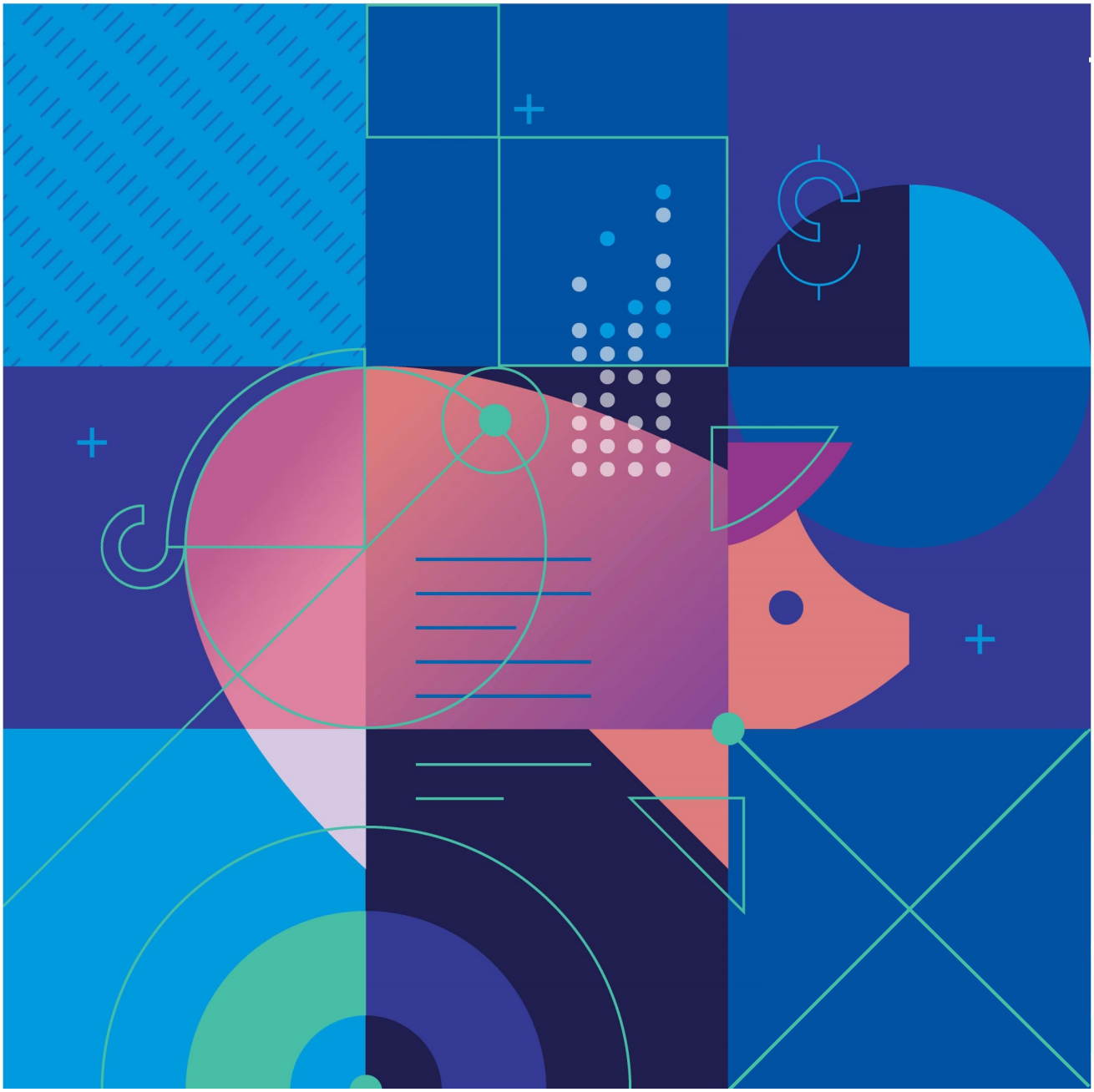

NATIONAL PORK RESEARCH PRIORITIES 2023-2028

Swine Innovation Porc

MAIN GOAL OF NATIONAL PORK RESEARCH PRIORITIES:

Continued sustainable economic growth of the pork industry with increased resilience to global challenges due to economics, animal health, international trade, environment, and societal demands. This includes climate change mitigation and environmental sustainability.

Animal Care

Expected Outcome:
Novel scientific tools or approaches to support continuous improvement and assessment of practical animal care and wellbeing on and off the farm.

Key Research Areas:

- Enrichment (physical, social and cognitive)
- Euthanasia methods and ethics
- Handling, transportation and lairage; aggression in group housing
- Objective (or practical subjective) assessment of animal care and wellbeing
- Pain management and avoidance

Animal Health

Expected Outcome:
Novel technologies and approaches to mitigate risk of infectious disease and enhance emergency preparedness.

Key Research Areas:

- African swine fever and other foreign animal diseases that could affect the pork industry
- General areas such as biosecurity, disease control, disease resilience, mass euthanasia, euthanized carcass utilization or disposal, antimicrobial usage / resistance, diagnostics, vaccination, microbiomes, etc.
- Other emerging and endemic production limiting diseases
- Regulatory agility e.g. approval of prophylactic products, alternatives to antibiotics and heavy metals such as zinc oxide
- Small-scale production/back yard farming (e.g. biosecurity, production, communication)
- Wild pigs as a disease reservoir and biosecurity risk

Buildings and Equipment

Expected Outcome:

Novel designs, materials and technologies to reduce capital and operating costs, and improve energy efficiency, productivity and animal care at different phases of growth and production.

Key Research Areas:

- Alternative housing designs considering pig wellbeing, economics and societal pressures
- Automatic capture and use of data (e.g. smart sensors, digital technologies, artificial intelligence) for barn and pig management
- Consideration of comfort and safety for pigs and workers
- Lowering capital (e.g. novel materials, 3D printing) and operational costs (e.g. robotics, labour savings)
- Reduced emissions, manure handling/storage, solid/liquid separation, N/P management

Emerging Technologies and Other Research Areas

Expected Outcome:

Readiness to apply emerging technologies such as genomics, metagenomics, metabolomics, gene editing, precision farming, artificial intelligence or other areas that could benefit the industry.

Key Research Areas:

- Breeding and reproduction
- Data governance and exchange for the pork sector
- Economics (macro or micro)
- Emerging technologies to address labour challenges, create more value-added products, and increase productivity
- Ensuring market access
- Genetic improvement of traits such as robustness, longevity, behaviour and pork quality
- Improve productivity, develop new or improved production systems
- Improve sector resilience in response to market and societal pressures, including mental health
- Other applications of genomics or metagenomics e.g. for traceability, product verification, pathogen detection (such as a pen side test), studying antimicrobial resistance genes
- Understanding industry and public perspectives related to current and emerging priorities (e.g. barriers to adoption of improved practices)
- Any other area that could benefit the pork industry

Environment and Climate Change

Expected Outcome:
Scientific tools to assess environmental impact, to identify priorities and practices to improve sustainability (carbon, water, soil/soil erosion, methane, manure, energy and adaptability).

Key Research Areas:

- Adaptation to changing environmental conditions (e.g. heat stress)
- By-product opportunities (e.g. manure, biogas, composting, recycling, feed ingredients)
- Monitoring/benchmarking and further reduction of greenhouse gas emissions
- Opportunities for barn construction/modernization considering energy and water efficiency
- Whole life cycle assessment

Feeding and Nutrition

Expected Outcome:
More ingredient choices as well as nutritional formulations and processes that maximize nutrient assimilation, enhance pig robustness and have positive environmental impact.

Key Research Areas:

- Alternative feed crops and ingredient sources, considering economic and environmental impact
- Alternatives to antimicrobials for enhanced disease resistance and gut health
- Enhanced nutrient efficiency and impact on reduced environmental footprint
- Enhanced welfare and lifetime productivity
- Nutritional strategies during transition phases (e.g. gestation to lactation, piglets at weaning)

Pork Quality and Food Safety

Expected Outcome:
New methods to measure, control and promote the quality and safety of pork.

Key Research Areas:

- Consumer perspectives and support (e.g. how to cook fresh pork)
- Create more and higher value-added products
- Develop new or improved product attributes
- Foodborne pathogen control and enhanced shelf-life
- Opportunities to enhance pork carcass and meat quality assessment and control