member events).	Ongoing
Keep industry and stakeholders informed of APRIL's activities and outcomes	• Provide timely and relevant media releases to the rural press including at least 10 articles per annum in the Australian Pork Newspaper/Pork Journal. • Write a quarterly newsletter to all members. • Conduct strategic/targeted scientific seminars and updates (two per year, from March 2022). • Financial support for selected peer-reviewed publications in internationally recognised journals (up to five papers supported per year, to a total value of $7,500).	Ongoing
Maintain an independent website for information and promotion of APRIL activities	• Maintain the APRIL website for communication of research, education and training and commercialisation outcomes, and APRIL news, and maintain links to the Pork CRC website.	Ongoing
Review and dissemination of project success	• For applicable projects and where appropriate and robust mechanisms exist, evaluate the return on investment into APRIL for the pork industry.	Ongoing

COMMERCIALI
REPORT

SATION

THE APRIL BOARD DIRECTS COMMERCIAL DECISIONS REGARDING IP AND STRATEGY, SUBSEQUENTLY THE COMMERCIALISATION AND ADOPTION ACTIVITIES ARE REPORTED DIRECTLY TO THE APRIL BOARD. IN TERMS OF COMMERCIALISATION REVENUE AND ACTIVITIES, THE FOLLOWING OUTCOMES AND OPPORTUNITIES WERE ACHIEVED AND/OR DEVELOPED IN THE REPORTING PERIOD:

AUSSCAN ONLINE

In this reporting period AusScan Online is celebrating its 10th year as a commercial enterprise and continues to grow with the highest number of scans ever recorded in a financial year! This is now the fourth year in a row that record breaking scans numbers have been achieved. AB Vista scans totalled 47,583 and the AusScan Integrators totalled 41,867 giving a grand total of 89,450 scans for the financial year 2024–25 (Figure 1). As has been the case since launching in 2015 AusScan Online remains the dominant contributor to APRIL's commercialisation income stream for this reporting period. Through APRIL, the enterprise continues to provide valuable reports to the animal feed industry including monthly cereal grain characteristics, technical updates on cereal calibrations, progressed assessment of a miniature NIR hand held device and the advancement of calibration studies to enhance the accuracy of the layer hen apparent metabolisable energy (AME) cereal predictions. There have been some delays in the chemical analysis of faecal samples and the subsequent upgrade of the Pig DE calibration, however this is expected to be completed in 2026.

A consistent stream of Early Harvest Reports in the Australian Pork News continued this year and has always been welcomed by Nutritionists and Feed industry personnel as the reports provide the trends of mean energy, protein and moisture values. This year the mean values for each variable and grain type across all regions are shown in Table 1 below and are derived from 3,185 barley and 10,307 wheat samples. This represents 3,467 more scans than the 2023–24 Early Harvest period.

FIGURE 1

Total scans for AusScan Online for each Financial Year.

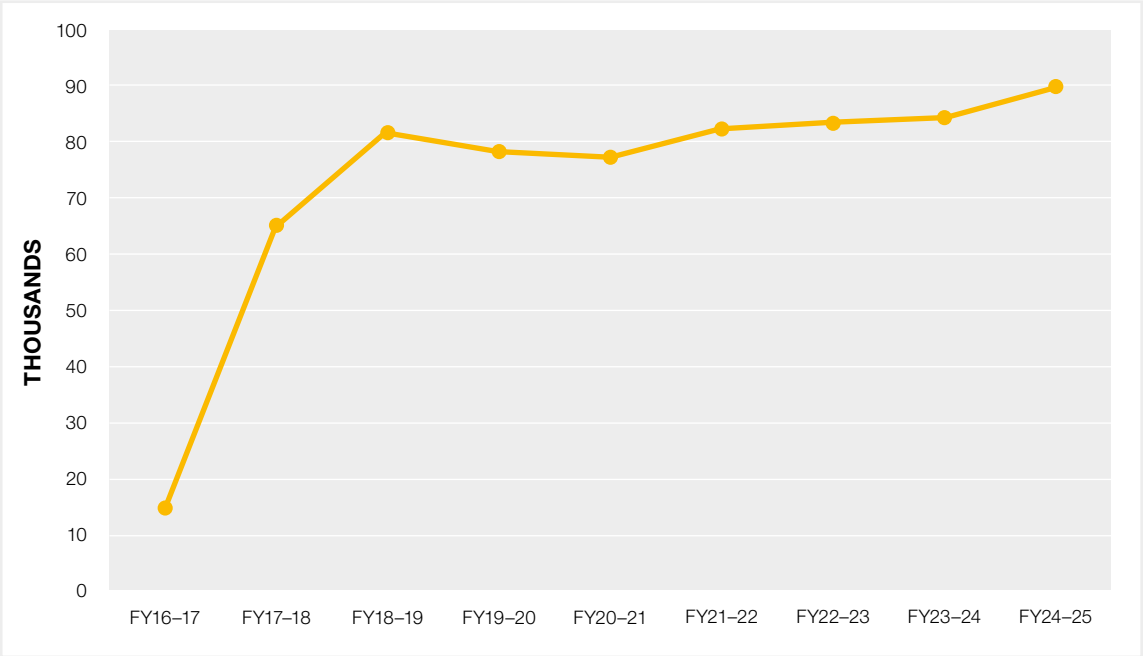


TABLE 1

Mean values for Pig faecal DE, Broiler AME and Protein % for wheat and barley samples using AusScan Online NIR calibrations for the 2024–25 season.

GRAIN	SAMPLE NUMBER	PIG FAECAL DE (MJ/KG)	BROILER AME (MJ/KG)	PROTEIN %
Barley	3,185	12.68	11.73	10.52
Wheat	10,307	13.79	12.80	12.16

The mean pig faecal DE values for barley were significantly different between the regions and like the season 2023–24, showed little variation within a region which includes the outliers (denoted by coloured symbols outside the quartile markers). The range was 2.9 MJ/kg across all regions compared to 2.2 MJ/Kg in the previous 2023–24 season and excluding outliers the range this harvest period was 1.5 MJ / kg (Figure 2). As has been noted in previous seasons, the mean pig faecal DE values for wheat are similar across all regions with a range of approximately 5.0 MJ/kg (including outliers). Although when outliers are excluded the range in predicted DE values reduced to approximately 0.7 MJ/kg (Figure 3).

FIGURE 2

Distribution of Pig Faecal DE (MJ/kg) by region for barley samples from November 2024 through to April 2025 as predicted by AusScan Online.

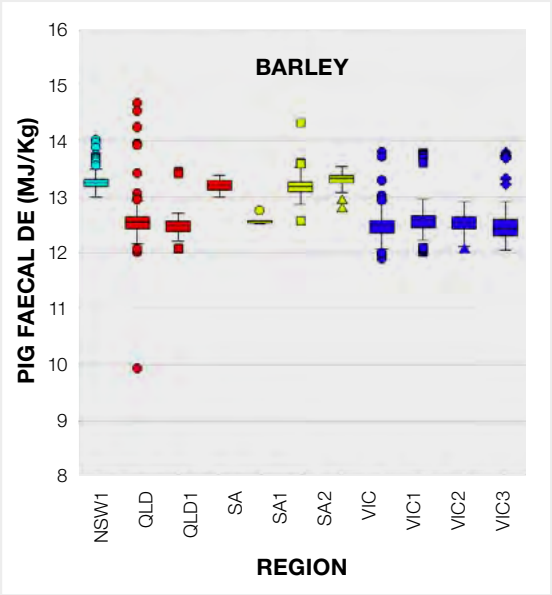
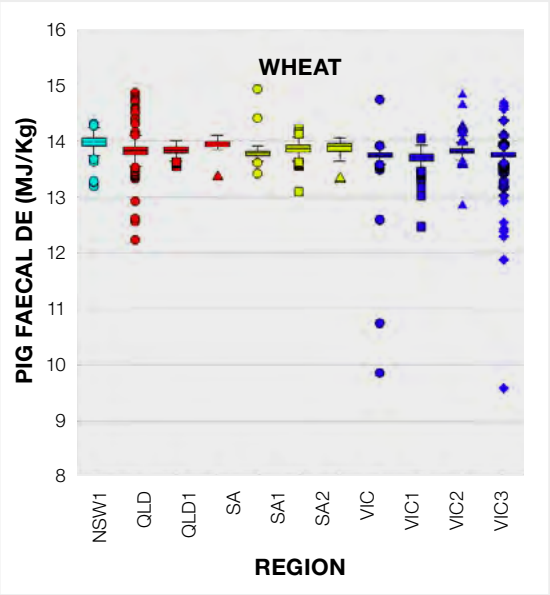


FIGURE 3

Distribution of Pig Faecal DE (MJ/kg) by region for wheat samples from November 2024 through to April 2025 as predicted by AusScan Online.



In the last decade there has been a trend towards the miniaturisation of NIR spectrometers resulting in smaller, mobile hand-held devices. In this reporting period a collaboration between Hone and AusScan Online reported the results of a study designed to compare the performance statistics of a FOSS Benchtop (FOSS_XDS) and a Hone Lab Red (HLR) handheld device to predict pig Faecal DE content of cereal grains. Both NIR instruments scanned a subset of the original grain samples used to develop the AusScan Online calibrations and using their respective software platforms developed predictive models for the pig Faecal DE content (see Table 2).

The study results indicated that it would be feasible to use a handheld device with models developed from the AusScan Online cereal grain sample set. The performance metrics show that although the FOSS-XDS is superior with respects to accuracy and robustness of predictions, the HLR device can predict an approximately quantitative result (RPD >2.0 and <2.5) for Faecal DE contents. These results are very promising, and it is expected that the performance statistics for the HLR will improve with the addition of the complete data set used to create the cereal energy calibrations. The study was submitted and approved as a paper to be presented at the Australian Association of Animal Science and Asian Association of Animal Production joint congress held in Melbourne on the 8–12th of July 2024.

TABLE 2

The performance statistics for Pig Faecal DE Content models created by a Benchtop (FOSS-XDS) and a Miniature (HLR) NIR instrument.

INSTRUMENT	MEAN	MIN	MAX	SD	SEC[1]	RSQ[2]	RPD[3]
FOSS-XDS	13.72	11.74	15.69	0.659	0.261	0.843	2.53
HLR	13.75	11.91	15.11	0.645	0.270	0.830	2.36

[1]SEC = standard error of calibration; [2]RSQ = Coefficient of determination; [3]RPD = ratio of prediction

In May 2025 Dr John Black (John L Black Consulting) submitted the final report *Layer specific NIR calibration for predicting metabolizable energy of grains* to Australian Eggs which funded the project. The objective of the study was to increase the number of grains on which the prediction was measured and to improve the calibration statistics for predicting the AME content of cereal grains on an as fed and dry matter basis for laying hens.

The study was led by Dr Reza Barekatain at the South Australian Research and Development Institute (SARDI) and included 72 grains (30 wheat, 15 barley, 3 triticale, 11 sorghum, 13 maize) collected from various regions in Australia, with different growing conditions and were used to measure grain AME over 5 experiments. Approximately 30% additional grains were used in each experiment as 'connectivity grains' to account for variation in environmental conditions between the experiments. Hy-line Brown and Lohmann Brown hens were fed ad libitum nutrient balanced diets containing predominantly test grain for 7 days. Feed intake and weight gain were measured and excreta collected to determine grain AME content. Prior to the experiments, grains were scanned in both ground and whole grain forms using a FOSS and Bruker NIR instruments. Separate NIR calibrations were developed from ground and whole grains scans for the original Premium Grains for Livestock Production (PGLP) experiments and the combined PGLP plus SARDI experiments for both Bruker and FOSS instruments.

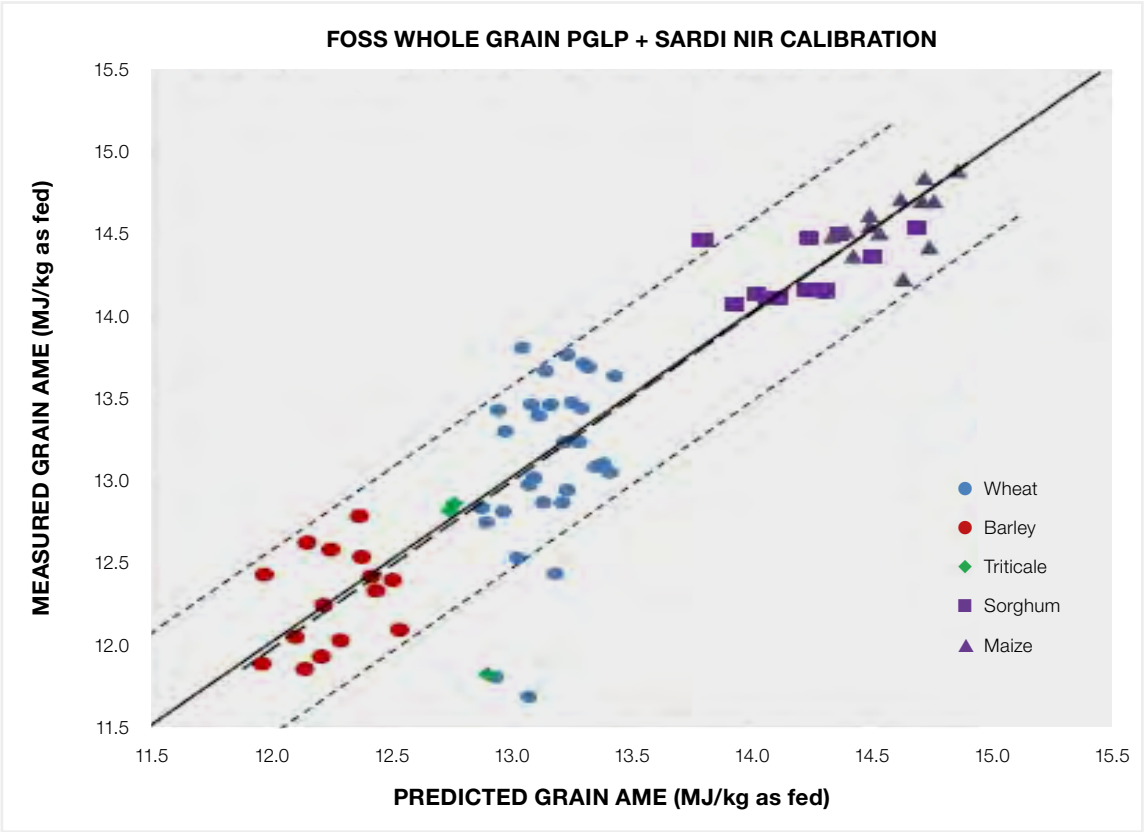
There were notable differences between grains in AME content (MJ/kg DM and as fed), with values for sorghum and maize being higher than values for wheat, barley and triticale (see Figure 4). Despite differences between grains in feed intake, birds consumed a similar amount of grain AME irrespective of the grain AME content.

There was little difference between ground grain and whole grain scans in the accuracy of predicting the SARDI experimental results, indicating both grain presentations can be used with similar confidence as is the case with the Pig DE and Broiler AME Predictions. Combining results from the original PGLP data set and SARDI experiments substantially improved the FOSS and Bruker instrument predictions of grain AME from the SARDI experiment. The most accurate predictions of the SARDI results were from the FOSS instrument with RPD approaching 3.0 for grain AME DM, which indicates considerable improvement in the robustness of the calibration and the ability to accurately predict results for unknown grain samples. Similarly, the Bruker NIR calibration had improved calibration statistics with an RPD value of 2.93 for prediction of grain AME DM and 2.56 for grain AME as fed. The 95% probability accuracy values for grain AME were ±0.76 MJ/kg DM and ±0.68 MJ/kg as fed, these values are similar to the current AusScan broiler NIR model predictions.

These robust NIR calibrations will be made available to the layer industry through the AusScan Online platform.

FIGURE 4

Relationship between the new PGLP+SARDI NIR calibration predicted layer grain AME and the measured values from the SARDI experiment.



The solid line is the line of equivalence, the light dotted lines are lines for Least Significant Difference ($P<0.005$) and the dashed line the predicted linear relationship: measured layer grain AME = predicted layer AME * 1.006 – 0.094, with $R^2 = 0.83$.

BARASTOC SWINE BLOCK

The Barastoc Swine Block has had very consistent sales over the past 5 years ranging between 45 to 50 ton per annum which was approximately double the annual sales levels achieved in the first 3 years after launch. In this reporting period a total of 47.3 t was sold. The swine block is an interesting product with the increase in volume of sales 4 to 5 years ago also coinciding with improved strategic use of the block by "hanging" rather than fixated or loose in the pen, which actually results in a slower replacement rate, masking the true uptake. There has also been no progression with the European or Canadian patents this year.

APRIL PIPELINE

NCG Supplementation: The International Patent Application No. PCT/AU2024/050124 for NCG supplementation for enhancement of growth performance, carcass backfat and meat quality of finisher pigs was officially published on the 29 August 2024. A decision on jurisdiction for the PCT application is required prior to August 2025. It is likely patents will be sought for Australia and New Zealand jurisdictions. Dr Mat Lucas has retired from Davies Collison and Cave, Intellectual Property Law Firm after 25 years' service, and 15 years working with the Pork CRC and APRIL advising on intellectual property management. Dr Lucas' dedication, experience and guidance in IP matters was appreciated by APRIL.

NOVEL ANTIMICROBIAL SUSCEPTIBILITY TESTING (AST) PLATES A COMMERCIALISATION STUDY WITH AQUILA SCIENTIFIC

A unique Commercialisation project was approved by the APRIL Board in April 2024. The objective of the commercialisation project **7C–009**: *Commercialisation of potential outcomes from Novel Antimicrobial Susceptibility Testing plates* will involve developing a proprietary brand of 96 well plates with long shelf life that can be shipped and stored at room temperature for diagnostic testing and surveillance. The first stage of the project commenced at Murdoch University in June 2024.

This year the project has progressed toward developing stabilised, dried antimicrobial susceptibility testing (AST) plates for veterinary and livestock diagnostics. Major milestones were achieved in formulation optimisation, stability validation, and identification of key parameters for packaging and long-term storage. Comparative studies confirmed that the "proposed" reagents used as stabilizers do not adversely affect antimicrobial activity or assay reproducibility. Early results of drying and stability trials demonstrated that plates remain within the high quality control ranges confirming short-term stability requirements under sealed storage. The project continues with further testing of vacuum packaging, establishment and validation of quality assurance and control measures and completing comprehensive antimicrobial testing with the expected improved packaging.

MAJOR MILESTONES WERE ACHIEVED IN FORMULATION OPTIMISATION, STABILITY VALIDATION, AND IDENTIFICATION OF KEY PARAMETERS FOR PACKAGING AND LONG-TERM STORAGE.

COMMERCIALISATION OPPORTUNITIES

During the year, outcomes from APRIL Industry Priority Project **6A–106b** *Precision monitoring of reproductive state via development of pen side mucus testing and continuous remote monitoring* were reported. The project involves collaboration between Macquarie University, The University of Sydney and SARDI and has followed two technology pathways. Macquarie University were to examine the glycomic profile of cervical mucus and The University of Sydney to examine changes in the concentration of 'ions' in cervical mucus using Near InfraRed Spectroscopy (NIRS). The commercialisation opportunities have arisen from the results obtained by Macquarie University which found changes in glycan structures in vaginal mucus were dependent upon the particular stage of the reproductive cycle. The change in ratio of two particular mucins is an accurate indicator of Oestrus when compared to ultrasound, additionally the research team found that this method could also accurately detect pregnancy at day 18 and 32 of gestation with a sensitivity of 81.5% and 94.7%, respectively. The technology can also be applied to predicting the onset of farrowing. These are exciting and unexpected outcomes and the group is looking to develop a handheld device to rapidly identify these stages of reproduction. The next steps will include a summertime data set which will provide a more robust data package to lodge a provisional patent application in early 2026.

It is envisaged that the 13 Innovation projects recommended by RDAC and approved by the APRIL Board in this reporting period (see Executive Officer Report), may create further commercialisation opportunities to add to the APRIL pipeline. The AgriFutures team continue to create connections with research bodies, marketing groups and potential partners that may enhance current and future APRIL commercial projects. The AgriFutures website GrowAg.com provides opportunities communicate APRIL research calls to a much wider audience.

STRATEGIC PLAN DELIVERABLES

A summary of progress against the Strategic Plan deliverables is provided below:

PILLAR 3: INDUSTRY RELEVANT COMMERCIALISATION ACTIVITIES FOR THE AUSTRALASIAN PORK INDUSTRY

ACTIVITIES	KEY OUTCOMES / DELIVERABLES	2025 STATUS
Be the single point of contact, referral and guidance for commercialisation activity in Australia	Formalise an agreement and processes with Australian Pork Limited to become the single point of contact, referral and guidance for commercialisation activities in Australia.	● Partly achieved
Support a viable, innovative and expanding commercialisation business	Effectively continue to manage current commercialisation arrangements to ensure they are sustainable and providing a return to APRIL:	✔ Achieved
	• Commercialisation income > $450,000 per annum, by 2025.	● Not achieved
	• At least one new product/service successfully commercialised and generating revenue for APRIL, by 2025.	● Not achieved
	Conduct a Product Development Scheme program in conjunction with commercial partners to enhance investment and product adoption into the industry, and permit an acceptable financial return to APRIL:	✔ Achieved
	• Three new projects launched by 2025.	● Not achieved
	• Reinvest up to $100,000 per annum into new product development.	● Partly achieved
	Maintain the operation and function of the Commercialisation Advisory Panel.	● In progress
	Communicate a commercialisation report as a Standing item at each APRIL Board meeting.	✔ Achieved
Ensure commercialisation processes are efficient and are generating optimal returns	Assess the commercialisation potential of relevant research activities or proposals and develop commercialisation plans for approved projects with commercial potential.	✔ Achieved
	Review all existing commercialisation projects and ensure markets with greatest potential are adequately resourced, including potential to exploit overseas markets:	● In progress
	• AusScan (China).	● In progress
	• Sow Block (USA, Europe).	● In progress
	• Lawsonia qPCR Test (USA, Europe).	● In progress
	Reinvest commercial income from investment in product development in applicable APRIL activities.	✔ Achieved
Support for Commercialisation Projects	Funding support on a continuous basis for projects that increase APRIL's commercialisation pipeline and lead to greater commercial returns to APRIL and potential benefits to industry.	✔ Achieved
Continued engagement with growAG	Continue engagement with growAG to promote commercialisation opportunities arising from R&D activities and ad hoc commercial opportunities.	✔ Achieved

SINGLE DIET FEEDING COULD HELP PIG PRODUCERS CUT COSTS WITHOUT SACRIFICING PERFORMANCE – THE APRIL SINGLE DIET PROJECTS

With feed costs making up more than 60% of total expenses, Australian pig producers face growing pressure to improve feed efficiency without compromising on growth rates or carcass quality.

Recent APRIL funded research indicates a single diet feeding strategy could provide a more practical and cost-effective alternative to the traditional multi-phase feeding practice used in commercial grower-feeder systems. Traditionally, the idea of feeding more than one diet, or 'phase feeding', has been regarded as best practice as it matches diets with specific energy and nutrient requirements of a pig's particular growth stage. In contrast, a single diet approach is designed to meet most of the lysine and energy needs throughout the entire growth of the pig. While nutrient levels in a single diet may fall slightly below recommendations during early growth, they exceed requirements later on. The theory behind the single diet strategy is that the surplus of energy and lysine in the latter stages enables compensatory growth, and overall growth rates end up being similar to conventional phase feeding programs.

Prior to establishment of APRIL, the *Pork-CRC* supported a series of projects testing the idea of single protein diets. Early trials by Dr. Karen Moore (2008, 2016) and Tony Edwards (2011) demonstrated that a single diet could achieve growth rates comparable to traditional feeding programs under controlled conditions, although it remained uncertain whether the same results could be reproduced in commercial systems with varying genetics, production flows and management practices.

Following up on this research, APRIL supported a series of large-scale commercial studies between 2019 and 2020. The trials, conducted at Westpork, JBS Pork Australia (formerly Rivalea (Australia) Pty Ltd) and Sunpork, included over 5,000 pigs across three different genetic lines, production styles and commercial environments. Each site compared a standard three or four phase feeding program with single diets formulated for specific live weights (i.e., 50kg, 60kg, or 70kg). A breakdown of the diets used across each site are presented in Table 3.

TABLE 3

Treatment regimens, Target weights and Diet specifications for each Farm.

FARM	TREATMENT REGIMEN	TARGET WEIGHT(S) (kg)	DIETARY SPECIFICATIONS	
			ENERGY (MJ/kg)	AVAILABLE LYSINE[a]
Westpork	1. Phase Feeding[b]			
	Grower 1	23 to 50	14.40	0.84
	Grower 2	50 to 70	13.82	0.67
	Finisher	70 to 90	13.58	0.60
	Market	90+	13.30	0.52
	2. Single 50 (Grower 1)	50	13.82	0.67
	3. Single 60 (Grower 2)	60	13.58	0.60
	4. Single 70 (Finisher)	70	13.30	0.52
Rivalea	1. Phase Feeding			
	Early Grower (EG)	27 to 44	14.00	0.75
	Late Grower (LG)	44 to 62	13.80	0.65
	Finisher (FIN)	62 to 100	13.50	0.62
	2. Single – EG	27	14.00	0.75
	3. Single – LG	44	13.80	0.65
	4. Single – FIN	62	13.50	0.62
SunPork	1. Phase Feeding			
	Grower	25 to 50	14.00	0.76
	Porker	50 to 70	13.75	0.70
	Finisher	70+	13.50	0.64
	2. Single 50 (Porker)	50	13.75	0.70
	3. Single 70 (Finisher)	70	13.50	0.64

a. g SID Lysine/MJ DE.
b. Two diets were formulated with energy contents of the high and low Lysine diets being 14.4 and 13.3 MJ DE/kg and the diets were created by blending the high and low Lysine diets in the required ratios.

Across all three systems, growth performance and carcass quality were similar between single diet and phase feeding systems.

- *Westpork* found single diets formulated for 60–70kg live weight reduced cost of feed by $0.08–$0.09 per kilogram, translating to $6 per pig saved without effects to end carcass weight or backfat.
- *Sunpork* observed comparable growth across feeding regimens, with pigs on a single 50kg diet achieving equal performance to phase fed pigs. A heavier single diet (70kg) resulted in a slight delay (two extra days to reach slaughter weight) but still produced significant feed cost savings.
- *JBS Pork Australia* demonstrated that single diets could deliver equal or better feed conversion ratios (FCRs) depending on the sex and genotype of pigs. Improvac-treated males on single diets achieved higher profitability (up to $0.73 per pig) than those fed in phase fed groups.

When comparing outcomes, it should be noted that the research across sites was conducted at different times with different dietary costs, sale weights and market specifications. An overview of growth performance and carcass traits of pigs is presented over Tables 4a, 4b and 4c.

TABLE 4A

WESTPORK

Westpork Growth Performance and Carcass traits of pigs fed a phase-feeding program (Phase) compared with single diet feeding programs[1].

PARAMETER	PHASE	SINGLE 50	SINGLE 60	SINGLE 70	SED	SIGNIFICANCE
Live Weight (kg)						
Entry	22.5	23.7	23.2	23.8	1.16	NS
Exit	99.2	98.9	99.3	98.5	1.03	NS
Average daily gain (kg/d)						
Stage 1 (d0–32)	0.716	0.66	0.695	0.637	0.03	P<0.10
Stage 2 (d33–74)	0.746[a]	0.802[ab]	0.761[a]	0.887[b]	0.045	P<0.05
d0 to Slaughter	0.766	0.772	0.771	0.767	0.017	NS
Average daily feed intake (kg/d)						
Stage 1 (d0–32)	1.47	1.51	1.51	1.44	0.06	NS
Stage 2 (d33–4)	1.99	2.01	1.97	1.98	0.059	NS
d0 to Slaughter	2.11	2.07	1.99	2.01	0.05	NS
Feed conversion ratio (kg/kg)						
Stage 1 (d0–32)	2.05	2.28	2.18	2.27	0.094	P<0.10
Stage 2 (d33–74)	2.68	2.51	2.61	2.27	0.166	NS
d0 to Slaughter	2.76	2.69	2.57	2.63	0.066	P<0.10
Carcass weight						
Weight (kg)	72.1	72.5	72.2	72.4	0.42	NS
P2 Back Fat (mm)	10.1	10.1	10.1	9.78	0.211	NS
Days-to-slaughter (d)	99	98.1	98.7	98	1.18	NS

1. Single diets were formulated to meet the nutrient requirements of a 50 kg (Single 50), 60 kg (Single 60) or 70 kg (Single 70) pig.

TABLE 4B

RIVALEA

Rivalea Growth Performance and Carcass traits of pigs fed a phase-feeding program (Phase) compared with single diet feeding programs[1].

PARAMETER	PHASE	SINGLE EG	SINGLE LG	SINGLE FIN	SEM	SIGNIFICANCE
Live Weight (kg)						
Entry	27.0	27.0	26.9	27.0	0.99	NS
Exit	99.5^{ab}	100.6^{b}	98.5^{a}	97.9^{a}	0.67	P<0.05
Average daily gain (kg/d)						
Stage 1 (d0–42)	0.826^{b}	0.841^{bc}	0.803^{a}	o.814^{ab}	0.007	P<0.05
Stage 2 (d43–80)	0.935	0.946	0.938	0.91	0.014	NS
d0 to Slaughter	0.880^{b}	0.893^{bc}	0.870^{ab}	0.862^{a}	0.006	P<0.05
Average daily feed intake (kg/d)						
Stage 1 (d0–42)	1.796	1.792	1.776	1.795	0.019	NS
Stage 2 (d43–80)	2.596^{b}	2.488^{a}	2.509^{a}	2.468^{a}	0.025	P<0.05
d0 to Slaughter	2.177	2.126	2.127	2.118	0.018	P<0.10
Feed conversion ratio (kg/kg)						
Stage 1 (d0–42)	2.17^{ab}	2.13^{a}	2.21^{b}	2.20^{b}	0.022	P<0.10
Stage 2 (d43–80)	2.79^{b}	2.64^{a}	2.68^{a}	2.72^{ab}	0.034	P<0.05
d0 to Slaughter	2.48^{b}	2.39^{a}	2.45^{b}	2.46^{b}	0.021	P<0.05
Carcass weight[2]						
Weight (kg)	75.3^{b}	76.0^{b}	74.7^{ab}	74.0^{a}	0.53	P<0.10
P2 Back Fat (mm)	9.56	9.41	9.62	9.28	0.114	NS

1. Single diets were formulated to meet the nutrient requirements of a 27 kg (Single EG), 44 kg (Single LG) or 62 kg (Single FIN) pig.
2. Pigs were marketed at an average age of 22 weeks.

TABLE 4C

SUNPORK

SunPork Growth Performance and Carcass traits of pigs fed a phase-feeding program (Phase) compared with single diet feeding programs[1].

PARAMETER	PHASE	SINGLE 50	SINGLE 70	SED	SIGNIFICANCE
Live Weight (kg)					
Entry	26.5	25.9	25.9	0.5	NS
Exit	93.7	93.3	90.8	1.19	NS
Average daily gain (kg/d)					
Stage 1 (d0–28)	0.852[a]	0.836[a]	0.753[b]	0.02	P<0.05
Stage 2 (d29–49)	1.005	1.014	0.979	0.025	NS
Stage 1,2,3 (d0–69)	0.973	0.977	0.941	0.017	NS
Average daily feed intake (kg/d)					
Stage 1 (d0–28)	1.74	1.78	1.83	0.052	NS
Stage 2 (d29–49)	2.30[a]	2.23[a]	2.06[b]	0.042	P<0.05
Stage 1,2,3 (d0–69)	2.2	2.16	2.15	0.036	NS
Feed conversion ratio (kg/kg)					
Stage 1 (d0–28)	2.03[a]	2.12[a]	2.43[b]	0.053	P<0.05
Stage 2 (d29–49)	2.3	2.2	2.11	0.077	NS
Stage 1,2,3 (d0–69)	2.25	2.21	2.28	0.04	NS
Carcass weight					
Weight (kg)	83.5	82.9	83.4	0.79	NS
P2 Back Fat (mm)	11.7	11.6	12.4	0.4	NS
Days–to–slaughter (d)	82.1[a]	82.5[ab]	84.2[b]	0.6	P<0.05

1. Single diets were formulated to meet the nutrient requirements of a 50 kg (Single 50) or 70 kg (Single 70) pig.

Collectively, these studies provide evidence that a well formulated single diet can perform just as effectively as phase feeding under commercial Australian conditions. Sunpork has already integrated this single diet approach into several of their production systems, including Brinkley, Westbrook and Tong Park, which covers more than 18,000 pigs in total.

"While growth rates are important, farm profitability depends on more than just how fast pigs grow", noted a Sunpork research team member. *"Feed logistics, mill efficiency, and economic resilience all play key roles, and that is where the single diet model shows real promise."*

In order to apply this feeding strategy, producers should consult with their nutritionist to determine the most suitable liveweight for the single diet to target. Feed ingredients costs, market conditions, and genetic lines will all influence whether a single diet approach will deliver desired results and optimal returns. Still, with Australia's pork sector seeking every opportunity to remain competitive in a challenging global market, these results offer a valuable path forward.

For more detailed analysis the Final Report from each study can be obtained by contacting Dr Charles Rikard-Bell, APRIL: Email c.rikardbell@april.org.au, or downloaded from the APRIL website at www.apri.com.au/research/project-reports/

COMMUNICATI
REPORT

INTRODUCTION

APRIL's communication framework, as part of its Strategic Plan (2022–2025), has continued to evolve ensuring that all stakeholders are provided with relevant and timely information. During the reporting period, extensive dissemination of information through in-person presentations at producer and industry-related events, attendance at conferences and meetings, via media such as APRIL NEWS and the Australian Pork Newspaper, and through publications, has occurred.

Of note, the communications framework contains mechanisms for Members and other stakeholders to provide feedback to APRIL management and to the Board. The Strategic Plan puts communication at the heart of APRIL's operations and extension agenda, with Pillar 4 devoted to connecting with our stakeholders.

ON


going
APSA
Communication Ongoing
APSA
• APSA 2025 – Papers
• Fact Sheets – on other media platforms
• Spotlight Interviews series
• White info notes
• White press releases – eg Pork SA Producer Group (AgTech)
NOTE: List of Activities is not conclusive

THE KEY COMPONENTS OF THE COMMUNICATION FRAMEWORK ARE:

- **Maintain the Director-Ordinary Member buddy system.**
- **Convene an annual Stakeholders' Forum for all APRIL stakeholders.**
- **Arrange annual meetings with APRIL Members to understand needs and promote outcomes.**
- **Keep industry and stakeholders informed of research and development, education and training, and commercialisation activities and outcomes.**
- **Maintain an independent website as a repository for key information and promotion of APRIL activities.**
- **Present regular updates of APRIL's progress and outcomes at producer and scientific forums.**
- **Conference and events sponsorship.**
- **Publication of research in journals and conference proceedings.**

COMMUNICATION ACTIVITIES

MAINTAIN DIRECTOR-ORDINARY MEMBER BUDDY SYSTEM

The Director-Ordinary Member Buddy system is a standing agenda at each Board meeting, where Directors are expected to contact their allocated Ordinary Members to provide an opportunity for Members to raise any issues at Board level.

CONVENE AN ANNUAL STAKEHOLDER DAY FOR ALL APRIL MEMBERS AND STAKEHOLDERS

The Annual Stakeholders Forum, held in Melbourne in November 2024, brought together over 60 attendees to showcase APRIL's participant model and provide updates on the latest in APRIL funded projects. APRIL's Executive Officer, Dr. Charles Rikard-Bell, gave an overview of the rights and benefits characteristic of the new participant model and the funding opportunities to organisations based on a tiered system (gold, silver, or bronze participant) (see The Executive Officer Report, p10).

The forum showcased practical and innovative science, underscoring APRIL's role in advancing pork research and innovation across Australasia. The day concluded with a networking dinner and an opportunity to catch up with other stakeholders.

ARRANGE ANNUAL MEETINGS WITH APRIL MEMBERS TO UNDERSTAND NEEDS AND PROMOTE OUTCOMES

During the reporting period APRIL staff, along with APRIL Chair Dr Tony Peacock, engaged regularly with APRIL Members and stakeholders. A number of meetings were held with a representative (or representatives) from Members, resulting in more regular commentary and feedback being received, particularly in areas related to APRIL's transition towards the proposed participant model. Feedback was also received through regular email and telephone communications.

KEEP INDUSTRY AND STAKEHOLDERS INFORMED OF RESEARCH, EDUCATION AND TRAINING, AND COMMERCIALISATION ACTIVITIES AND OUTCOMES

APRIL places strong emphasis on ensuring opportunities and research outcomes are effectively communicated across industry. This was reflected in the APRIL Board's decision to appoint Dr Sophie Ward as an extension officer alongside Australian Pork Limited (50/50 dual role). In conjunction with the activities listed above, the aim of this role is to ensure APRIL stakeholders are connected and informed on events, funding opportunities and the latest research. Dr Sophie Ward achieves this through regular monthly articles in the Australian Pork Newspaper (APN), bi-monthly updates in the stakeholders only *APRIL Newsletter*, and by organising in person workshops and events alongside the APL extension team. In the reporting period, three editions of the *APRIL Newsletter* were produced and 12 articles in the APN were published.

All contain information and updates of interest with regard to the research program (e.g., funded projects, project final reports, funding calls), education and training (e.g., student awards) and commercialisation (e.g., AusScan Online updates, Early Harvest Reports) activities and outcomes, a Research Snapshot from completed or ongoing projects, and news and events of relevance and importance to APRIL Members and stakeholders.

In addition to online engagement, APRIL recognises the importance of sharing research outcomes in person through workshops and conferences. Building on the success of the last APRIL Stakeholders Day, APRIL organised the 2025 Tails End of Project Conference in Melbourne. This event provided researchers involved in this transformational project the opportunity to present updates and share insights on the latest developments in tail biting research. In addition to this event, APRIL has also been involved in a number of Australian roadshows showcasing supported research alongside the APL extension team.

THE IMPACT OF RESEARCH IS SHAPED NOT ONLY BY THE KNOWLEDGE GENERATED BUT HOW EFFECTIVELY THAT KNOWLEDGE IS SHARED AND APPLIED.

IN THE REPORTING PERIOD, THREE EDITIONS OF THE APRIL NEWSLETTER WERE PRODUCED AND 12 ARTICLES IN THE AUSTRALIAN PORK NEWSPAPER WERE PUBLISHED

Another initiative in the extension space is the launch of more producer workshop events to extend research to the wider industry. In collaboration with APL, APRIL has launched its *Pub and Pork* events, which focus on a single theme across both research funding bodies. The first roadshow has a focus on **technology**, which will include information on the *Tails Decision Support Tool* and *AusScan Online*. The aim of these events is to have an open discussion on how the technology can be applied on farm, the challenges and potential complications involved, and to share this feedback with researchers to direct any ongoing work.

MAINTAIN AN INDEPENDENT WEBSITE FOR PROMOTION OF APRIL ACTIVITIES

APRIL continues to maintain an independent website (www.apri.com.au) as a central platform for promoting organisational activities and ensuring participants remain connected and informed. The website provides up to date information on upcoming events, funding opportunities, research outcomes, and education and training initiatives.

A key focus this year was a comprehensive review of the website to ensure all pages were current, links were active, and information was accurate and accessible. These updates improved the site's reliability and user experience, making it a trusted source of information for industry stakeholders, researchers and participants.

The website also plays a vital role in extending the reach of APRIL communications, complementing newsletters, direct member updates and LinkedIn channels.

PRESENT REGULAR UPDATES OF APRIL'S PROGRESS AT PRODUCER AND SCIENTIFIC FORUMS

The APRIL Executive Officer, Dr Charles Rikard-Bell, attended the following events this year:

1. **03 July 2024:** Food Waste to Pig Feed workshop via zoom.
2. **09 July 2024:** AAAS-AAAP Animal Science Congress, Melbourne, attended/presented.
3. **24 July 2024:** AAAS AGM for 2024 via zoom
4. **30 July 2024:** Meeting with Hone Ag, progress on NIR hand held development.
5. **16 August 2024:** SA Pig Day – Introduction of SA Primary Industry sponsored "AgTech Producer program".
6. **11 September 2024:** Feedworks Conference (25 years) Sunshine Coast, Qld.
7. **16 September 2024:** National Statement on Animal Welfare – workshop.
8. **30 September 2024:** Tails CRC-P meeting at Melbourne University.
9. **01 October 2024:** Early Careers Student Seminar: Tails CRC-P at Melbourne University.
10. **08 October 2024:** Green Paper Review Seminar (Zoom).
11. **16 October 2024:** Ridley Mills – Technical Meeting – AusScan Online/Ingot Check QA/Hand held update; Raymond du Plessis and Nutritional team.
12. **22 October 2024:** AgTech Seminar: Dr Tanya Nowland and Dr Bryony Tucker presented 6A–106 *Precision monitoring of reproductive state via development of pen side mucus testing and continuous remote monitoring*. Dr Valeria Torok presented *Converting Bio-secure Waste into Pig Feed.*
13. **29 October 2024:** Tails CRC-P – Meeting with Dr Susanne Hermesch AGBU, Genetic risk factors.
14. **19 November 2024:** Green Paper 2024 – Pig Industry Insights Panel.
15. **20 November 2024:** Tails CRC-P workshop (PMC).
16. **03 December 2024:** Chief Scientist, APRIL EO visit: 1. SAAFE CRC – Dr Mary Carr; 2. SARDI Urbrae – Prof. Mike Steer.
17. **11 December 2024:** Murdoch University visit with Chief Scientist, APRIL Matters: Prof. Sam Abraham, Alasdair McDonald and Prof. Peter Eastwood.
18. **20 February 2025:** Tails CRC-P Program Managers Committee meeting.
19. **27 February 2025:** AusScan Board Meeting – Q2 2024/25.
20. **28 February 2025:** APL Pork and Talk Toowoomba – Presentation on APRIL R&D Update (CRB); Tails CRC-P Update (SW).
21. **05 March 2025:** APL Pork and Talk Wagga Wagga – Presentation on APRIL R&D Update (CRB); Tails CRC-P Update (SW).
22. **14 March 2025:** APL Pork and Talk, WAPPA; Perth Presentation on APRIL R&D Update (CRB); Tails CRC-P Update (SW).
23. **20 March 2025:** APL / APRIL Green Paper Research Priorities.
24. **26 March 2025:** Tails CRC-P Technical and Program Management Committee meetings.
25. **28 March 2025:** APL Pork and Talk, SA Pork Day; Tailem Bend, Presentation on APRIL R&D Update (CRB); Tails CRC-P Update (SW).
26. **03 April 2025:** SunPork Group, Roseworthy Unit – Maternity Ring.
27. **05 May 2025:** Site visit with Kate Murphy, AAAS 2026 Conference.
28. **08 May 2025:** AusScan Board Meeting.
29. **12 May 2025:** Advanced Milling and Nutrition (AMN) Conference; APRIL – AusScan stand.
30. **13 May 2025:** Presentation at AMN conference "Nutrient Traceability in Feed Mills".
31. **27 May 2025:** Meeting with MACSO, a NZ technology company, Adelaide University and SARDI – Noise technology in animal production enterprises.
32. **18 June 2025:** Boehringer FLEX event, Novotel Barossa.
33. **24 June 2025:** ARC Industrial Research Hub hosted by Dr Sam Abraham. Research Themes and proposed projects for the Pig and Poultry industries.

CONFERENCE AND EVENTS SPONSORSHIP

A key mechanism to engage with Members and stakeholders and extend information on APRIL's various activities is the sponsorship of conferences and events. During the reporting period, APRIL was able to offer support for a number of these events including the Australasian Pig Science Association Conference; the Australian Pig Veterinarians' Conference; PIX AMC and APL Food with Purpose Conference and Trade show; Recent Advances in Animal Nutrition Conference and Pork SA Pig Industry Day.

STRATEGIC PLAN DELIVERABLES

A summary of progress against the Strategic Plan deliverables is provided below:

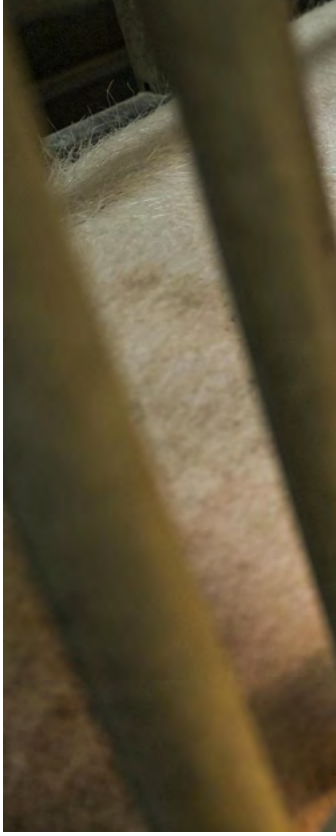
PILLAR 4: CONNECTING WITH MEMBERS AND THE AUSTRALASIAN PORK INDUSTRY

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	2025 STATUS
Implement an effective and appropriate communication plan	Initiate an appropriate communication framework that effectively disseminates APRIL activities and associated outcomes (2022 and reviewed annually).	✔ Achieved
Develop activities that are collaborative and inclusive across the member and stakeholder base	All projects to involve at least one Member organisation.	✔ Achieved
	Maintain the Board Director-Ordinary Member buddy system to enable one-on-one communication with Ordinary Members (4–5 times annually).	✔ Achieved
	Invite Members and key stakeholders to attend the APRIL Annual Stakeholder Forum (and other events as appropriate) to extend latest results and receive direct feedback on outcomes and progress.	✔ Achieved
	Provide an APRIL update at APL Delegates' Forum events/annual joint APRIL–APL Board discussion (at least once annually).	✔ Achieved
Present updates of APRIL's activities and progress at producer and scientific forums	Present on APRIL activities and outcomes to representatives of a wide member and producer base in Australia and New Zealand through industry seminars/meetings, and to international conferences and forums (where appropriate):	✔ Achieved
	• Present at a minimum of one international conference per annum, from March 2022.	✔ Achieved
	• Present at a minimum of two member-based conferences per annum, from March 2022.	✔ Achieved
Participate in strategic sponsorship/partnerships	Raise and reinforce APRIL's contributions to the Australasian pork industry by providing strategic sponsorship or partnerships (e.g., APSA conference, State field/industry days, member events).	✔ Achieved
Keep industry and stakeholders informed of APRIL's activities and outcomes	Provide timely and relevant media releases to the rural press including at least 10 articles per annum in the Australian Pork Newspaper/Pork Journal.	✔ Achieved
	Write a quarterly newsletter to all members.	✔ Achieved
	Conduct strategic/targeted scientific seminars and updates (two per year, from March 2022).	✔ Achieved
	Financial support for selected peer-reviewed publications in internationally recognised journals (up to five papers supported per year, to a total value of $7,500).	● Partly achieved
Maintain an independent website for information and promotion of APRIL activities	Maintain the APRIL website for communication of research, education and training and commercialisation outcomes, and APRIL news, and maintain links to the Pork CRC website.	✔ Achieved
Review and dissemination of project success	For applicable projects and where appropriate and robust mechanisms exist, evaluate the return on investment into APRIL for the pork industry.	✔ Achieved

PROGRESS AGAINST PILLAR 2

EFFECTIVE MANAGEMENT AND DELIVERY OF RESEARCH AND DEVELOPMENT AND EDUCATION AND TRAINING FOR THE AUSTRALASIAN PORK INDUSTRY

APRIL'S PROGRESS AGAINST THE KEY OUTCOMES AND DELIVERABLES FROM PILLAR 2: EFFECTIVE MANAGEMENT AND DELIVERY OF RESEARCH AND DEVELOPMENT AND EDUCATION AND TRAINING FOR THE AUSTRALASIAN PORK INDUSTRY IS SET OUT BELOW, AND EXPLAINED FURTHER IN THE FOLLOWING RESEARCH AND EDUCATION AND TRAINING REPORTS.



PILLAR 2: EFFECTIVE MANAGEMENT AND DELIVERY OF RESEARCH AND DEVELOPMENT AND EDUCATION AND TRAINING FOR THE AUSTRALASIAN PORK INDUSTRY

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	2025 STATUS
2.1 Review the APRIL R&D activities portfolio	Review research investment to ensure an appropriate portfolio of Transformational, Innovation, and Commercialisation Projects, with > 60% of the available funds for R&D directed to Transformational Projects.	● In progress
	Ensure research investments are not duplicative, but complementary, with Strategic Plans of APL and NZPIB.	✔ Achieved
	Reassessed targets for investment after each funding round and adjust targets accordingly, e.g., balance strategic research domains with research opportunities, enable continuation of completed projects having high potential for industry outcomes, assessment of APRIL commercial income versus direct industry benefits.	✔ Achieved
2.2 Initiate key Transformational Projects for the Australasian	Ensure at least four Transformational Projects, for longer-term, collaborative, inter- and multi-disciplinary 'big picture' projects, are prepared and submitted annually, with major external funding support sought where possible, in priorities to be determined.	● Not achieved
2.3 Support for Innovation Projects	Funding support annually (20–30% of applicable funds) for smart, innovative and 'out of the box' projects that stimulate change and innovation in the industry and can be a commercialisation pipeline.	✔ Achieved
	Change the Innovation Project guidelines to make the (potential) path to commercialisation clearer.	✔ Achieved

ENSURE RESEARCH INVESTMENTS ARE NOT DUPLICATIVE, BUT COMPLEMENTARY, WITH STRATEGIC PLANS OF APL AND NZPIB

PILLAR 2: EFFECTIVE MANAGEMENT AND DELIVERY OF RESEARCH AND DEVELOPMENT AND EDUCATION AND TRAINING FOR THE AUSTRALASIAN PORK INDUSTRY *continued*

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	2025 STATUS
2.4 Assist with human capacity building in the Australasian pork industry	Make annual investments into maintaining and building education and training for the industry, to support undergraduate and postgraduate students and the Industry Placement Program (IPP):	✔ Achieved
	• Offer at least three full scholarship Masters or PhD awards per annum.	● Partly achieved
	• Four undergraduate students completed an Honours project by June 2022, with at least two Honours students completing a project per year thereafter.	● Partly achieved
	• Three DVM or BSc/BVMS students completed a project by June 2022, with at least two DVM or BSc/BVMS students completing a project per year thereafter.	● Not achieved this year
	• Four postgraduate students working on APRIL or APRIL-related projects being trained by 2022, and each year thereafter.	✔ Achieved
	• A minimum of three IPP awardees embedded in industry organisations at any one time.	✔ Achieved
2.5 Support for Facility Funding	Ongoing support for appropriate, diversified and cost-effective facility funding for the Australasian pork industry.	✔ Achieved
2.6 Support for Kickstart program	Ongoing support for the Kickstart program, to provide funding to assist with the preparation and submission of a specific, targeted and agreed major external funding application (or applications) in partnership with APRIL and other partners.	✔ Achieved
2.7 Support for APRIL Enterprise Award	Create an annual APRIL Enterprise Award to support on-farm creativity and innovation for practical application.	✔ Achieved

RESEARCH RE TRANSFORMAT PROJECTS

WHAT IS A TRANSFORMATIONAL PROJECT?

APRIL Transformational Projects address major issues for the Australasian pork industry that, if successfully implemented, are likely to result in a step-change. Transformational Projects are highly collaborative, multi-disciplinary, and by their very nature require considerable resources and time to execute. Consequently, Transformational Projects require significant external investment and are targeted at, but not restricted to, the Australian Research Council schemes and the Cooperative Research Centre-Project (CRC-P) scheme.

PORT
TIONAL

KEY THEMES

In the Strategic Plan 2019–2022, APRIL identified two key themes for Transformational Projects as follows:

6.1.1 ENHANCED ANTIMICROBIAL STEWARDSHIP IN THE AUSTRALASIAN 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.

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 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.

FUTURE KEY PRIORITIES

As a result of the green paper process, the following key priorities have been identified for future Transformational projects:

1. PIG CARE AND WELLBEING

Expected outcomes:
Providing novel tools or approaches to support continuous improvement and assessment of pig care and wellbeing and demonstrate the welfare credentials of Australian pork.

Key research areas:
- Generation of a suite of suitable biomarkers indicating positive welfare attributes at end of life.
- Enrichment and management strategies to prevent tail biting.
- Objective assessment of pig care and wellbeing.

2. PROCESSING

Expected outcomes:
Ensuring a sustainable processing sector for the future.

Key research areas:
- Maintaining CO_2 as the primary stunning gas in Australia.
- Avoiding foreign object contamination in carcases.

3. DATA AND INFORMATION

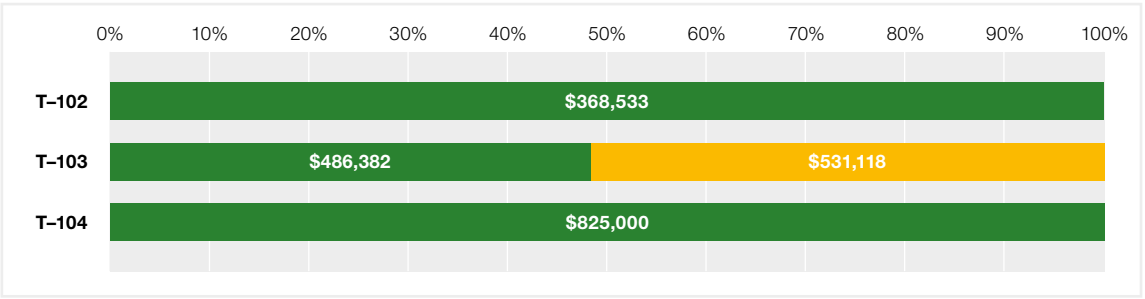
Expected outcomes:
Exploiting the benefits of technologies with existing and future information for more efficient and profitable pig production, processing, and understanding of market trends.

Key research areas:
- Automatic capture and use of data (eg. smart sensors, digital technologies, AI) for more efficient and cost-effective building and pig management, eg. slaughter weight.
- Use of AI technologies to reduce piglet mortality/ enhance piglet and sow welfare at farrowing and during lactation, with different farrowing systems.

PROJECTS

NO.	PROJECT NAME	LEAD PARTY
T–101	Pathways to rearing pigs with tails to maximise returns to pork producers	The University of Queensland
T–102	How to make antimicrobials in pig feed redundant, naturally	The University of Queensland
T–103	Novel approaches for combatting critically important antimicrobial resistance development in livestock	Murdoch University
T–104	Eliminating pig tail removal to improve welfare and industry sustainability	SunPork Pty Ltd

TRANSFORMATIONAL PROJECT COMMITMENTS



T–102: HOW TO MAKE ANTIMICROBIALS IN PIG FEED REDUNDANT, NATURALLY

In July 2020, the Australian Research Council (Linkage scheme) announced that it has supported The University of Queensland-administered project 'How to make antimicrobials in pig feed redundant, naturally'. Other organisations involved in the successful grant are The University of Melbourne, the SunPork Group, DSM Nutritional Products, and APRIL.

Chief Investigators in the project are Professor Eugeni Roura (The University of Queensland), Professor Frank Dunshea (The University of Melbourne), Professor Mike Gidley (The University of Queensland), and Associate Professor Pat Blackall (The University of Queensland).

Total cash funding for the four-year project was $1,931,233, with the Australian Research Council contributing $852,000 and partners contributing an additional $1,079,233, of which $368,533 derives from APRIL.

The total value of the project (cash plus in-kind contributions) was $3,835,847.

Again, this is a great example of APRIL partnering with its members to successfully leverage external funding for a major research project of critical industry-wide importance. Research work in the project is progressing well, with there being regular management meetings between partners including updates from the PhD students involved in the program.

T–103: NOVEL APPROACHES FOR COMBATTING ANTIMICROBIAL RESISTANCE IN AUSTRALIAN PIGS: EXPLORING NATURE'S ANTIMICROBIAL ARSENALS, NATURALLY DERIVED FEED ADDITIVES AND NATURAL BACTERIAL FLORA TO COMBAT RESISTANT BACTERIA

The overarching aim of this project, led by Professor Sam Abraham at Murdoch University, is to determine the origin, transmission pathways and public health impact of newly emergent, critically important antimicrobial-resistant (CIA-R) *Escherichia coli* in pigs in order to develop novel control strategies for the pork industry.

This project expects to use advanced high throughput robotics and genomics to understand the extent of the AMR in pigs, significantly maximising the impact of novel integrated control strategies based on nature's antimicrobial arsenal. Using naturally derived feed additives, phages, and natural bacterial flora, the outcomes will enhance our understanding of AMR in pigs and aid in the development of commercially viable solutions. The anticipated outcomes will address one of the most pressing and globally significant animal and public health issues at the moment, namely the development and dissemination of resistance to last-line human use antimicrobials in food-producing animals.

Partners in this 3-year project are Murdoch University, CHM Alliance Pty Ltd., Australian Pork Limited, Feedworks Pty Ltd., Rivalea (Australia) Pty Ltd. and Tecan Australia Pty Ltd.

TOTAL CASH FUNDING FOR THE FOUR-YEAR PROJECT WAS $1,931,233, WITH THE AUSTRALIAN RESEARCH COUNCIL CONTRIBUTING $852,000 AND PARTNERS CONTRIBUTING AN ADDITIONAL $1,079,233, OF WHICH $368,533 DERIVES FROM APRIL

CRC-P PROJECT: T–104

ELIMINATING PIG TAIL REMOVAL TO IMPROVE WELFARE AND INDUSTRY SUSTAINABILITY

PROJECT LEADER:
Dr Darryl D'Souza (SunPork Pty Ltd)

PROJECT COLLABORATORS:
Australian Pork Limited, JBS Australia Pty Ltd (formerly Rivalea [Australia] Pty Ltd), PIC Australasia Pty Ltd, RSPCA Australia, The University of Melbourne, The University of New England, and The University of Queensland

PROJECT STATUS:
Completed

BACKGROUND

In March 2020, APRIL (as Lead Party) submitted a Round 9 CRC-P application Pathways to rearing pigs with tails to maximise returns to pork producers. The application involved researchers from The Universities of Queensland, Melbourne and New England, as well as strong industry involvement from JBS Australia Pty Ltd. (formerly Rivalea (Australia) Pty Ltd.), SunPork Farms, and Australian Pork Limited. Unfortunately, the round was extremely competitive (8% success rate) and APRIL's application was unsuccessful.

APRIL met with the collaborators and determined that a new CRC-P application should be submitted. A new submission Eliminating pig tail removal to improve welfare and industry sustainability was made to the Round 11 CRC-P funding round led by SunPork Pty Ltd. We were informed on 7 September 2021 that this application was successful.

PROJECT ACTIVITIES AND OUTCOMES

The table below sets out the key activities set out in the approved project plan and status of these activities at 30 June 2025.

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	2025 STATUS
Systematic literature review and data meta analyses and personnel recruitment	A detailed search of the current literature will be conducted using search engines and data repository stores. Using established statistical rules (effect sizes) associated with meta-analyses, appropriate studies (e.g., those with a statistically valid comparison between tail-bitten and non tail-bitten pigs) having objective criteria (e.g., degree of tail damage, mortalities) will be analysed using R. Furthermore, the post-doctoral fellows with APRIL and The University of Melbourne, and the technical officers at Rivalea and SunPork will be recruited, and the three PhD students will start their programs of study.	✔ Achieved
Risk factor data for tail biting obtained from production industry partners	Collection of relevant tail biting data from Rivalea (Australia) Pty Ltd and SunPork Pty Ltd sites over 18 months for subsequent determination of animal, environmental and management factors linked to tail biting. This part of the study commences in Year 1 because of the magnitude of the effort involved in data collection and collation. Approximately 100,000 individual pigs at multiple sites in different states will be used in this part of the study.	✔ Achieved
Identifying pig behaviour patterns associated with tail biting	This observational study will explore the behaviour of pigs and environmental and management factors before, during and after tail biting events. This will be conducted at an industry partner site over a 12-month period. Specifically, algorithms will be developed from the analyses that can be used as an early warning indicator for the onset of tail biting events.	✔ Achieved
Quantification of industry risk factors associated with tail biting under commercial conditions	Comprehensive genetic and non-genetic statistical analyses of data conducted at University of New England and The University of Melbourne to determine interactions between animal, environmental and management factors linked to tail biting. The outcomes generated in this stage of the project will then be used to refine the decision support tool.	✔ Achieved
Production of a decision support tool for risk assessment of tail biting	The decision support tool will be deployed in the form of a mobile device App, and a beta version will be available towards the end of the project. This will then go for testing on a number of farms, with a final version to be made available before the cessation of the project.	● Partly achieved

CRC-P PROJECT: T–104

ELIMINATING PIG TAIL REMOVAL TO IMPROVE WELFARE AND INDUSTRY SUSTAINABILITY

PROJECT SUMMARY

Providing solutions to reducing tail biting is complex. Hence, most Australian farmed pigs have docked tails. Through significant collaboration, this Project focused on solutions by compiling the world's largest dataset (approx. 80,000 pigs with docked tails).

Unlike any work to date, multi-factorial causal genetic, animal and environment factors and their interactions for tail biting were identified in an Australian context.

Three PhD students continue to use the dataset to explore problems by using epidemiological and genetic concepts.

A Decision Support Tool (DST) has been developed by an early career researcher to help pig producers navigate risks associated with tail biting. The DST generates tailored tail biting risk information, visual cues, and summary reports. Additional work in the post-project activity period will enhance the DST moving it from a Technology Readiness Level (TRL) of 6 to the anticipated TRL of 8.

Two additional studies focus on pigs with intact tails. As part of a PhD project, an inducible model of tail biting informs research. Early life and the risk of tail biting has been explored by an early career scientist and a MSc student.

Project outputs are expected to contribute to improvements in pig growth and welfare, less on-farm euthanasia and lower production costs and risk resulting in a direct annual economic benefit to industry of up to $20 million.

The positive impact of education and training on skill shortages, future research and extension outcomes will continue under the guidance of a Post Project Management Committee involving Australian Pork Limited (APL) and Australasian Pork Research Institute Ltd. (APRIL).

This project is a significant collaboration for the Australian pork industry bringing together industry, universities, RSPCA, APRIL and APL to address a significant issue that nobody would address individually.

PROJECT LEADER, DARRYL D'SOUZA SAID "THE BENEFITS FROM THIS COLLABORATION HAVE BEEN INVALUABLE AND WE WOULD DO IT AGAIN IN A HEARTBEAT".

PROJECT ACHIEVEMENTS

- Comprehensive review of the scientific literature that investigated the multi-factorial causal factors for tail biting.
- Compiled the largest ever database collected globally-80,000 animals (genetic, animal and environment factors).
- Dataset that reflects: all types of conventional piggeries; close to 75% of genetics in Australia; different climatic regions; and seasons.
- Identified risk factors and their interactions in pigs with docked tails and pigs with tails.
- Quantified impact of nutrition on tail biting and created a detailed profile of tail biting perpetrators.
- Developed an inducible model of tail biting.
- Identified multi-factorial causal factors for tail biting in an Australian context and unlike any work to date also identified interactions between these causal factors in a specific environment.
- A Decision Support Tool (DST) has been developed to help pig producers navigate risk associated with tail biting on-farm. Based on findings from this dataset, it provides tailored information, visual cues, and summary reports to support informed management decisions.
- Six training, extension and adoption workshops were held from April 2022 culminating with a final workshop in February 2025 that was attended by 61 invitees including the RSPCA, key producers, consultants, and veterinarians within the pig industry.
- Outputs include: a Journal publication (Ward SA, Pluske JR, Plush KJ, Pluske JM, Rikard-Bell CV (2024). *Assessing Decision Support Tools for Mitigating Tail Biting in Pork Production: Current Progress and Future Directions. Animals, 14, 224.* https://doi.org/10.3390/ani14020224); 21 papers in national and international conference proceedings; 10 technical papers; 16 digital news media releases; and presentations at 14 Australian Pork Limited roadshows and pig industry day events Australia wide.
- A significant education and training programs with 3 post-doctoral fellows, 4 PhD students, 1 MSc student and 3 industry researchers, working on honours-equivalent projects.
- Foundation of a Post Project Management Committee to oversee further development of the DST, the remaining PhD studies, and further tail-biting related research and extension activities.

RESEARCH REPORT

INNOVATION PROJECTS

WHAT IS AN INNOVATION PROJECT?

The overall purpose of APRIL Innovation Projects is for the support of “out of the box” ideas for smart, new approaches to tackle current and emerging challenges for the Australasian pork industry.

Innovation Projects must demonstrate originality, uniqueness and creativity, establish new concepts or challenge existing ones, address significant challenges or critical barriers to progress, and be able to improve or apply new theoretical concepts, methodologies or tools that will benefit industry.

PROJECTS

APRIL has invested in the following Innovation Projects, with the following aims:

5A–101 REAL TIME, IN-FIELD WATER TESTING

PROJECT LEADER: DR LOUISE EDWARDS, (EX) RIDLEY AGRIPRODUCTS PTY LTD

- To determine if portable spectral-based hardware is compatible for the development of a real-time, in-field multi-parameter water testing device.

5A–102 INSECT MEAL FROM PORK PROCESSING DERIVED MATERIAL

PROJECT LEADER: DR KRISTY DIGIACOMO, THE UNIVERSITY OF MELBOURNE

- To measure the growth performance of black soldier fly larvae (BSF) on a range of pork processing waste varying in nutrient content to optimise waste substrates for BSF bioconversion.
- To measure the nutrient composition of BSF and frass fertilizer derived from pork processing waste.
- To evaluate any microbial risks associated with insect meal derived from pork processing waste.
- To evaluate any chemical risks (such as heavy metals) associated with insect meal derived from pork processing waste.

5A–103 DEVELOPMENT OF A *STREPTOCOCCUS SUIS* VACCINE VIA MEASUREMENT OF IMMUNE RESPONSES TO FOUR DIFFERENT *STREPTOCOCCUS SUIS* VACCINE PREPARATIONS, USING AN AUSTRALIAN CPS2 ST25 STRAIN

PROJECT LEADER: DR MARK O'DEA, MURDOCH UNIVERSITY (NOW DPIRD, WA)

- Produce the precursor to a vaccine combination targeting the major strains of *S. suis* associated with disease in Australia.
- Adopt serologic monitoring to better determine the effect of vaccines in a more robust manner than clinical signs alone.
- Determine the effectiveness of different bacterial inactivation methods, which have had little exploration in *S. suis* vaccine production, and which may have more effect in maintaining antigen structure and potency.

5A–104 LOW DOSE DIETARY STRATEGIES IN LATE GESTATION TO ENHANCE BORN ALIVE AND PIGLET SURVIVAL AND PERFORMANCE

PROJECT LEADER: DR JESSICA CRAIG, RIVALEA (AUSTRALIA) PTY LTD

- To evaluate the effects of supplementation of 0.5% arginine and three novel feed additives, B-hydroxy ß-methyl butyrate (HMB), N-Carbamylglutamate (NCG), and Calcium nitrate, on litter characteristics at birth when fed from day 90 of gestation.
- To assess each treatment for piglet vitality, number of still born, number born alive and weaned as well as subsequent reproductive performance of all sows.
- Provide the industry with effective strategies for improving the efficiency of reproduction and progeny performance.

5A–105 ORAL MEANS OF INCREASING ENDOGENOUS GROWTH HORMONE LEVELS AND ENHANCING THE PERFORMANCE AND CARCASS CHARACTERISTICS OF GROWING PIGS

PROJECT LEADER: DR FAN LIU, RIVALEA (AUSTRALIA) PTY LTD

- Validate the effects of NCG and HMB supplementation at two levels (0.15% and 0.3%) when fed to finisher pigs from live weight 60–100 kg for feed intake, growth rate and feed efficiency.
- Validate the effects of NCG and HMB supplementation to enhance commercial carcass traits (carcass weight, dressing percentage, loin muscle depth and back fat thickness) and IGF-1 secretion.
- Determine whether NCG is more potent than feeding arginine itself in increasing blood arginine concentration by measuring arginine plasma levels in control; 1% arginine supplementation and the NCG treatments.
- Determine for treatments that significantly alter either increased growth, feed efficiency, loin eye depth or reduced backfat thickness the magnitude of change in plasma amino acid profiles, and urea nitrogen.

5A–107 USING ALGAL EXTRACTS TO IMPROVE WEANER GROWTH PERFORMANCE AND DIGESTIBILITY

PROJECT LEADER: ROBERT PARKES, RIDLEY AGRIPRODUCTS PTY LTD

- Analyse the effect of supplementing weaner pig diets with different algal extracts on:

  1. Growth, feed efficiency and rate of digestion.
  2. The incidence of diarrhoea.
  3. The change in gut microbial populations and inflammation response markers, when compared to conventional weaner pig diets.

5A–108 WHAT SENSORY ATTRIBUTES ARE MOST CRITICAL FOR CONSUMER EVALUATION WITHIN AN AUSTRALIAN PORK EATING QUALITY PROGRAM?

PROJECT LEADER: PROFESSOR FRANK DUNSHEA, THE UNIVERSITY OF MELBOURNE

- Investigate what are the most critical sensory attributes influencing acceptability (overall liking) of Australian pork with Australian consumers.
- Identify what attributes should be used within an Australian pork eating quality program.
- Assess the effectiveness of the Check all that apply (CATA) rapid sensory method for discriminating sensory properties between six different Australian pork products.

5A–109 INVESTIGATING THE IMPACT OF CIRCULATING CREATINE CONCENTRATIONS IN GESTATION ON VITALITY AND SURVIVABILITY OF LOW BIRTH WEIGHT PIGLETS

PROJECT LEADER: DR TANYA NOWLAND, SARDI

In human pregnancies, maternal creatine levels correlate positively with foetal growth, with low levels linked to foetal growth restriction and reduced birthweight, due primarily to

impaired placental blood flow and metabolism. Previously, it has been demonstrated that supplementing sows with creatine or guanidinoacetic acid (GAA) in late gestation improved piglet viability, particularly when birthweight is below 1.1 kg. This project will determine the relationship between circulating creatine concentrations in pregnant sows and piglet birthweight and survival. The impact of increasing circulating creatine by dietary strategies on piglet birthweight, within litter variation in birthweight and piglet survival, will also be established.

5A–110 REAL TIME DETECTION OF DEEP TISSUE ABSCESSES IN CARCASES USING LEAN MEAT YIELD ESTIMATION

PROJECT LEADER: DR DARRYL D'SOUZA, CHM ALLIANCE PTY LTD (SUNPORK)

APRIL agreed to a request from the Lead Party to cancel this project in 2022 due to technical issues preventing the project from proceeding.

5A–111 ESCAPING THE DAILY GRIND – COARSER GROUND DIETS FOR IMPROVED FOETAL GROWTH

PROJECT LEADER: DR KATE PLUSH, CHM ALLIANCE PTY LTD (SUNPORK)

Diets are processed into fine particle sizes to increase digestibility. This is especially important for the growing pig where feed conversion ratio drives profitability, and in lactating sows where high dietary energy is required for milk production. However, there is a paucity of information on the impact of particle size in gestating sow diets. A coarser grind size will enhance hind gut fermentation, a process which involves the production of butyrate. The impact of increased circulating butyrate concentrations in sows is unknown, but in rats it has been shown to improve foetal growth. This experiment has been designed to determine if a coarser grind size fed to sows throughout gestation improves foetal growth, improving piglet weight and reducing variation at birth.

5A–112 NOVEL ASPIRIN SUPPLEMENTATION DURING GESTATION TO IMPROVE FARROWING RATE AND PIGLET BIRTH WEIGHT OF SOWS MATED IN SUMMER

PROJECT LEADER: DR FAN LIU, RIVALEA (AUSTRALIA) PTY LTD

Sows mated in summer have an increased abortion rate and produce an increased percentage of born-light piglets (≤1.1 kg), which compromises the efficiency of the pig industry and affects supply and market compliance. We propose to trial the supplementation of a low-dose of aspirin (240 ppm; sodium salicylate), a pharmaceutical intervention commonly used for improving conception and foetal development in humans, during the first 80 days of gestation as a strategy to improve farrowing rate and piglet birth weight of multiparous sows mated in summer. If effective, aspirin supplementation could be developed as an economical intervention to alleviate summer infertility and improve piglet birth weight for the pig industry.

5A–113 BRAIN MEASURES OF POSITIVE WELFARE IN PIGS

PROJECT LEADER: PROFESSOR ALAN TILBROOK, THE UNIVERSITY OF QUEENSLAND

"Quality of life" is a central concept in the welfare of production animals. To determine an animal's quality of life, we must understand how the animal's brain processes life experiences. This project is the first attempt to identify objective indicators of brain function in pigs. The project will contribute to the assessment and improvement of pig welfare by providing quantitative biological measures (biomarkers) of brain function during positive and negative experiences. The project will enable development of non-invasive biomarkers, which the Australasian pork industry can use to inform day-to-day management decisions and continuously improve the welfare of pigs.

PROJECT 5A–114 SMART SENSORS FOR ANIMAL WELFARE MONITORING

PROJECT LEADER: ASSOCIATE PROFESSOR ABEL SANTOS, THE UNIVERSITY OF ADELAIDE

This project builds on the findings of APRIL project A1–106 *A lab on a chip for real time pain and animal welfare biomarker measurement,* which successfully developed multiplexed, cheap, portable on-chip sensing technologies to rapidly detect and assess multiple pain and welfare biomarkers in pigs. The technology enables high-throughput label-free detection, quantification, and molecular fingerprinting of biomarkers in biological samples.

The objective of this project is to verify and assess measures from manufactured plasmonic chips relative to previously analysed samples obtained from pigs by the South Australian Research and Development Institute. This will permit optimisation of concentrations of relevant biomarkers of pain and welfare in pigs.

Objective quantification of relevant biomarkers in biological fluids reflecting welfare states is central to improving animal health and welfare standards. Such information has potential to provide the industry with an evidence-informed, decision-making approach for safe, economical, rational, and sustainable assessment of physiological and affective states in pigs related to pain and welfare.

PROJECT 5A–115: IMPROVING THE FERTILITY OF EXTENDED SEMEN

PROJECT LEADER: ASSOCIATE PROFESSOR MARK NOTTLE, THE UNIVERSITY OF ADELAIDE

Artificial insemination (AI) is used in more than 90% of the Australian pig herd. Successful AI involves the collection of semen which is then diluted with extender to produce multiple doses which is then used for up to 5 days. However, AI pregnancy rates are generally lower than natural mating. This is because semen extenders are relatively simple and do not mimic seminal plasma or the female reproductive tract, where sperm undergo their final maturation.

The aim of the present study is to improve boar sperm function by adding factors found in semen back to commercial extenders.

The project is measuring a range of sperm parameters for up to 5 days after collection to mimic the use of extended semen commercially. The more promising factors will then be examined *in vitro* to determine effects on fertilisation and embryo development. Those that show an effect will then be examined in small scale insemination studies, before progressing to larger on-farm trials.

Part of this work was undertaken by Ms Kaitlin Beltakis, an Honours Student at The University of Adelaide, who was awarded an APRIL Honours Scholarship.

PROJECT 5A–116 HEATING UP THE HOUSE: EVALUATING THE EFFECT OF NOVEL MONITORING AND HEATING SYSTEMS ON THE PRODUCTIVITY, WELFARE AND ECONOMICS OF FARROWING HOUSES

PROJECT LEADER: DR MARIA JORQUERA-CHAVEZ, RIVALEA (AUSTRALIA) PTY LTD

Investigation of novel ways to allow real time monitoring of pigs and innovative sustainable heating sources are required to ensure pork production systems are future proof. This project will further investigate the use of thermal imagery technology and FarrowCam (real time monitoring of farrowing) to evaluate health and welfare of sows and survival of piglets. These technologies will be implemented and tested in a project investigating the impact heat lamps have on the thermal comfort of sows and piglets, comparing the overall performance of the conventional heat lamps that are widely used in Australian piggeries, and two new heating-source options (ANIHEATER® and Hog Hearth® Heat Mats).

Due to the positive results reported in several countries, these two new heating methods are expected to provide better thermal conditions for piglets and sows, and to have a lower cost of maintenance than the conventional heat-lamps. This project will provide pork producers with detailed information about novel monitoring devices and more cost-effective heating-sources to be used in farrowing houses, ensuring increased productivity and sustainability.

PROJECT 5A–117 USE OF AN INHIBIN VACCINE TO INCREASE LITTER SIZE IN PIGS

PROJECT LEADER: PROFESSOR PAUL VERMA [AFFILIATE PROFESSOR (THE UNIVERSITY OF ADELAIDE) AND SCIENCE PROGRAM LEADER – PIGS AND POULTRY (SARDI)]

Average litter sizes born in Australia remain lower than those observed in other pork-producing countries, largely as a consequence of restrictions associated with germplasm importation. One method with demonstrated litter size increase in other species, such as sheep, is vaccination against inhibin. Attenuation of the biological activity of inhibin, that regulates the production of follicle stimulating hormone (FSH), leads to an increase in circulating FSH and, consequently, the ovulation rate.

Studies conducted previously in gilts reported marked improvements in reproductive performance following vaccination against inhibin. This project proposes to extend these preliminary results and further assess the efficacy of inhibin vaccination on aspects of reproductive outcomes, thereby offering a possible means to increase fecundity in the herd.

PROJECT 5A–118: UNDERSTANDING THE IMPACT OF CLIMATE ON THE BOAR AND PROGENY THROUGH SPERM NON-CODING RNA

PROJECT LEADER: DR JEREMY COTTRELL, THE UNIVERSITY OF MELBOURNE

The expression of sperm small-noncoding RNAs (sncRNAs) is influenced by the environment. It is hypothesised that challenging events, such as seasonal heat stress, can influence sperm sncRNAs to compromise reproductive and progeny performance. Measurement of sncRNAs could potentially provide a useful selection tool for reducing the seasonality of reproductive performance.

This project will quantify seasonal variation in sperm sncRNAs between high genetic merit boars from a commercial nucleus facility in the summer and cooler months against progeny performance from single-sire matings. The anticipated outcomes of this project will be improved reproductive and progeny performance of the Australian pork industry.

PROJECT 5A–119: PLACENTOPHAGIA: INVESTIGATING ITS EFFECT ON SOW AND PIGLET PERFORMANCE IN CONFINED AND LOOSE HOUSING SYSTEMS

PROJECT LEADER: DR LAUREN HEMSWORTH, THE UNIVERSITY OF MELBOURNE

Placentophagia is a behaviour observed in most female terrestrial eutherian mammals, consisting of the ingestion of some or all of the placental components expelled during parturition. Although sows will consume the placenta if given the opportunity, intensive pig production systems often prevent ingestion of afterbirth due to either its removal following parturition or confinement housing systems that prevent the sow from accessing it.

The relevant literature suggests that ingestion of the placenta may provide a range of benefits for both the sow and her piglet, via endocrine, analgesic and (or) nutritional effects. These benefits may include greater maternal behaviour through increased sow-piglet interactions, improved postpartum sow recovery, increased milk production and piglet growth and survival. The proposed discovery study aims to better understand the incidence and impacts of placentophagia in pigs.

PROJECT 5A–120: NUTRITIONAL STRATEGIES TO INCREASE INTRAMUSCULAR FAT

PROJECT LEADER: PROFESSOR FRANK DUNSHEA, THE UNIVERSITY OF MELBOURNE

Selection for reduced fatness has inadvertently resulted in Australian pork having a very low concentration of intramuscular fat (IMF), with possible negative implications for pork eating quality. A meta-analysis identified that

collagen concentration is negatively related to beef eating quality, and further work from this laboratory has also shown that collagen content is negatively related to objective pork tenderness, particularly in leg muscles.

Previous work supported by the Pork CRC demonstrated that dietary inulin, a polysaccharide (fructan) from chicory, increased visible marbling, whilst lecithin (glycerophospholipids) decreased collagen concentrations in loins from pork. The loin has similar IMF but lower collagen than leg muscles, hence, this project will use these two dietary strategies to improve the eating quality of a pork.

PROJECT 5A–121: AUTOMATIC ADJUSTMENT OF GESTATING SOW LIVE WEIGHT

PROJECT LEADER: DR DAVID CADOGAN, FEEDWORKS PTY LTD

The innovation in this project will be to use newly-developed software to automatically optimise sow weight during gestation depending on their parity and genotype, which will be conducted by using the ideal weight range set by the PIC genetic company. The optimisation of body weight is predicted to produce 1 pig per sow per year and improve number of sows retained in the herd by 10%.

5A–122: CAN THE PROVISION OF SILAGE AT WEANING IMPROVE SOW WELFARE AND SUBSEQUENT REPRODUCTION?

PROJECT LEADER: DR LAUREN STAVELEY, CHM ALLIANCE PTY LTD / SUNPORK FARMS

Weaning is arguably a stressful period for a sow, as not only is she separated from her piglets but is also mixed with numerous other sows in a new environment and fed a new diet, with feed intake often limited.

A potential strategy to lessen the negative welfare implications weaning can have on sows is to provide enrichment. This not only provides distraction but also induces satiety, which is proven to reduce aggression in gestating sows. Studies have shown that increased glucose and roughage offered prior to mating can have positive effects on reproductive outcomes. This project aims to identify if the provision of silage offered to sows at weaning improves both welfare and productive outcomes.

5A–123 MUM ISN'T HOME: IDENTIFYING GAPS IN KNOWLEDGE IN CREEP FEEDING AND DEVELOPING NOVEL SOLUTIONS TO IMPROVE POST-WEANING ADJUSTMENT IN PIGLETS

PROJECT LEADER: DR MARIA JORQUERA-CHAVEZ, RIVALEA (AUSTRALIA) PTY LTD

For pigs in commercial conditions, the abrupt weaning process not only involves the mother-piglet separation, but also a profound modification of piglets' feeding, feeding habits, environment, and social interactions. This complex period leads to stressful changes for piglets, becoming a great concern for producers and researchers. This project aims to investigate strategies to improve piglets' performance and wellbeing around weaning. This project will investigate (i) the main scientific gaps about the role that creep feeding has in the performance of piglets around weaning transition and its effect in their lifetime performance; and (ii) whether factors such as the characteristics of the creep feeding, the impacts of weaning age and parity, the farrowing environment (pen type etc.), and the time/frequency they offered to young piglets impact their survival and growth rate around weaning.

Ultimately, this project proposes an investigation about novel and inexpensive creep feeding techniques that could facilitate the learning process in piglets, which would consequently trigger eating behaviours that promote growth, reduce piglets' stress and improve their survival during the weaning transition. This would not only improve weaners' welfare, but also the productivity of piggeries. This project will provide science-based, industry-relevant information that could assist the management around weaning transition.

5A–124 POSTNATAL STRATEGIES TO INCREASE MYOFIBRE PROLIFERATION FOR IMPROVING LEAN TISSUE DEPOSITION

PROJECT LEADER: DR FAN LIU, RIVALEA (AUSTRALIA) PTY LTD

Lean meat deposition is positively related with the total myofibre number of pigs. Challenging the classical theory that the myofiber number is fixed by late gestation, some studies showed the myofibre number increases with the proliferations of tertiary myofibre during the first four weeks after birth, implying a novel time window for interventions. We propose to investigate the effects of two oral strategies during the suckling phase to increase myofibre number postnatally. The successful strategy may improve the muscle deposition rate of pigs with positive implications to lean growth, feed efficiency, carcass value, and meat quality.

5A–125 IMPROVING THE FERTILITY OF EXTENDED PIG SPERM

PROJECT LEADER: ASSOCIATE PROFESSOR MARK NOTTLE, THE UNIVERSITY OF ADELAIDE

Artificial insemination (AI) is used in more than 90% of the Australian pig herd. AI involves the collection of semen which is then diluted with extender to produce multiple doses which is then used for up to 5 days. However, AI pregnancy rates are generally lower than natural mating. This is because semen extenders are relatively simple and do not include factors in seminal plasma which are thought to be important in sperm function (motility) and quality. We have recently shown that certain factors found in the female reproductive tract and in seminal fluid, can markedly improve the fertility of extended pig sperm. We have also shown that these increases improve embryo development following in vitro fertilisation. This is the first time to our knowledge that treated sperm has been shown to improve embryo development, providing a novel approach for improving the fertility of extended semen. The aim of the present study is to determine whether the factor under investigation can improve the fertility of extended pig semen.

5A–126 A NOVEL APPROACH FOR AN IMPROVED MYCOPLASMA HYOPNEUMONIAE VACCINE

PROJECT LEADER: ASSOCIATE PROFESSOR FARHID HEMMATZADEH, THE UNIVERSITY OF ADELAIDE

Pigs in Australia continue to suffer from enzootic pneumonia, despite vaccination and antibiotic therapy.

Mycoplasma hyopneumoniae (MHP) has been detected in more than 75% of enzootic pneumonia cases.

The aim of this project is to develop an effective, commercialisation-ready, improved vaccine using a cell culture-based system.

5A–127 COMBATING OEDEMA DISEASE IN AUSTRALIAN PIGS: INVESTIGATING HOST SUSCEPTIBILITY AND ASSESSING VACCINE POTENTIAL OF GUT-ADAPTED E.COLI CLONES

PROJECT LEADER: PROFESSOR SAM ABRAHAM, MURDOCH UNIVERSITY

The proposal aims to combat oedema disease in Australian pigs by investigating host susceptibility and assessing vaccine potential of gut-adapted E. coli clones.

5A–128 EVALUATION OF AN ORAL FLUID-BASED ROBOTIC DIAGNOSTIC AND PROGNOSTIC APPROACH AIMED AT DEVELOPING ARTIFICIAL INTELLIGENCE (AI)- GUIDED INNOVATIVE HEALTH MONITORING STRATEGIES IN PIGS

PROJECT LEADER: DR JASIM UDDIN, MURDOCH UNIVERSITY

This project aims to develop and validate an ELISA panel using a rapid, high-throughput robotic platform to detect disease-specific immune responses and general health indicator biomarkers in pigs through pen-based oral fluid samples collected via cotton ropes.

5A–129 TARGETING THE INTRA-FOLLICULAR ENVIRONMENT TO IMPROVE OOCYTE QUALITY AND EMBRYO DEVELOPMENT

PROJECT LEADER: DR JAMEE DALY, THE UNIVERSITY OF ADELAIDE

Over the last decade, the reproductive efficiency of the Australian Pork industry has improved substantially. So much so, that to push our efficiencies further and rival those in major pig producing countries, we need more targeted protocols to fine tune reproduction. Specifically, targeting the narrow weaning-to-mating interval to improve reproductive rate, through improved oocyte quality, embryo viability and uterine receptivity. Supplementation of compounds that will optimise the follicular fluid environment directly impact the number of total born piglets. Identifying differences in follicular fluid composition between high and low producing sows, and supplementation with these identified compounds will enhance reproductive output.

5A–130 IR PROTOCOL FOR MYCOTOXIN RISK MANAGEMENT IN FEED

PROJECT LEADER: DR MARTA NAVARRO, THE UNIVERSITY OF QUEENSLAND

This innovation project serves as a proof-of-concept to demonstrate that Infrared (IR) technology can rapidly detect mycotoxins in grains on-farm. Wheat and sorghum and key mycotoxins such as zearalenone, fumonisins, and DON will be used to validate IR spectroscopy. Success will enable commercialisation, integrating chemometric models into a user-friendly traffic-light system for real-time risk assessment. Portable IR devices will undergo field validation, allowing on-site monitoring to reduce feed-related losses, improve productivity, and support sustainability.

5A–131 RETHINKING PIGLET CREEP FEEDER DESIGN TO MEET ENRICHMENT DEFINITIONS

PROJECT LEADER: JAMES LANGLEY, CHM ALLIANCE PTY LTD

This project aims to create a novel creep feed delivery system, utilizing a piglet's natural motivation to forage and root. A delivery system that allows and encourages natural behaviours may result in an increase in creep feed intake, resulting in healthier piglets at weaning, improved post-weaning performance, and improved welfare. If successful, this innovation could replace traditional creep feeders within farrowing accommodation and encourage creep feed intake through the piglet's natural expression of these exploratory behaviours.

5A–132 EARLY DETECTION OF APP OUTBREAK IN PIGS HOUSED IN LARGE GROUPS USING COMPUTER VISION TECHNOLOGY

PROJECT LEADER: DR FAN LIU, JBS PORK AUSTRALIA PTY LTD

Actinobacillus Pleuropneumonia (APP) is a main respiratory disease that causes grower/finisher pig losses in Australia. The short incubation time of this bacteria and large group size of pigs to be monitored (e.g., 100 pigs in a pen) pose challenges to a timely administration of antibiotics during an outbreak. Early detection of the APP infection and timely antibiotics administration can reduce mortality and shorten medication duration.

Computer vision-based disease alerts may make earlier and more reliable predictions for APP outbreaks. This project aims to develop a computer vision-based algorithm for predicting APP outbreaks on a pen basis using behavioural features of pigs housed in a large group.

5A–133 USE OF AN INHIBIN VACCINE TO INCREASE OVULATION RATE IN PIGS

PROJECT LEADER: PROFESSOR PAUL VERMA, THE UNIVERSITY OF ADELAIDE

The average litter size in Australia is 11.20 with limited increase seen over time due to restrictions with germplasm import to Australia. One method with demonstrated improvements in litter size in mammals is vaccination against inhibin. Inhibin is a hormone, that regulates the production of follicle stimulating hormone (FSH), attenuation of biological activity of which, leads to an increase in circulating FSH and consequentially ovulation rate. Therefore, vaccination against inhibin should lead to increased fecundity. Preliminary pig studies overseas reported ~35% increase in ovulation and in-utero development rates, however a previous study undertaken by this group using porcine inhibin didn't validate the studies mentioned, likely the result of an inadequate response to vaccination. We aim to immunise with bovine inhibin in this study to overcome the barrier posed by -self-recognition by the immune system, and assess impact on ovulation rate.

5A–134 SALT ENRICHMENT BLOCKS FOR LACTATING SOWS

PROJECT LEADER: DR LAUREN STAVELEY, CHM ALLIANCE PTY LTD

This study explores the role of oxytocin in fluid balance regulation and its potential benefits for periparturient sows through voluntary salt intake. Providing a salt lick block during farrowing may stimulate oxytocin release, enhancing muscle contractions for farrowing, milk letdown, and prolonged colostrogenesis. Increased colostrum availability could improve piglet immunity and survival rates. Additionally, salt blocks may offer enrichment, fulfilling sows' natural salt cravings while supporting welfare.

5A–135 DEVELOPMENT OF A "SPINYCTERIN" VACCINE AGAINST ROTAVIRUS A

PROJECT LEADER: DR GEMMA ZERNA, LA TROBE UNIVERSITY

Rotaviruses (RV) are a significant cause of diarrhea in Australian piglets, leading to reduced growth rates and increased mortality. The severity of disease depends on the RV genotype, which includes A, B, and C types, with diverse G and P groups. This genetic diversity and potential for recombination pose challenges for vaccine development. However, recent sequencing of Australian RV genotypes provides a foundation for a multi-epitope consensus vaccine. This project focuses on developing a vaccine targeting RV A, incorporating unique and conserved epitopes across G and P groups. Using our innovative "Spinycterin" platform, this vaccine aims to enhance piglet health, reduce production losses, and boost sustainability in the pork industry.

5A–136 EFFECTS OF FEEDING AMMONIUM CHLORIDE TO SOWS ON PIGLET GROWTH AND SURVIVAL

PROJECT LEADER: ASSOCIATE PROFESSOR KIRO PETROVSKI, THE UNIVERSITY OF ADELAIDE

High stillbirth and pre-weaning piglet mortality rates strongly correlate with prolonged farrowing durations and higher parity sows. Prolonged farrowing often occurs in older sows, likely a consequence of impaired uterine muscle contractility from a lower blood calcium content. This project aims to investigate the effects of an ammonium chloride (NH_4Cl) supplement in late pregnancy sow diets on farrowing duration and piglet performance.

Expected outcomes include improved colostrum quality and milk yield, decreased farrowing duration with reduced stillbirths, and increased piglet survival and growth.

5A–137 OPTIMISING WATER INTAKE IN WEANER PIGS FOR EFFECTIVE IN-WATER MEDICATION DELIVERY

PROJECT LEADER: DR MARTA NAVARRO, THE UNIVERSITY OF QUEENSLAND

This project aims to enhance the palatability of medicated water for post-weaning piglets using a systematic double-choice approach. Many therapeutic drugs and solubilising agents have aversive taste properties, leading to inconsistent intake and compromised treatment efficacy. By testing a range of flavouring solutions—including pH adjusters, bitter blockers, and palatability enhancers—we seek to improve acceptance and ensure reliable medication consumption. This approach enables precise dosing, optimises therapeutic outcomes, and supports piglet health and welfare. Findings from this study will provide evidence-based strategies for improving oral medication delivery in pig production systems.

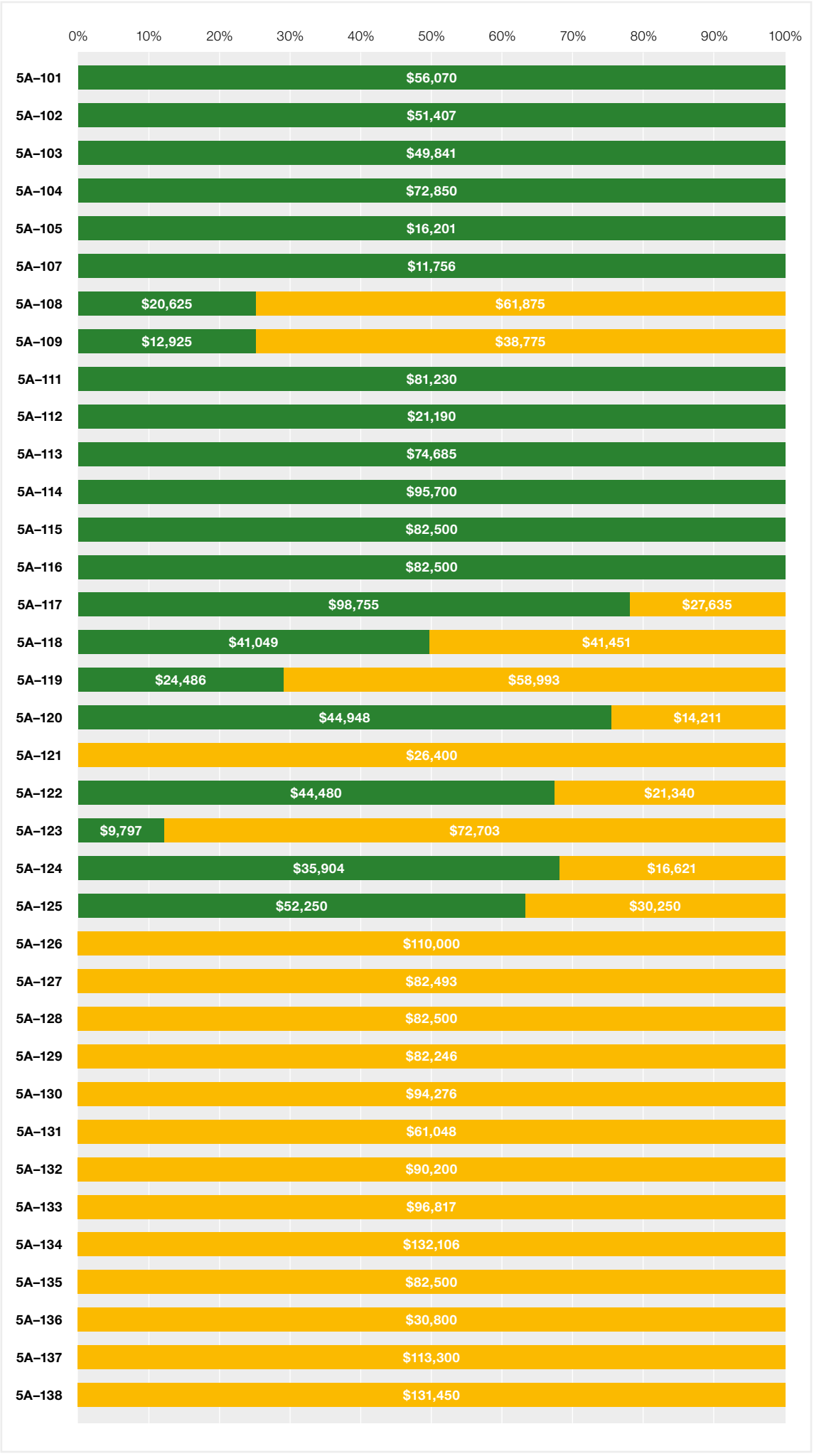
5A–138 UNLOCKING THE NUTRITIONAL VALUE OF AUSTRALIAN CANOLA SEED AND WHOLE SOYBEANS IN PIG DIETS

PROJECT LEADER: PROFESSOR EUGENI ROURA, THE UNIVERSITY OF QUEENSLAND

The Australian pork industry has a high reliability on imported soybean meal (SBM). Retailers are calling for a sustainable source of soybean in pig feeds that does not contribute to deforestation and/or greenhouse gas (GHG) emissions. Locally produced canola and soybean offer a potentially viable alternative but whole seeds fail to meet digestibility requirements in pigs. This project aims to develop novel cost-effective processing strategies that will unlock the nutritional value of locally produced canola/soybean seeds facilitating their use in pig feed formulations.

NO.	PROJECT NAME	LEAD PARTY
5A–101	Real time, in-field water testing	Ridley Agriproducts Pty Ltd
5A–102	Insect meal from pork processing derived material	The University of Melbourne
5A–103	Development of a *Streptococcus suis* vaccine via measurement of immune responses to four different *Streptococcus suis* vaccine preparations, using an Australian cps2 ST25.strain	Murdoch University
5A–104	Low dose dietary strategies in late gestation to enhance born alive and piglet survival and performance	Rivalea (Australia) Pty Ltd
5A–105	Oral means of increasing endogenous GH levels and enhancing the performance and carcass characteristics of growing pigs	Rivalea (Australia) Pty Ltd
5A–107	Using algal extracts to improve weaner growth performance and digestibility	Ridley Agriproducts Pty Ltd
5A–108	What sensory attributes are most critical for consumer evaluation within an Australian Pork eating quality program?	The University of Melbourne
5A–109	Investigating the impact of circulating creatine concentrations in gestation on vitality and survivability of low birth weight piglets	SARDI
5A–110	Real time detection of deep tissue abscesses in carcases using lean meat yield estimation	CHM Alliance Pty Ltd (SunPork Solutions)
5A–111	Escaping the daily grind – coarser ground diets for improved foetal growth	CHM Alliance Pty Ltd (SunPork Solutions)
5A–112	Novel aspirin supplementation during gestation to improve farrowing rate and piglet birth weight of sows mated in summer	Rivalea (Australia) Pty Ltd
5A–113	Brain measures of positive welfare in pigs	The University of Queensland
5A–114	Smart Sensors for Animal Welfare Monitoring	The University of Adelaide
5A–115	Improving the fertility of extended semen	The University of Adelaide
5A–116	Heating up the house: Evaluating the effect of novel heating and monitoring systems on the productivity, welfare and economics of farrowing houses	Rivalea (Australia) Pty Ltd
5A–117	The use of inhibin vaccine to increase litter size in pigs	The University of Adelaide
5A–118	Understanding the impact of climate on the boar and progeny through sperm non-coding RNA	The University of Melbourne
5A–119	Placentophagia: investigating its effect on sow and piglet performance in confined and loose housing systems	The University of Melbourne
5A–120	Nutritional strategies to increase intramuscular fat.	The University of Melbourne
5A–121	Automatic adjustment of gestating sow live weight	Feedworks Pty Ltd
5A–122	Can the provision of silage at weaning improve sow welfare and subsequent reproduction?	CHM Alliance Pty Ltd (SunPork Solutions)
5A–123	Mum isn't home: Using sows' vocalisations and artificial-sound stimuli as novel strategies to improve post-weaning adjustment in piglets	Rivalea (Australia) Pty Ltd
5A–124	Postnatal strategies to increase myofibre proliferation for improving lean tissue deposition	Rivalea (Australia) Pty Ltd
5A–125	Improving the fertility of extended pig sperm	The University of Adelaide
5A–126	A Novel Approach for an Improved Mycoplasma hyopneumoniae Vaccine	The University of Adelaide
5A–127	Combating Oedema Disease in Australian Pigs: Investigating Host Susceptibility and Assessing Vaccine Potential of Gut-Adapted E.coli Clones	Murdoch University
5A–128	Evaluation of an Oral Fluid-based Robotic Diagnostic and Prognostic Approach Aimed at Developing Artificial Intelligence (AI)- guided Innovative Health Monitoring Strategies in Pigs	Murdoch University
5A–129	Targeting the intra-follicular environment to improve oocyte quality and embryo development	The University of Adelaide
5A–130	IR protocol for mycotoxin risk management in feed	The University of Queensland
5A–131	Rethinking piglet creep feeder design to meet enrichment definitions	CHM Alliance Pty Ltd
5A–132	Early detection of APP outbreak in pigs housed in large groups using computer vision technology	JBS Pork Australia Pty Ltd
5A–133	Use of an inhibin vaccine to increase ovulation rate in pigs	The University of Adelaide
5A–134	Salt enrichment blocks for lactating sows	CHM Alliance Pty Ltd
5A–135	Development of a "Spinycterin" vaccine against Rotavirus A	La Trobe University
5A–136	Effects of feeding ammonium chloride to sows on piglet growth and survival	The University of Adelaide
5A–137	Optimising water intake in weaner pigs for effective in-water medication delivery.	The University of Queensland
5A–138	Unlocking the nutritional value of Australian canola seed and whole soybeans in pig diets	The University of Queensland

APRIL INNOVATION PROJECT COMMITMENTS



FEATURE PROJECT: 5A–111

ESCAPING THE DAILY GRIND: COARSER GROUND DIETS FOR IMPROVED FETAL GROWTH

PROJECT LEADER:
Dr Kate Plush (CHM Alliance Pty Ltd, SunPork Group)

PROJECT PARTICIPANTS:
Jessica Zemitis, Dr Sally Tritton, and Dr Darryl D'Souza (CHM Alliance Pty Ltd, SunPork Group)

PROJECT STATUS:
Completed

When it comes to feeding sows in gestation, we often focus on nutrient levels, energy content, and feed efficiency. But new insights suggest something as simple as the grind size of feed could have a surprising impact on piglet development before birth.

Coarser feed particles, unlike finer ones, tend to pass through the small intestine relatively undigested, reaching the hindgut intact. Once there, the feed particles are a fermentable substrate for beneficial gut microbes. This process, call hindgut fermentation, produces short-chain-fatty-acids (SCFAs) like **butyrate**, which has been linked to improved fetal growth in previous rat studies.

RESEARCH QUESTION:
Could feeding sows a coarser ground diet throughout gestation (standard gestational diet with 40% feed particles >1mm) affect growth and development of piglets in utero?

In this series of projects, sows were fed either a coarsely ground diet (40% feed particles greater than 1mm) or Control diet (30% feed particles greater than 1mm). Each sow was fed 2.1kg per day via electronic sow feeder, or 2.4kg per day for thinner sows (P2 backfat less than 16mm).

SNAPSHOT OF KEY FINDINGS

- **Coarser particle diets increased short chain fatty acid production in the feaces and serum of gestating sows**, with a tendency for increased serum butyrate.
- Sows fed the coarser diet had **fewer low birthweight piglets.**
- **Supplementing coarser diets with an exogenous enzyme led to increased litter sizes**, supporting greater sow productivity.

Further work is required to determine the exact mechanism(s) by which a coarser diet fed to gestating sows reduced the impact of low birthweight piglets. Additionally, there may be other benefits to feeding larger grain particles to sows not quantified in this project.

SUPPLEMENTING COARSER DIETS WITH AN EXOGENOUS ENZYME LED TO INCREASED LITTER SIZES, SUPPORTING GREATER SOW PRODUCTIVITY

FIGURE 5

Gestating sows fed either a coarsely ground diet (40% particles > 1mm) on the left or Control diet (30% particles > 1mm) on the right-hand side.

FEATURE PROJECT: 5A–116

HEATING UP THE HOUSE: EVALUATING THE EFFECT OF NOVEL MONITORING AND HEATING SYSTEMS ON THE PRODUCTIVITY, WELFARE AND ECONOMICS OF FARROWING HOUSES

PROJECT LEADER:
Dr Jessica Craig (Rivalea Australia Pty Ltd, JBS Pork Division)

PROJECT PARTICIPANTS:
Dr Maria Jorquera-Chavez (CSL Seqirus, formerly Rivalea Australia Pty Ltd, JBS Pork Division), Dr Rebecca Morrison (Australian Pork Limited, formerly Rivalea Australia Pty Ltd, JBS Pork Division), Mr Steve Smith and Mr Eugene Ip (Rivalea Australia Pty Ltd, JBS Pork Division)

PROJECT STATUS:
Completed

AIMS AND OBJECTIVES

The main objective of the project was to investigate the impact of different heat sources (Aniheater® and Hog Hearth® Heat Mats) used in the creep area in comparison to conventional heat lamps on the thermal comfort, welfare and productivity of sows and piglets. It was hypothesised that these new heating methods would provide better thermal conditions for piglets and sows and have a lower cost of maintenance than the conventional heat lamps.

KEY FINDINGS

- **Thermal Comfort and Piglet Mortality:** The study found that the type of heating source significantly impacted piglet mortality, especially during summer. Heat mats resulted in the lowest piglet mortality rates compared to conventional heat lamps and Aniheater® devices.
- **Cost-Effectiveness:** Heat mats were found to be the most cost-effective heating source, with the lowest electricity usage and maintenance costs. The payback period for heat mats was 2.3 years, while it was 1.2 years for the Aniheater® device.
- **Sow Welfare:** The ear-base temperature of sows was significantly higher in pens equipped with conventional heat lamps compared to those with heat mats or Aniheater® devices, which may indicate that heat lamps may negatively impact sow thermal comfort during hot periods.
- **Energy Efficiency:** Heat mats consumed significantly less electricity (34.3 kWh per crate per lactation) compared to heat lamps (81.3 kWh) and Aniheater® devices (84.2 kWh), making them the most energy-efficient option.

APPLICATIONS TO INDUSTRY

- The use of thermal imagery technology has proven valuable for monitoring pigs' welfare, offering real-time data for informed management decisions. This technology can reduce heat stress in sows and improve piglet survival rates.
- The comparison of conventional heat lamps with Aniheater® and Hog Hearth® Heat Mats highlights the potential for these novel heating solutions to replace traditional methods. These new systems offer improved thermal comfort for piglets and enhanced energy efficiency, reducing operational costs and improving the sustainability of pig farming operations
- Adopting Hog Hearth® Heat Mats can lead to significant reductions in energy costs and maintenance requirements. These mats consume less energy than conventional heat lamps and require less maintenance, lowering utility bills and labour costs for producers.

HEAT MATS WERE FOUND TO BE THE MOST COST-EFFECTIVE HEATING SOURCE, WITH THE LOWEST ELECTRICITY USAGE AND MAINTENANCE COSTS

THE PAYBACK PERIOD FOR HEAT MATS WAS 2.3 YEARS, WHILE IT WAS 1.2 YEARS FOR THE ANIHEATER® DEVICE

FIGURE 6

Piglets lying on the Hog Hearth® Heat Mats placed in the creep area in the conventional farrowing crate.

FEATURE PROJECT: 5A–113

BRAIN MEASURES OF POSITIVE WELFARE IN PIGS

PROJECT LEADER:
Professor Alan Tilbrook (University of Queensland)

PROJECT PARTICIPANTS:
Dr Luoyang Ding, University of Western Australia, Associate Professor Dominique Blache, University of Western Australia, Katelyn Tomas (PhD student), University of Queensland, Dr Kate Plush, CHM Alliance Pty Ltd (SunPork), Dr Darryl D'Souza, CHM Alliance Pty Ltd (SunPork), Robert Hewitt, CHM Alliance Pty Ltd (SunPork), Professor Archa Fox and Professor Shane Maloney, University of Western Australia

PROJECT STATUS:
Completed

CAN WE MEASURE A PIG'S EMOTIONAL STATE?

Although we may generally know if a pig is feeling happy, stressed or bored through behavioural indicators, it can be challenging to measure these responses accurately when conducting research on emotional states. In this pilot study, researchers wanted to work out if the emotional state of a pig, both long term and short term positive and negative experiences, could be measured using different biological markers (**Biomarkers**).

WHAT WERE THE BIOMARKERS TESTED?

- **Cortisol**, a hormone commonly released in mammalian stress response.
- The ***NEAT1*** gene, which may play a role in how the brain responds to a negative stress or positive stimulation.
- **Mid Infrared Spectroscopy** (MIR) to measure chemical changes in the brain.

RESEARCH QUESTION:

Can any of these biomarkers (cortisol, NEAT1 or MIR) identify whether pigs experience positive, negative or neutral emotional states and therefore can the biomarkers be used to assess the quality of life in pigs?

WHAT DID THEY DO?

The pigs were split into one of three treatment groups for over four weeks:

1. **Neutral Group:** Standard on farm conditions.
2. **Positive Group:** Lots of positive handling and high-quality enrichment materials (greater than standard conditions).
3. **Negative Group:** Regularly moved and mixed with unfamiliar pigs to trigger a mild stress response.

SNAPSHOT OF KEY FINDINGS

For pigs that experienced a short-term stress event (snout snare restraint), the level of **NEAT1** gene in the saliva was lower, and the level of **cortisol** was higher. However, the presence of this **NEAT1** gene did not differ much between pigs housed in either neutral, positive or disruptive environmental conditions.

In fact, none of the bio-markers: cortisol, NEAT1 or MIR could successfully detect long term emotional states between treatment groups in this pilot study.

Notably, pigs in the disruptive/negative environment grew slower than pigs in positive or neutral environments.

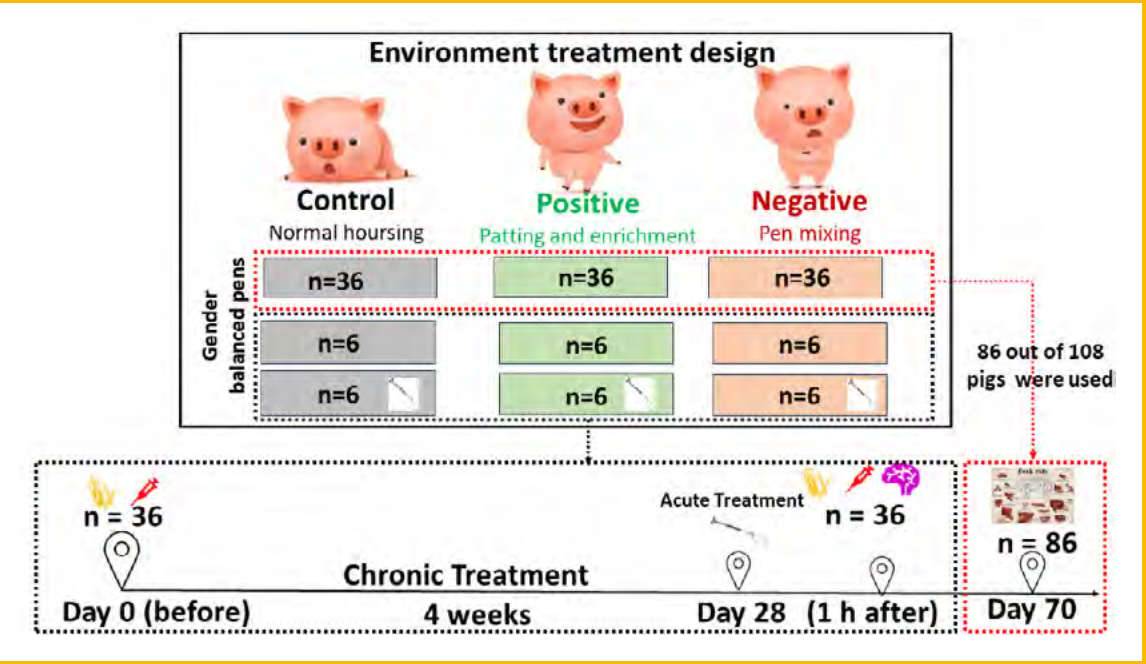
RELEVANCE TO INDUSTRY

While more research is needed in this area, the outcomes suggest the NEAT1 gene could become a useful, non-invasive biomarker for measuring acute stress in pigs through saliva sampling. With ongoing research into this area, it is hoped industry will one day gain a clearer, more objective measure of detecting emotional states of pigs for future.

WHILE MORE RESEARCH IS NEEDED IN THIS AREA, THE OUTCOMES SUGGEST THE NEAT1 GENE COULD BECOME A USEFUL, NON-INVASIVE BIOMARKER FOR MEASURING ACUTE STRESS IN PIGS THROUGH SALIVA SAMPLING

FIGURE 7

An overview of the experiment, animals and design.

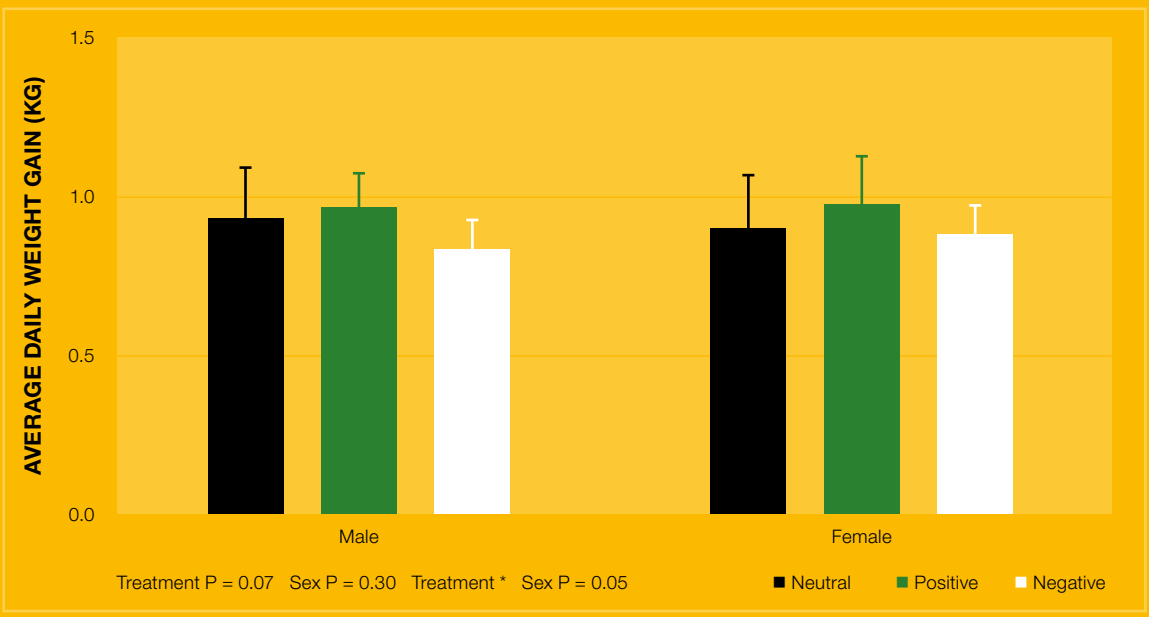


One-hundred-and-forty-four pigs were used for the entire project, with sex balanced pigs randomly assigned into three environmental treatments (Neutral, Positive, and Negative) for four weeks. Thirty-six pigs were randomly selected for biological sampling and of the remaining 108 pigs, 86 were used for the analysis of meat quality at 22 weeks of age. The subset of 36 pigs (age: 12 weeks) had baseline blood and saliva collected prior to commencing treatment. After 4 weeks of environmental treatment, half of the subset pigs received an aversive stimulus (snout snare restraint), and the other half did not (no snare) to stimulate an acute stress response. One hour after stimulation, a second saliva and blood sample were collected. Pigs were then humanely killed, and different regions of the brain were dissected and snap frozen for later analysis. The prefrontal cortex was fixed before analysis using infrared spectroscopy.

FIGURE 8

The 4-week ADG of pigs exposed to conditions of normal husbandry (neutral), positive enrichment (positive), and weekly pen mixing (negative).

The ADG was calculated from 132 pigs after removing 12 outliers and analysed with ANOVA. Data are shown as mean +/– SD.



RESEARCH REPORT

INDUSTRY PRIORITY PROJECTS

WHAT IS AN INDUSTRY PRIORITY PROJECT?

APRIL has prioritised several industry challenges that if solved will assist in improving Australasian pork production. Industry Priority Projects are shorter-term, more focussed projects directed at solving these challenges through investments in collaborative research projects.

THE PRIORITY CHALLENGES THAT APRIL IDENTIFIED IN THE STRATEGIC PLAN 2019–2022 ARE:

- **Effective monitoring of foreign disease incursions in Australasia.**
- **Novel approaches to allow increased use of food wastes in pig diets.**
- **Making pigs more tolerant to heat.**
- **Improved water quality for use/re-use on-farm and in processing facilities.**
- **Alternate methods to control/eradicate endemic diseases.**
- **Development of real time monitoring and surveillance technologies under commercial conditions.**
- **Detecting sow reproductive state more efficiently and effectively.**
- **Establish pork as an integral part of a healthy lifestyle.**
- **Reducing variation in lifetime performance.**
- **Biodegradable packaging solutions for pork products.**
- **Heavier carcasses.**

FUTURE PRIORITIES

The 2023–2025 APRIL strategic plan focused on Innovation and Transformational projects, and so no Industry Priority Projects were contracted during this period.

The introduction of the Green paper process has once again identified priorities for Industry Priority Projects, and for 2025/26 these are:

PIG CARE AND WELLBEING

Expected outcomes: Providing novel tools or approaches to support continuous improvement and assessment of pig care and wellbeing and demonstrate the welfare credentials of the Australian pork industry.

- Objective assessment of pig care and wellbeing.
- Generation of a suite of suitable biomarkers indicating positive welfare attributes at end of life.
- Enrichment and management strategies to prevent tail biting.
- Feed additives/nutritional strategies for positive welfare attributes.

PIG HEALTH, BIOSECURITY AND ANTIMICROBIAL STEWARDSHIP

Expected outcomes: Delivering novel technologies and approaches to mitigate risks and production impacts of infectious diseases, enhance emergency animal disease preparedness, and reduce antimicrobial use.

- Limiting the use of in feed antibiotics and enhancing the effectiveness and efficacy of water medication (in accordance with the Australian Strategic and Technical Advisory Group on Antimicrobial Resistance (ASTAG)).
- New vaccines/new vaccine technologies/delivery technologies to tackle key diseases.
- Alternative vaccine delivery technologies to reduce needle use.

PIG PROCESSING

Expected outcome: Ensuring a sustainable processing sector for the future.

- Maintaining CO_2 as the primary stunning gas in Australia.
- Avoiding foreign object contamination in carcasses.

FEEDING AND NUTRITION

Expected outcome: Making positive contributions to lowering the overall cost of production.

- Rapid identification of poor-quality manufactured feed.
- Improved management of feed bin/silo allocation of feeds and management.
- Greater understanding of heat increment with respect to nutrient requirements.

DATA AND INFORMATION

Expected outcome: Exploiting the benefits of technologies with existing and future information for more efficient and profitable pig production and processing.

- Automatic capture and use of information (e.g., smart sensors, digital technologies, artificial intelligence for more efficient and cost-effective pig management).
- Use of artificial intelligence technologies for welfare assessment at critical production points including farrowing and lactation with different farrowing systems.
- Use of artificial intelligence technologies for welfare assessment at critical production points including processing.

PROJECTS

APRIL has invested in the following projects addressing the “Making pigs more tolerant to heat”, “Reducing variation in lifetime performance”, “Development of real time monitoring and surveillance technologies under commercial conditions,” “Detecting sow reproductive state more efficiently and effectively“ and “Novel approaches to allow increased food wastes in pig diets” priorities:

6A–101 HEAT TOLERANCE (HT) IN LACTATING SOWS: DIETARY STRATEGIES, METABOLIC BIOMARKERS AND MICROBIOME SIGNATURE

PROJECT LEADER: PROFESSOR EUGENI ROURA, THE UNIVERSITY OF QUEENSLAND

- Test selected dietary supplements to increase the heat tolerance of the lactating sow.
- Identify individual variations in metabolism between heat tolerant and less heat tolerant sows during lactation (metabolic and microbiome markers in resilient compared to the most vulnerable individuals).

6A–102 HOT AND BOTHERED! LONG TERM IMPACTS OF LATE PREGNANCY HEAT STRESS ON SOWS AND PROGENY

PROJECT LEADER: DR KATE PLUSH, SUNPORK FARMS

- Demonstrate that heat stress results in a longer duration of farrowing.
- Identify the impacts longer farrowing duration has on (a) the sow and (b) the piglet, and how this impacts long term performance.
- Test dietary/water additives for reducing farrowing duration during times of heat stress and determine the production advantages at a commercial level.
- Conduct a cost:benefit analysis and assessment of farrowing room cooling in the hotter months.

6A–103 EASING THE WEANING TRANSITION: LARGE PIGLETS FROM LARGE PELLETS

PROJECT LEADER: MR ROBERT HEWITT, SUNPORK FARMS

- Reduce weight variability around weaning through combining two complimentary technologies, large pellets and semi-moist extruded feed, to improve feed intake in the period immediately post-weaning, sustaining weight gain.

6A–104 USE OF THERMOGRAPHIC TECHNOLOGY TO DETECT REPRODUCTIVE STATE IN SOWS AND IMPROVE PIGLET PERFORMANCE IN A COMMERCIAL FARROWING HOUSE

PROJECT LEADER: DR JESSICA CRAIG, RIVALEA (AUSTRALIA) PTY LTD

- Identify the optimum position on the sow for surface temperature measurements in order to predict success in lactation of sows, their health status, as well as the viability of their piglets at birth.
- Early detection of at-risk piglets, farrowing difficulties, and/or MMA to provide producers with the tools for early intervention for sows and piglets at risk.

6A–105 FOOD WASTE TO PIG FEED – SAFE AND BIO-SECURE

PROJECT LEADER: DR VALERIA TOROK, SARDI
JOINT PROJECT WITH THE FIGHT FOOD WASTE CRC

- Address novel approaches to allow increased use of food wastes in pig feed.
- Identify food safety/biosecurity risks and strategies to mitigate perceived risks of utilising food waste streams into pig feed.
- Identify waste streams with the least variability in quality and quantity.
- Determine the economic feasibility of utilising food waste for pig feed in key regional production areas.

6A–106A PRECISION MONITORING OF REPRODUCTIVE STATE VIA DEVELOPMENT OF PEN SIDE MUCUS TESTING AND CONTINUOUS REMOTE MONITORING

PROJECT LEADER: PROFESSOR PAUL VERMA, SARDI

6A–106B PRECISION MONITORING OF REPRODUCTIVE STATE VIA DEVELOPMENT OF PEN SIDE MUCUS TESTING AND CONTINUOUS REMOTE MONITORING

PROJECT LEADER: ASSOCIATE PROFESSOR ROS BATHGATE, THE UNIVERSITY OF SYDNEY

These studies will be conducted in parallel and both projects will contribute to two priority areas: detection of sow reproductive state and development of real-time monitoring technologies.

There are three aims to the projects, namely:

1. In sows and gilts, to determine whether oestrus and ovulation are accurately identifiable by:
   i. changes in the concentration of ions in cervical mucus using Near InfraRed Spectroscopy (NIRS)
   ii. the use of accelerometers
   iii. alterations in the glycomic profile of cervical mucus using liquid chromatography-mass spectrometry.

2. To devise and implement an innovative oestrous detection protocol using NIRS cervical mucus analysis to compare conception and farrowing rates with conventional oestrus detection following either double or single dose artificial insemination.
3. In sows, to determine whether the glycomic profile of cervical mucus accurately detects:
   i. seasonal infertility
   ii. pregnancy status prior to 28 days post-insemination
   iii. the onset of parturition.

6A–107 DEVELOPING HIGH-THROUGHPUT MOLECULAR SCREENING TECHNIQUES TO DETECT RECIPROCAL TRANSLOCATION IN BOARS

PROJECT LEADER: PROFESSOR TARIQ EZAZ, THE UNIVERSITY OF CANBERRA

This project aims to identify diagnostic DNA markers associated with Reciprocal Chromosomal Translocations (RCTs) in boars. It will use new methodologies to identify single nucleotide polymorphisms and Presence-Absence markers linked with chromosome rearrangements and therefore associated with boar infertility.

The primary objective is to enable detection of RCTs cheaply in a high-throughput manner, enabling the widespread adoption of this technology, and reducing the incidence of low litter size. A secondary objective will see an expansion of the original screening conducted in APRIL project A3B–103 to additional genetic suppliers to detect the incidence of RCTs in the wider boar population.

THE INDIVIDUAL VARIATION IN TISSUE DEPOSITION RATE OF PROGENY PIGS ORIGINATES FROM MULTIPLE FACTORS IN THE FOETAL, PREWEANING, WEANER, AND GROWER/FINISHER PHASES

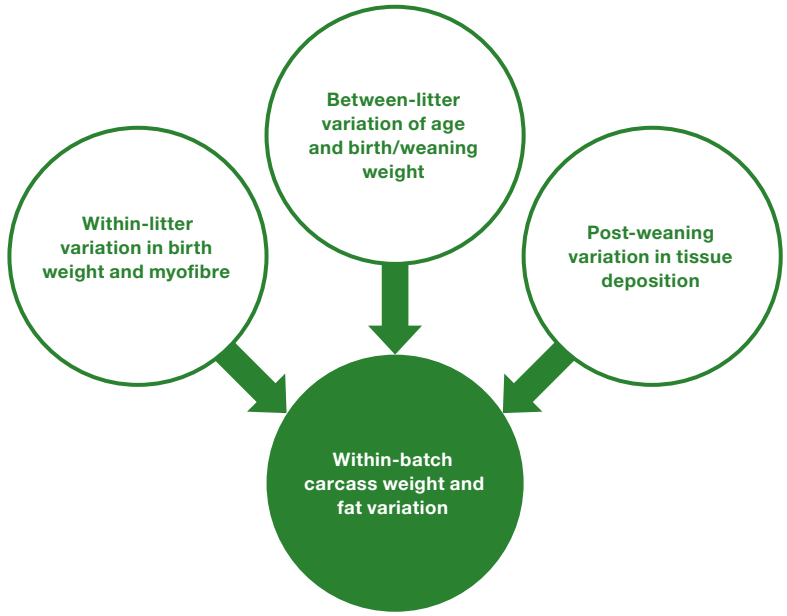


FIGURE 9

Sources of within-batch variation in pig carcasses.

6A–108 HOW LOW CAN YOU GO? OPTIMISING THE USE OF CALCIUM NITRATE (CAN) IN GESTATING SOW DIETS TO REDUCE PIGLET BIRTHWEIGHT VARIATION AND IMPROVE THEIR LIFETIME PERFORMANCE

PROJECT LEADER: DR JESSICA CRAIG, RIVALEA (AUSTRALIA) PTY LTD

This project will investigate the use of calcium nitrate (CAN) in sow diets to improve piglet birth weights and reduce variation in birth weight and lifetime performance.

Following on from a previous APRIL project (5A–104), the current project will aim to optimise strategies for the practical use of CAN and investigate three different timings of CAN supplementation in gestation (i.e., throughout gestation, late gestation from day 90 until farrowing, and the pre-farrowing transition period from entry to the farrowing house until farrowing), to discover the most cost-effective strategy for producers.

The use of a low-dose, low-cost feed additive in the form of CAN, over a relatively short period of time, is anticipated to increase birth weights and reduce birth weight variability. In turn, this is expected to reduce variation in carcass weights and result in heavier carcasses overall, reducing cost of production and improving profitability.

6A–109 REVIEW: IDENTIFYING KNOWLEDGE GAPS AND STRATEGIES TO IMPROVE PROGENY UNIFORMITY OF PIGS

PROJECT LEADER: DR FAN LIU, RIVALEA (AUSTRALIA) PTY LTD

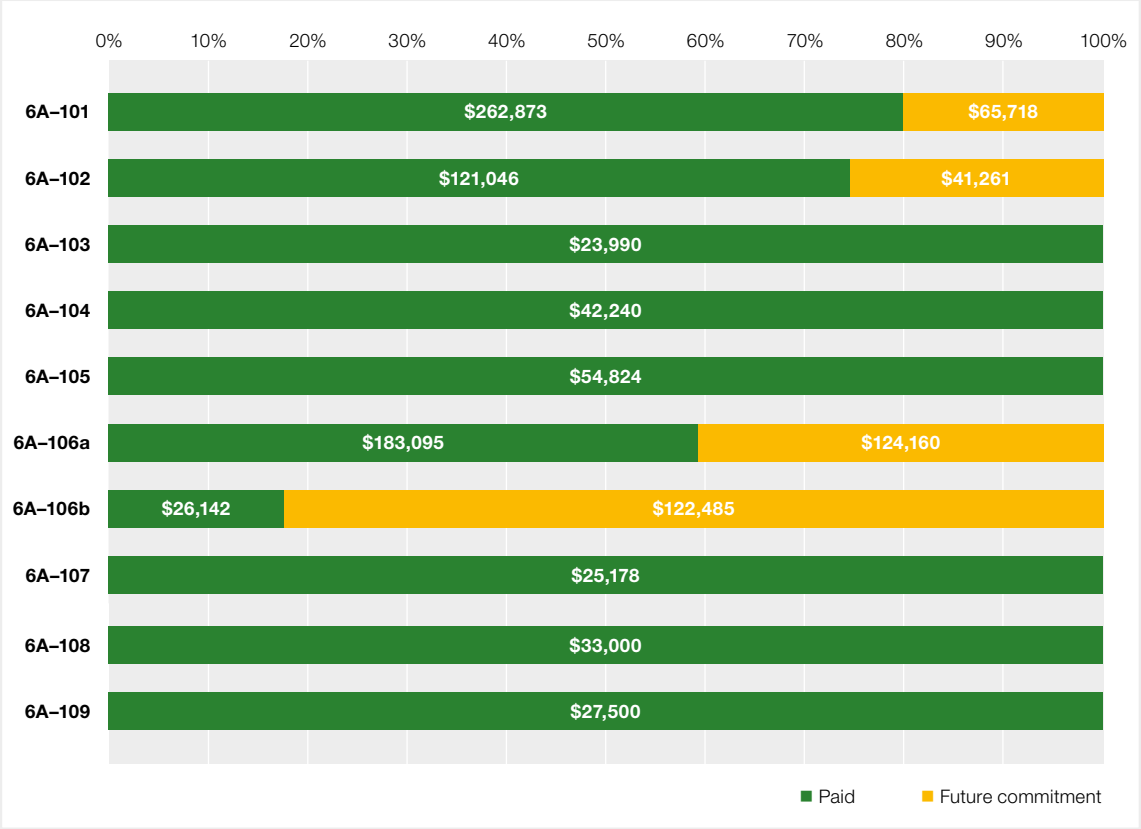
Carcass weight and fatness are the two most important factors that determine the carcass value in the Australasian pig industry. Improving the uniformity of carcass weight at a given slaughter age and the uniformity of backfat at a given carcass weight can reduce sorting required for marketing, shorten the selling duration of a progeny batch and improve carcass compliance, thereby improving profitability.

The variation of carcass weight and backfat in a progeny batch are a reflection of different lifetime tissue deposition rates among individual pigs. The individual variation in tissue deposition rate of progeny pigs originates from multiple factors in the foetal, preweaning, weaner, and grower/finisher phases (Figure 9).

A Literature Review will be conducted to explore the key physiological and nutritional factors during the prenatal, neonatal, or postnatal phase that are associated with the individual variation of tissue growth. The outcome of the review will facilitate the potential development of a research program to reduce the within-batch variation of progeny pigs.

NO.	PROJECT NAME	LEAD PARTY
6A–101	Heat Tolerance (HT) in lactating sows: dietary strategies, metabolic biomarkers and microbiome signature	The University of Queensland
6A–102	Hot and Bothered! Long term impacts of late pregnancy heat stress on sows and progeny	CHM Alliance Pty Ltd (SunPork)
6A–103	Easing the transition: large piglets from large pellets	CHM Alliance Pty Ltd (SunPork)
6A–104	The use of thermographic technology to detect reproductive state in sows and improve piglet performance in a commercial farrowing house	Rivalea (Australia) Pty Ltd
6A–105	Food waste to pig feed – Safe and Bio-secure	Fight Food Waste CRC
6A–106a	Precision monitoring of reproductive state via development of pen side mucus testing and continuous remote monitoring	SARDI
6A–106b	Precision monitoring of reproductive state via development of pen side mucus testing and continuous remote monitoring	The University of Sydney
6A–107	Developing high throughput molecular screening techniques to detect reciprocal translocation in boars [cancelled due to technical difficulties]	The University of Canberra
6A–108	How low CAN you go?: Optimising the use of calcium nitrate (CAN) in gestating sow diets to reduce piglet birthweight variation and improve their lifetime performance	Rivalea (Australia) Pty Ltd
6A–109	Review: Identifying knowledge gaps and strategies to improve progeny uniformity of pigs	Rivalea (Australia) Pty Ltd

APRIL INDUSTRY PRIORITY PROJECT COMMITMENTS



EDUCATION AND TRAINING REPORT


APRIL

APRIL EDUCATION AND TRAINING PROGRAM

APRIL is committed to helping build skilled human resources for the benefit of industry, whether it be through supporting tomorrow's researchers through undergraduate projects (e.g. Honours) and postgraduate support such as PhD scholarships and Doctor of Veterinary Medicine projects, or training highly skilled staff in pork production through the Industry Placement Program.

During the reporting period, APRIL supported two researchers under the Post-Doctoral Fellowship Scheme which provides support to Universities to employ an early career research scientist focused on pork industry research.

APRIL has a dedicated Education Advisory Committee that ensures APRIL's education and training programs are relevant and operating efficiently to meet these goals.

TOMORROW'S RESEARCHERS

As at 30 June 2025, APRIL has supported scholarships for the following undergraduate and postgraduate students:

...THE PHD STUDENTS INVOLVED IN THESE PROJECTS ARE WORKING ON REAL-WORLD ISSUES ON COMMERCIAL PRODUCTION UNITS...

STUDENT	UNIVERSITY	QUALIFICATION	STATUS
Brittany Silva	Murdoch University	DVM	Completed
Ryan Kristen	The University of Sydney	DVM	Completed
Bianca Hatze	The University of Sydney	DVM	Completed
Eva Vidacs	The University of Melbourne	Honours	Completed
Suzanna Jones	Murdoch University	Honours	Completed
Stephanie Shields	The University of Sydney	Honours	Completed
Kaitlin Beltakis	The University of Adelaide	Honours	Completed
Amelia Sofra	The University of Melbourne	Honours	Completed
Tanishka Munjal	The University of Melbourne	Honours	Completed
Emma Goode	University of New England	MSc	Completed
Isabel Stanley	The University of Melbourne	MSc	Completed
Tanya Laird	Murdoch University	PhD	Completed
Elisabet Puig-Garcia	The University of Queensland	PhD	Ongoing
Abedin Abdallah	The University of Queensland	PhD	Ongoing
Katelyn Tomas	The University of Queensland	PhD	Completed
Rutu Galea	The University of Melbourne	PhD	Ongoing
Md Shariful Islam	University of New England	PhD	Ongoing
Soraya Leedham (nee Haynes)	Murdoch University	PhD	Completed
Viet Hai Tran	The University of Queensland	PhD	Ongoing
Xianyi Liu	The University of Queensland	PhD	Ongoing
Paul Bogere	The University of Queensland	PhD	Ongoing
Astrid del Rocio Coba Cedeno	The University of Queensland	PhD	Ongoing
Cintia Amaral	Murdoch University	PhD	Ongoing
Sarah James	The University of Adelaide	PhD	Ongoing
Ashiqur Rahman	Murdoch University	PhD	Ongoing
Wendy Izedonmwen	The University of Queensland	PhD	Ongoing

In addition, a number of projects involving APRIL funding also provide student support. Examples include the Australian Research Council-Linkage projects involving APRIL as a Partner Organisation, titled *Early stress experiences and stress resilience and emotionality in pigs* and *How to make antimicrobials in pig feed redundant, naturally*. The nature of these projects, directly involving industry, means that the PhD students involved in these projects are working on real-world issues on commercial production units, meaning not only do they gain a PhD but also are well equipped to enter the workforce having a greater understanding and appreciation of production.

INDUSTRY PLACEMENT PROGRAM

APRIL supports an Industry Placement Program (IPP), similar to that successfully initiated in the Cooperative Research Centre for High Integrity Australian Pork. The Pork CRC's IPP placed more than a dozen highly credentialed young people in industry positions where they leveraged their academic skills and qualifications to add value to their workplaces, and APRIL seeks to continue this valuable legacy.

As part of an IPP Award, APRIL will provide the successful business applicant with $75,000 over the first two years to help cover salary and other costs associated with training the awardee for three years.

As at 30 June 2025, APRIL has supported the following IPP students:

AWARDEE	EMPLOYER	STATUS
Sofie Pridgeon	CHM Alliance Pty Ltd (SunPork)	Completed
Dr Jessica Craig	Rivalea (Australia) Pty Ltd	Completed
Dr Lauren Staveley	CHM Alliance Pty Ltd (SunPork)	Completed
Dr Maria Jorquera-Chavez	Rivalea (Australia) Pty Ltd	Completed
Dr Nandi van Wyk	Apiam Animal Health Ltd/ Portec	Completed
Dr Maximiliano Muller	The University of Queensland	Completed
Dr Samantha Sterndale	Westpork Pty Ltd	Ongoing
Patrick Hurley	CHM Alliance Pty Ltd (SunPork)	Ongoing

POST DOCTORAL FELLOWSHIP SCHEME

APRIL has established a Post Doctoral Fellowship Scheme. The Scheme supports early career researchers (less than 3 years' experience since PhD conferral), and its main objectives are to:

- Attract and retain high calibre early career researchers for the benefit of the pork industry.
- Provide a Post-Doctoral Fellow with the time and support to develop their demonstrated research potential and track record.
- Assist in establishing a Post-Doctoral Fellow with a successful career trajectory.

The first two awardees are set out in the table below:

AWARDEE	EMPLOYER	STATUS
Dr Bryony Tucker	South Australian Research and Development Institute	Ongoing
Dr Gemma Zerna	LaTrobe University	Ongoing

STUDENT PROFILE:
DR KATELYN TOMAS

FORMER EDUCATION AND TRAINING AWARDEE TAKES ON NEW ROLE AT JBS PORK AUSTRALIA

We would like to congratulate Dr Katelyn Tomas, a previous recipient of the APRIL Education and Training Award, on the successful confirmation of her PhD candidature at the University of Queensland this year.

Katelyn's research explored how maternal behaviour, and early human interactions influence the long-term stress responses of pigs. Her work was supported by APRIL through a two-year top up scholarship.

We caught up with Katelyn to share more about her journey, her research and current role at JBS Pork Australia…

1. WHAT INSPIRED YOU TO FOCUS YOUR PHD ON MATERNAL BEHAVIOUR AND STRESS IN PIGS?

Honestly, I was asked if I wanted to do a PhD where I got to pat baby pigs!

Jokes aside, my passion for improving animal welfare led me to explore how pigs respond to stress and how we can support them through life's challenges. This project offered a unique opportunity to study a cohort of pigs from birth to post-slaughter, allowing for a comprehensive understanding of their development. I was particularly interested in how positive human interaction, along with maternal care, can promote positive welfare states and enhance pigs' resilience in challenging situations that arise in commercial conditions.

2. HOW DID THE APRIL TOP UP SCHOLARSHIP SUPPORT YOUR JOURNEY, AND WHY ARE PROGRAMS LIKE THIS IMPORTANT?

The APRIL top-up scholarship provided vital financial support, supplementing the base RTP stipend which falls well below minimum wage. Beyond funding, APRIL offered valuable professional development opportunities, including invitations to stakeholder meetings and platforms to present my research, where constructive feedback helped shape my work.

3. WERE THERE MOMENTS DURING YOUR PHD THAT WERE PARTICULARLY REWARDING OR CHALLENGING?

One of the most rewarding moments was witnessing the final stage of my study at Big River Pork, where I saw the pigs, I had worked with daily for six months being processed and the entire boning room from carcass entry to the boxes being packaged being filled with only a small subset of my pigs. It made me consider all the people that they would feed and the number of families that would come together to share their weekend pork roast. It was a powerful reminder of the scale of food production and the impact of our research on both animal welfare and the people who benefit from it.

4. HOW DO YOU SEE YOUR RESEARCH BEING USED IN THE INDUSTRY, AND WHAT IMPACT WOULD YOU LIKE IT TO HAVE?

I hope my research encourages the integration of positive human contact into routine pig management, as even brief interactions can improve pigs' ability to cope with stress. Additionally, I hope that I have highlighted the importance of maternal and social behaviours in pigs, contributing to the development of free-farrowing systems.

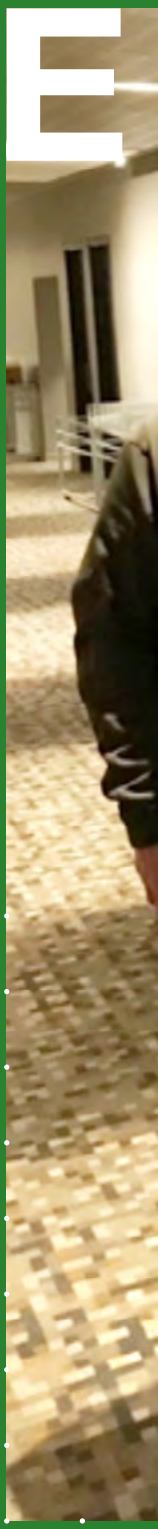
5. WHAT IS NEXT FOR YOU?

I have recently been employed as a Research Scientist at JBS Pork Australia and have already started working on some APRIL affiliated projects.

We look forward to seeing more project ideas from Katelyn as she embarks on her new career as research scientist with JBS Pork Australia!

I HOPE MY RESEARCH ENCOURAGES THE INTEGRATION OF POSITIVE HUMAN CONTACT INTO ROUTINE PIG MANAGEMENT, AS EVEN BRIEF INTERACTIONS CAN IMPROVE PIGS' ABILITY TO COPE WITH STRESS

CORPORATE GOVERNANCE



STRUCTURE

The Australasian Pork Research Institute Ltd (APRIL) is a tax exempt Australian public not-for-profit company limited by guarantee.

At 30 June 2025, APRIL had 7 Ordinary (voting) Members, one (non-voting) Supporting Member, and two (non-voting) Corporate Partners.

In accordance with the new APRIL Participant Agreement, several organisations chose to cease their membership and became Gold or Bronze level Participants during the year.

GOVERNANCE

Board membership consists of:

- An independent Chairperson and one other independent Director nominated by the Board and appointed by vote of Ordinary Members at a general meeting.
- Two Directors appointed by Australian Pork Limited (APL).
- Four Directors appointed by vote of Ordinary Members at a general meeting from nominations provided by Ordinary Members.
- One Executive Director, being the Industry Chief Scientist, by virtue of their appointment to that role.

All nominees must add skills to the Board in one or more of the following areas:

a. As a member of the Australian Institute of Company Directors or other appropriate qualifications or accreditations to be a Director.
b. Pork production and processing.
c. Business management.
d. Finance and accounting and/or auditing.
e. Corporate governance.
f. Marketing.
g. Administration and commercialisation of research and development.
h. Environment.
i. Animal science and welfare.
j. Education.
k. Any other skills determined by the Directors from time to time.

The Board has approved the Governance Manual and Code of Conduct which set out the expectations and responsibilities of Directors under APRIL's governance framework.

Individual Directors have a right to obtain information necessary for them to discharge their duties from executives employed by APRIL.

Directors may seek independent professional advice, at the expense of the company if any Director wishes to do so, subject to prior agreement of the Chairperson.

THE BOARD IS RESPONSIBLE FOR DECISIONS RELATING TO THE INVESTMENT OF APRIL FUNDS, THE RESEARCH PROGRAM, PROTECTION AND COMMERCIALISATION OF INTELLECTUAL PROPERTY, AS WELL AS MANAGEMENT OF APRIL

BOARD MEMBERS

APRIL's Board members are:

Details of each Director's skills and experience can be found in the Directors' report on page 82.

INDEPENDENT DIRECTORS

DR TONY PEACOCK
Chairperson

SU MCCLUSKEY

MEMBER NOMINATED DIRECTORS

PROFESSOR ROBERT VAN BARNEVELD

DR JESSICA CRAIG
[appointed 20 November 2024]

APL APPOINTED DIRECTORS

MARGO ANDRAE

GAIL OWEN

PROFESSOR FRANK DUNSHEA

NEIL FERGUSON

INDUSTRY CHIEF SCIENTIST AND EXECUTIVE DIRECTOR
DR JOHN PLUSKE

BOARD COMMITTEES

APRIL has constituted the following Board Advisory Committees:

- Research and Development Advisory Committee
- Education Advisory Committee (replaced by the joint APL-APRIL Australian Pork Industry Education and Training Committee, which first met in July 2025)
- Audit and Risk Committee

Further detail on the functions of these committees is provided below.

RESEARCH AND DEVELOPMENT ADVISORY COMMITTEE

Clause 38.6 of APRIL's constitution requires the Directors to establish a Research and Development Advisory Committee, and also permit each Ordinary Member to appoint a member of the committee by notice to the Company Secretary.

The Committee advises and assists the Board of APRIL to oversee and advise on all matters relating to the establishment of Projects undertaken by or on behalf of the company.

The members of the committee as at 30 June 2025 are:

- Dr John Pluske, Chief Scientist for the Australian Pork Industry (Chair)
- Professor Sam Abraham, Murdoch University
- Dr David Cadogan, Feedworks P/L
- Dr Jeremy Cottrell, The University of Melbourne
- Dr Darryl D'Souza, CHM Alliance Pty Ltd (SunPork)
- Dr Hugo Dunlop, Apiam Animal Health Ltd
- Dr Fan Liu (JBS Pork Australia Pty Limited *(formerly Rivalea (Australia) Pty Ltd)*
- Dr Rebecca Morrison, Australian Pork Ltd
- Professor Wayne Pitchford, University of Adelaide
- Dr Charles Rikard-Bell, APRIL
- Professor Eugeni Roura, The University of Queensland
- Dr Samantha Sterndale, Westpork P/L
- Professor Paul Verma, SARDI

The Committee held one meeting during 2024–25.

EDUCATION ADVISORY COMMITTEE

The Education Advisory Committee was established under clause 38.1(b) of the APRIL constitution as an Advisory Committee to advise and assist the APRIL Board in discharging its activities in relation to Education and Training within APRIL.

The members of the committee at the one meeting held during 2025 were:

- Professor Frank Dunshea, The University of Melbourne (Chair)
- Dr Rebecca Athorn, Australian Pork Limited
- Dr Tony Peacock, APRIL
- Dr John Pluske, Chief Scientist for the Australian Pork Industry
- Dr Charles Rikard-Bell, APRIL
- Professor Eugeni Roura, The University of Queensland
- Dr Stuart Wilkinson, Feedworks P/L

AUDIT AND RISK COMMITTEE

The Audit and Risk Committee (formerly the Audit Committee) is established under clause 38.1(b) of the APRIL constitution as an Advisory Committee to advise and assist the APRIL Board in discharging its responsibility for the general oversight of APRIL affairs in the areas of financial accounting and reporting, Government reporting, governance, risk management, and the underlying internal control environment.

The members of the committee as at 30 June 2025 are:

- Ms Su McCluskey (Chair)
- Mr Neil Ferguson
- Ms Gail Owen

The EO and Company Secretary also attended all Audit and Risk Committee meetings.

The Committee held five meetings during 2024–25.

MANAGEMENT

EXECUTIVE OFFICER

DR CHARLES RIKARD-BELL
BSc.Agr, MSc, PhD

As Executive Officer, Dr Rikard-Bell is responsible for the management of the APRIL Research and Development and Education and Training Programs, and commercialisation activities. Charles worked in UK, Belgium and USA as a pig geneticist before returning to Australia to work with a multinational animal health company for 11 years, holding technical, sales and marketing roles in Australia and Asia Pacific. Charles gained his PhD in nutrition and biology through the CRC for an Internationally Competitive Pork Industry.

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M 0439 513 723
E c.rikardbell@april.org.au

EXTENSION OFFICER

DR SOPHIE WARD
BSc (AnimalSc), PhD

Sophie holds a dual role (50/50 split) as an Extension Officer for both APRIL and APL. Dr Ward completed her PhD at the University of Adelaide, focusing on strategies to improve farrowing performance in sows and subsequent survival of piglets. Following her PhD, Sophie joined APRIL as part of the transformative Tails CRC project investigating the causes of tail biting in pigs under Australian conditions.

COMPANY SECRETARY

MS SALLY VARDY
GAICD, FGIA, FCA

Sally is a highly experienced and versatile finance and governance professional with significant Board and Committee experience. She has over 15 years' experience as a professional Company Secretary and CFO for a range of CRC and other research-based organisations. Sally is a Chartered Accountant with over 30 years' experience and is responsible for the financial and governance functions within APRIL.

MEMBERS (at 30 June 2025)

FOUNDATION MEMBERS

- Apiam Animal Health Ltd
- Australian Pork Limited
- Feedworks Pty Ltd (and Bronze Participant)
- Murdoch University (and Gold Participant)
- JBS Pork Australia Pty Limited *(formerly Rivalea (Australia) Pty Ltd)* (and Gold Participant)
- CHM Alliance Pty Ltd (SunPork) (and Gold Participant)
- Westpork Pty Ltd (and Bronze Participant)

NON-MEMBER PARTICIPANTS

- University of Melbourne (Gold)
- University of Queensland (Gold)
- University of Adelaide (Gold)
- South Australian Research and Development Institute (Gold)
- Ridley Agriproducts Pty Ltd (Bronze)

SUPPORTING MEMBER

- RSPCA Australia

CORPORATE PARTNER

- Elanco Australasia Pty Ltd
- Jefo Australia Pty Ltd

STRATEGIC PLAN DELIVERABLES

APRIL's achievements against Pillar 1: Further Developing the APRIL Business of the new strategic plan are set out below:

PILLAR 1: FURTHER DEVELOPING THE APRIL BUSINESS

ACTIVITIES	KEY OUTCOMES/DELIVERABLES	2025 STATUS
1.1 Seek additional investment to deliver APRIL's activities	Leverage APRIL investment in research and commercialisation by stakeholder co-investment in applicable projects.	✔ Achieved
	Identify external opportunities for co-investment in APRIL activities and where feasible, and where appropriate, drive the bid process.	✔ Achieved
	Monitor major external funding programs and strategically apply for funds as an applicant or as a co-applicant with e.g., a member or members: – Development/submission of at least two major Transformational Projects application (> 5:1 project leverage on APRIL funds) to an external funding body, per annum.	● Not achieved this year
	Exploit APRIL's 'freedom to operate' and strong collaborative culture among members to seek investment in its project portfolio from non-traditional funding sources.	● In progress
	Increase Member and non-Member revenue of APRIL: • At least two new Ordinary Members by February 2024 (over December 2021 membership). • Additional revenue (up to $100,000 per annum) from non-membership activities, including from external strategic investment of cash reserves.	✔ Achieved
1.2 Nurture and grow collaborative alliances	Review member benefits and expectations to ensure APRIL can deliver appropriately and sustain support.	✔ Achieved
	Grow relationships/partnerships with relevant investors to advance progress in mutually beneficial activities.	✔ Achieved
1.3 Review operational capability to ensure management efficiency	Operational resources and staffing are adequate to ensure all activities can be implemented according to this Strategic Plan.	✔ Achieved
	Employees and consultants have effective and sustainable employment arrangements.	✔ Achieved
	Suppliers that deliver services to, or on behalf of APRIL, enhance APRIL's ability to operate effectively and without conflict.	✔ Achieved

FINANCIAL STATEMENTS

AUSTRALASIAN PORK RESEARCH INSTITUTE LIMITED

ANNUAL REPORT FOR THE YEAR ENDED 30 JUNE 2025


KOTZUR
KOTZUR
KOTZUR

THE DIRECTORS PRESENT THEIR REPORT ON AUSTRALASIAN PORK RESEARCH INSTITUTE LIMITED ("THE COMPANY") FOR THE FINANCIAL YEAR ENDED 30 JUNE 2025.

PRINCIPAL ACTIVITIES AND OBJECTIVES OF THE COMPANY

The Company's objectives are focussed on enhancing the Australasian Pork Industry by investing in research, development, education and training, and commercialisation activities focused on priorities and deliverables that ensure the sustainability of Australasian pork production.

BOARD DIRECTORS

The details of Directors in office at any time during, or since the end of the year are as follows:

APL APPOINTED DIRECTORS

MS MARGO ANDRAE
PGCertMgt, MAICD

Margo is an accomplished leader with over 20 years of experience and networks across primary industries, regional Australia and research environments. Margo joined Australian Pork Limited as the CEO in August 2019, where she has overseen the development of the Australian pork industry's first Sustainability Framework, which outlines clear goals and demonstrable measures that aim to position the industry as one of Australia's most sustainable proteins. Margo has previously held positions with Cattle Council of Australia, CSIRO, University of NSW, Rural Industries Research and Development Corporation and QLD Local Government. She is an interim Director of Agricultural Innovation Australia (AIA). Margo is currently completing her MBA through the Australian Graduate School of Management, UNSW.

MS GAIL OWEN
OAM, BA LLB (Hons), LLM, FAICD

Gail is an experienced chairperson and Board member, a Fellow of the Australian Institute of Company Directors, and an Order of Australia medal recipient. Gail is a lawyer specialising in commercial and energy law. In her role on the APL Board, Gail is Chair of the Audit, Risk and Corporate Governance and a member of the People and Culture Committee.

INDEPENDENT DIRECTORS

DR TONY PEACOCK
BScAgr (Hons), PhD, FTSE, FAICD
Independent Chair

Dr Tony Peacock is a leading advocate for applied research and innovation. A reproductive scientist by training, Tony has held academic positions at the Universities of Sydney, Melbourne and Saskatchewan and is known for his engaging science communication, including regular segments on ABC Radio. Tony is a Fellow of the Australian Institute of Company Directors and the Academy of Technology and Engineering, and an Adjunct Professor at the University of Canberra. He has a long track record in research leadership, previously heading the Pig R&D Corporation, several Cooperative Research Centres, and the CRC Association. He is currently a Director of Peacock Consulting Pty Ltd, the Marine Bioproducts CRC, and the CRC for Solving Antimicrobial Resistance in Agribusiness, Food and Environments. His recent work focuses on science communication, research policy and public–private collaboration. Tony is a Churchill Fellow and has represented Australia in innovation forums across Asia, Europe and the Pacific. He has received national honours for his contributions to science communication and community service.

MS SU MCCLUSKEY
FCPA, FTSE, BCom, MAICD

Su is a Director of LiveCorp Ltd and Chair of the Crawford Fund and was the Special Representative for Australian Agriculture for the Australian Government (concluded 30 June 2025). Su was appointed as the Interim Chief Executive of the National Farmers Federation in August 2025. Su was a director of Australian Unity, AWN Rural Pty Ltd, a Commissioner for International Agricultural Research and the National Covid-19 Commission Advisory Board. She was also a member of the Independent Review Panel for CPA Australia, the Harper Review of Competition Policy, the Charities Review and the Regional Telecommunications Independent Review. Su was previously a director of Energy Renaissance, the Foundation for Young Australians and the NSW Rice Marketing Board. Su was the CEO

of the Regional Australia Institute and the Council of Rural Research and Development Corporations and the Executive Director of the Office of Best Practice Regulation. Su has held senior positions with the Business Council of Australia, the National Farmers' Federation and the Australian Taxation Office. She was named the Westpac/Australian Financial Review Regional Women of Influence in 2013 and received the Women in Agribusiness award in 2014 for outstanding contribution to policy development. Su is also a beef cattle farmer at Yass, NSW.

CHIEF SCIENTIST DIRECTOR POSITION

DR JOHN PLUSKE
[appointed 20 November 2024]
BSc (Agric) (Hons), PhD (UWA), RAnNutr, R Anim Sci, FAPSA

Dr John Pluske is the Chief Scientist for the Australian Pork Industry, holds a position as Honorary Professorial Fellow at The University of Melbourne, is a partner in SciEcons Consulting, and a Fellow of the Australasian Pig Science Association (2015). Previously, Dr Pluske was at Murdoch University where he held numerous senior administrative and research positions whilst conducting research, teaching and outreach activities. Dr Pluske's extensive research and academic career spanning more than 30 years has focused predominately on the nutrition and digestive physiology of pigs, particularly lactating sows and their piglets, and nursery pigs. Other research interests encompass alternatives to antimicrobials in pig diets, sow nutrition, roles of nutrition and the environment in modifying immune function and the gastrointestinal microbiota, feedstuff evaluation, and controlling enteric diseases in pigs without antimicrobials.

MEMBER NOMINATED DIRECTORS

PROFESSOR ROBERT VAN BARNEVELD
BAgrSci (Hons), PhD, RAnNutr, FAICD

Professor van Barneveld has been Group CEO and Managing Director of the SunPork Group of Companies since 2016. In addition, Professor van Barneveld is Chair of Autism CRC Ltd. He is a former Director of Australian Pork Ltd, Roseworthy Piggery Pty Ltd, Social Skills Training Pty Ltd, Porkscan Pty Ltd and the ASX-listed Ridley Corporation. Professor van Barneveld has a PhD in pig nutrition and formerly worked as a consultant scientist and nutritionist in Australia and overseas for more than 27 years.

DR JESSICA CRAIG
[appointed 20 November 2024]
BAnVetBioSc (Hons), PhD

Dr Jessica Craig is the Research and Innovation Manager for JBS Pork Australia (formerly Rivalea) and has 13 years of experience in the Australian pig industry, leading research teams and delivering impactful research. Previously, Jessica has held the positions of Research Scientist and Technical Officer at JBS Pork Australia (formerly Rivalea), the former as part of the APRIL Industry Placement Program (IPP) in 2019. She holds a PhD in Animal Science from Murdoch University and Bachelor of Animal and Veterinary Bioscience (Honours) from the University of Sydney. Jessica is actively involved in the Australian industry, has led numerous APRIL and/or APL-funded research projects, and has built meaningful relationships with other stakeholders within the industry during her career in animal science. She is currently the Vice-President of the Australasian Pig Science Association (APSA) and member of the JBS Pork Australia Animal Ethics Committee. Jessica holds technical expertise in reproduction, animal physiology, applied animal sciences, animal nutrition, health and welfare.

PROFESSOR FRANK DUNSHEA
BAgrSci (Hons), PhD, FNSA, FAPSA, FAAAS, FIUNS, RegAnimSci

Frank Dunshea is a Redmond Barry Distinguished Professor and Chair of Agriculture at The University of Melbourne and Professor of Animal Growth and Development at the University of Leeds. He has had a research career spanning almost 40 years in farm animal and biomedical research. His area of expertise is in growth physiology and nutrition and understanding the interactions between the animal and the animal's environment. His research has had a high scientific impact and the results of much of his research have been rapidly adopted by industry. He has maintained a balanced approach to research, combining fundamental with applied research, providing commercial and public good outcomes. Frank is committed to ensuring that all animal industries operate in a responsible and sustainable manner and much of his work has focused on improving efficiency through reducing inputs and outputs while maintaining product quality and consumer health.

MR NEIL FERGUSON
BBus (Agric)

Neil is CEO of Westpork, an integrated meat business. Westpork's core business has traditionally focused on its pork operation located throughout Southwest Western Australia. Recently Westpork has taken control of Dardanup Butchering Company which operates a Multispecies abattoir and Food Service business. He is also Chairman of the Western Australian Agricultural Produce Commission. Currently an APL Delegate. He holds a Bachelor of Agribusiness. Neil commenced his current role in 1997. Before his involvement in the pork industry, he worked in the stockfeed and chicken industries.

DR REBECCA MORRISON
[resigned 20 November 2024]
BAgrSci (Hons), PhD, Dip Mgt

During her term as Director, Dr Rebecca Morrison was the Research, Innovation and Animal Welfare Manager for the JBS Pork Division, Australia and has 25 years of experience in the Australian and USA pig industry and universities, leading research teams, delivering impactful research and new products (encompassing pig production and food innovation), and education. Previously, Rebecca was the Sustainable Swine Production Systems Scientist at the University of Minnesota, USA. Rebecca is actively involved in the Australian industry and is an APL Delegate, a member of the APL Animal Welfare Reference Group, and past representative on the APRIL R&D Advisory Committee. Rebecca holds technical expertise in animal welfare and behaviour, reproduction, nutrition, health, genetics, meat science and new product development. Rebecca provides the Australian pig industry with opportunities for future enhancement in animal welfare, by utilising her internationally recognised animal welfare expertise. Rebecca has exceptional relationship management skills, positively influences people at all levels, and is committed to ensuring sustainability and profitability of Australasian pork production-with an unwavering passion for the pigs and the people that care for them.

DIRECTORS MEETINGS

The number of Directors' meetings (including meetings of Board Committees) and number of meetings attended by each of the Directors of the Company during the financial year are:

DIRECTOR		BOARD OF DIRECTORS	AUDIT AND RISK COMMITTEE	R&D ADVISORY COMMITTEE	EDUCATION ADVISORY COMMITTEE
Ms Gail Owen	Eligible	5	5	–	–
	Attended	5	4	–	–
Ms Margo Andrae	Eligible	5	–	–	–
	Attended	4	–	–	–
Dr Tony Peacock	Eligible	5	–	–	1
	Attended	4	–	–	1
Ms Su McCluskey	Eligible	5	5	–	–
	Attended	4	5	–	–
Professor Robert van Barneveld	Eligible	5	–	–	–
	Attended	5	–	–	–
Professor Frank Dunshea	Eligible	5	–	–	1
	Attended	5	–	–	1
Mr Neil Ferguson	Eligible	5	5	–	–
	Attended	4	2	–	–
Dr Rebecca Morrison resigned 20 Nov 2024	Eligible	1	–	–	–
	Attended	1	–	–	–
Dr John Pluske appointed 20 Nov 2024	Eligible	3	–	1	1
	Attended	3	–	1	1
Dr Jessica Craig appointed 20 Nov 2024	Eligible	3	–	–	–
	Attended	3	–	–	–

PERFORMANCE MEASUREMENT

The Company evaluates its performance against objectives, milestones and targets as set out in the strategic plan (available at APRIL Strategic Plan 2022–2025), and against the uptake of research outcomes, where appropriate, by Industry. Progress against activities is reported to Members annually.

MEMBERSHIP

The Company is limited by guarantee. As at 30 June 2025, 7 organisations continue as Ordinary Members and one organisation continues as a Non-Voting Member of the Company.

In the event of a winding up where there are insufficient assets to pay all liabilities, each of the members are required to contribute $10 each which would result in total additional funds of $80.

LEAD AUDITOR'S INDEPENDENCE DECLARATION

The lead auditor's independence declaration is set out on the following page and forms part of the Directors' Report for the financial year ended 30 June 2025.

This report is made in accordance with a resolution of the Directors:

Dr Tony Peacock
Chair

23 September 2025
Canberra

INDEPENDENCE DECLARATION

30 JUNE 2025

RSM Australia Partners

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GPO Box 200 Canberra ACT 2601

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F +61 (0) 2 6217 0401

www.rsm.com.au

AUDITOR'S INDEPENDENCE DECLARATION

As lead auditor for the audit of the financial report of Australasian Pork Research Institute Ltd for the year ended 30 June 2025, I declare that, to the best of my knowledge and belief, there have been no contraventions of:

(i) the auditor independence requirements of the *Corporations Act 2001* in relation to the audit; and

(ii) any applicable code of professional conduct in relation to the audit.

RSM AUSTRALIA PARTNERS

Canberra, Australian Capital Territory
Dated: 2/10/2025

GED STENHOUSE
Partner

STATEMENT OF INCOME AND RETAINED SURPLUS

FOR THE YEAR ENDED 30 JUNE 2025

	NOTE	2025	2024
		$	$
Revenue	2	2,879,072	2,467,429
Expenses			
Research program and other costs		(2,144,845)	(1,807,713)
Management expenses	3	(593,734)	(533,776)
Other expenses	4	(287,604)	(364,259)
Surplus/(deficit) from operating activities		**(147,111)**	**(238,319)**
Financial income	5	253,551	250,469
Net financial income		**253,551**	**250,469**
Surplus/(deficit) before income tax		**106,440**	**12,150**
Tax expense		–	–
Surplus/(deficit) for the period		**106,440**	**12,150**
Retained surplus brought forward		**4,250,653**	**4,238,503**
Retained surplus carried forward		**4,357,093**	**4,250,653**

The above statement of income and retained surplus should be read in conjunction with the accompanying notes

STATEMENT OF FINANCIAL POSITION

AS AT 30 JUNE 2025

	NOTE	2025	2024
		$	$
ASSETS			
Current assets			
Cash and cash equivalents	7	5,707,760	5,222,799
Trade and other receivables	8	272,442	334,562
Other current assets	9	68,114	137,259
		6,048,316	5,694,620
Total assets		**6,048,316**	5,694,620
LIABILITIES			
Current liabilities			
Trade and other payables	10	769,343	636,972
Unearned income	11	823,936	738,635
Provisions	12	97,944	30,103
		1,691,223	1,405,710
Non-Current liabilities			
Provisions	12	–	38,257
		–	38,257
Total liabilities		**1,691,223**	1,443,967
Net assets		**4,357,093**	4,250,653
Equity			
Retained surplus		4,357,093	4,250,653
Total equity		**4,357,093**	4,250,653

The above statement of financial position should be read in conjunction with the accompanying notes

STATEMENT OF CASH FLOWS

FOR THE YEAR ENDED 30 JUNE 2025

	NOTE	2025	2024
		$	$
CASH FLOWS FROM OPERATING ACTIVITIES			
Cash receipts from members and customers		3,383,545	2,852,513
Payments to suppliers and employees		(3,152,135)	(3,088,441)
Net cash from operating activities		**231,410**	**(235,928)**
CASH FLOWS FROM INVESTING ACTIVITIES			
Interest received		253,551	250,469
Purchase of Term Deposits		–	–
Net cash investing activities		**253,551**	**250,469**
Net (decrease) / increase in cash and cash equivalents		484,961	14,541
Cash and cash equivalents at beginning of financial year		5,222,799	5,208,258
Cash and cash equivalents at end of financial year	7	**5,707,760**	**5,222,799**

The above statement of cash flows should be read in conjunction with the accompanying notes

NOTE 1. SIGNIFICANT ACCOUNTING POLICIES

Australasian Pork Research Institute Limited is a public company incorporated and domiciled in Australia. The financial statements are presented in Australian dollars, which is Australasian Pork Research Institute Limited's functional and presentation currency.

The Company is a not-for-profit entity.

The financial report was authorised for issue by the Directors on 23 September 2025.

The principal accounting policies adopted in the preparation of the financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

NEW OR AMENDED ACCOUNTING STANDARDS AND INTERPRETATIONS ADOPTED

The company has adopted all of the applicable new or amended Accounting Standards and Interpretations issued by the Australian Accounting Standards Board ('AASB') that are mandatory for the current reporting period.

Any new or amended Accounting Standards or Interpretations that are not yet mandatory have not been early adopted.

BASIS OF PREPARATION

These general purpose financial statements have been prepared in accordance with Australian Accounting Standards – Simplified Disclosures and Interpretations issued by the Australian Accounting Standards Board ('AASB') and the Corporations Act 2001, as appropriate for not-for-profit oriented entities.

Subsection 295 (3A)(a) of the *Corporations Act 2001* does not apply to Australasian Pork Research Institute Limited as the company is not required to prepare consolidated financial statements by Australian Accounting Standards.

Historical cost convention

The financial statements have been prepared under the historical cost convention.

GOODS AND SERVICES TAX ('GST') AND OTHER SIMILAR TAXES

Revenues, expenses and assets are recognised net of the amount of associated GST, unless the GST incurred is not recoverable from the tax authority. In this case it is recognised as part of the cost of the acquisition of the asset or as part of the expense.

Receivables and payables are stated inclusive of the amount of GST receivable or payable. The net amount of GST recoverable from, or payable to, the tax authority is included in other receivables or other payables in the statement of financial position.

Cash flows are presented on a gross basis. The GST components of cash flows arising from investing or financing activities which are recoverable from, or payable to the tax authority, are presented as operating cash flows.

Commitments and contingencies are disclosed net of the amount of GST recoverable from, or payable to, the tax authority.

CURRENT AND NON-CURRENT CLASSIFICATION

Assets and liabilities are presented in the statement of financial position based on current and non-current classification.

An asset is classified as current when: it is either expected to be realised or intended to be sold or consumed in the company's normal operating cycle; it is held primarily for the purpose of trading; it is expected to be realised within 12 months after the reporting period; or the asset is cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least 12 months after the reporting period. All other assets are classified as non-current.

A liability is classified as current when: it is either expected to be settled in the company's normal operating cycle; it is held primarily for the purpose of trading; it is due to be settled within 12 months after the reporting period; or there is no unconditional right to defer the settlement of the liability for at least 12 months after the reporting period. All other liabilities are classified as non-current.

EMPLOYEE BENEFITS

Short-term employee benefits

Liabilities for wages and salaries, including non-monetary benefits, annual leave and long service leave expected to be settled wholly within 12 months of the reporting date are measured at the amounts expected to be paid when the liabilities are settled.

Other long-term employee benefits

The liability for annual leave and long service leave not expected to be settled within 12 months of the reporting date are measured at the present value of expected future payments to be made in respect of services provided by employees up to the reporting date using the projected unit credit method. Consideration is given to expected future wage and salary levels, experience of employee departures and periods of service. Expected future payments are discounted using market yields at the reporting date on national government bonds with terms to maturity and currency that match, as closely as possible, the estimated future cash outflows.

Wages and salaries

Liabilities for wages, salaries and annual leave that are expected to be wholly settled within 12 months of reporting date, represent present obligations resulting from employee's services provided to reporting date, are measured as the undiscounted amounts based on remuneration wage and salary rates that the Company expects to pay as at reporting date including related on-costs.

Non-accumulating non-monetary benefits are expensed based on the net marginal cost to the Company as the benefits are taken by the employees.

PROVISIONS

A provision is recognised in the Statement of Financial Position when the Company has a present legal or constructive obligation as a result of a past event, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money of the risks specific to the liability.

NOTE 1. SIGNIFICANT ACCOUNTING POLICIES (continued)

RESEARCH PROJECT COSTS

Expenditure on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is recognised in the Statement of Income and Retained Surplus as an expense as incurred.

FOREIGN CURRENCY TRANSLATION

Foreign currency transactions and balances

Foreign currency transactions are translated into the functional currency of the Company, using the exchange rates prevailing at the dates of the transactions (spot exchange rate). Foreign exchange gains and losses resulting from the settlement of such transactions and from the re-measurement of monetary items at year end exchange rates are recognised in profit or loss.

FAIR VALUE MEASUREMENT

When an asset or liability, financial or non-financial, is measured at fair value for recognition or disclosure purposes, the fair value is based on the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date; and assumes that the transaction will take place either: in the principal market; or in the absence of a principal market, in the most advantageous market.

Fair value is measured using the assumptions that market participants would use when pricing the asset or liability, assuming they act in their economic best interests. For non-financial assets, the fair value measurement is based on its highest and best use. Valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, are used, maximising the use of relevant observable inputs and minimising the use of unobservable inputs.

CRITICAL ACCOUNTING JUDGEMENTS, ESTIMATES AND ASSUMPTIONS

The preparation of the financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts in the financial statements. Management continually evaluates its judgements and estimates in relation to assets, liabilities, contingent liabilities, revenue and expenses. Management bases its judgements, estimates and assumptions on historical experience and on other various factors, including expectations of future events, management believes to be reasonable under the circumstances. The resulting accounting judgements and estimates will seldom equal the related actual results.

NOTE 2. REVENUE

	2025	2024
	$	$
Research and project co-funding	668,661	346,112
Membership fees	1,220,000	1,810,000
Participant and corporate partner fees	655,000	–
Commercialisation revenue	335,411	311,317
Other contribution and government grant	–	–
	2,879,072	**2,467,429**

ACCOUNTING POLICY

Research and project co-funding

Revenue generated from members and participants co-contributions to research project is recognised upon full completion of each research project, when the specific performance obligations have been met. Prior to project completion, co-contributions are classified as unearned income in the statement of financial position as a liability.

Membership fees

Membership fees comprise annual contribution, membership, and fees upon cessation of membership. This revenue is recognised upon invoicing in accordance with the membership agreement.

Participant and corporate partner fees

Participant and corporate partner fees comprise annual participant and corporate partner fee under the new APRIL Participant Agreement. This revenue is recognised upon invoicing in accordance with the participant and corporate partner agreement.

Commercialisation revenue

Commercialisation revenue is recognised on quarterly basis upon delivery of specific performance obligations.

Grants

Grant revenue is recognised when the company satisfies the specific performance obligations stated within the funding agreements. The grant will be classified as unearned income in the statement of financial position as a liability until those obligations are met.

NOTE 3. MANAGEMENT EXPENSES

	2025	2024
	$	$
Management fees and employment related expenses	593,734	533,776
	593,734	**533,776**

This includes remuneration paid to employees and contractors.

NOTE 4. OTHER EXPENSES

Legal fees	6,890	17,136
Directors' fees	91,915	76,028
Travel	15,145	37,459
Commercialisation costs	110,873	136,090
Other	62,781	97,546
	287,604	**364,259**

NOTE 5. FINANCIAL INCOME

Interest income from investments and cash and cash equivalents	253,551	250,469
	253,551	**250,469**

ACCOUNTING POLICY

Interest income is recognised in the Statement of Income and Retained Surplus as it accrues.

NOTE 6. INCOME TAX EXPENSE

The Company is a non-profit scientific institution and as such the Company's Constitution prohibits the distribution of income and assets to members except as bona fide compensation for services or goods provided to, or expenses incurred on behalf of, the Company. Accordingly, the Company is not subject to income tax.

NOTE 7. CASH AND CASH EQUIVALENTS

	2025	2024
	$	$
Cash at bank	1,086,164	499,124
Term deposits – original maturity date of 3 months or less	4,621,596	4,723,675
	5,707,760	**5,222,799**

The Company holds term deposits with interest rates of between 3.95% and 5.15%.

ACCOUNTING POLICY

Cash and cash equivalents comprise cash balances, at call deposits and term deposits with an original maturity of 3 months or less. Bank overdrafts that are repayable on demand and form an integral part of the Company's cash management are included as a component of cash and cash equivalents for the purpose of the Statement of Cash Flows.

NOTE 8. TRADE AND OTHER RECEIVABLES

Trade receivables	153,158	92,361
Other receivables	119,284	242,201
	272,442	**334,562**

ACCOUNTING POLICY

Receivables are stated initially at their fair value and subsequently measured at their amortised cost less for any allowance for expected credit losses.

NOTE 9. OTHER CURRENT ASSETS

Prepayments	68,114	137,259
	68,114	**137,259**

NOTE 10. TRADE AND OTHER PAYABLES

	2025	2024
	$	$
Trade and other payables	769,343	636,972
	769,343	**636,972**

ACCOUNTING POLICY

Trade and other payables are initially measured at fair value and subsequently measured at amortised cost. Trade payables are normally settled on 30 days term.

NOTE 11. UNEARNED INCOME

Current		
Contract liabilities	823,936	738,635
	823,936	**738,635**

ACCOUNTING POLICY

Contract liabilities

Contract liabilities represent the company's obligation to transfer goods or services to a customer and are recognised when a customer pays consideration, or when the company recognises a receivable to reflect its unconditional right to consideration (whichever is earlier) before the company has transferred the goods or services to the customer.

NOTE 12. PROVISIONS

Current	97,944	30,103
Non-current	–	38,257
	97,944	**68,360**

Current provisions increased during the year primarily due to the vesting of long service leave, hence the reclassification from a non-current to a current liability.

NOTE 13. REMUNERATION OF AUDITORS

During the financial year the following fees were paid or were payable for services provided by RSM Australia Pty Ltd, the auditor of the company.

Audit services – RSM Australia Pty Ltd		
Audit of the financial statements	16,800	17,440
	16,800	**17,440**

NOTE 14. KEY MANAGEMENT PERSONNEL DISCLOSURES

The following were key management personnel of the Company for the entire reporting period, unless otherwise stated:

Directors

1. Ms Gail Owen – OAM, BA LLB (Hons), LLM, FAICD
2. Ms Margo Andrae – PGCertMgt, MAICD
3. Dr Tony Peacock – BAgrSci (Hons), PhD, FTSE, FAICD
4. Ms Su McCluskey – FCPA, FTSE, BCom, MAICD
5. Professor Robert van Barneveld – BAgrSci (Hons), PhD, RAnNutr, FAICD
6. Professor Frank Dunshea – BAgrSci (Hons), PhD, FNSA, FAPSA, FAAAS, FIUNS, RegAnimSci
7. Mr Neil Ferguson – BBus (Agric)
8. Ms Jessica Craig – BAnVetBioSc (Hons), PhD
9. Dr John Pluske – BSc (Agric)(Hons), PhD (UWA), RAnNutr, RegAnimSci, FAPSA

Executives

10. Dr Charles Rikard-Bell – BSc.Agr, MSc, PhD

KEY MANAGEMENT PERSONNEL TRANSACTIONS WITH THE COMPANY

During the year the Company transacted with entities for which key management persons hold positions that result in them having control or significant influence over the financial or operating policies of these entities. The terms and conditions of the transactions with key management personnel and their related parties were no more favourable than those available, or which might reasonably be expected to be available, on similar transactions to non-key management personnel related entities on an arm's length basis.

Compensation

The aggregate compensation made to directors and other members of key management personnel of the company is set out below (2025: includes the new Executive Officer and Chief Scientist roles):

	2025	2024
	$	$
Aggregate compensation	582,920	305,028
	582,920	**305,028**

NOTE 15. RELATED PARTY DISCLOSURES

Transactions with key management personnel related entities. In the following table, superscripts refer to the key management personnel affiliations (from the numbered list of directors in Note 14) with each related party. Net transactions with the Company by director related entities were as follows:

	2025	2024
	$	$
Project and program expenditure		
Australian Pork Limited (1,2,9)	144,433	192,112
SunPork Group (5)	548,423	461,685
The University of Queensland (5)	80,030	183,734
The University of Melbourne (6,9)	107,987	98,459
Australasian Pig Science Association (6,8)	10,227	–
JBS Pork Australia Pty Ltd (formerly Rivalea (Australia) Pty Ltd) (8)	215,516	302,104
SciEcons Consulting (9)	149,962	273,250
The University of New England (5)	21,973	16,621
University of Canberra (3)	10,644	–
Westpork Pty Ltd (7)	1,786	57,581
Current receivables		
Trade receivables from related parties	–	35,340
Current payables		
Trade payables to related parties	218,392	256,344

Transactions with key management personnel related entities consist of the receipt of membership fees and commercialisation income, and the payment of research costs, consultancy fees and costs related to the Company's Industry Placement Program.

Terms and conditions

All transactions were made on normal commercial terms and conditions and at market rates.

NOTE 16. COMMITMENTS

The Company has entered into Research and Development contracts which require the Company to make future cash payments to counterparties once certain obligations have been performed by those counterparties.

At 30 June 2025 these commitments (exclusive of GST) total $1,634,123 (2024: $2,819,622) and will be funded by cash balances and future receipts from member and research participant contributions.

In addition, the Company has approved, but not contracted, research project commitments totalling $844,281 (2024: $143,781).

NOTE 17. SUBSEQUENT EVENTS

No matter or circumstance has arisen since 30 June 2025 that has significantly affected, or may significantly affect the Company's operations, the results of those operations, or the Company's state of affairs in future financial years.

NOTE 18. REGISTERED OFFICE

The address of the Company's registered office is Level 2, 2 Brisbane Avenue, Barton, ACT 2600.

DIRECTORS DECLARATION

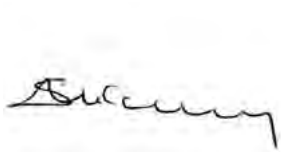
IN ACCORDANCE WITH THE RESOLUTION OF THE DIRECTORS OF AUSTRALASIAN PORK RESEARCH INSTITUTE LIMITED MADE PURSUANT TO SECTION 295(5)(A) OF THE CORPORATIONS ACT 2001, THE DIRECTORS DECLARE THAT:

- the attached financial statements and notes comply with the Corporations Act 2001, the Australian Accounting Standards – Simplified Disclosures, the Corporations Regulations 2001 and other mandatory professional reporting requirements;
- the attached financial statements and notes give a true and fair view of the company's financial position as at 30 June 2025 and of its performance for the financial year ended on that date; and
- there are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

On behalf of the Directors

Dr Tony Peacock
Chair

23 September 2025
Canberra



Ms Su McCluskey
Finance, Audit and Risk Committee Chair

23 September 2025
Canberra

INDEPENDENT AUDITOR'S REPORT

RSM Australia Partners

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INDEPENDENT AUDITOR'S REPORT

TO THE MEMBERS OF

AUSTRALASIAN PORK RESEARCH INSTITUTE LTD

Opinion
We have audited the financial report of Australasian Pork Research Institute Ltd (APRIL), which comprises the statement of financial position as at 30 June 2025, the statement of comprehensive income, the statement of changes in equity and the statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies, and the directors' declaration.

In our opinion, the accompanying financial report of APRIL is in accordance with the Corporations Act 2001, including:

(i) giving a true and fair view of APRIL's financial position as at 30 June 2025 and of its financial performance for the year then ended; and

(ii) complying with Australian Accounting Standards *Simplified Disclosures* under AASB 1060 *General Purpose Financial Statements – Simplified Disclosures for For-Profit and Not-for-Profit Entities*.

Basis for Opinion
We conducted our audit in accordance with Australian Auditing Standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Report* section of our report. We are independent of APRIL in accordance with the auditor independence requirements of the Corporations Act 2001 and the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* (the Code) that are relevant to our audit of the financial report in Australia. We have also fulfilled our other ethical responsibilities in accordance with the Code.

We confirm that the independence declaration required by the Corporations Act 2001, which has been given to the directors of APRIL, would be in the same terms if given to the directors as at the time of this auditor's report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other Information
The directors are responsible for the other information. The other information comprises the information included in APRIL's annual report for the year ended 30 June, 2025 but does not include the financial report and the auditor's report thereon.

Our opinion on the financial report does not cover the other information and accordingly we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial report, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial report or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the Directors for the Financial Report
The directors of APRIL are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards – *Simplified Disclosures* under AASB 1060 *General Purpose Financial Statements – Simplified Disclosures for For-Profit and Not-for-Profit Entities* and the Corporations Act 2001 and for such internal control as the directors determine is necessary to enable the preparation of the financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

In preparing the financial report, the directors are responsible for assessing the ability of APRIL to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate APRIL or to cease operations, or have no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Report
Our objectives are to obtain reasonable assurance about whether the financial report as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of this financial report.

A further description of our responsibilities for the audit of the financial report is located at the Auditing and Assurance Standards Board website at: http://www.auasb.gov.au/auditors_responsibilities/ar4.pdf. This description forms part of our auditor's report.

RSM

RSM AUSTRALIA PARTNERS

GEDStenhouse

Canberra, Australian Capital Territory
Dated: 2/10/2025

GED STENHOUSE
Partner

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