Canadian Poultry Research Council
Le Conseil De Recherches Avicoles Du Canada

Call for 2021 Letters of Intent (LOI)

January 2021

Dear applicant: Please note that the Canadian Poultry Research Council (CPRC) will continue the approach to the grant review process adopted for the 2016 call designed to provide more flexibility and efficiency to both CPRC and the research community. The 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 approach, compared to the LOI form used previously, 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.***

CPRC made changes for the 2016 call and will maintain these changes for the 2021 call. The research categories previously used were unable to accommodate some new initiatives in poultry research (i.e.: climate change, smart agriculture, precision agriculture). The CPRC Board of Directors decided that the* ad hoc *category that was originally designed to fill these gaps was not as effective as it has been in the past. The Board established a three-category approach for the 2016 call designed to accommodate both ongoing research issues and respond to evolving areas of research. Specific priority areas and desired research outcomes, most included in the 2012* National Research Strategy for Canada's Poultry Sector *(http://cp-rc.ca/wp-content/uploads/2016/02/National_Research_Strategy_for_Cdn_Poultry_Sector.pdf), have been identified within the categories. The 2021 call for LOIs encompasses the three categories and their priorities that are identified below. Research priorities specific to CPRC member organizations are listed by organization at the end of this document.
Please refer to the 'Notes to Applicants' section of this document for details, including submission deadline. LOIs are due March 1, 2021.

Research Categories and Priorities – 2021 Call

Food Safety

Research Priorities Included in Category

- Food Safety
- Economic Viability
- Animal Health Products

225 Metcalfe Street, Suite 314, Ottawa, ON K2P 1P9
Phone : (613) 714-4599 email: info@cp-rc.ca

- Genetics/Genomics
- Smart Agriculture (Not in 2012 Strategy)

Poultry Health and Welfare

Research Priorities Included in Category

- Poultry Health
- Poultry Welfare
- Economic Viability
- Genetics/Genomics
- Animal Health Products
- Smart Agriculture (Not in 2012 Strategy)

Productivity and Sustainability

Research Priorities Included in Category

- Food Security and Affordability
- Economic Viability
- Environment
- Functional and Innovative Poultry Products
- Poultry Feedstuffs
- Genetics/Genomics
- Animal Health Products
- Smart Agriculture (Not in 2012 Strategy)
- Precision Agriculture (Not in 2012 Strategy)
- Climate Change (Not in 2012 Strategy)

Examples of previously funded projects, grouped by the pre-2021 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 the CPRC call. Instructions on completing the form are included in that document.

Please email your completed LOI in **Word** format to info@cp-rc.ca by 5:00 pm EST **March 1, 2021**. 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 with a signature to info@cp-rc.ca or hard copy to:

Canadian Poultry Research Council
225 Metcalfe Street
Suite 314
Ottawa, ON K2P 1P9

Your electronic submission is due **March 1, 2021**, 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. Budgets exceeding $60,000 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 reviewed 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 each of 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 613-714-4599 ext. 101.

CPRC MEMBER PRIORITY LISTS

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

Canadian Hatching Egg Producers

Ammonia and *Salmonella* Enteritidis (SE) reduction have been designated as top priorities by the CHEP Research Committee.

1. Production-based Research
   a. Methods to increase fertility and number of saleable chicks
      - Differences in fertility and paid hatch
      - When is it most beneficial to add spiking roosters?
      - Research on new and emerging technology to assess on-farm, real-time fertility
2. Breeder Welfare
   a. Ammonia Control
      - Developing more accurate methods to measure ammonia on-farm, and validating existing ammonia measurement equipment (such as the ammonia meters used by auditors)
      - Establishing baseline ammonia levels on the farm, and once a consistent methodology is established, have CHEP compile national data to inform decisions going forward
      - Validating benchmarks (such as those referenced in the code, or those determined as a result of on-farm baseline data), including the study of the impacts of different levels of ammonia concentration on the health and wellbeing of birds an humans in order to determine appropriate level(s) of ammonia to include in the animal care program as maximum thresholds depending on climate and temperature
      - Cost-effective methods to control ammonia
   b. Density
   c. Euthanasia
      - Methods for birds>3kg, including low atmospheric pressure stunning (LAPS)
        - Is LAPS practical for on farm application?
      - Efficient and quick way to euthanize breeder flocks in an emergency situation
   d. Aggression
      - Feed energy and male aggression
      - Research linking specific genetic traits with male to female aggression
   e. Early mortality of breeder hens (*E*. coli, staphylococci)
      - *E*. coli and staphylococci more likely to post peak mortality association
   f. Physical alterations
      - Toe-trimming, beak trimming: ideal methods and timing for procedures
      - Cost-effective, practical management practices that can eliminate physical alterations
   g. Transporting newly hatched chicks
      - Length of time that newly hatched chicks are sustained by the yolk sac
      - Effectiveness of hydration/nutrient products used prior to and during transit
   h. Effects of vaccination programs on breeder welfare
      - Current status
      - Maximum thresholds – how much is too much?

3. Environmental Research
    a. Effects of temperature control on egg handling and holding, and egg transfer vehicles, including egg sweating and links to rots after eggs leave the farm
    b. Effects of lighting on broiler breeder production, fertility, and bird health
        - LED lighting long-term
        - Light intensity, spectrum, colour temperature (K)
4. Poultry Health and Disease
    a. Variant bronchitis-impact on breeder production and fertility
    b. White chick syndrome
    c. More efficient vaccination programs
    d. Effect of probiotics
    e. *Mycoplasma synoviae*
5. Alternatives to antimicrobials
6. Control of Foodborne Pathogens/SE
    a. Control of Salmonella by vaccination (methods and effectiveness)
        - Newer *Salmonella* vaccinations or supplemental adjuvants to improve vaccine efficacy
    b. Sources of infection
        - What is transferred to the chick? How does egg incubation affect *Salmonella* cells?
    c. Possible barn differences, what type of construction, material, insulation, volume of air, angle to the sun (infrared radiation)
    d. Prevalence
    e. Population density
    f. Control of *Campylobacter* jejuni
    g. On-farm strategies to reduce and prevent *Salmonella* while birds are in production
        - Reduce/prevent *Salmonella* via competitive exclusion (probiotics and antagonistic bacterial species for controlling foodborne pathogens)

Chicken Farmers of Canada

1. Animal Health/AMU:
    a. Development and evaluation of new vaccines for pathogens that have developed virulent resistant strains (e.g., Reovirus) and for serious production-limiting diseases of broiler chickens.
        - Evaluation of the efficacy of E.coli vaccinations in broilers
        - Further research effort into *Enterococcus cecorum* with a consideration for vaccine options or products to combat/prevent the organism in the barn.
        - Vaccine strategies for current infectious bursal disease strains
    b. Develop and/or evaluate preventive treatment strategies (e.g., dietary, management)/effective alternatives to antibiotics (e.g., prebiotics, probiotics, oils etc.) to reduce the impact of the elimination of the preventive use of Category III antibiotics and to control serious pathogens (e.g., Necrotic Enteritis)
        - Management strategies to mitigate the impact of the absence of the preventive use of antibiotics (e.g., downtime, stocking density, barn sanitation, waterline sanitation, practical early litter moisture management for proper cocci cycling).
        - Optimal cleaning and disinfection for RWA

- Monitoring the emergence or resurgence of pathogens or diseases following the gradual withdrawal of antibiotics
- Research on length of downtime required for it to be an effective form of barn sanitation**.**
- Impact of feed / feed ingredient texture on gut and overall health

c. Development of tools for the rapid diagnosis of resistance to antibiotics and anticoccidials with emphasis on in-clinic tools
d. Further study to understand sudden death/ flips and best management options to prevent/ reduce.

2. Chick Management
   e. Impact of in-barn hatching on flock health and performance.
   f. Study of nutritional supplements in ovo in broiler chickens with the objective of providing better immunity and resistance to pathogens after hatching.
   g. Management strategies to mitigate runting/stunting syndrome (barn sanitation, brooding temp, downtime etc.)
3. Food Safety:
   a. Examining the impact of management practices, beyond biosecurity, to reduce *Salmonella enteritidis* throughout the chicken value chain (e.g., organic acids, vaccines, downtime etc.).
   h. On-farm control strategies to reduce the prevalence of Salmonella sp. and/or Campylobacter in broilers
   i. Tools and technologies to make water quality systems more available and affordable.
   j. Further research into preventative measures for darkling beetles and flies
   b. Further research into cellulitis and other major reasons for condemnation
4. Animal Welfare:
   a. Comparison of tools and their effectiveness in measuring environmental conditions (e.g., ammonia levels) in barns.
   b. Development of indicators of thermal comfort and health of chickens based on environmental variables (temperature, relative humidity, air velocity and gaseous and particulate emissions) correlated to bird physiological, behavioral and production parameters.
   c. Impact of lighting on bird health and welfare including research comparing the effect of LED lighting with that of incandescent lighting, factoring in the LUX difference.
   d. Impact of stocking density on bird health and welfare (e.g., optimal stocking density for broilers) and as a management tool in flocks raised without the preventive use of antibiotics.
   e. Research into the health and safety effects of alternative bedding materials (including peat moss) bird welfare in comparison to other bedding types with considerations given to and dust particle size.
   f. Evaluation of the health and productivity of slow-growing broilers in comparison to conventional production with identical rations and environments
   g. Further research into environmental enrichments/enhancements promoting animal welfare (e.g., bales of hay)
   h. Mitigation strategies (vaccination, barn sanitation, health management programs) to help decrease condemnation levels at the processing plant.
5. Sustainability:

a. Development of eco-efficient energy strategies in poultry production (e.g. in barn energy use, manure management) to reduce the carbon footprint and improve the welfare and productivity of farms

Egg Farmers of Canada

1. Environment and sustainability
2. End of flock management
3. Innovative uses of eggs
4. Animal care science
5. Food safety
6. Human nutrition and health
7. Bird nutrition and health
8. Public policy and economics
9. Research gaps identified by the Code of Practice

Turkey Farmers of Canada

1. Flock Health
   a. Develop flock management practices, vaccinations, and dietary strategies/in-feed additives that reduce the need for preventive antimicrobial use (focus on Category III).
2. Food Safety and Quality
   a. On-farm control strategies for pathogen levels in meat.
3. Turkey Welfare
   a. Management practices that can eliminate physical alteration
   b. Evaluate methods for humane on-farm euthanasia for routine situations and during mass depopulation
   c. Assess the effect of transportation on turkeys and evaluate measures to reduce bird stress.
4. Production Sustainability
   a. Assess production methods to reduce environmental emissions/contaminants.

Canadian Poultry & Egg Processors Council

1. Food Safety
   a. Intervention strategies for reduction of salmonella and/or campylobacter throughout the supply chain
2. Animal Welfare
   a. Innovations to improve welfare
   b. Identifying pre-stun mortalities in a gas stun system