



Canadian Cattlemen's Association  
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## CALL FOR LETTERS OF INTENT RESEARCH PROJECT

The Beef Cattle Research Council's (BCRC) mandate is to determine research and development priorities for the Canadian beef cattle industry and to administer national check-off funds allocated to research. The BCRC, along with Alberta Beef Producers (ABP), invites letters of intent for research aimed at achieving specific priority outcomes in identified program areas.

**The deadline to submit letters of intent is August 7, 2020 at 11:59 PM MT.**

### Application Forms and Information

Letters of intent must be prepared using the file entitled 'BCRC Letter of Intent Form - Research' provided by the BCRC and submitted electronically to [proposals@beefresearch.ca](mailto:proposals@beefresearch.ca). The form, as well as instructions and guidelines for submission, can be downloaded from [www.beefresearch.ca](http://www.beefresearch.ca). In the interests of improved funding efficiency, the BCRC reserves the right to share letters of intent with other research funders.

### Project Timeframe

Preference will be given to projects that are up to three years in duration; if the need for a longer timeframe can be clearly demonstrated, four or five-year projects may be considered. Projects will commence no earlier than April 1, 2021, with flexibility available after April 1<sup>st</sup> to ensure start dates work for with the project workplan. An approved project cannot start until confirmation of matching funds has been received.

### Timelines

**August 7, 2020** – deadline for submitting letters of intent

**September 14, 2020** – researchers will be notified on or prior to if they have been invited to submit a full proposal

**November 9, 2020** – deadline for submitting invited full proposals

**Early February 2021** – researchers will be notified of the funding decision

### Research Outcomes

The BCRC and ABP have established clearly defined research objectives. **Please refer to the detailed research outcomes listed beginning on page 2** before deciding to submit a letter of intent. In addition, all proposed research must give a strong consideration to the following overarching aims:

1. Improved communication, collaboration and understanding between researchers and industry, with research/industry collaborations increasing to account for 25% of research activities.
2. Cost-benefit analysis completed to support recommendations and knowledge transfer from research projects that impact production profitability.
3. Encouragement of interdisciplinary teams undertaking systems-based approaches integrating appropriate parts of the value chain.
4. Investigate technologies with the potential to reduce labor and improve production efficiencies throughout the forage, cattle and beef production chain.
5. Enhanced awareness and consideration of relevant international research and development activities to avoid duplication and identify opportunities for collaboration.



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## RESEARCH OUTCOMES DRAWN FROM THE CANADIAN BEEF RESEARCH AND TECHNOLOGY TRANSFER STRATEGY

Through the Canadian Beef Research and Technology Transfer Strategy, the beef industry has defined three core research objectives under which more specific priorities and research outcomes are established:

1. To *enhance industry competitiveness and reduce production costs*, priority outcomes are to enhance feed and forage production, increase feed efficiency, and decrease the impact of animal health issues and production limiting diseases.
2. To *improve beef demand and quality*, priority outcomes are to reduce food safety incidences, define quality and yield benchmarks supporting the Canadian Beef Advantage, and improve beef quality through primary production improvements and the development and application of technologies to optimize cutout values and beef demand.
3. To improve *public confidence in Canadian beef*, outcomes are to improve food safety, strengthen the surveillance of antimicrobial use and resistance, develop effective antimicrobial alternatives, ensure animal care, demonstrate the safety and efficacy of new production technologies, improve environmental sustainability and measure the beef industry's environmental benefits.

For the competition, the BCRC and ABP welcome any letters of intent that work towards the achievement of one or more of the specific research outcomes listed below by priority area.

### **Priority: Beef Quality**

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- Develop and implement processes that facilitate the automated inspection, collection, recording, evaluation and communication of desirable (e.g. high lean yield/high marbling/healthy organs) and undesirable (e.g. low lean yield/low marbling/unhealthy organs) characteristics to enhance meat inspection and the Beef Quality Audit
- Audit and evaluate current electrical stimulation practices in commercial processing plants (where/when carcasses are stimulated on the production line, what voltage and amperage are used, and for how long), and compare these to recommended electrical stimulation practices
- Develop packaging and other technologies to improve shelf life, appearance and food safety for export
- Compare the storage life, cut yield, shrink, safety, value and profitability of chilled Canadian vs. frozen imported beef
- Complete a systematic literature review on the nutritional and health attributes of beef relative to other foods to address consumer concerns (i.e. including but not limited to phyto/estrogens, other hormones and hormone analogues), inform consumer education programs, and identify appropriate research directions and applications
- Other beef quality research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.

### **Priority: Food Safety**

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- Develop and implement cost-effective technologies targeting multiple pathogens in cattle and beef production and processing facilities, including heat- and acid-resistant *E. coli* and biofilm forming bacteria

- Develop objective, cost-effective approaches for verifying effectiveness of packing plant equipment cleaning processes, particularly the sanitation of knives and other cutting equipment.
- Assess whether commercial processing plant workers adhere to known best practices for the sanitation of knives, gloves and other personal equipment
- Develop packaging and other technologies to improve shelf life, appearance and food safety for export
- Compare the storage life, cut yield, shrink, safety, value and profitability of chilled Canadian vs. frozen imported beef
- Identify cost-effective cleaning technologies to reduce water and energy use in beef packing and processing facilities
- Other food safety research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.

#### **Priority: Animal Health and Welfare**

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- Use the Canadian Cow-Calf Surveillance Network to benchmark the incidence and economic impact of production limiting diseases, nutritional and health management, biosecurity practices, and welfare practices in Canadian cow-calf operations
- Investigate the prevalence, nature, and potential causes of “itchy cattle” in Canadian cow-calf and feeding operations, and whether resistance to avermectin-based parasiticides may play a role
- Based on recent Canadian research, develop revised feed mycotoxin levels to avoid adverse animal health and welfare impacts in cow-calf, backgrounding and feeding operations, clearly identifying outstanding research questions
- Evaluate the cost-effectiveness of pain control products and strategies for avoiding or mitigating acute and chronic pain, including strategies or SOPs to facilitate appropriate euthanasia decisions.
- Other animal health and welfare research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.

#### **Priority: Antimicrobial Use, Resistance and Alternatives**

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- Develop rapid, accurate, cost-effective technology to detect antimicrobial resistance in production environment
- Conduct an evidence-based risk-assessment of alternative production practices (e.g. which components of preconditioning and/or low-stress weaning practices) to produce cost-effective improvements in the health of calves in the feedlot
- Develop rapid, accurate, cost-effective diagnostic tools to detect disease before symptoms become apparent
- Develop a better understanding of the respiratory and gut microbiomes, their establishment and development in the neonate, and their relation to immunity and disease
- Other antimicrobial use, resistance and alternative research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.

#### **Priority: Feed Grains and Feed Efficiency**

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- Quantify the genetic relationships between feed intake and efficiency in cow-calf and feedlot production, and their relationships with other economically relevant beef production traits (longevity, fertility, weaning weight, wintering costs, carcass weight, yield and quality grades, tenderness, etc.)
- Identify genes with functional roles in microbiological and physiological processes that affect feed intake and efficiency in feedlot and cow-calf production

- Determine the impact of cow-calf management practices on feed intake and efficiency in feedlot calves
- Identify, evaluate and calculate the cost-effectiveness of alternative / by-product energy feeds, considering impacts on animal performance, health, product quality, and nutrient management.
- Develop feeding strategies to optimize animal performance, nutritional value and cost of gain (e.g. enhancing carbohydrate digestion in the feedlot or cow-calf sector)
- Other feed grain productivity and feed efficiency research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.

### **Priority: Forage and Grassland Productivity**

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- Develop new annual and perennial grass and legume varieties with improved stand longevity, quality, yield, and adaptability (e.g. flood and drought resistance) through traditional and/or advanced plant breeding techniques
- Characterize corn and cereal forage variety differences in nutrient profile and ensiling potential
- Identify or develop improved grazing and range management strategies that optimize forage and beef production from native range and tame perennial pastures, such as
- Grazing trials involving new forage varieties
- Understanding grazing management systems and their impacts on the plant community, animal health and performance, soil health, and biodiversity
- Investigate and refine regionally-appropriate methods of combining native, tame (annual and perennial) species and extended winter grazing practices to lengthen the grazing season and reduce winter feed costs, while meeting animal requirements
- Quantify the economic and agronomic benefits of integrated annual crop, forage and beef production systems
- Other forage and grassland productivity research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.

### **Priority: Environmental Sustainability**

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- Develop cost-effective methods of reducing GHG emissions in cow-calf or backgrounding operations
- Quantify the impacts of native and tame pasture management on water use, cycles and watersheds In Eastern Canada
- Identify cost-effective cleaning technologies to reduce water and energy use in beef packing and processing facilities
- Quantify N and P excretion rates in grazing animals, and N impacts on GHG emissions and P runoff and leaching impacts on water quality / eutrophication compared to adjacent cropland and assess whether forage or pasture strips act as a buffer to mitigate nutrient entry into waterways.
- Other environmental sustainability research that will directly contribute to goals outlined in the [2018-23 Canadian Beef Research and Technology Transfer Strategy](#) or [Canadian Roundtable for Sustainable Beef Sustainability Assessment and Strategy](#) may also be considered.