



Canadian Poultry
Research Council

Le Conseil De
Recherches Avicoles
Du Canada

Call for Letters of Intent (LOI)

April 2015

Dear applicant: Please note that the Canadian Poultry Research Council (CPRC) adopted a new approach to the grant review process for 2015 designed to provide more flexibility and efficiency to both CPRC and the research community. The approach combines the former LOI only application process used until 2011 and the two-step LOI followed by a scientific review of detailed methodology for a short list of candidates adopted in 2012. The 2015 approach is designed to reduce the time required to make funding decisions while ensuring CPRC and its member organizations support research that meets industry needs. The new approach, compared to the LOI form used since 2012, consists of:

- ***An expanded LOI that requests:***
 - ***More detailed and additional information on project objectives and background.***
 - ***More detailed description and explanation of the proposed research and methodology.***
- ***LOIs will be reviewed initially by CPRC and its member organizations with a major focus on industry priority and impact. Those projects that are of strong interest to CPRC and its member organizations will move to the peer review stage.***
- ***Principal investigators will be provided the opportunity to respond to peer review comments.***
- ***CPRC reserves the option to request additional information, such as a detailed work plan and methodology, expansion of knowledge transfer activities, etc.***

Please refer to the 'Notes to Applicants' section of this document for details, including submission deadline.

CPRC has historically issued calls for LOIs in five categories. The research categories for LOIs were amended in 2014 to better align with the *National Research Strategy for Canada's Poultry Sector* (The Strategy) available on the Research tab at the CPRC website www.cp-rc.ca. The Strategy lists nine overlapping research areas and the 2015 call includes seven of these areas. LOIs do not have to address all aspects of each priority area but can target one or more of the priorities within the area.

On behalf of its member organizations, CPRC is calling for LOIs in the following priority areas. Please also consult the CPRC Member priority lists at the end of this document for more details on specific areas:

1. Genetics

Genetic issues and opportunities encompass most of the other classifications identified in The Strategy; therefore, outcomes in this area of research are broad.

A major issue faced by all agriculture is the loss of genetic diversity within the gene pools of the agricultural products produced. With the advent of more sophisticated methods of gene identification for specific traits, gene preservation also maintains the potential for new discoveries related to currently unimagined new, desirable and/or marketable characteristics. The diversity of genetic material is constantly being challenged due to economic pressures and increased selection intensities.

Industry Goal

Protect and enhance beneficial genetic traits to the benefit of the poultry industry, poultry, consumers and society

Research Target Outcomes

- Beneficial genetic characteristics are preserved so that there is ready access to diverse genetic material
- Poultry research uses the most effective and current genetic tools to support poultry industry sustainability

2. Food Safety

Canada has one of the safest poultry value chains from the producer to the consumer of any poultry sector worldwide. Maintaining this level of food safety for the Canadian consumer presents ever-changing challenges that must be anticipated well in advance. Protecting the poultry value chain, as it extends from the parent flock through production and processing to the consumer, from pathogens that may cause human illness is a fundamental issue with constantly evolving challenges.

Industry Goal

Continue to provide safe food and maintain consumer confidence in light of emerging issues.

Research Target Outcomes

- Reduce the incidence of poultry-related pathogens (e.g. campylobacter, salmonella, E. coli, Listeria, emerging issues)
- Consumers recognize that poultry products are safe
- Benchmark, improve and validate food safety programs, including biosecurity

3. Animal Health Products

There is increasing pressure from consumer groups to reduce antibiotic use in poultry because of fears of antibiotic resistant bacteria. Research must define the prudent use of antibiotics and explore innovations that will provide the poultry sector with an array of alternative methods with which to combat disease and optimize flock performance.

Industry Goal

Continue to promote the prudent use of antimicrobials and reduce their use where possible. Increase the use of alternatives to antibiotics

Research Target Outcomes

- Understand the link between the use of antimicrobials in the poultry industry with emergence of bacterial resistance in animals and humans
- Understand the mechanism of resistance to antimicrobials
- Development of evidence-based mitigation procedures/tools related to the use of antimicrobials based on:
 - International lessons
 - Effect of currently used antimicrobials on gut microflora, emergence of resistance and avian immunity
- Alternatives to currently used antimicrobials
- Understanding of the impact of alternative production systems and genetics

4. Poultry Health

Canadian poultry stakeholders must regularly address the presence and evolving nature of disease-causing organisms and must be ready for any disease outbreak that could put Canada's poultry populations or human health at risk. Research will be required to develop improved disease prevention and control strategies.

Industry Goal

Continue to enhance poultry health while reducing the possibility, and mitigating the effects of, severe disease outbreaks in Canada's poultry flocks

Research Target Outcomes

- Improve and enhance programs to maintain and enhance poultry health
- Safe and effective use of alternative approaches to ensure poultry health
- Stronger poultry immune systems through research on genetics, nutrition, etc.
- Prepared for catastrophic disease outbreak (including bird depopulation and disposal)
- Development of effective vaccines for use in poultry (e.g.: necrotic enteritis, salmonella, avian influenza)
- Understand how diseases spread and predict their future occurrence
- Understand impact of high performance on poultry health and sustainability of various production systems

5. Poultry Welfare

Canadian consumers expect poultry to be produced, transported and processed under humane conditions. A comprehensive poultry welfare program requires expertise not only in behaviour, but also in animal health, genetics, nutrition, and management.

Industry Goal

Enhance existing and develop new science-based production systems and strategies to further improve the well-being of Canada's poultry flocks and maintain consumer confidence and trust

Research Target Outcomes

- Safe and effective use of alternative approaches to ensure poultry welfare at all levels of the complex poultry production chain
- Understand the link between genetic selection and poultry welfare
- Methods to identify and humanely euthanize birds with undesirable characteristics
- Identification of science-based management practices and tools for:
 - Maintaining appropriate conditions throughout flock production, catching, transport and slaughter
 - Determining humane endpoints for sick or injured birds and euthanasia techniques
 - Morphological alterations
 - Transportation and handling in all sectors
 - On-farm harvesting techniques
- Understand links between productivity and welfare, including the relationship between production system (e.g.: cage design, housing), genetics and high productivity

6. Environment

Canada's poultry value chain has made significant progress in reducing its environmental footprint and in providing better environmental conditions for both the birds and the people who work with them. Significant challenges continue to emerge, however, as we better understand the environmental impact of day-to-day poultry production practices and potential emerging requirements.

Industry Goal

Minimize the effects of poultry production practices on birds, humans and the environment, and encourage sustainability.

Research Target Outcomes

- Mitigation approaches to improve housing environment impact on humans, birds and the environment from poor ambient air quality, emissions of ammonia and particulate matter, waste materials, leachates, pharmaceutical residues, greenhouse gases, etc.
- Improved waste management systems at all levels of the poultry production system
- Reduce clean water consumption during processing

- Understand relationship between production practices (e.g.: location, geography, bird density, biosecurity practices) and environmental impact
- Develop alternative energy and other techniques to utilize poultry by-products and ensure that there are no unused carcass components

7. Functional and Innovative Products

Most poultry food products are developed by value chain partners downstream from primary producers. However, poultry producers are interested in this area of research because the industry as a whole benefits when new products that increase and sustain consumption of poultry are offered to consumers. Also, research into primary production, particularly related to nutrition, can enhance the ability of processors and distributors to satisfy consumer needs. The link between what birds eat and the functional value of their products has the potential to yield a wide variety of functional foods that will enhance the health and well-being of Canadians (e.g.: omega-3 eggs).

Industry Goal

Develop functional and value-added products that enhance the health and well-being of Canadians, meet niche market demands, utilize by-products and support industry sustainability.

Research Target Outcomes

- New functional foods to sustain and enhance the Canadian poultry production system
- Develop non-food uses for by-products
- Value-added products from poultry
- Developing innovative new foods

Chicken Farmers of Canada Request for Proposals

A Request for Proposals (RFP) from Chicken Farmers of Canada (CFC) for on-farm trials is included with this Call for LOIs. CPRC is assisting CFC in its process to develop the RFP into a research project. CFC will use the same process as is described below for receiving and reviewing responses to its RFP and developing an acceptable research project. **LOI submissions are to be submitted to CPRC but clearly identified as being in response to the CFC Request for Proposals.**

Examples of previously funded projects, grouped by the pre-2014 research categories, are available on the CPRC website (www.cp-rc.ca) at the Programs section.

NOTES FOR APPLICANTS

Industry review of Letters of Intent (LOIs)

Please use the CPRC LOI form for your submission for both the CPRC call and CFC RFP.

Instructions on completing the form are included in that document.

Please email your completed LOI in **Word** format to info@cp-rc.ca by **May 29, 2015 5:00 pm EST**.

If you do not receive email confirmation of your submission within two business days, contact the CPRC office.

If your completed LOI does not already include a signature, please also forward a signed electronic scan to info@cp-rc.ca or hard copy to:

Canadian Poultry Research Council
350 Sparks Street
Suite 1007
Ottawa, ON K1R 7S8

Your electronic submission is due May 29, 2015, however signed hard copies need not arrive by that date.

Budget

Applicants should limit their requests from CPRC to a maximum total of \$60,000 per investigator. Collaboration among multiple investigators working towards a common objective(s) is encouraged and overall budgets exceeding \$60,000 will be considered for such collaborations, especially when involving multiple institutions. Budgets exceeding \$60,000 per investigator should be discussed with the CPRC office before submitting an application for evaluation.

Industry dollars, whether from CPRC or other industry sources, must be matched with non-industry dollars at a ratio of at least 1:1. Higher leverage ratios are preferred.

Review process

LOIs will be scored on the following criteria:

- **Scientific concept and approach:** The proposal must be scientifically sound, technically feasible, and promise either to generate new knowledge or to apply existing knowledge in an innovative manner.
- **Industry impact:** The proposal must identify how the work will benefit the poultry industry, especially in terms of helping industry reach its research target outcomes, and should outline any additional potential social and/or economic benefits that will be realized in Canada.
- **Knowledge transfer and commercialization:** The proposal should describe how outcomes of the work will be shared with the research community and how it might be utilized by industry, including suggestions on how the resulting technology might be commercialized.

Collaboration among scientists and institutions is encouraged and will be a consideration during the review process.

All applicants will be informed of the CPRC Board decision to accept or reject the LOI after both the internal and peer review steps identified above.

Future Calls

With input from academe, government and industry, the CPRC will continually review its research priority list and, if necessary, adjust it to reflect existing and emerging issues of importance to its members. Provided they remain of high importance, individual priority areas will be the subject of future LOI calls at regular intervals so as to promote continuity in existing research programs.

Questions?

Inquiries regarding this call for Grant Applications should be directed to Dr. Bruce Roberts via email at bruce.roberts@cp-rc.ca or phone at 613-566-5916.

CPRC MEMBER PRIORITY LISTS

As additional information, please see the following research priority lists from each of the CPRC Members.

Canadian Hatching Egg Producers

Note: Topics marked ***bold** are high priority.

1. ***Food Safety**

- a. Alternatives to antimicrobials
- b. Egg washing / Egg sanitization
 - Mechanical sanitization
 - Effectiveness
 - e.g. H₂O₂, quaternary ammonia, ultraviolet light
 - What effect does proper sanitization have on chick quality?
 - Could it be a possible solution for periodic shortages in the industry?
 - Method: *Salmonella* control
 - Fumigation
- c. Egg size
 - The ability to be able to set eggs below 52 grams if required
 - What is the largest acceptable egg: 75 grams or larger?
 - Potential factors that contribute to large egg size at the end of lay

2. ***Control of *Salmonella***

- a. Vaccination (methods and effectiveness)
- b. General control
- c. Sources of infection
- d. Possible barn differences, what type of construction, material, insulation, volume of air, angle to the sun (infrared radiation)
- e. What is transferred to the chick? How does egg incubation affect *Salmonella* cells?
- f. On-farm strategies to reduce and prevent *Salmonella* while birds are in production

3. ***Breeder Welfare**

- a. Stocking density
- b. Euthanasia methods for birds >3kg, including low atmospheric pressure stunning (LAPS)
- c. Feed restriction programs
- d. Male mortality/longevity, including the influence of barn design, feed delivery systems or genetic influences
- e. Early mortality of breeder hens (calcium tetany)

4. Environmental Research

- a. Ammonia control
- b. Effects of improper temperature control on egg transfer vehicles, including egg sweating and links to rots after eggs leave the farm.

5. Poultry Health and Disease

- a. White chick syndrome

6. Production-based Research

- a. Ways to increase fertility

Chicken Farmers of Canada

High priority research:

- 1) Vaccine development for necrotic enteritis
 - The purpose of this research would be to continue research on effective vaccines to prevent Necrotic enteritis

Additional research topics for the General Call for Proposals:

- 1) Poultry Health/ Animal Health Products
 - Research on alternatives to antibiotics and their effectiveness
- 2) Poultry Welfare
 - Investigate best transport practices to reduce stress and improve bird welfare and meat quality
 - Optimizing lighting programs across various management systems (e.g. with the use of mash feed)
 - Evaluating lameness in broilers - genetic effects and on-farm prevention measures
- 3) Food Safety
 - Focus on methods to reduce pathogen contamination (in coordination with the Federal-Provincial-Territorial initiative)
 - Impacts of cleaning and disinfecting and optimizing procedures
- 4) Environment/Poultry Health
 - Investigate the feasibility of applying filters to barn fans in the event of a disease outbreak to reduce virus spread and also to reduce environmental contamination

Egg Farmers of Canada

- 1) Animal Care science related to housing systems
- 2) Animal welfare emerging issues
- 3) Food Safety
- 4) Human health benefits of eggs
- 5) Identifying non-food uses of eggs
- 6) Environmental research
- 7) Use of antimicrobials in feed (baseline use, consumer perceptions)
- 8) Support for supply management

Turkey Farmers of Canada

1. FLOCK HEALTH

- a. Evaluate and further develop flock management practices that reduce the need for antimicrobial use in turkey production.
- b. Develop and validate improved methods for the detection of antimicrobial resistance on-farm.
- c. Identify the causative factors related to the development of breast blisters so that mitigation methods can be explored.
- d. Explore the turkey production and flock health effects of feed formulations with varying levels of macro and micronutrients.
- e. Identify methods of disease transmission (e.g., avian influenza) amongst flocks and from wild sources, and assess the effectiveness of eradication techniques.

- f. Identification and validation of effectiveness of biosecurity measures that will help to mitigate the spread of turkey diseases.
- g. Development and evaluation of an assessment method for poult quality.
- h. The effect of water quality and mineral levels, independently and in combination with others, on turkey gut health.
- i. Explore the use of in-feed additives that reduce the levels of harmful pathogens (i.e., *Campylobacter*, *Salmonella*) in flocks during turkey production.

2. FOOD SAFETY AND QUALITY

- a. Develop and validate rapid detection techniques for human food borne pathogens associated with turkey meat.
- b. Explore the development and implementation of new in-plant pathogen control measures.
- c. Explore new turkey meat products that meet the needs of consumers (e.g. value-added, omega fatty acids, “ready-to-cook”, “ready-to-eat”).
- d. Assess and manipulate feed withdrawal processes to determine the effect of timing, transportation distance, and finisher diet on meat quality and characteristics (e.g. water loss), and bacterial load.
- e. Explore the use of in-feed additives to reduce the prevalence of food-borne pathogens in turkey flocks and in turkey meat.

3. TURKEY WELFARE

- a. Assess the effect of short and long distance transportation on market-age turkeys and evaluate measures that reduce bird stress.
- b. Assess the effect of turkey loading equipment and trailer design on bird stress and welfare during loading and transportation.
- c. Assess the effect of stocking density on flock performance parameters, behavioural indicators and environmental conditions to develop sound recommendations related to flock welfare.
- d. Development and evaluation of potential new control strategies for lameness in turkeys, including both the application of on-farm measures (e.g., feeding practices, slow early growth) and an evaluation of genetic effects.
- e. Explore the effect of various lighting programs on flock performance parameters and behavioural indicators to develop sound recommendations related to flock welfare.
- f. Evaluate and further develop methods for humane on-farm euthanasia to be used in routine situations and during a mass depopulation.
- g. Investigate new and emerging on-farm euthanasia methods and technologies to evaluate humaneness and effectiveness of various techniques.
- h. Explore new and existing technologies and methodologies related to poult morphological alterations and skeletal development.

4. PRODUCTION SUSTAINABILITY

- a. Develop practical alternative uses for turkey processing by-products.
- b. Identify and explore alternative uses for turkey manure.
- c. Assess and validate farm production methods that promote the reduction of environmental contaminants from turkey farms (e.g. phosphorus, nitrogen, ammonia, dust).
- d. Assess the impact of turkey farming on the immediate and remote environment (including inputs and outputs) and develop novel farming methods that reduce the ecological footprint of the Canadian turkey industry.

5. NEW PRODUCT DEVELOPMENT

- a. Explore and develop turkey feed formulations that meet the requirements of the “free-from” and “vegetable-grain fed” marketing requirements.
- b. Explore the use of novel feedstuffs, feed additives, and/or the modification of existing feedstuffs to create more nutritionally efficient turkey diets.