



2020-2021 Year in Review

Guiding Principles 3

Message from the Chair 4

Message from the Executive Director 5

Meet the Council 6

Funding Overview 7

Research Projects & Results 10

Research Capacity 12

Knowledge & Tech Transfer 14

Surveillance Networks 15

Verified Beef Production Plus 16

BEEF CATTLE RESEARCH COUNCIL

Canada's industry-led funding agency for beef, cattle and forage research and extension

The Beef Cattle Research Council (BCRC) funds leading-edge research and extension activities to advance the competitiveness and sustainability of the Canadian beef cattle industry. All BCRC activities are guided by overarching core principles defined by the beef industry in the renewed **Five-Year Canadian Beef Research and Technology Transfer Strategy**.

BCRC'S GUIDING PRINCIPLES:

1. Increase producer profitability by increasing productivity or decreasing costs of production and risks.
2. Develop, enhance and encourage adoption of beneficial practices and innovations that maximize the environmental benefits industry provides and continue to reduce our environmental footprint, while supporting industry competitiveness.
3. Support continuous improvements in Canadian beef demand through advancements in the quality and safety of Canadian beef.
4. Generate science to inform decision makers, policy and best management practices and to support consumer confidence and public trust.
5. Develop, enhance and encourage adoption of leading-edge technologies that support industry competitiveness, automation and sustainability.
6. Ensure the maintenance and rejuvenation of critical research capacity and infrastructure that facilitate proactive inquiry and innovation to support industry advancement.

The Year in Review:

This report provides a summary of programs and outcomes of the BCRC's activities between July 1, 2020, and June 30, 2021.



MESSAGE FROM BCRC CHAIR

Matt Bowman

Research and innovation are vital to driving competitiveness in Canada's beef industry and increasing domestic and global consumer demand for Canadian beef.

As a beef producer and chair of the Beef Cattle Research Council, I see first-hand how applied research in feed efficiency, animal health and forage and grassland productivity are improving producers' bottom lines. Research in environmental sustainability, antimicrobial use, beef quality and food safety not only contributes to the economic and environmental sustainability for producers, but also to improved consumer confidence and public trust in the beef sector.

The BCRC is a leader in directing agriculture research funding to address industry priorities and target outcomes. It uses each hard-earned Canadian Beef Cattle Check-Off dollar to attract more funding from government and other industry investments and to generate more value for beef producers and the industry. We collaborate with various funding agencies through a portfolio approach to be more efficient with limited funding and to ensure high-priority research, capacity and extension priorities are addressed in a coordinated manner.

We are seeing now how past research in pasture management, early weaning, feed and water testing and alternative feeds are being used to help us through the current drought situation in many parts of Canada. And, much of the producer-funded research underway today will help us cope with future challenges and opportunities.

I am intrigued by program outcomes and preliminary findings from the research projects underway in 2020-2021. Through this report of just a few of BCRC's many Check-Off-funded activities over the past year, I trust you also will be encouraged as we look ahead to the future of the Canadian beef industry.

2020-21 BCRC Year In Review

www.beefresearch.ca



“Today's research will help resolve tomorrow's challenges, allowing the beef industry to remain sustainable and resilient.”

MESSAGE FROM EXECUTIVE DIRECTOR

Andrea Brocklebank

So much has happened during the past year – from the COVID-19 pandemic to the drought that impacted cattle producers across much of the country. When issues like these arise, Canadian Beef Cattle Check-Off funding makes it feasible that organizations like the Beef Cattle Research Council have the resources and capacity to effectively address both ongoing and emerging priorities that help industry stakeholders pivot and make informed decisions.

For example, BCRC funded pandemic-specific research initiatives including investigating technologies to support inspection services, determining the risk of COVID-19 infection due to changing airflows in processing facilities as physical barriers were put in place, as well as economic analysis to support the development of eastern cattle price insurance indices. The BCRC worked closely with industry and government to assess the impacts of the pandemic on research at facilities across Canada. While some of our projects were delayed due to COVID-19 impacts, most continued as researchers adapted to new requirements.

As we closed 2020-21, BCRC staff promoted existing drought-related extension resources and developed new ones. This included blog posts, webpages and a webinar on drought management, alternative feeds and feeding strategies and water management. Moving into fall, we are developing resources related to early weaning of calves, winter feed management and drought recovery strategies.

As I often say, research is a long-term game. We must continually look forward to identify priority research and extension outcomes to help meet global beef demand in an environmentally, socially and economically sustainable manner. As a result of extensive stakeholder engagement over the past year, the BCRC published the third **Five-Year Canadian Beef Research & Technology Transfer Strategy**, which will act as a framework for coordinating high-priority beef research, funding and technology transfer activities over the next several years.

This report encapsulates a year of determined ingenuity by the BCRC, cattle and forage researchers, beef producers and Canada's entire beef industry. Despite the challenges, we have much to celebrate.

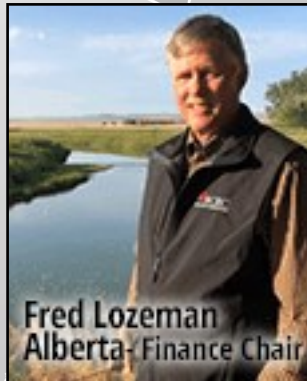


“While there has been much uncertainty in the industry in 2020-2021, Canada’s beef producers remain tenacious, researchers have proven to be innovative and the Beef Cattle Research Council is resolute to move forward as a leader in beef research and extension.”

MEET THE COUNCIL

Producer-led & Canada-wide

The BCRC is directed by a committee of 13 beef producers from across the country, plus one member at large, and is funded primarily through the Canadian Beef Cattle Check-Off.



BCRC & ITS PARTNERS

Tackling Industry Priorities While Generating the Most Value from Every Research Dollar

In the 2020-21 fiscal year, the BCRC received on average \$0.67 of every \$2.50 of the Canadian Beef Cattle Check-Off collected by the provincial beef cattle associations. The funding was leveraged under various programs to maximize producer returns on their check-off investments. Typically, for every \$1 in producer Check-Off invested, BCRC looks to leverage \$2-3 in other direct funding in addition to indirect leverage through in-kind and other funding.

When making funding decisions, the BCRC seeks expert advice to ensure proposed projects address industry priorities and are scientifically and practically sound. A science advisory body provides relevant advice on the technical merit of any proposed research. As well, independent peer reviewers help ensure new research is original, progressive and uses valid scientific approaches. The BCRC Council members consider feedback, concerns, suggestions and recommendations before making their decisions on what projects to fund. This process helps the BCRC provide a fair, transparent and thorough evaluation of all research activities.

The BCRC works closely with other industry and government funding agencies to increase coordination, reduce duplication and ensure priority research outcomes are addressed for the benefit of Canadian beef and cattle producers.

In addition to funding research, the BCRC plays a leading role in increasing industry uptake of relevant technologies through its knowledge dissemination and technology transfer strategies. This information sharing across a broad audience of producers, researchers, funders, government and other industry organizations supports communication networks across the country.



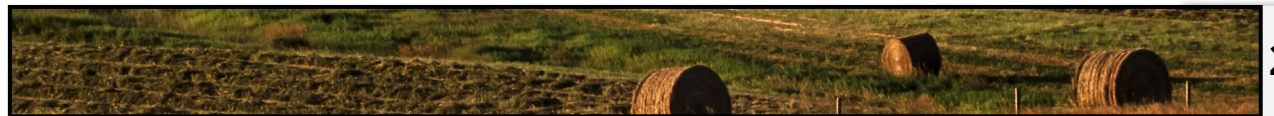
BCRC FUNDING BY PROGRAM AREA

Total 5-Year Funding to All Projects: **\$38.2 Million**

Percent of Total Research Funding by Portfolio:

Forage & Grassland Productivity

Forage varieties and management strategies to increase yields, nutrition and competitiveness



25%

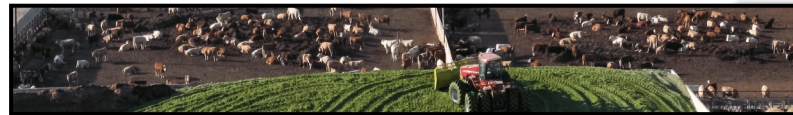
Animal Health, Welfare & Antimicrobial Resistance & Use



25%

Feed Grains & Feed Efficiency

Cost-effective methods for more efficient cattle, feeds and feeding strategies



16%

Technology Transfer & Other

Encouraging greater awareness and adoption of new technologies and beneficial practices



9%

Beef Quality

Continued domestic and international satisfaction with Canadian beef



8%

Food Safety

Maintained beef safety and consumer confidence



7%

Environmental Sustainability

Reduced environmental footprint of Canadian beef



6%

Research Capacity

Partnering with key institutions to implement long-term research capacity in priority areas



4%

PROJECT FUNDING BY SOURCE

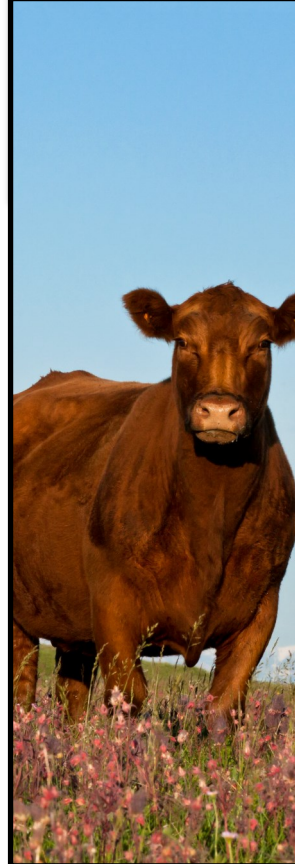
Total project funding for 2020-21: **\$13.3 Million**

Canadian Beef Cattle Check-Off 2020-21 Allocations

Animal Health & Welfare	30%
Feed Grains & Feed Efficiency	14%
Forage & Grassland Productivity	12%
Environmental Sustainability	11%
Beef Quality & Food Safety	9%
Tech Transfer & Production Economics	9%
Proof of Concept and Other	8%
Research Capacity	7%



\$4.8 million*



AGRICULTURE AND
AGRI-FOOD CANADA

\$3.4 million



OTHER INDUSTRY
FUNDING

\$5.1 million



BEEF SCIENCE CLUSTER III

Canadian Check-Off Funding for 2020-21: **\$1.16 Million**

The 2018-2023 Beef Science Cluster program is a \$21.7 million program, with Agriculture and Agri-Food Canada contributing \$14.1 million and industry contributing \$7.6 million over the five years. Under the current Cluster program, there are 23 research and extension projects reporting activities between April 1, 2020, and March 31, 2021. Most of the projects are funded over the five-year period, with a few projects wrapping up in 2021 and 2022.

23 Cluster research & extension projects



Some preliminary findings include:

- increased productivity in mid-rotation native forested rangeland sites through an integrated forage, cattle and timber management approach
- new alfalfa varieties that are better able to tolerate drought and flood conditions
- rotating classes of antibiotics used in feedlots may help maintain effectiveness rather than relying solely on macrolides

While most results will be presented upon project completion, a summary of all research projects is available in the **2020/21 BCRC Results Report**.



Project Spotlight:

A Beef Cluster study led by Francis Larney, Ph.D., and Paul Jones, Ph.D., at AAFC's Lethbridge Research & Development Centre and the University of Saskatchewan's Toxicology Centre examined the excreted residues of growth promotants to see if they persisted in manure, soil and groundwater. Growth promotants provide significant production and environmental benefits. This preliminary study found their residues break down very rapidly and pose minimal risks to the soil, surface water or groundwater. Any residuals can be further minimized by appropriate manure and runoff management.

Learn more at beefresearch.ca.

PRIORITY RESEARCH PROJECTS

Canadian Check-Off Funding for 2020-21:

\$1.8 Million

BCRC's priority research projects are chosen through an annual call for proposals. The BCRC received 83 letters of intent and 49 research teams were invited to submit proposals. Of the 47 submitting, 25 projects were approved for funding. All successful applicants secured funding from other government and industry sources, stretching the Canadian Beef Cattle Check-Off dollars to at least twice its value, with the Check-Off funding matched at a minimum of 1:1 by other industry funds. Project summaries are available in the **2020/21 BCRC Results Report**.

Project Spotlight:

Previous research has found supplementing feed with moderate amounts of oil reduces ruminant methane production. The BCRC funded a research project to enhance the total lipid content in alfalfa and sanfoin for improved energy density and reduced methane emissions. Dr. Surya Acharya's team at AAFC Lethbridge is building upon previous successes, selecting for high-lipid-concentrated alfalfa that will bring a non-GMO cultivar closer to commercialization.

www.beefresearch.ca

Project Spotlight:

Beef is more nutrient dense and economical gram-for-gram, compared to other protein foods.

NOT ALL SUPER FOODS WEAR CAPES

100 GRAMS OF COOKED BEEF PROVIDES 77% OF YOUR DAILY ZINC

AND 102% OF YOUR DAILY VITAMIN B12

BCRC
BEEF CATTLE RESEARCH COUNCIL

RAISE YOUR BEEF IQ
@ beefresearch.ca

Dr. Ben Bohrer at the University of Guelph compared the nutrient density, nutritional value and relative cost of beef to other proteins. **This BCRC-funded research project revealed beef addresses vitamin B12, zinc and iron inadequacies in Canadian diets in a cost-effective and calorie-efficient way.**

You would need to eat 160 grams of nuts (at four times as many calories) or 500 grams of legumes (for two times as many calories) to get as much protein as 100 grams of beef provides.

 **BCRC**
BEEF CATTLE RESEARCH COUNCIL

RESEARCH CAPACITY

Canadian Check-Off Funding for 2020-21: **\$300,000**



Dr. Gleise M. Silva
University of Alberta
BCRC-Hays Chair in Beef
Production Systems



BCRC has developed three research chair positions in partnership with key research institutions and matching industry and government funders. The goal is to ensure long-term research capacity is in place to gain and maintain momentum in priority areas.



Dr. Cheryl Waldner, University
of Saskatchewan NSERC/BCRC
Industrial Research Chair in
One Health & Production-
Limiting Diseases

Research capacity expanded further as new researcher,

Dr. Emily Snyder, was hired to backfill Dr. Waldner's previous research position.



Coming in 2021:

A third Chair position was approved in 2021 to expand the agronomic research capacity at the University of Saskatchewan College of Agriculture and Bioresources. The **Integrated Forage Management and Utilization Chair** will bring together expertise at the U of S departments of Plant Sciences and Animal and Poultry Science, filling gaps in forage research and disseminating findings to the industry.

PROOF OF CONCEPT PROJECTS

Canadian Check-Off Funding for 2020-21:
\$160,255

The BCRC funded 14 short-term proof of concept projects to examine and validate the feasibility of pursuing larger, more defined research investments in particular areas. The proof of concept projects are funded jointly by Canadian Beef Cattle Check-Off dollars leveraged with provincial and federal government and/or industry partner funding, with some being funded solely by private industry.

A summary of all proof of concept projects is available in the [2020/21 BCRC Results Report](#).

Project Spotlight:

The **BCRC funded a project** exploring the potential of using *Carnobacterium maltaromaticum* A5 as a bioprotective agent in meat plants to improve the safety and shelf life of meat. Dr. Xianqin Yang's team at AAFC Lacombe found that adding this good bacteria to meat at the low levels used in this study was unable to prevent long-term spoilage, but future research is needed to determine if higher levels would inhibit growth of pathogenetic bacteria like *E. coli*.

www.beefresearch.ca

Project Spotlight:



Drs. Emma McGeough and Yvonne Lawley at University of Manitoba conducted a study to see if high-protein legumes could be planted between corn rows for winter grazing. Despite severe drought conditions, legumes established and feed tests showed pastures would produce high-quality feed. This led to another **BCRC-funded project** looking at intercropping legumes over multiple years with cattle grazing and different agronomic measures such as row spacing.

KNOWLEDGE & TECH TRANSFER

Canadian Check-Off Funding for 2020-21:

\$230,592

The BCRC executes KTT activities both under the Cluster III and outside the Cluster program. In addition, calls for proposals for Technology Transfer and Production Economics projects are held; four were funded in 2020-21. All projects are funded jointly by Canadian Beef Cattle Check-Off dollars leveraged with at least 50% funding from government and industry partners.

While difficult to measure adoption of innovative knowledge in the short term, the BCRC's technology transfer efforts appear successful based on consistently positive feedback, high levels of redistribution of resources by other publications and organizations and increasing web traffic, subscribers and followers online.

67,700+ video views



One of the BCRC's most popular resources in 2020-21 was a **calf resuscitation video** offering best practices for saving distressed newborn calves. **Subscribe to BCRC's email list** for the latest content.

Activity Spotlight:



The BCRC is identifying information and data gaps and investing in developing relevant content and modifying resources on beefresearch.ca to better reflect production practices of beef producers in Ontario, Quebec and Atlantic provinces. Eastern extension network expansion, webinars and other modular resource development is being created to support regional extension program delivery.

Over the past year, awareness campaigns promoted applicable existing extension resources on beefresearch.ca to beef producers and extension agents in Eastern Canada. New Eastern-targeted extension content also has been posted to beefresearch.ca, with new French versions available for some materials.

SURVEILLANCE NETWORKS

Canadian Check-Off Funding for 2020-21: \$151,603

The beef industry has prioritized the establishment of surveillance networks related to production-limiting diseases and antimicrobial resistance and use. The intent of these networks is to inform industry practice, policy and future research priorities. In 2020-21, work on the Canadian Cow-Calf Cost of Production Network continued, and funding for three additional projects was approved. Approved projects are expected to be initiated in 2021-22 with the budget allocated to that year. This is the first year that BCRC has invested in surveillance projects outside of the Beef Science Cluster program.

4 surveillance projects funded



- The Canadian Cow-Calf Cost of Production Network managed by Canfax Research Services
- The Western Canadian Animal Health Network: connecting farmers, specialists and information systems to improve cattle health in western Canada
- Surveillance of antimicrobial use and antimicrobial resistance in Canadian feedlot cattle: continuation of bovine respiratory disease pathogen isolation and susceptibility testing
- Respiratory pathogens in calves at weaning: a pilot sentinel surveillance project evaluating antimicrobial resistance risk for calves prior to feedlot entry



Project Spotlight:

The **Canadian Cow-Calf Cost of Production Network** supports industry competitiveness with a goal to have Canadian beef cattle cost of production data in every province and ecoregion to guide technology transfer and research priorities. In 2020-21, the network was established with 115 producers contributing to 30 typical farms. Five nutritionists reviewed rations to ensure they were adequate to meet the animals' needs at various stages of gestation. This provided baseline data for roughly five production systems and, while not exhaustive, this gives a range of situations that producers face and provides a foundation for future analysis.

VERIFIED BEEF PRODUCTION PLUS

Canadian Check-Off Funding for 2020-21:

\$390,000

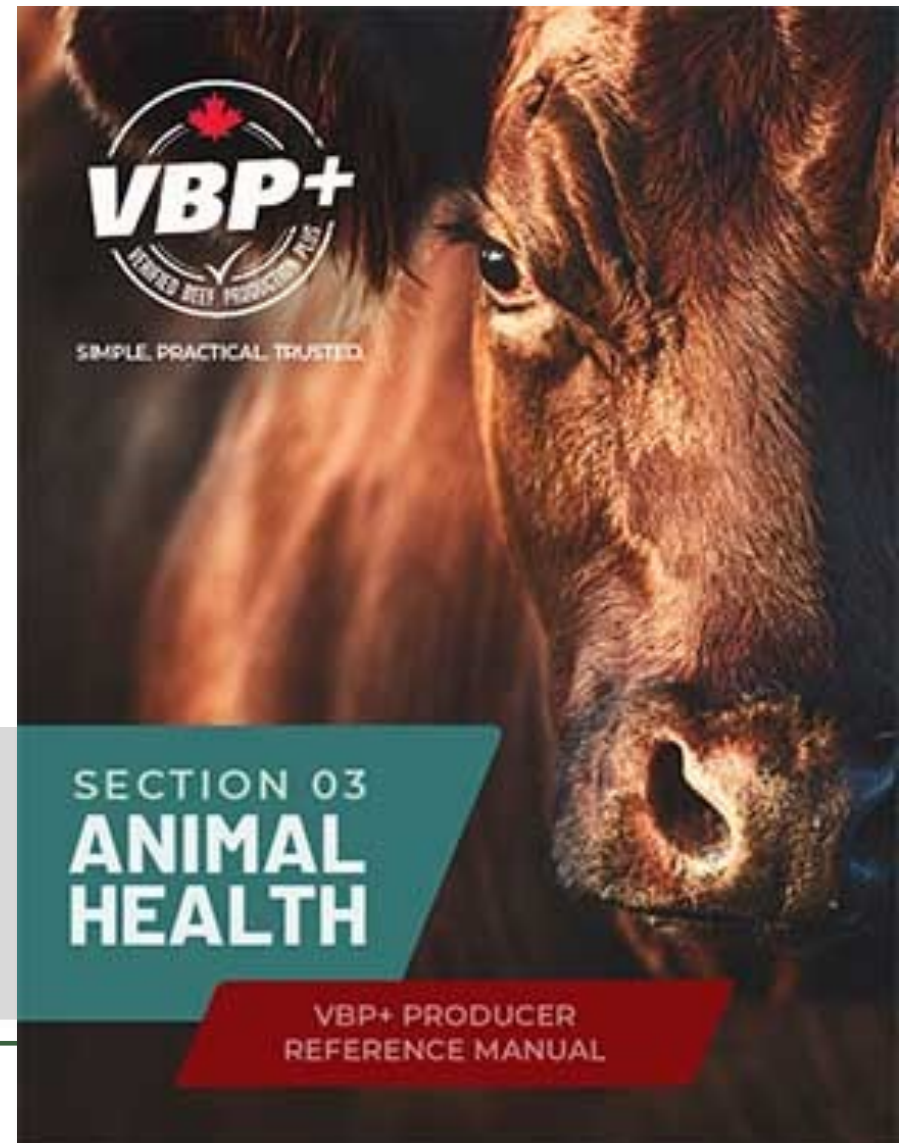
The BCRC continues to fund and oversee the **Verified Beef Production Plus (VBP+) program**. This voluntary, market-oriented, producer-managed program provides training and auditing for animal care, biosecurity and environmental stewardship along with on-farm food safety practices throughout the Canadian beef value chain.

Close to 20,000 producers have completed historic VBP and VBP+ training, and certifications have been steadily increasing across Canada.

1.6 million head of cattle are managed by
1,329 active VBP+ certified operations

VBP+ developed revised producer training platforms and resources over the past year. The electronic audit management platform launched in June 2020 has become a valuable asset in delivering certification services during the COVID-19 pandemic.

Five packer initiatives currently source cattle from certified operations, and provincial coordinators have seen growing numbers of producers requesting certification, indicating strong industry support for VBP+.





BEEF CATTLE RESEARCH COUNCIL

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