



BEEF CATTLE RESEARCH COUNCIL

Advancement Through Science

2021-2022 Year in Review





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> BEEF CATTLE RESEARCH COUNCIL

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

*This report provides a summary of programs and outcomes of the BCRC's activities between July 1, 2021, and June 30, 2022.

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

BCRC'S GUIDING PRINCIPLES:

- > Increase producer profitability by increasing productivity or decreasing costs of production and risks.
- > 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.
- > Support continuous improvements in Canadian beef demand through advancements in the quality and safety of Canadian beef.
- > Generate science to inform decision makers, policy and best management practices and to support consumer confidence and public trust.
- > Develop, enhance and encourage adoption of leading-edge technologies that support industry competitiveness, automation and sustainability.
- > Ensure the maintenance and rejuvenation of critical research capacity and infrastructure that facilitate proactive inquiry and innovation to support industry advancement.

OUR VISION:

A transparent, competitive, resilient and sustainable Canadian beef industry supported by strategic and effective research, technology transfer and innovation.

OUR MISSION:

To lead the Canadian beef industry as the most prominent supporter of cattle, forage and beef research with a producer-led Council who invest producer funds into research and technology transfer to support growth in beef demand, increase productivity and earn public trust.



> MESSAGE FROM BCRC CHAIR

Matt Bowman

As a beef producer and chair of the Beef Cattle Research Council, I have a front-row seat to observe how applied research and extension is improving productivity and profitability for Canada's beef producers. By leveraging producer-paid Canadian Beef Cattle Check-Off dollars and listening to the industry's needs, the BCRC continually develops practical resources to help farmers and ranchers make informed decisions that improve profitability, reduce risks and enhance consumer confidence in Canadian beef production.

The BCRC's 2021-2022 drought resources were a great example. Thanks to the results of past industry research, timely resources were drawn together quickly and in formats that worked for producers. Ongoing investments in research and extension allowed the BCRC to ensure producers had information they needed to make tough decisions and to move forward with drought recovery strategies.

To drive Canada's beef research and extension efforts most effectively and economically in the future, we needed an online vehicle that was faster and more intuitive for our growing audience of beef producers, veterinarians, researchers and other industry stakeholders. So this year, we rolled out a new, revitalized website, through which farmers and ranchers can more easily find the beef and forage information and interactive decision tools they need by topic area. I encourage you to take our new wheels for a test drive at BeefResearch.ca.

The BCRC's mission is to lead Canada's beef industry through investments in cattle, forage and beef research and technology transfer to support growth in beef demand, productivity and public trust. I'm confident you will be as encouraged as I am by the preliminary outcomes of this important work between July 1, 2021, and June 30, 2022.



"Research and innovation are driving the Canadian beef sector's competitiveness and consumer demand."

> MESSAGE FROM EXECUTIVE DIRECTOR

Andrea Brocklebank

The Beef Cattle Research Council is strategically forward-focused to identify and to plan for emerging needs and opportunities in the Canadian beef cattle industry.

Our 2021-2022 reporting year began with the launch of a renewed **Five-Year Canadian Beef Research and Technology Transfer Strategy**. In partnership with a broad range of industry partners, the BCRC facilitated the Strategy to efficiently target funding toward achieving high-priority beef research and extension objectives. The Strategy complements the **National Beef Strategy**'s ambitious 10-year goals, supporting increased productivity while building upon the sector's leadership in environmental, social and economic sustainability. The Strategy informed our activities over the past year and will continue to for years to come.

The BCRC develops practical, science-based resources to help industry stakeholders make informed decisions. There are hundreds of timely beef and forage articles, interactive production calculators, videos, webinars and other resources available through our newly revitalized website, BeefResearch.ca.

In the past year, we worked to expand awareness of BCRC's resources through two successful outreach efforts: the veterinary collaboration project and an eastern Canada content expansion project. Both of these projects also have been beneficial for gathering information to develop new resources for the future.

While the BCRC is perpetually looking forward, I think it also is beneficial to take a moment to look back, reflect and report on the significant strides that have been made in beef and forage research through producer investments in the Canadian Beef Cattle Check-Off. This report is both a summary and a celebration of our industry's commitment to effective research, technology transfer and innovation in 2021-2022.



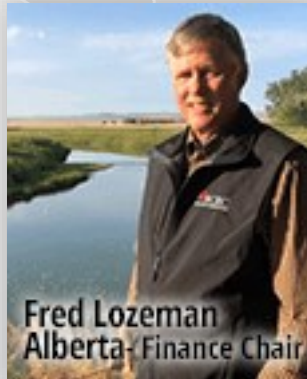
“Working together, the BCRC remains committed to ensure Canada’s beef industry is focused on industry sustainability – economic, social and environmental.”

AMBrocklebank

MEET THE COUNCIL

Producer-led & Canada-wide

The BCRC is directed by a committee of 15 beef producers from across the country, including one member at large, and is funded primarily through the Canadian Beef Cattle Check-Off.



> BCRC & ITS PARTNERS

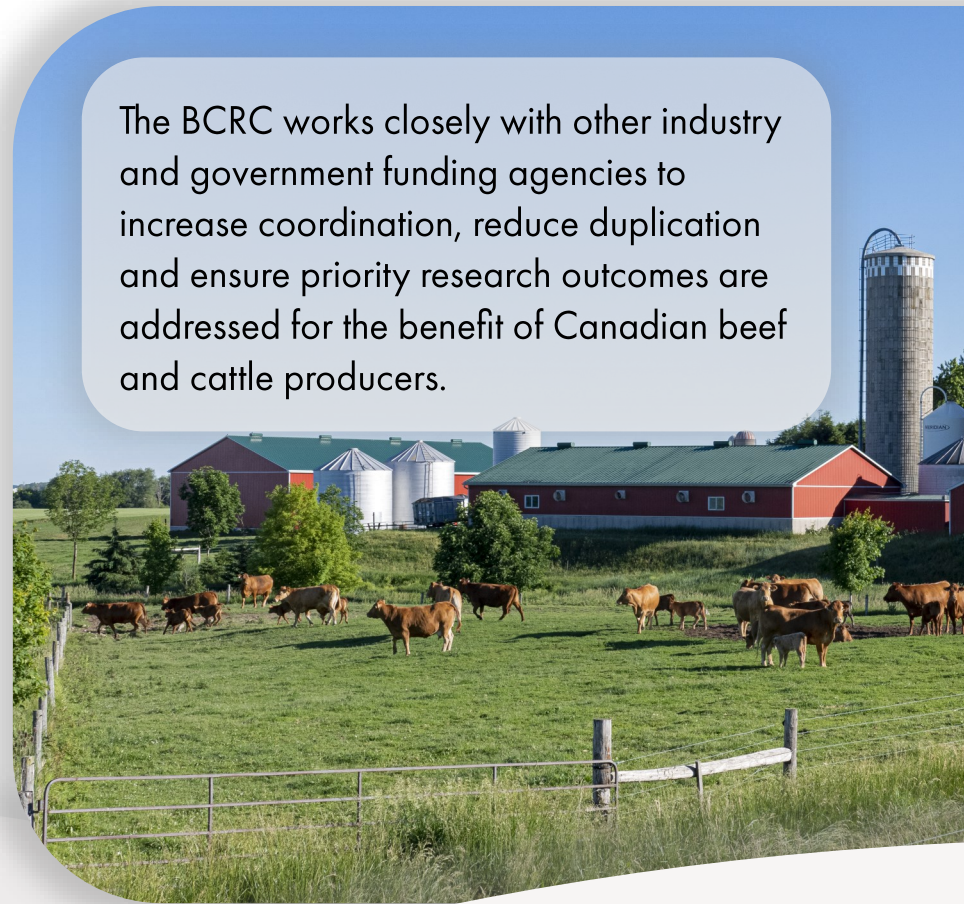
Tackling Industry Priorities While Generating the Most Value from Every Research Dollar

In the 2021-22 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, the 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.

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.

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.



> BCRC FUNDING BY PROGRAM AREA

Total 5-Year Funding to All Projects: **\$39.3 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



15%

Technology Transfer & Other

Encouraging greater awareness and adoption of new technologies and beneficial practices



10%

Food Safety

Maintained beef safety and consumer confidence



8%

Beef Quality

Continued domestic and international satisfaction with Canadian beef



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%

www.BeefResearch.ca

> BCRC PROJECT FUNDING BY SOURCE

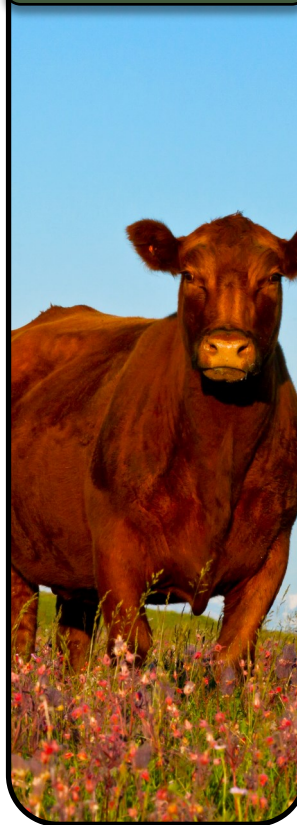
Total Project Funding for 2021-22: **\$13.3 Million**

Canadian Beef Cattle Check-Off 2021-22 Allocations

> Research Capacity	32%
> Animal Health & Welfare	20%
> Forage & Grassland Productivity	11%
> Surveillance	9%
> Beef Quality & Food Safety	8%
> Feed Grains & Feed Efficiency	7%
> Proof of Concept	6%
> Tech Transfer & Production Economics	5%
> Environmental Sustainability	2%



\$5.2 million*



AGRICULTURE AND
AGRI-FOOD CANADA

\$2.6 million



OTHER INDUSTRY &
GOVERNMENT FUNDING

\$6.1 million



* includes 2021/22 funding allocated after the publication of the **2021/22 BCRC Results Report**

> BEEF SCIENCE CLUSTER III

2021-22 Canadian Check-Off Funding:

\$1.3 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 18 research and extension projects reporting activities between April 1, 2021, and March 31, 2022. Most of the projects are funded over the five-year period, with a few projects wrapping up in 2022.

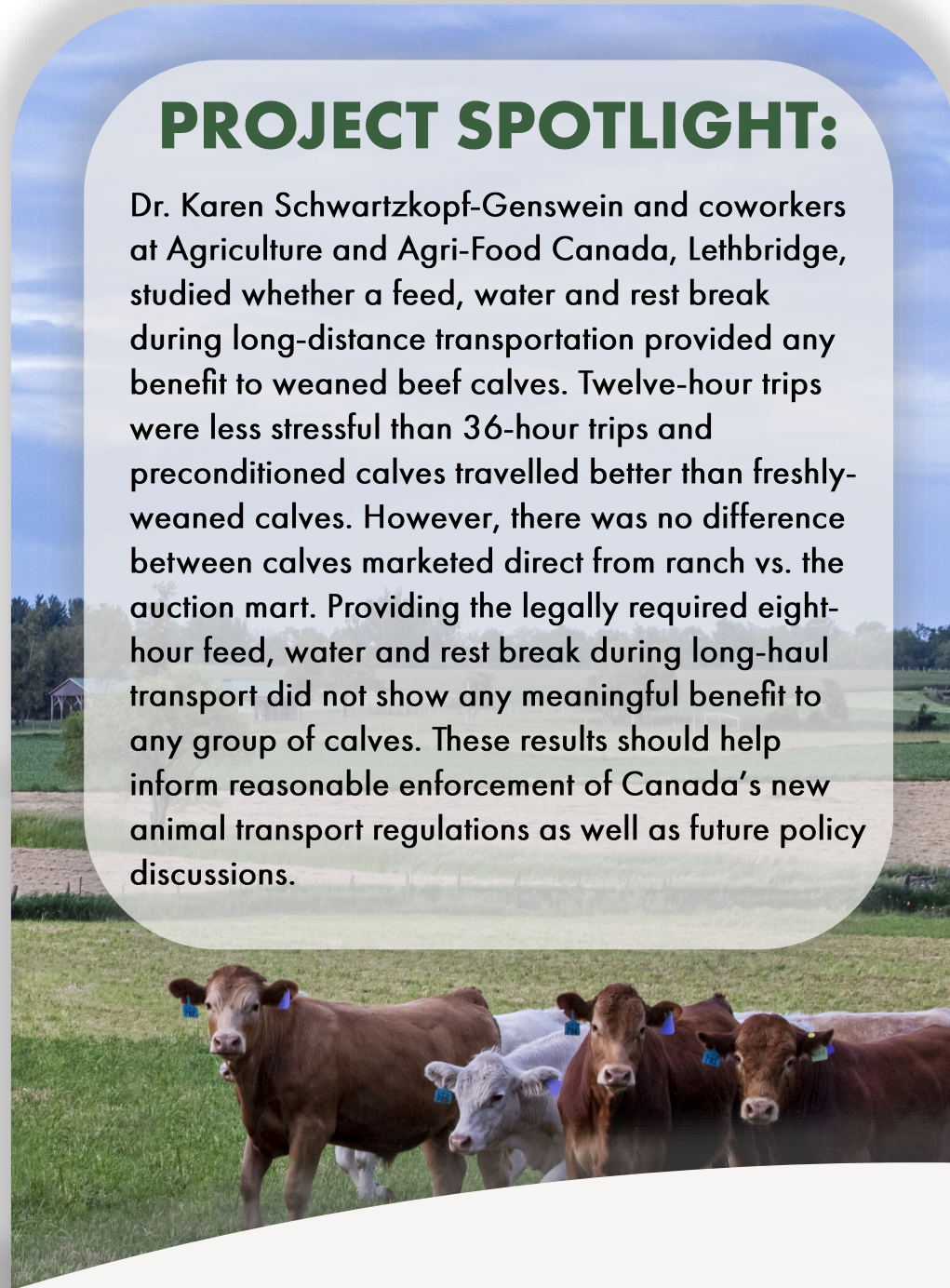
Some preliminary findings include:

- new alfalfa varieties that are better able to tolerate drought, flood and winter conditions
- validation that growth promotant residues pose minimal environmental risks that are further minimized by appropriate manure and runoff management
- insight into why some feedlot calves contract pneumonia from *Mycoplasma bovis* while others do not

While most results will be presented upon project completion, a summary of all research projects is available in the **2021/22 BCRC Results Report**.

PROJECT SPOTLIGHT:

Dr. Karen Schwartzkopf-Genswein and coworkers at Agriculture and Agri-Food Canada, Lethbridge, studied whether a feed, water and rest break during long-distance transportation provided any benefit to weaned beef calves. Twelve-hour trips were less stressful than 36-hour trips and preconditioned calves travelled better than freshly-weaned calves. However, there was no difference between calves marketed direct from ranch vs. the auction mart. Providing the legally required eight-hour feed, water and rest break during long-haul transport did not show any meaningful benefit to any group of calves. These results should help inform reasonable enforcement of Canada's new animal transport regulations as well as future policy discussions.



> PRIORITY RESEARCH PROJECTS

2021-22 Canadian Check-Off Funding:

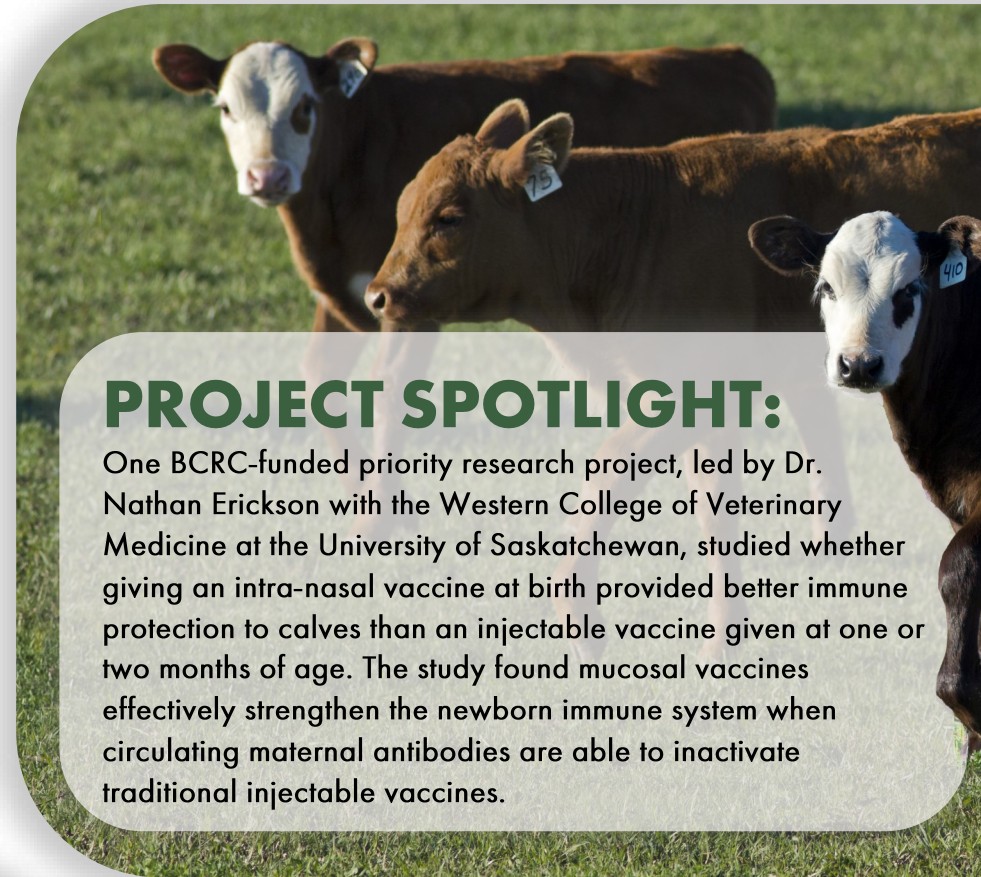
\$1.08 Million

BCRC's priority research projects are chosen through an annual call for proposals. In 2021-22, the BCRC launched a condensed call focused on a few clearly defined project priority areas. Under this call, 20 expressions of interest were received from research teams across Canada. Of these, 14 teams were invited to submit full proposals and funding was approved for eight projects in June 2021. 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. Several projects approved in previous calls are still underway or nearing completion.

PROJECT SPOTLIGHT:

Dr. Edward Bork and his colleagues from the University of Alberta are using 40 years worth of previously collected data from research plots in the west-central part of the province to quantify the economic benefits and carbon capture efficiency of integrating forages into crop rotations. The researchers have collected additional plant and soil samples on these plots to evaluate long-term impacts of five different crop rotations, that range from one to eight years in duration, to evaluate the effects of forage inclusion on soil carbon content.

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PROJECT SPOTLIGHT:

One BCRC-funded priority research project, led by Dr. Nathan Erickson with the Western College of Veterinary Medicine at the University of Saskatchewan, studied whether giving an intra-nasal vaccine at birth provided better immune protection to calves than an injectable vaccine given at one or two months of age. The study found mucosal vaccines effectively strengthen the newborn immune system when circulating maternal antibodies are able to inactivate traditional injectable vaccines.



Project summaries are available in the **2021/22 BCRC Results Report.**

www.BeefResearch.ca

> PROOF OF CONCEPT PROJECTS

2021-22 Canadian Check-Off Funding:

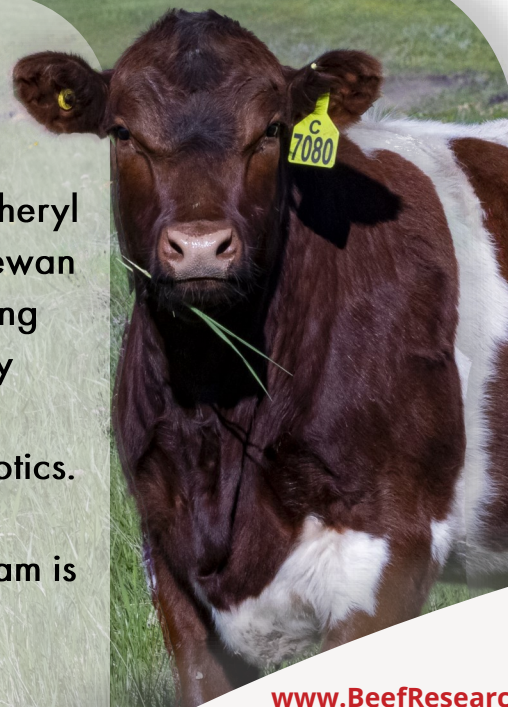
\$289,398

Funding was approved for six proof of concept projects in 2021-22. These short-term projects are to examine and validate the feasibility of pursuing larger, more defined research investments in particular areas. These 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 [2021/22 BCRC Results Report](#).

PROJECT SPOTLIGHT:

A proof of concept study by Dr. Cheryl Waldner's University of Saskatchewan research team is refining, simplifying and automating bovine respiratory disease (BRD) testing to treat sick animals with more targeted antibiotics. The new test is 97% faster than traditional diagnostics, and the team is continuing to refine the process.

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www.BeefResearch.ca



PROJECT SPOTLIGHT:

One recently completed proof of concept study by Dr. Roopesh Syamaladevi from the University of Alberta explored chemical-free sanitizers to prevent *E. coli* contamination and reduce food waste. Although current food safety practices are highly effective at preventing *E. coli* contamination, researchers have found some bacteria can form biofilms that enable them to survive even the most rigorous cleaning procedures. This study evaluated four "green" sanitization techniques, all of which were extremely promising in their abilities to reduce biofilms on surfaces at meat packing facilities. Additional research is needed to further validate, refine and scale these technologies for commercial applications.

> RESEARCH CAPACITY

2021-22 Canadian Check-Off Funding:

\$1.5 Million

The 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.



Bree Kelln
University of Saskatchewan
Beef Industry
Integrated Forage
Management and
Utilization Chair



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



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



Research capacity expanded further as new researcher, **Dr. Emily Snyder**, was hired to backfill Dr. Waldner's previous research position.



> KNOWLEDGE & TECH TRANSFER

2021-22 Canadian Check-Off Funding:

\$125,123

The BCRC executes knowledge and technology transfer (KTT) activities both under and external to the Cluster program. In addition, calls for proposals for Technology Transfer and Production Economics projects were held. Four of these projects — including the *Cows on the Planet* podcast — were funded in 2021. All projects are jointly funded by Canadian Beef Cattle Check-Off dollars leveraged with at least 50% funding from government and industry partners.

In 2021, an independent company led a KTT program review that included industry surveys, discussion groups and interviews. Overall, there was strong support and satisfaction with the BCRC's KTT projects. Key opportunities for improvement were identified, which will guide future activities.

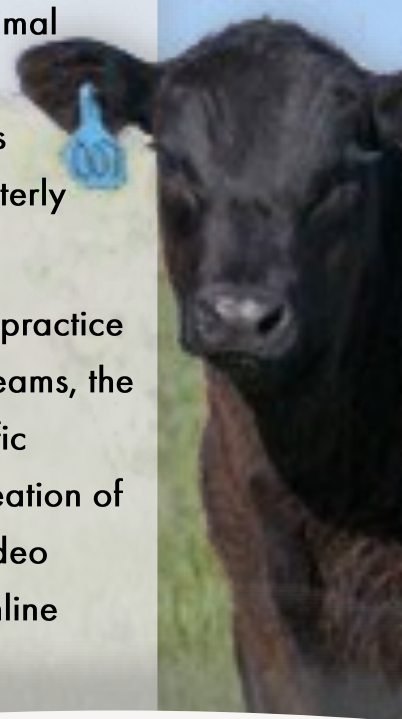


In early 2022, the BCRC updated its *Carrying Capacity Calculator*, an interactive tool for better understanding how to balance forage supply and demand. A new *Grazing Game Plan* webinar and other updated grazing management information are also available at BeefResearch.ca.

PROJECT SPOTLIGHT:

The BCRC is collaborating with practicing veterinarians and RVTs across Canada to build and modify *trusted tools* they can use or share with beef clients to improve herd health and profitability. In 2021-22, the BCRC launched an awareness campaign targeting the large animal veterinary community that has led to more than 560 subscribers being added to the BCRC's quarterly *vet tools newsletter*.

After consulting with both mixed practice and bovine-focused veterinary teams, the BCRC was able to identify specific industry needs. This led to the creation of the BCRC's popular *#Calf911* video series, which has had 23,000 online views to date.



> THE NEW BEEFRESEARCH.CA

The Search Engine for Canadian Beef Production

In June 2022, the BCRC launched a new, improved **BeefResearch.ca** with more easy-to-use tools for Canada's beef producers, veterinary teams, researchers and other industry stakeholders.

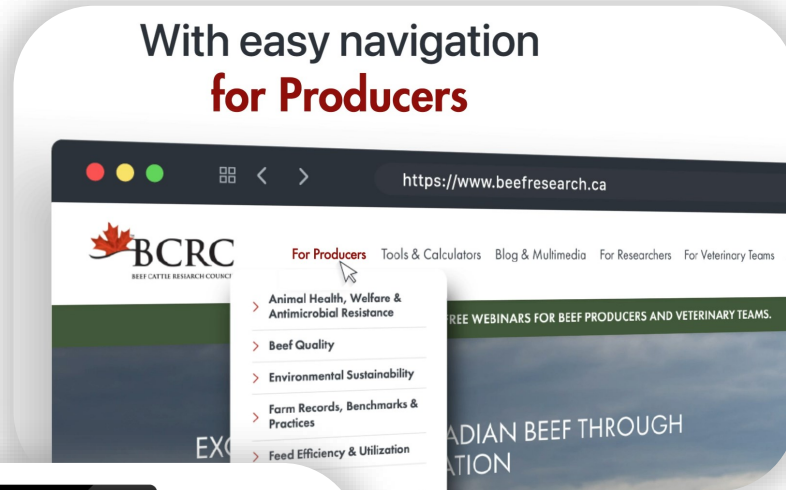
For almost a decade, the BCRC has delivered science-based industry resources through BeefResearch.ca. In the last year alone, nearly 300,000 individuals consulted the BCRC website for timely and practical beef and forage information.

By leveraging producer-paid Canadian Beef Cattle Check-Off dollars and with the support of Canada's Beef Science Cluster, the BCRC has enhanced its website over the years to include:

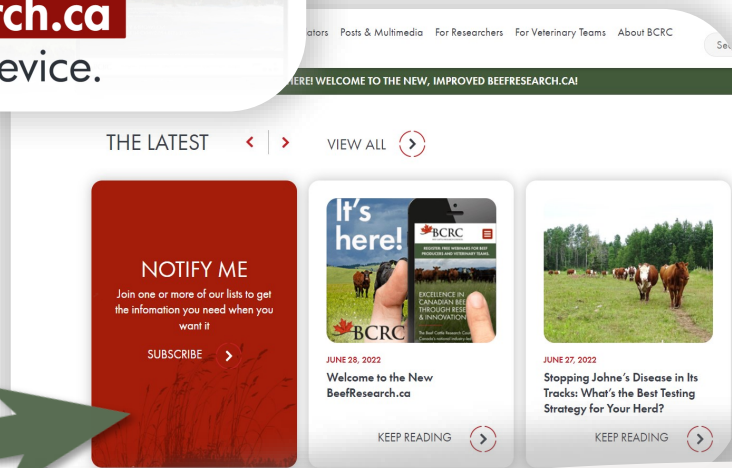
- > **hundreds of beef and forage articles**
- > **production tools and calculators**
- > **research summaries and fact sheets**
- > **webinars and videos** and more.

With a more robust search function, an improved mobile experience and reorganized navigation areas, the new BeefResearch.ca is faster, more organized and more intuitive for the BCRC's expanding audience.

Subscribe to the BCRC email list to be notified about the latest content.



> WATCH A 90-SECOND VIDEO OVERVIEW OF THE NEW BEEFRESEARCH.CA.



> SURVEILLANCE NETWORKS

2021-22 Canadian Check-Off Funding:

\$446,129

The beef industry has prioritized the establishment of surveillance networks related to production-limiting diseases and antimicrobial resistance and use. The purpose of these networks is to inform industry practice, policy and regulation, public trust discussions and future research priorities.

In 2021-22, work continued on the **Canadian Cow-Calf Cost of Production Network**, and three new surveillance projects were initiated:

- **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 BCRC continues to support the **Canadian Cow-Calf Cost of Production (COP) Network** with work overseen by Canfax Research Services. The 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 2021-22, the network published 58 future farm scenarios for the 25 cow-calf benchmarks and three dairy-beef benchmarks. Five graduate students have started thesis projects utilizing COP Network data to address economic factors for operations in eastern Canada, cost of production, net greenhouse gas emissions and culling strategies.

> VERIFIED BEEF PRODUCTION PLUS

2021-22 Canadian Check-Off Funding:

\$375,000

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.

1.7 million head of cattle and
3.5 million acres are managed by
1,390 active VBP+ certified operations

VBP+ Delivery Services Inc. (VBP+ Inc.) provides certification services for VBP+. VBP+ Inc. has reviewers, coordinators and auditors who are producers themselves and is accredited by the Canadian Roundtable for Sustainable Beef. This means that producers who achieve the VBP+ certification are also CRSB certified and are eligible for participation in producer incentives.



In 2021-22, VBP+ launched the **Canadian Cattle Learning Center**. VBP+ producers already demonstrate commitment to sustainable beef production by meeting program requirements. However, training completions and producer transcripts can provide simple metrics to communicate the dedication of Canada's beef producers to continuous improvement as the industry evolves.





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