AUSTRALIAN PORK INDUSTRY RESEARCH AND DEVELOPMENT PRIORITIES

This document outlines proposed research and development priorities for 2025/26 identified jointly by Australasian Pork Limited and the Australasian Pork Research Institute Ltd.

1. Pig Genetics

Expected outcome:

Working to enhance the rate of genetic improvement in the Australian pork industry while maintaining current or better health status.

Key research areas:

- Understanding the genetic diversity in the Australian herd that could be used to accelerate genetic gain.
- Evaluate, through a comprehensive benefit:cost production analysis, the impacts of increasing litter size.
- Methods, programs and alternatives to escalate rates of genetic gain in key selected traits, eg. productivity, disease resilience, heat tolerance.
- Increased understanding of genotype x environment interactions.
- Maintaining high-health nucleus herds.
- Progeny imprinting for intergenerational longevity and welfare benefits.
- Generation of female-only litters.

2. 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:

- Evidence-based enrichment options, including low-cost, non-straw and effluent-friendly substrates, for use at all phases of production to optimise welfare.
- Greater understanding of different farrowing systems with robust assessments of sow and piglet welfare and performance data.
- Objective assessment of pig care and wellbeing.
- Pain management and avoidance.
- 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.

3. Pig Health 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 antibiotic use.

Key Research Areas:

- Strengthened biosecurity including truck wash facilities, disease control, euthanised carcass utilisation or disposal, antimicrobial usage/resistance, diagnostics, vaccination.
- 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)).

- New vaccines/new vaccine technologies to reduce reliance on antibiotics in production systems to tackle key diseases.
- Alternative vaccine delivery technologies to reduce needle use.
- Technology to identify sick pigs (including lameness) before presence of clinical signs.
- Explore regional eradication of economically significant diseases such as pleurisy.
- Low cost and rapid methods (eg. pen-side, point-of-care) for pathogen detection, antimicrobial resistance genes, antimicrobial sensitivity testing.

4. Environment, Human Capacity and Society

Expected outcome:

Delivering practical and meaningful tools to assess environmental impact, to identify practices to improve sustainability, and build a resilient and skilled rural and regional workforce.

Key Research Areas:

- Science-based evaluation of space requirements for pigs at all stages of production.
- Low-cost gas capture and energy retention methodologies.
- By-product opportunities (eg. manure, biogas, composting, recycling, feed ingredients).
- Monitoring/benchmarking and further reduction of GHG emissions.
- Contributions by the Australian pork industry to net food and protein supply, overall human well-being, and the communities in which it operates.
- Emerging, or utilising current, technologies and strategies to address labour challenges.

5. Pig Processing

Expected outcome:

Ensuring a sustainable processing sector for the future.

Key Research Areas:

- Monitoring the effectiveness of stunning, including CO_2 stunning, of pigs.
- Avoiding foreign object contamination in carcases.
- Development of new technologies for the conversion of pork products, eg. skin, bone, into a complement of commercially available nutraceutical and pharmaceuticals.
- Minimising (preferably, eliminating) waste or render to landfill.
- Means to reduce energy and water costs.

6. Feeding and Nutrition

Expected outcome:

Making positive contributions to lowering the overall cost of production.

Key Research Areas:

- Lowering feed costs.
- Improving carcase and growth efficiency.
- Economically viable alternative raw materials.
- Rapid identification of poor-quality manufactured feed.
- Rapid detection/quantification of feed wastage.
- Better/improved feed bin/silo allocation of feeds and management.
- Greater understanding of heat increment with respect to nutrient requirements.

7. Retail

Expected outcome:

Achieving a greater share of domestic meat consumption in Australia.

Key Research Areas:

- Create more and higher value-added products using fresh Australian pork, including development of new or improved products.
- Development of new or improved smallgoods products using Australian pork.
- Sustainable and viable packaging options.
- More permanent pork menu items in quick service restaurants.

8. Data and Information

Expected outcome:

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 information (e.g., smart sensors, digital technologies, AI) for more efficient and cost-effective building and pig management, e.g., accurate estimation of slaughter weight.
- Use of AI technologies for welfare assessment at critical production points including farrowing, lairage and slaughter.
- Data governance and exchange for the pork sector.
- Predicting market trends in real time.