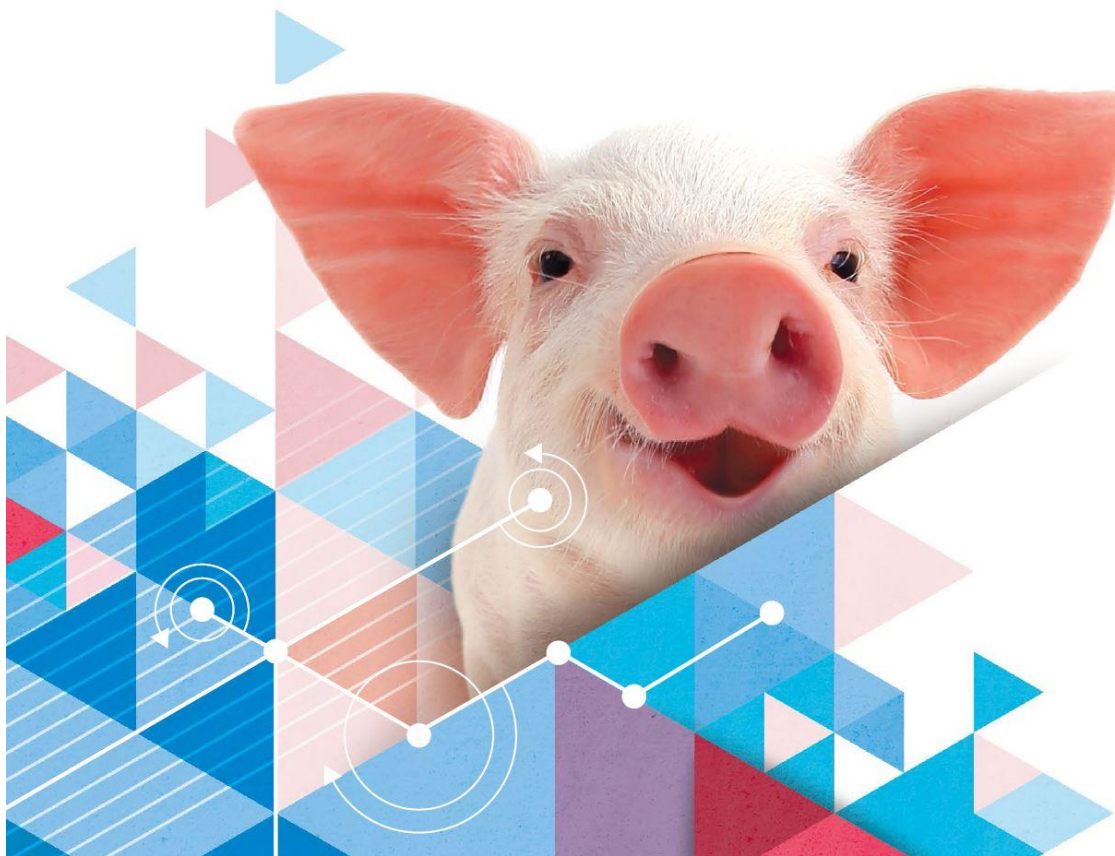


SWINE INNOVATION PORC

Letters of Intent - Guidelines

Swine Cluster 3

October 2016



Swine Innovation Porc



Swine Innovation Porc

Swine Cluster 3 (2018-2023)

Letters of Intent - Guidelines

The following information will assist you in filling out the required documents to submit your letter of intent (LOI) for the Swine Cluster 3 Research Program.

Important dates & information:

Deadline for submissions: **Friday, January 20, 2017 at 11:00PM Pacific Time.**

Please contact Marie Vachon by e-mail at mvachon@swineinnovationporc.ca or by phone at (418) 650-4317 with any questions regarding this call for proposals.

Please send the documents to info@swineinnovationporc.ca

Required documents

The following documents must be part of the application:

- ☺ Letter of intent (all sections must be filled).
- ☺ Budget summary (all sections must be filled).

1. Introduction

Swine Innovation Porc (SIP) is the brand name of the Canadian Swine Research and Development Cluster, incorporated in 2010. It is a national organization that consists of nine members, including the Canadian Pork Council and eight provincial pork organizations. The main goal of SIP is to be recognized as the 'go to' organization in Canada that facilitates swine related research and knowledge transfer initiatives. Its main objectives are to:

- ② Determine national research priorities
- ② Develop multi-institution and multi-disciplinary R&D programs
- ② Act as coordinator for the research community and industry partners
- ② Deliver timely and effective knowledge transfer programs
- ② Encourage the development of highly qualified professional and research skills
- ② Leverage producer dollars against other sources of funding in order to best serve the industry

The current program *Swine Cluster 2: Driving Results Through Innovation 2013-2018* is focused on three themes: reducing production and feed input costs, increasing product attributes and prices and enhancing adaptability and sustainability of the swine sector. It includes 18 research projects and more than 95 researchers from 30 universities and research centres across Canada and around the world. The total budget for this program is \$17.3 million: Agriculture and Agri-food Canada (AAFC), through its AgriInnovation Program, has contributed \$13 million and \$4.3 million is provided by industry partners.

SIP supports the renewal of another Canadian Agri-Science Clusters Initiative, part of AAFC's next agricultural policy framework. In the anticipation of another potential round of funding, SIP is currently putting together the five-year Swine Cluster 3 research program covering the period of 2018-2023.

2. Swine Cluster 3: 2018-2023 Research Program

This call for LOIs will allow the research community to submit innovative and integrated projects that will be relevant and beneficial to the competitiveness, profitability and sustainability of the pork industry. In this regard, projects in any field are encouraged. However, preference will be given to LOIs that fall within research priorities identified by Swine Innovation Porc.

The Swine Cluster 3 research program will be based on projects that:

- ② Support innovation, increase productivity and reduce production costs in swine herds
- ② Enhance efficiencies in the pork value chain
- ② Improve pig health and control diseases by implementing new approaches and strategies
- ② Develop quality attributes of fresh pork
- ② Promote the development of highly qualified people through funded research projects
- ② Promote multi-disciplinary and multi-institutional collaborative efforts that significantly impact the success of Canada's swine industry.

We will prioritize proposals that are expected to have a major impact on the pork sector while:

- ② Being multi-disciplinary within a particular research theme
- ② Including a knowledge transfer component in order to accelerate the adoption of research results by end-users
- ② Considering social license aspects
- ② Having potential positive impacts on the environment

3. Research Priorities

Over the last months, SIP has consulted with the industry, research community and government through various working groups, a public survey and two workshops in order to set national research priorities. The outcome of this exercise is the establishment of the following nine national research priorities (more details on these priorities are available in Schedule 1):

1. Responsible use of antibiotics
2. Improving pig health
3. Reducing feed costs and improving feed efficiency
4. Pig reproduction
5. Environmental sustainability
6. Industry sustainability and competitiveness
7. International marketing of Canadian pork
8. Consumer diet and health
9. Animal welfare and behaviour

4. General Provisions for Research Projects

Timelines:

Duration of projects:	2 to 5 years
Anticipated starting date of the projects:	April 1, 2018
Completion date of projects:	December 31, 2022

All activities will have to be completed, reports submitted and funds spent by December 31, 2022.

Budget:

Maximum research project budget for a 5-year term:	\$2 million
Equipment purchase:	Maximum of \$5,000 per piece of equipment
Maximum overhead fees` :	15% of the total budget

Industry contribution:

For each project a minimum industry contribution representing 25% of the total project budget is expected.

5. LOI - Required Documents and Timeline

Project leaders have to submit LOI proposals by **Friday, January 20, 2017 at 11:00PM Pacific Time** using the following application forms:

- ☺ 'SIP SC3 LOI Form-2016' for the LOI
- ☺ 'SIP SC3 Budget Summary Form 2016' for the Budget

These forms can be found at www.swineinnovationporc.ca.

Guidelines to complete the application forms are presented in Schedule 2 (LOI) and 3 (Budget Summary)

6. Next Steps & Important Dates

The LOIs will be evaluated by a sub-committee appointed by SIP based on the research priorities and on the objectives of the Swine Cluster 3 Research Program as presented in Section 2: Swine Cluster 3: 2018-2023 Research Program of this document.

Project Leaders will be informed if their project has been selected for submitting a detailed proposal. The selected research teams will subsequently be informed of the process and the guidelines for submitting a detailed application.

Important dates:

Launch of the Call for letters of intent	October 19, 2016
Letters of intent submission deadline	January 20, 2017
Launch of the call for detailed proposals	March 2017
Detailed proposals submission deadline	May 2017

Schedule 1

Research Priorities

1. Responsible Use of Antibiotics

Key words: Immunity, microbiome (transcriptome), vaccines, biosecurity, alternative antimicrobials, causes of antibiotic resistance (AMR), monitoring patterns of antibiotic use (as in Denmark).

Optimize microbiome in baby pigs via dam and progeny
Determine the role of nutrition in optimizing the microbiome and immunity
Develop alternatives to antibiotics such as macrolides, ionophores or antimicrobial peptides
Design on-farm e-data capture to improve and demonstrate responsible antibiotic use

2. Improving Pig Health

Key words: Biosecurity, sanitizers, biofilms, easy-clean coatings, lagoon management, biofilters, feed contamination, soil reservoir, vectors, feral pigs, immunity, viral sequence library, aerosol vaccines, surveillance.

Improve biosecurity on the farm and in transit
Develop more efficient disinfectants and easy-to-clean coatings
Review genetic and nutritional opportunities to increase disease tolerance and immunity
Optimize environment to avoid depressing immunity through stress
Improve intelligence and cross-border risk assessment for emerging diseases

3. Reducing Feed Costs and Improving Feed Efficiency

Key words: Feed crops, nutrient profiles, formulation, precision feeders, toxins, micronutrients, economic systems modelling.

Invite novel approaches to control mycotoxins
Evaluate novel ingredients and alternative feed crops such as pulses, insects and algae
Further develop precision feeding systems and alternative feeding strategies
Optimize formulation of existing ingredients for nutrient profile and low cost
Review opportunities to improve performance through micronutrients

4. Pig Reproduction

Key words: Longevity, metabolic stress, gestation and nursing nutrition, piglet uniformity, mammary development, weaning age, nursery diet, heat detection, semen sexing.

Improve piglet weight, uniformity and viability in larger litters
Optimize energy and amino acid intake during late gestation and lactation, and in nursery
Investigate alternative methods for gender control including low-dose insemination
Review technology to automate heat detection

5. Environmental Sustainability

Key words: Soil microflora, water, greenhouse gases, carbon footprint, odours, dust, endocrine disrupters, biofilters, whole life cycle analysis.

Review opportunities for reduction of swine industry GHG emissions
Conduct whole life cycle analysis of energy and water use, plus undesirable emissions for pork
Review literature on presence of toxic residues in pig meat, feed and manure
Increase the use of manure to replenish soil nutrients and microflora

6. Industry Sustainability and Competitiveness

Key words: Building costs, materials, retrofit, partial outdoor housing, risk management, financing, human resources, robotics, automation.

Develop lower cost and longer-lasting building designs and materials
Invite innovative applications for robotics and emerging technologies in the barn
Encourage training of HQP to ensure succession within the swine science base
Explore opportunities for electronic vertical coordination in the farm to fork value chain

7. International Marketing of Canadian Pork (Confidence in quality)

Key words: Marbling, water-holding, lean and fat colour, pH₂₄, juiciness, texture, flavour, shelf-life, DDGS, “grading” methods, trust, traceability, consumer attitudes and messaging.

Better define meat quality for major markets
Explore new technologies for non-invasive measures of pork quality on the line
Develop separate quality standards for carcasses, primals and individual cuts
Improve the taste and cooking attributes of fresh, chilled and frozen pork
Model the impact of alternative grading systems on profitability

8. Consumer Diet and Health

Key words: Metabolic syndrome (obesity, type 2 diabetes), protein deficiency, glycaemic index, cancer risk, trust.

Determine nutrient profile and health benefits for modern pork
Determine impact of pork on whole meal plate glycaemic index (blood sugar levels)
Collaborate on development of consumer education programs

9. Animal Welfare and Behaviour

Key words: Metrics of stress, gilt training, aggression, castration, tail docking, weaning age, exercise, pen design, enrichment, flooring, ventilation, genotype, transport stress, transit time, truck design, cull sows.

Review European literature and experience on group housing systems
Determine conditions to avoid stressful truck unloading during transit
Optimize gilt training and sow behaviour under new group-housing conditions
Determine best pen designs for modern more sensitive finisher genotypes

Guidelines to Complete the LOI Form

Please fill all the sections of “SIP SC3 LOI Form-2016”.

1. **APPLICANT INFORMATION:** Fill out all the fields of this section.
2. **PROJECT TITLE:** Provide a short but descriptive title for your research proposal.
3. **PROJECT OBJECTIVES:** Describe the objectives of the project, indicating any research question(s) that the project intends to explore and answer.
4. **PROJECT DESCRIPTION** Provide a summary of the activities that will be carried out, what results will be achieved regarding products, technology, information, reports, best practices, investments, etc. (expected deliverables), along with expected commencement, duration and completion dates.

NOTE # 1

When planning your project please take into account:

- Earliest commencement date: April 1, 2018
- Latest completion date: December 31, 2022

5. **BENEFITS TO THE PORK INDUSTRY IN CANADA AND ECONOMIC IMPACT:** Explain the expected impact, including economic impact, this project will bring, especially on one or more of the following: innovation, productivity and costs related to the swine herd; efficiencies in the pork value chain; pig health and control of disease; quality attributes of fresh pork.
6. **TRAINING OF HIGHLY QUALIFIED PERSONNEL:** Highlight any opportunities for enhanced training of highly qualified personnel.
7. **STRATEGIES TO ACCELERATE KNOWLEDGE TRANSFER TO END-USERS:** Describe the knowledge transfer strategies you will undertake to accelerate the adoption of the research results by the end-users.
8. **SOCIAL LICENSE:** Describe strategies you will undertake to ensure a high level of acceptance, approval and trust of general public regarding the new technology, product, procedure, etc. that will result from your project.
9. **IMPACTS ON THE ENVIRONMENT:** Indicate if your project will have any impacts on the environment, and if so, what these impacts are.
10. **RESEARCH PRIORITIES:** Identify which priority area your project falls into.
11. **KEYWORDS:** Provide up to ten words that best describe your proposed research.
12. **POTENTIAL PEER REVIEW SCIENTISTS:** Provide the name, credentials and contact Information of three potential scientist peer reviewers.
13. **POTENTIAL PEER REVIEW INDUSTRY EXPERTS:** Provide the name, credentials and contact Information of two potential industry experts peer reviewers.

Schedule 3

Guidelines to complete the Budget Summary form

Please complete the spreadsheets 'Budget Summary' and 'Industry Partners' of the Excel Workbook titled "SIP SC3 Budget Summary Form 2016".

In the tab Budget Summary, by filling out the table 'Universities and Non-AAFC Research Centres' and/or 'AAFC Research Centres', the Overall Budget will automatically generate and will give an overview of the budget.

The cost categories are:

- Incremental salaries
- Material and supplies
- Service contracts
- Incremental rent & lease
- Equipment purchase
- Travel
- Technology transfer activities
- Incremental overhead

The budget forms consist of the following sections:

SIP Contribution: Please specify the amount of Swine Innovation Porc funds in the budget.

INDUSTRY Contribution: This section represents industry funding. Please specify in the budget the amount of funds coming from industry partners.

Please also complete the spreadsheet titled "List of Industry Partners". Indicate the name of each industry partner and the amount of their contribution.

NOTE # 2

- ☺ For each project a minimum industry contribution representing 25% of the total project budget is expected.
- ☺ The fiscal year runs from April 1 to March 31.