



Beef Science Cluster

May 12, 2021

Reynold Bergen
Science Director, BCRC

Presentation to the Agricultural Institute of Canada

Who is the BCRC?

- Canada's industry-led funding agency for beef, cattle and forage research and extension
- Supporting research and extension with the greatest potential to improve the competitiveness and sustainability of the Canada's beef cattle industry
- Funded by the Canadian Beef Cattle Check-off

Programs

- Beef Science Cluster III
- Priority Research Programming
- Research Capacity in priority areas
- Proof of concept program
- Research surveillance networks (AMR, animal health)
- Knowledge dissemination and technology transfer
- Delivery of Verified Beef Production Plus (VBP+)

The BCRC is Producer-led



Craig Lehr
AB



Lee Irvine
AB



Joanne Solverson
AB



Fred Lozeman
AB



Graeme Finn
AB



Melissa Atchison
MB



Nathalie Côté
QC



Dean Manning
ATL



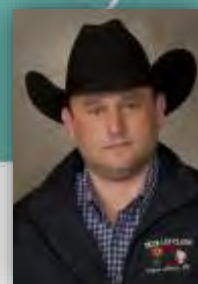
Jeff Braisher
BC



Ryan Beierbach
SK



Steve Pylot
SK



Michael Spratt
SK

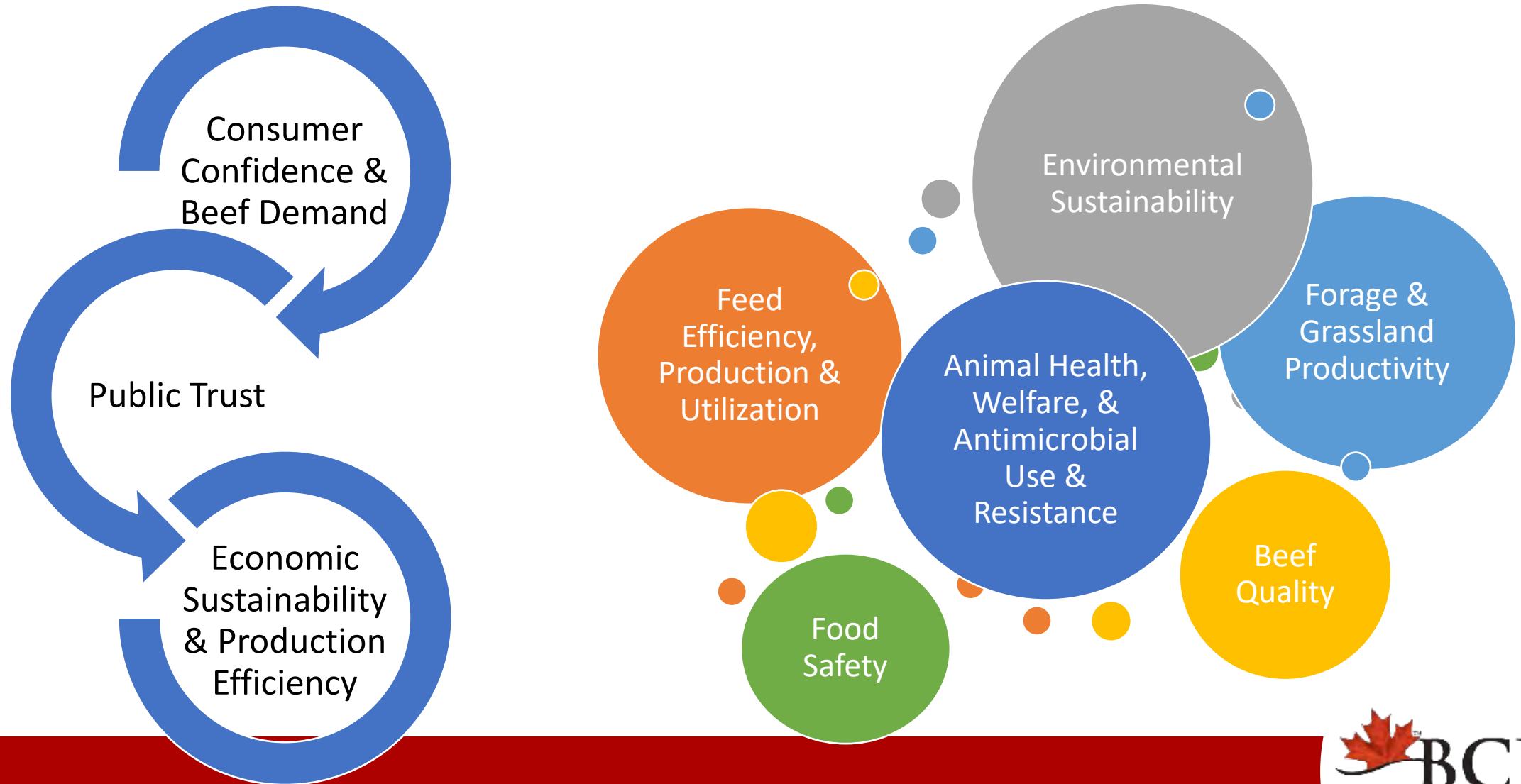


Matt Bowman
ONT (Chair)



Ron Stevenson
ONT

Canadian Beef Industry Research & Extension Strategy



Canadian Beef Value Chain Roundtable **National Beef** Research Review & Strategy

Proposed National Beef Research Framework

Prepared By:

Framework Partners Inc.

and

Integrity Intellectual Property Inc

September 4, 2008

National Beef Research Strategy

JUNE 2012



NATIONAL BEEF VALUE CHAIN ROUNDTABLE





**Canadian Beef Research and
Technology Transfer Strategy
2018 - 2023**

6/1/2021

**Canadian Beef
Research and
Technology Transfer
Strategy 2023 – 2028**

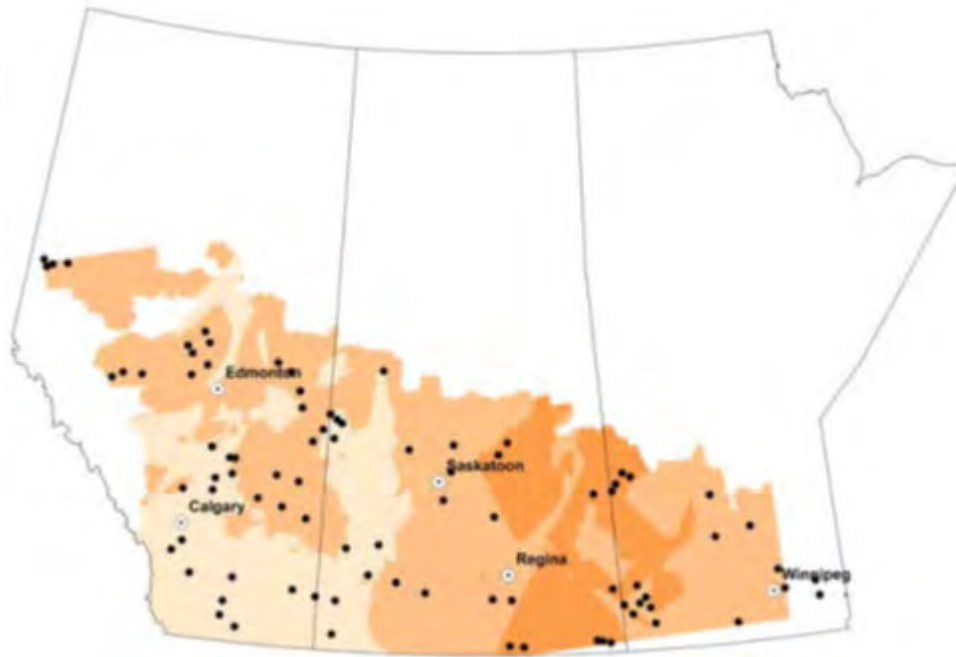




Animal Health & Welfare

- Feedlot operators and vets: knew what their animal health priorities were clear and focused
- Cow-calf operators: did not know what their animal health research priorities should be

Western Canadian Cow-Calf Surveillance Network (2013-2018)



- Prevalence of trich, vibrio, Johne's, bovine leukosis, neospora
- Gastrointestinal nematodes
- Antimicrobial use practices
- Pain management
- Trace mineral (Cu, Se, Mo) and vitamin A & E status and their association with soiltype, rainfall, and pregnancy rates

Benchmarking calving management practices

- ½ of preweaned calves received colostrum within the first hour of birth and a large portion of producers did not check to see if calves received colostrum
- Looked at various practices for resuscitating newborn calves
 - Timely assistance
 - Effective resuscitation techniques
 - Colostrum management
- Explored new research findings
 - 5% of females did not receive colostrum
 - 50% of producers considered hanging calves effective to resuscitate them
 - 97% of producers checked to see if calves received colostrum





ATLANTIC COW-CALF
2017 PRODUCTION SURVEY

2017 Atlantic Cow-Calf Production Survey
Aggregate Results

May 2018
Maritime Beef Council



Adoption Rates of Recommended Practices by Cow-Calf Operators in Canada

March 7, 2019

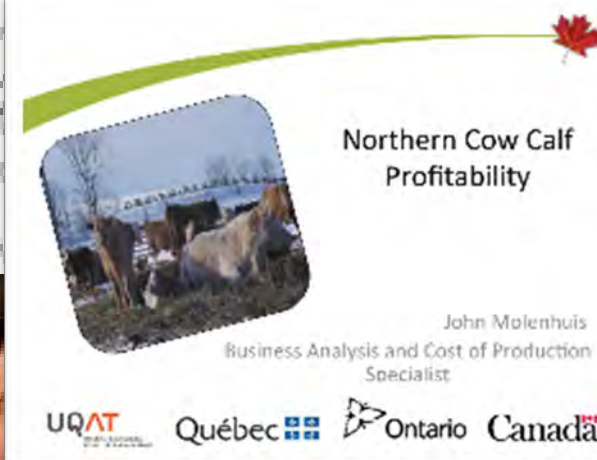
180, 6815-8th St. NE
Calgary, Alberta T2E 7H7
Phone: 403.275.8558

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2017 Western Canadian Cow-Calf Survey
Aggregate Results

Fall 2018
University of Saskatchewan Q





BCRC
BEEF CATTLE RESEARCH COUNCIL

TOPICS BCRC BLOG RESOURCES NEWS / EVENTS FOR RESEARCHERS ABOUT US

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DEVELOPING STRATEGIES FOR IMPROVED FORAGE & GRASSLANDS MANAGEMENT

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A Prolonged Calving Season Can Be Costly - New Calculator Available

June 13, 2019

Calving distribution is the percentage of calves born in each 21-day cycle throughout the calving season. As the calving season ends and producers switch gears toward breeding season, there is an opportunity for producers to evaluate that calving distribution and the impact it has on their bottom line. Now is the time for farmers and ranchers to incorporate any changes they want during breeding season, such as when to purchase bulls from pasture, that will affect next year's calving distribution. A cow's first time calving a 21-day heat cycle can cost up to \$2,125 of weaning weight, assuming an average daily gain on calves of 1.0 lbs./day. Having more calves born in the first 21 days of the calving season allows producers to market larger, more uniform groups of calves and increase their profit potential. The standard industry target is to have at least 60% of females calving within the first cycle, followed by 25% calving between 21-42 days, 10% between 43-63 days.

Water Systems For Beef Cattle

Water is an essential nutrient for cattle, accounting for between 50 and 80 percent of an animal's live weight. For livestock to maximize feed intake and production, they require access to palatable water of adequate quality and quantity. Factors that determine water consumption include water quality, air and water temperature, humidity, moisture content of feed/forage, cattle type (calf, yearling, bull, cow) and the physiological state of the animal (gestation, maintenance, growing, lactating). Producers must consider individual grazing management strategies, site characteristics and economics when designing water systems.



Cover Crops

Cover crops are typically diverse, annual mixtures seeded with the intent to improve soils. Cover crops may be perennial species, and can be grazed for silage, depending on the goals of

On this page:

- [KEY POINTS](#)
- [COVER CROP GOALS AND](#)
- [SEED MIXES](#)
- [GRAZING COVER CROPS](#)
- [ANIMAL CONSIDERATION](#)
- [SEEDING CONSIDERATION](#)
- [INTERESTED IN USING CO](#)

Key Points

- Cover crops are simple or diverse perennial species that are plan
- Proponents of cover crops play

Lameness

Lameness occurs when an animal has leg or foot pain that affects how they move. Lameness is an animal health and welfare concern, as well as a production issue. Pain due to lameness often limits growth because animals may be reluctant to eat or drink.

There are many types of lameness, with several different causes, many of which are inter-related. Lameness can be caused by genetics, environment, nutrition, injury, or infection.

On this page:

- [Key Points](#)
- [Importance to the Beef Industry](#)
- [Incidence](#)
- [Causes and Types of Lameness](#)
 - [Foot Rot](#)
 - [Toe Tip Necrosis](#)
 - [Digital Dermatitis](#)
 - [Joint Infections & Arthritis](#)

Webinars



Meeting Your



Breeding

Practical for Beef

February 7:00

Factors such as production, marketing schemes of cattle that will in your beef operation

Record Keeping

for

Forage and Grassland Management

March 24, 2021
7:00 PM MT

Effective Management Plans

- ✓ Realistic production goals
- ✓ A clear understanding of forage production
- ✓ Effective grazing strategies
- ✓ Timely responses to forage availability and changing environmental conditions.



Ryan Boyd
South Glanton Farms



Steve Kenyon
Greener Pastures Ranching



Jeremy Brown
Ducks Unlimited Canada



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FREE WEBINAR
FOR BEEF PRODUCERS



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www.beefresearch.ca

PRODUCER DECISION MAKING TOOLS

These tools can help you make decisions that suit your operation

FEATURED TOOLS



TOOL FOR EVALUATING
FEED TEST RESULTS



COW CALF PRODUCTION
INDICATORS CALCULATOR



ECONOMICS OF
PREGNANCY TESTING
CALCULATOR



IMPACT OF BCS ON COW
PRODUCTIVITY AND
PROFITABILITY



WINTER FEEDING COST
COMPARISON
CALCULATOR



VALUE OF CALVING
DISTRIBUTION DECISION
MAKING TOOL



CARRYING CAPACITY
CALCULATOR



BVD VACCINATION COST-
BENEFIT CALCULATOR

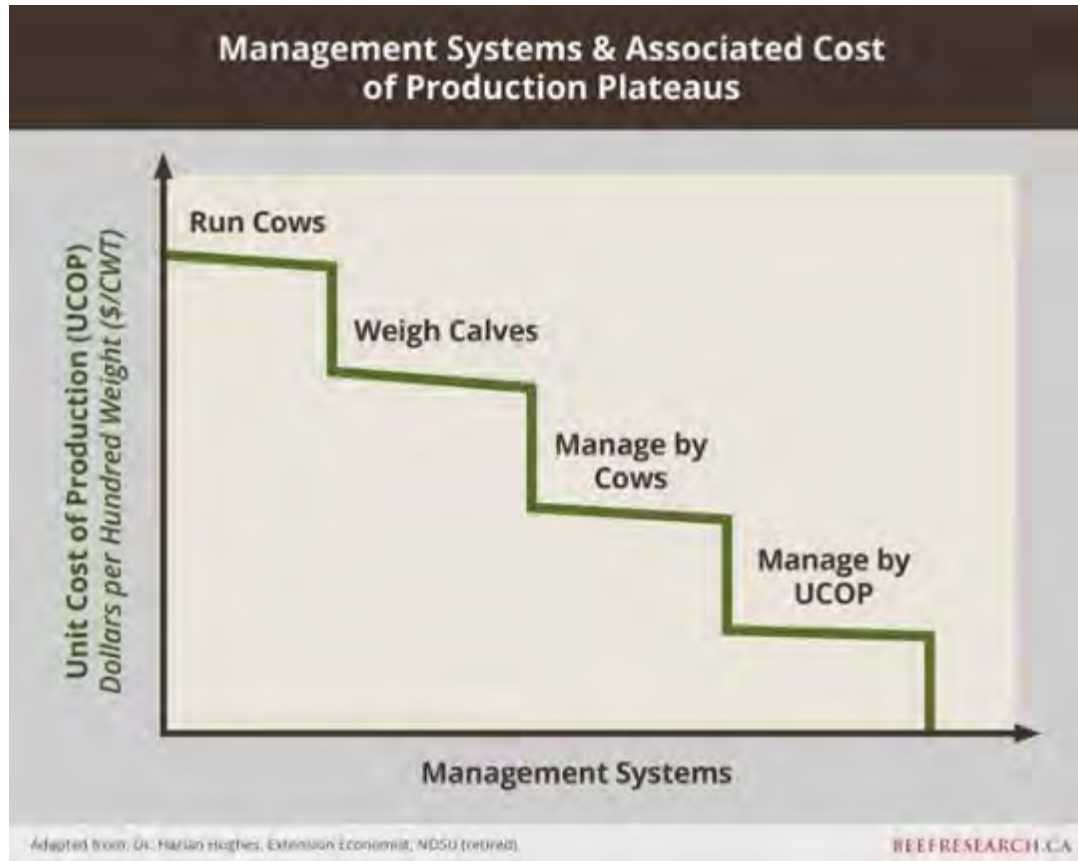


BRD VACCINATION COST-
BENEFIT CALCULATOR

To see a complete list of our Tools, please refer to our [Decision Making Tools](#) section

Record Keeping & Benchmarking

Try the Cow-Calf Production Indicators Calculator



Set goals & level up

Setting goals and keeping records can achieve 60 more pounds of calf weaned per cow exposed.

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HAVE 15 MINUTES? MAKE AN IMPACT ON THE FUTURE OF BEEF RESEARCH

How Castration Method And Age Affect Pain In Young Calves

HAVE 15 MINUTES? MAKE AN IMPACT ON THE FUTURE OF BEEF RESEARCH

Feeling Better About Castration

HAVE 15 MINUTES? MAKE AN IMPACT ON THE FUTURE OF BEEF RESEARCH

Can We Reduce Castration Pain In Week-Old Calves?

Posted on **March 16, 2020** by **Beef Research3**

*This article written by Dr. Reynold Bergen, BCRC Science Director, originally appeared in the March 2020 issue of **Canadian Cattlemen** magazine and is reprinted on the BCRC Blog with permission of the publisher.*

Calving season is upon some of you and just around the corner for many more. Half of those calves will be castrated. Research has shown that it's best to castrate calves at the youngest practical age to minimize pain and speed recovery. The 2019 "Adoption Rates of Recommended Practices by Cow-Calf Operators in Canada" study indicated that over half of

- Painful practices are a public trust issue
- Affordable, convenient pain drugs are new
- Are they effective in reducing castration pain in beef calves?
- YES.

Pain Control Products Licensed and Available for Beef Cattle in Canada*

Drug	Brand Name	Route of Administration for Beef Cattle	Label Claim in Beef Cattle
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Local anesthetics (eliminate all feeling)

Lidocaine	Lido-2	Injection	For epidural, nerve block or infiltration anesthesia
	Lidocaine HCl 2% and Epinephrine Injection		
	Lidocaine HCL 2% with Epinephrine 1:100,000		
	Lidocaine Neat		
	Lurocaine		

Analgesics (anti-inflammatories for post-operative pain control)

			<p>As an aid in improving appetite and weight gains when administered at the onset of diarrhoea, in combination with oral rehydration therapy, in calves over one week of age.</p> <p>For relief of pain following de-budding of</p>
	Metacam® 20		



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Adoption Rates of Recommended Practices by Cow-Calf Operators in Canada

March 7, 2019

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Calgary, Alberta T2E 7H7
Phone: 403.275.8558



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University of Saskatchewan Q

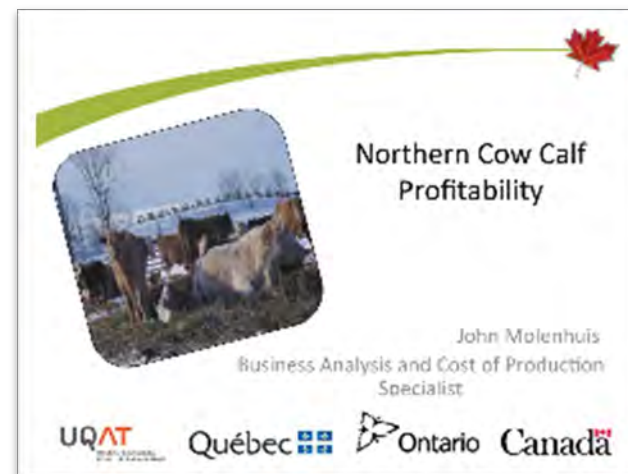
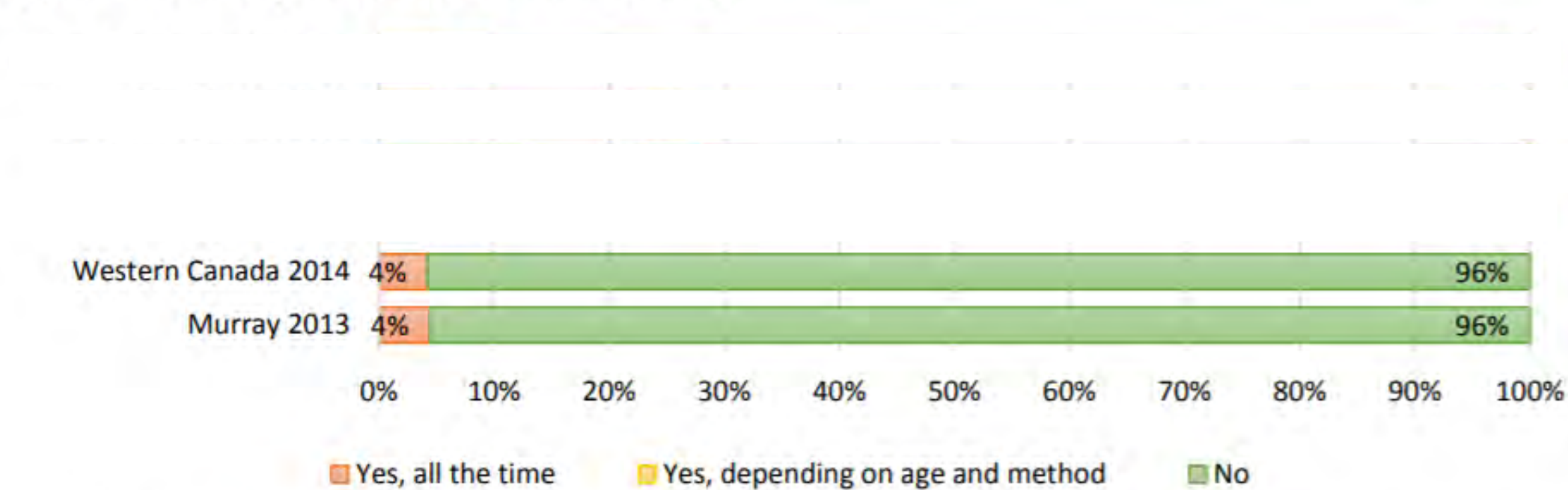
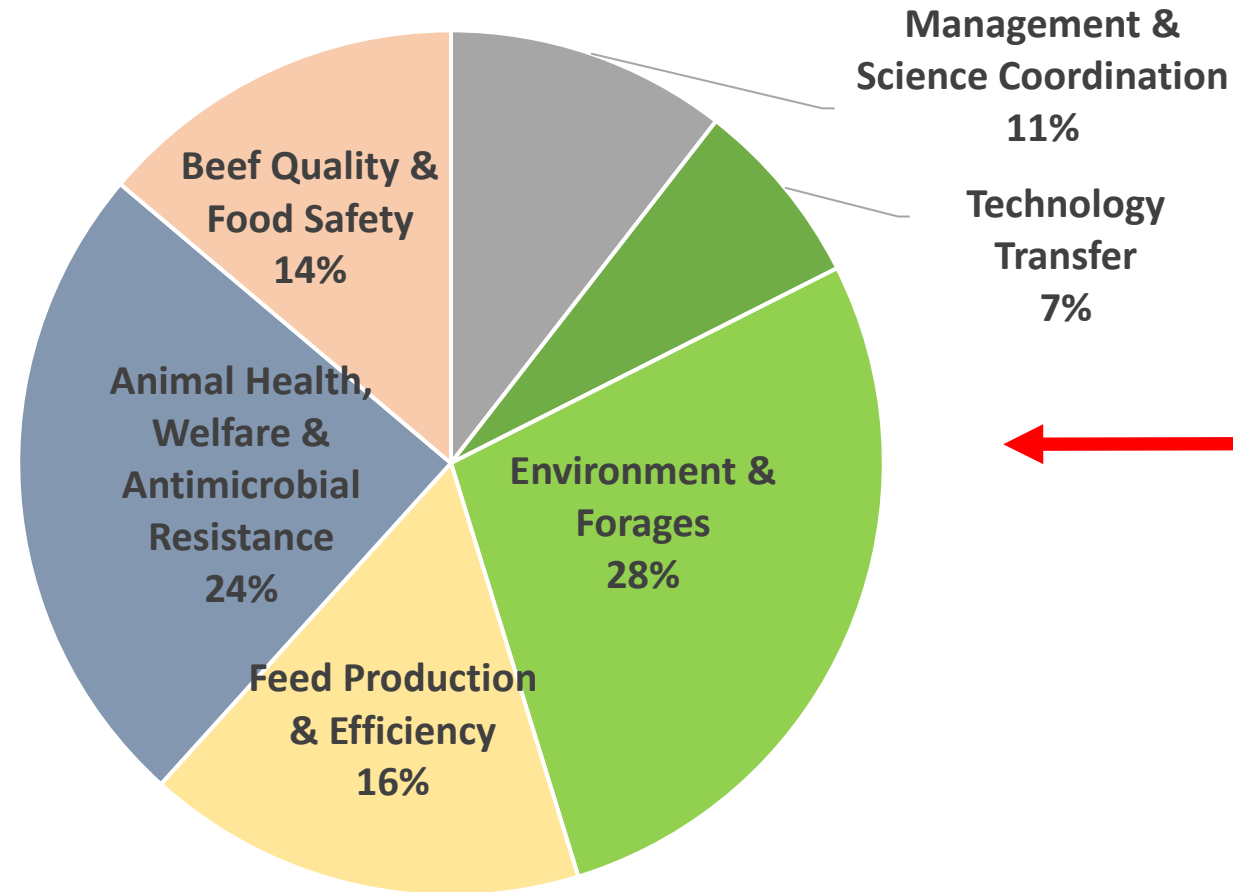


Figure 16. Use of pain control when castrating



*Regions did not provide information on if pain mitigation was always used or if it depended on age and method

Beef Science Cluster III Funding \$21.6 million
\$14.1 million government, \$7.5 million industry
27 projects



Environmental sustainability

- Industry investment in environmental sustainability was historically low
- Limited producer funds were invested in research to benefit producers' bottom lines
- Environmental research was viewed as a public good, so
- We let the public funders fund the public good research, and
- We stayed out of it.



the created





Keith Myers/Kansas City Star/MCT via Getty Images

Big Cattle, Big Gulp

Cowboys and cows are soaking the American West dry

By **CHRISTOPHER KETCHAM** | February 4, 2015

livestock's long shadow

environmental issues and options



Why Bill Gates Thinks People Should Only Be Eating Synthetic Beef



Alex Wong/Getty Images

BY AIMEE LAMOUREUX / FEB. 23, 2021 5:04 PM EST

Bill Gates, the co-founder of Microsoft and co-chair of the Bill and Melinda Gates Foundation, is now trying to solve a new problem: reducing global greenhouse gas emissions to help stop climate change. Gates has said he remains optimistic, and though he readily admits there are significant political and policy hurdles, he thinks there's one thing the United States could start addressing today. It starts with cutting out **meat**, which is one of the largest contributors to greenhouse gas emissions worldwide (via *Delish*).

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GLOBAL AND W

July 7, 2018

The way we eat could lead to habitat loss for 17,000 species by 2050

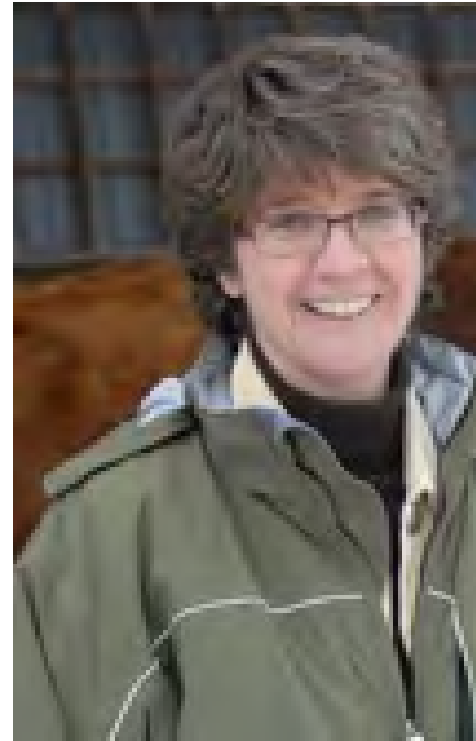
Two recent studies underscore the danger the meat production system poses for biodiversity.

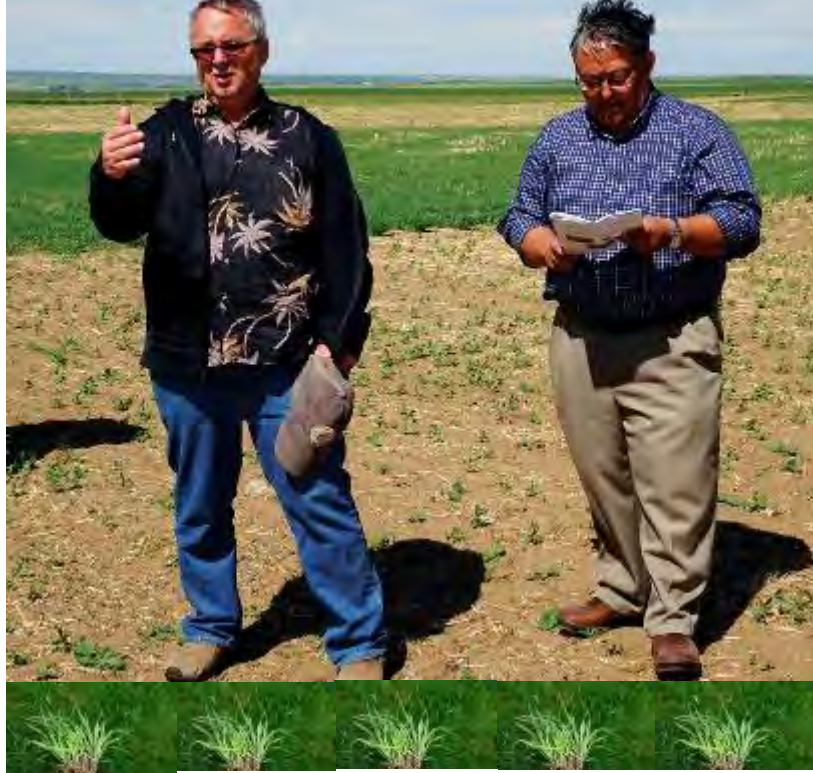
By Jenny Splitter | Feb 18, 2021, 11:00am EST

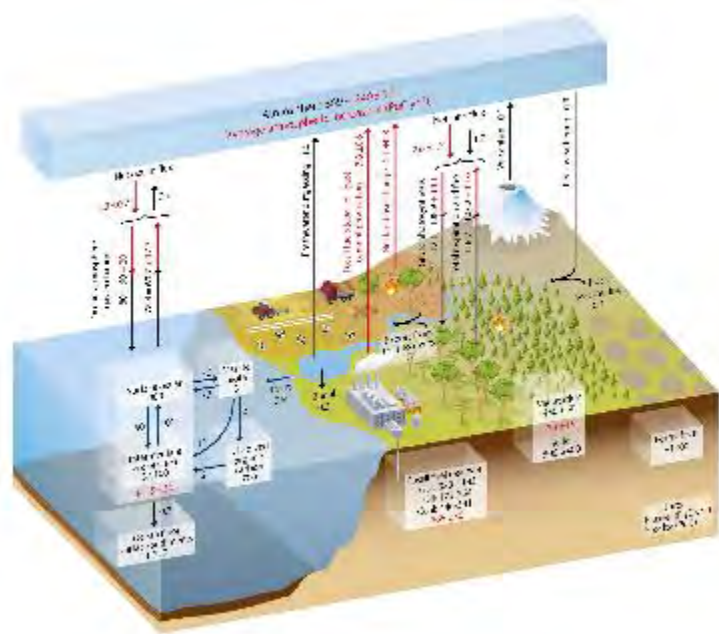


SHARE











Environmental Sustainability of Canadian Beef

Canadian grasslands sequester carbon emissions of



3.62 MILLION CARS PER YEAR

 BCRC

Beef's water hoofprint is decreasing one step at a time.



It now takes **17% LESS WATER** to produce 1 kg of Canadian beef than in 1981, thanks to innovation and efficiency.

 BCRC

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KEEP THE BEEF, SAVE THE HABITAT



Canada's beef producers support grasslands and safeguard homes for wildlife, birds, pollinators, and fish, including more than 60 species at risk.

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Less-Gas



15% LESS GAS

In Canada, producing 1kg of beef now creates 15% less greenhouse gases than in 1981, due to improved production practices.

 RC

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Quantifying the Canadian beef industry's impact on biodiversity

Project Title:

A regionalized life cycle impact assessment model for the quantification of Canadian Beef production impacts on biodiversity

Project Code:

ENV.07.17

Completed:

In Progress. Results expected in March 2023.

Researchers:

Tim McAllister, Ph.D. and Kim Ominski, Ph.D. tim.mcallister@agr.gc.ca
Tim McAllister, Ph.D. (Agriculture and Agri-Food Canada Lethbridge); Kim Ominski, Ph.D. (University of Manitoba); Roland Kroebe Ph.D., Steve Javorek M.Sc. and Kerry LaForge, (Agriculture Agri-Food Canada), Edward Bork Ph.D., Cameron Carlyle Ph.D., JC Cahill Ph.D. (University of Alberta); Getahun Legesse (Manitoba Agriculture); Carrie Selin (Alberta Biodiversity Monitoring Institute); Stephen Davis Ph.D. (Canadian Wildlife Service / University of Regina); Tom Harrison M.Sc. (South of the Divide Conservation Action Program) and Kristine Tapley M.Sc.(Ducks Unlimited)

Performance, Environmental and Economic Benefits of BioChar Supplementation in Beef Cattle Grazing Systems

The impact of agricultural land conversion on carbon stocks across Canada, with a focus on grazing lands

Modeling the impact of grazing on water and nutrient cycling

Quantifying the value of wetlands on pastureland

Project Title:

Prairie Ecosystem Climate and Carbon Project (PECCaP): Quantifying the contribution of landscapes that support livestock production

Researchers:

Pascal Badiou (Ducks Unlimited)

Sara Knox - University of British Columbia, Lauren Bortolotti - Ducks Unlimited Canada, Kim Ominski and Marcos Cordeiro - University of Manitoba, Aaron Glenn, Roland Kroebel, Tim McAllister and Sarah Pogue - Agriculture and Agri-Food Canada

Project Code: ENV.03.19

Completed: In Progress. Results expected in March 2024.

ENV.07.19

In Progress. Results expected in May 2023.

ENV.02.18

In Progress. Results expected in March 2022.

Project Code: ENV.03.18

Completed: In Progress. Results expected in March 2022.

od Canada,

sity of Manitoba); Tim
ure Agri-Food Canada -
); Helen Baulch
Waterloo).

CANADA'S NATIONAL BEEF STRATEGY **ITERATIVE PROCESS**

Topics:

1. Greenhouse Gases and Carbon Sequestration
2. Animal Health and Welfare
3. Land Use and Biodiversity
4. Water
5. Beef Quality & Food Safety
6. Human Health & Safety
7. Technology

Greenhouse Gas and Carbon Sequestration Goals

- **Safeguard the existing 1.5 billion tonnes of Carbon stored on lands managed with beef cattle**
- **Sequester an additional 3.4 million tonnes of Carbon every year**
- **Reduce primary production GHG emission intensity by 33% by 2030**

Land Use and Biodiversity Goals

- **Maintain the 35 million acres of native grassland in the care of beef producers**
- **Maintain a network of natural landscapes and healthy functioning ecosystems through well-managed grazing systems that maintain sustainable plant communities and healthy rangelands**

CANADIAN BEEF GOALS 2030

GREENHOUSE GAS & CARBON SEQUESTRATION



REDUCE PRIMARY
PRODUCTION GHG EMISSION
INTENSITY BY

33%
BY 2030

CANADIAN BEEF GOALS 2030

GREENHOUSE GAS & CARBON SEQUESTRATION



SEQUESTER AN
ADDITIONAL

**3.4 MILLION
TONNES**
OF CARBON EVERY YEAR

CANADIAN
BEEF GOALS 2030

LAND USE & BIODIVERSITY



35
ACRES
in the



CANADIAN
BEEF GOALS 2030

LAND USE & BIODIVERSITY



MAINTAIN
& ENHANCE

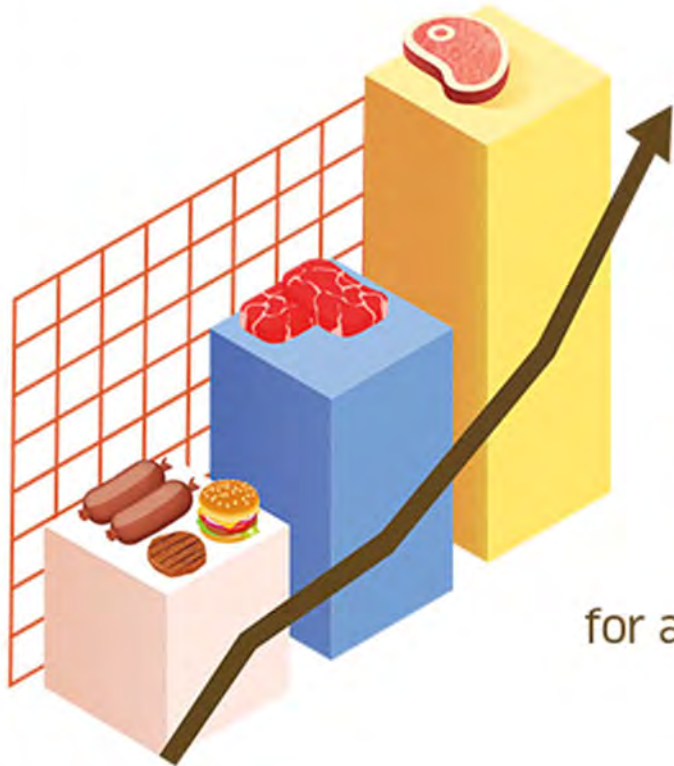
68%

OF WILDLIFE
HABITAT CAPACITY
within agricultural lands being
supported by beef production



Illustration of a veterinarian in a white coat and blue pants standing next to a large clipboard, with a medicine bottle featuring a red cross symbol on a blue circular base.

LEADING EXCELLENCE IN
BEST PRACTICES
REGARDING ANTI-MICROBIAL USE



INCREASE THE
VALUE
OF AAA AND
PRIME CARCASSES
by building demand
for all cuts on the carcass



REDUCE FOOD LOSS
AND WASTE BY
50%
from secondary
processing to consumer

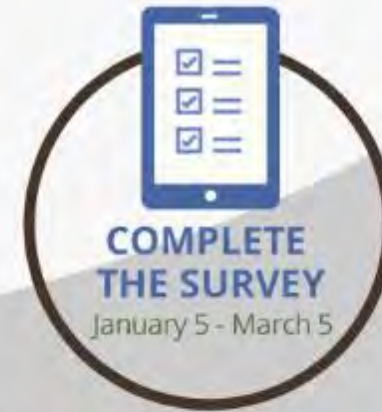


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INNOVATION, RESEARCH,
AND COMMERCIALIZATION OF
TECHNOLOGY
THROUGHOUT THE SUPPLY CHAIN



INVEST IN
**INNOVATIVE
SOLUTIONS**
FOR A BETTER
TOMORROW

Your input is important.



Research and Technology Transfer *Strategy*

As an industry stakeholder, help us target research and extension priorities, focus funding, and guide the future of the Canadian beef industry.



www.beefresearch.ca



6/1/2021

Canadian Beef Research and Technology Transfer Strategy 2023 – 2028



Questions?

www.BeefResearch.ca

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Clean water makes for heavier calves.

Calves with access to clean, pumped water average 18 lbs heavier at weaning time.



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BeefResearch.ca/blog



youtube.com/BeefResearch