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CATTLEMEN'S  
ASSOCIATION

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National Voice Of Cattle Producers

# Beef Industry Strategies for Reducing Greenhouse Gases and Building the Green Economy

Prepared by the Canadian Cattlemen's Association

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## Executive Summary

Both federal and provincial governments have revived the discussion on climate change across Canada. Canada has committed to reducing Greenhouse Gas (GHG) emissions to 17% below 2005 levels by 2020 and 30% below 2005 levels by 2030. The Canadian beef industry continually strives to be a global leader in sustainable beef production, and looks to be a partner in dually achieving Canada's economic and environmental targets. Due to continual improvements, innovation and commitment of Canadian beef producers, Canadian beef has one of the lowest GHG footprints per unit of production in the world at 12.0 kg CO<sub>2</sub> equivalent per kilogram of live weight, less than half of the world average. Furthermore, substantial amounts of carbon are stored in Canadian rangelands utilized by the beef industry. While contributing \$33 billion to the Canadian economy the beef industry only accounts for 3.2% of the country's total GHG footprint.

Through responsible stewardship of Canada's natural resources, the Canadian beef industry will continue to contribute to the growth of the green economy in Canada. The ability to do so will be contingent on successful adaption and resiliency to climate change, as farmers are often the first impacted by severe weather conditions. Recommendations for investment to enable adaptation, build resiliency and reduce the GHG footprint of beef production while enabling economic growth of the industry are summarized below. Further detail and context can be found in the accompanying full report. The recommendations are organized into the main categories of; increasing productivity, enhancing resiliency, mitigating emissions, supporting national and international climate change dialogue and scientific measuring and monitoring.

### Canadian Cattlemen's Association (CCA) Recommendations to Reduce the GHG Footprint of Canadian Beef Production

#### Increasing Productivity

- further invest in the Beef Science Cluster programs that support research, innovation and knowledge transfer regarding practices that reduce the environmental footprint of beef production.
- maintain and restore critical Agriculture and Agri-Food Canada (AAFC) research capacity and infrastructure.

#### Enhancing Producer Resiliency

- develop clear triggers and reference materials for the AgriRecovery program.
- improve hay and forage insurance across the country by implementing the recommendations made by the Federal/Provincial/Territorial Forage Task Team.
- invest in agriculture water management infrastructure, examples may include supporting the construction of improved irrigation systems and flood structures such as dams/storages or outlets.
- support the creation and further development of payment for ecosystem services (PES) programs that will provide incentives for best land and water management practices to

preserve critical agricultural land, improve environmental health, and build resiliency into the agriculture sector.

#### Mitigating GHG Emissions

- invest in research regarding forage quality, feed additives, animal genetics and animal health as outlined by the Beef Cattle Research Council Research Strategy.
- Invest in research to better understand food waste causes in Canada and enhance communication efforts to reduce food waste at the consumer level.
- develop and support agriculture focused conservation and stewardship programs and initiatives that support the conservation of healthy rangelands and riparian areas.

#### Supporting National and International Climate Change Dialogue and Action

- support the Canadian Roundtable for Sustainable Beef through Agriculture and Agri-Food Canada and Environment and Climate Change Canada staff participation and project funding.
- support and engagement in the Global Research Alliance on Agricultural Greenhouse Gases and the Global Agenda Towards Sustainable Livestock.

#### Scientific Measuring and Monitoring

- support the scientific measuring and monitoring of the GHG footprint of Canadian beef production through continued investment in the Farm Environmental Management Survey and Agriculture Census to ensure robust data sets that enable GHG monitoring.
- support the development of global GHG monitoring methodologies through the Livestock Environmental Assessment Partnership (LEAP) program by offering the participation of Agriculture and Agri-Food Canada research scientists as technical advisors and financial contributions.

## Fast Facts Regarding Beef Production and Climate Change

- The Canadian beef industry's total GHG production is 23.38 MT, accounting for 3.2% of Canada's total. Canada's total agriculture GHG production is 59 MT, accounting for 8% of Canada's total GHG footprint.
- Canadian beef has one of the lowest GHG footprints per unit of production in the world at 12.0 kg CO<sub>2</sub> equivalent per kilogram of live weight, less than half of the world average.
- The greenhouse gas footprint of the beef industry is due mainly to the production of methane (over 70%), methane is a natural by-product of feed digestion in the intestinal tract of ruminants such as cattle and bison.
- If valued at \$15 CAD per tonne, carbon stored in prairie grasslands alone would be valued at \$4.3 billion CAD and over \$11 billion CAD has been lost in the Parkland region due to grassland conversion to cropland, industrial and urban development.
- It is estimated that GHG emissions could be cut by up to 20% through uptake of mitigation strategies and another 5% could be cut from reducing food waste by half.
- Between 1981 and 2011, the Canadian beef industry reduced its GHG footprint by 15% through advancements in technology and management that enabled industry to produce the same amount of beef in 2011 compared to 1981, all with 29% less breeding stock, 27% fewer slaughter cattle, and 24% less land.
- Canadian beef industry produces ~2% of the world's beef and contributes an estimated \$33 billion CAD to the Canadian economy.
- Beef production in Canada utilizes 21 million hectares of agriculture land of which 94% is pasture and forage land.

## Beef Industry Strategies for Reducing Greenhouse Gases and Building the Green Economy

*The Canadian beef industry continually strives to be a global leader in sustainable beef production. Through targeted efforts and the provision of government and industry investment in sustainable farming practices that are resilient to climate change, the Canadian beef sector will be able to achieve success in both reducing its greenhouse gas footprint and building the green economy. The reduction of greenhouse gas emissions and optimization of carbon sequestration in grasslands will be achieved through strategically increasing productivity, enhancing resiliency, and mitigating emissions.*

### Background

Finding ways to grow more food without increasing greenhouse gas (GHG) emissions is a challenge that farmers face around the globe. After all, GHG emissions represent a loss of costly inputs, both nutrients and feed energy, ultimately resulting in inefficiencies in agricultural production systems. Farmers and ranchers are also the ones inevitably faced with adapting to the weather, often witnessing first-hand the true impacts of our changing climate.

Through the provision of government and industry support for sustainable farming practices that are resilient to climate change, the Canadian beef sector will be able to successfully reduce its GHG footprint, while providing food for the world's growing population.

Canada's total agriculture GHG production is 59 MT, accounting for 8% of Canada's total GHG footprint. The Canadian beef industry's total GHG production is 23.38 MT, accounting for 3.2% of Canada's total, including meat from dairy animals and manure (Environment and Climate Change Canada, 2016). Canadian beef has one of the lowest GHG footprints per unit of production in the world at 12.0 kg CO<sub>2</sub> equivalent per kilogram of live weight, less than half of the world average (Legesse, 2015; Gerber et al, 2013). The GHG footprint in the beef industry is dominated by methane, representing 73% of the total footprint (Legesse, 2015). Methane is primarily produced through enteric fermentation – a process that occurs when any ruminant (e.g. cattle, deer, elk, sheep, etc.) digests feed. The remainder is produced from nitrous oxide from manure and crop fertilizer's nitrogen volatilization, and from carbon dioxide due to fossil fuel consumption.

The Canadian beef industry also conserves rangelands which store carbon. To understand the full value of conserving grasslands and the GHG footprint of the Canadian beef industry, one must appreciate the amount of carbon sequestered in grasslands. Dr. Edward Bork at the University of Alberta notes that if valued at \$15 CAD per tonne, carbon stored in prairie grasslands alone would be valued at \$4.3 billion CAD and that over \$11 billion CAD has been lost in the Parkland region due to conversion to cropland, industrial and urban development. Perhaps more importantly, once grasslands are converted to another use, they are unable to fully recover their carbon stores, even if re-vegetated in the future.

The Canadian beef industry is a global leader in mitigating the GHG footprint of beef production. However, further opportunities for reduction remain through continued innovation, research, and information sharing. The Food and Agriculture Organization (FAO) of the United Nations report,

*The CCA is the national voice for Canada's beef cattle industry representing 68,500 beef farms and feedlots.  
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Tackling Climate Change Through Livestock, estimates that if all livestock producers achieved the production efficiency of the top 10 or 25 per cent of producers, total emissions could be reduced by 18 to 30 per cent (Gerber et al, 2013). This estimation is supported by Canadian-specific research, which has shown emissions could be cut by 20% through mitigation strategies and another 5% could be cut from reducing food waste by cutting food waste in half (Beauchemin et al 2011; CRSB, release pending).

The definition of Climate Smart Agriculture (CSA) is “agriculture that sustainably increases productivity, enhances resilience (adaptation), reduces/removes GHGs (mitigation) where possible, and enhances achievement of national food security and development goals” (FAO, 2016). The Canadian Cattlemen’s Association (CCA) recommends utilizing the framework for CSA to guide the GHG reduction strategies in Canada’s beef industry. Industry and government alike should focus on sustainably increasing productivity, enhancing resiliency, and mitigating GHGs where possible. Potential actions and opportunities are outlined below.

### Sustainably Increasing Productivity

Reductions in the beef industry’s environmental footprint have largely come through technologies that improve production efficiencies. A key pathway for CSA success is to find ways for sustainable intensification that offer multiple-win solutions in economic, climate, environmental, and social aspects of animal production. Between 1981 and 2011, the Canadian beef industry reduced its GHG footprint by 15% through advancements in technology and management that enabled industry to produce the same amount of beef in 2011 compared to 1981, all with 29% less breeding stock, 27% fewer slaughter cattle, and 24% less land (Legesse et al, 2015). Future improvements in feed resources, nutritious diet supplements, improvement of animal health technologies, and manure management will enable further reductions. Supporting research and the subsequent outreach to producers regarding best management practices is the key to further increasing productivity.

The Canadian beef industry recommends the continuation of and further investment in the Beef Science Cluster programs to advance productivity gains with positive outcomes related to reducing our GHG footprint. The Beef Science Cluster invests in a broad spectrum of research topics enabling the advancement of sustainable production efficiencies for the industry. It is crucial to maintain and grow the Science Cluster program and ensure that its reimplementation is seamless and timely, avoiding gaps in funding between Growing Forward 2 and the next framework.

Beyond the Science Cluster program, a key priority is to ensure critical Agriculture and Agri-Food Canada (AAFC) research capacity and infrastructure is restored and maintained. A significant number of senior researchers and technical staff are set to retire over the next three to five years. There must be appropriate transition planning and training of new researchers so that critical research programs are not negatively impacted. Likewise, remaining AAFC beef and forage research infrastructure needs to be maintained, and in some cases modernized, to ensure researchers have access to relevant technologies and facilities as required in order to address key research priorities in a timely and reliable manner.

### **CCA Recommended Direction – Sustainably Increasing Productivity**

- further invest in the Beef Science Cluster programs that support research, innovation and knowledge transfer regarding practices that reduce the environmental footprint of beef production.
- maintain and restore critical Agriculture and Agri-Food Canada (AAFC) research capacity and infrastructure.

### **Enhancing Resiliency**

Resiliency is a term that can be used to describe Canada’s beef farmers and ranchers. Market shocks, such as the Bovine Spongiform Encephalopathy (BSE) crisis of 2003 and severe weather such as droughts and floods, have had rippling impacts on the sector with negative impacts on our ability to reduce and mitigate our GHG footprint. Despite these severe historic impacts, the Canadian beef industry continues to thrive producing, ~2% of the world’s beef and contributing an estimated \$33 billion CAD to the Canadian economy (Kulshreshtha et al, 2012).

Further adaption and resiliency to both market, weather, and other impacts is key to building an industry that is resilient and responsive to climate change. The CCA recommends building resiliency in the Canadian beef industry through advancing the protection of ecosystem services through ecosystem service programs, developing and maintaining disaster and forage insurance programs, and through further investment and development in infrastructure.

### **Ecosystem Service Programs**

Healthy ecosystems are of the utmost importance to building climate change resilient communities across Canada. Healthy ecosystems protect against drought, flood, and other severe weather impacts occurring more frequently in today’s changing climate. Canadian agriculture covers 64.8 million hectares across the nation; beef production utilizes 21 million hectares of which 94% is pasture and forage land (CRSB, 2016 release pending) that provide high quality habitat and support biodiversity. Continually advancing the understanding of and support for the ecosystem services delivered on this landscape will have positive impacts that resonate for all Canadians.

Payment for Ecological Services (PES) programs are a fee-for-service arrangement that pays for public goods that are otherwise under-delivered or not delivered in the market place. Some examples of ecological services being delivered on private lands include:

- Expanded riparian buffer zones that provide critical wildlife habitat and improve water quality,
- Creating, restoring or maintaining wetlands, which improve water quality and protect against flooding,
- Managing native prairie to enhance critical habitat for Species at Risk,
- Establishing pollinator hedgerows to provide habitat for pollinators, and,
- Replanting grasslands to sequester carbon.

PES programs offer payments to farmers or landowners in exchange for managing their land to provide some sort of ecological service, often called a fee-for-service. This system incentivizes the provision of environmental services through conditional payments to voluntary providers. Programs such as these promote the conservation of natural resources in the market place. This can lead to tangible economic benefits to stakeholders through cost avoidance. A tangible example can be seen in New York State, where it was possible to avoid building a \$6-billion-dollar water treatment plant with \$250 million/year upkeep costs by paying for the delivery of ecological services from the land upstream (for a fraction of the cost).

We encourage the Federal Government to support the creation and further development of PES programs that will cost effectively improve the environmental health of Canada's landscape and build resiliency into the agriculture sector. These programs will be most successful if they are incentive-based, community delivered, and voluntary.

#### Disaster Response Programs and Forage Insurance

As climates change, the risk of severe weather events also increases. Droughts, floods, and other severe weather events significantly impact the economic and environmental performance of the agriculture industry. As these weather risks increase, it is imperative to have tools available to producers to help manage risk during these trying times.

The CCA believes that there needs to be sufficiently funded national agriculture risk management programs that are delivered consistently across all jurisdictions and do not create a competitive imbalance between agriculture sectors or regions.

Since the discovery of BSE, the CCA has been lobbying for a true disaster response program. AgriRecovery has been delivered in several areas in Canada, however room for improvement of this program remains, including the creation of clear triggers and reference materials regarding what the program will and will not cover. Historically, the dependence of this program on political decision making during the disaster has compounded confusion in challenging times and made planning for disasters enigmatic for the producer community. Canadian producers need not be put in situations where they are waiting to do what is best for their operations because activity that predates an announcement may be deemed ineligible for reimbursement.

While the CCA understands the benefits that an ad-hoc, national blanket framework provides, government should consider the different types of risk that are unique to each agricultural sector of Canada. For the beef industry, improved hay and forage insurance across the country that includes a "feed needs replacement" component could potentially replace some of the calls for an AgriRecovery response to weather events. The CCA encourages both federal and provincial governments to continue working towards implementing Agri-Insurance recommendations made by the Federal/Provincial/Territorial Forage Task Team.

#### Infrastructure Investment

Increased investment into infrastructure is another proactive approach to provide long term mitigation

of disaster causes. The Canadian beef industry supports the construction of improved water management infrastructure to mitigate disaster events caused by too much or not enough water. Constructing improved irrigation systems and flood structures such as dams, storages or outlets are examples of worthwhile projects. A national dialogue regarding the effective management of water resources, both during times of excess or short supply, may be required.

Due to a lack of infrastructure, beef producers in Manitoba have been repeatedly challenged by flooding in the past. The Canadian beef industry supports commitments made by federal and provincial governments to the long-needed Lake Manitoba and Lake St. Martin Outlet Channels Project. Swift completion of this work is critical to our industry. The Canadian beef industry requires ongoing investments in long-term water management strategies, as well as sound regulatory policies around drainage and the operation of water control works. The CCA believes that investment in water management infrastructure will enable agriculture lands in Canada to operate more predictably and become more resilient to the effects of climate change.

### **Summary – Enhancing Resiliency**

- develop clear triggers and reference materials for the AgriRecovery program.
- improve hay and forage insurance across the country by implementing the recommendations made by the Federal/Provincial/Territorial Forage Task Team.
- invest in agriculture water management infrastructure, examples may include supporting the construction of improved irrigation systems and flood structures such as dams/storages or outlets.
- support the creation and further development of payment for ecosystem services (PES) programs that will provide incentives for best land and water management practices to preserve critical agricultural land, improve environmental health, and build resiliency into the agriculture sector.

### **Mitigating Greenhouse Gas Emissions**

GHG emissions in beef production represent a loss of valuable inputs such as nitrogen, organic matter, and energy. With limited and costly inputs, the beef industry has both economic and environmental drivers to reduce our GHG footprint. Increasing the overall productivity and efficiency of farm systems, and recovering energy and nutrients, are key strategies to reduce the emissions intensity of livestock production. The GHG intensity of beef production in 2011 (12.0 kg CO<sub>2</sub>e/kg live weight) was 14% lower than that in 1981 (14 kg CO<sub>2</sub>e/kg live weight). Increases in reproductive efficiency, average daily gain, slaughter weight, and crop yields were among the factors that contributed to the decrease in emission intensity over time (Legesse et al, 2015). Continued improvements in reducing the GHG footprint of beef production can be made through strategic and continued focus in key areas. Despite the fact that Canadian beef production is already highly efficient, emissions of GHG could be further reduced by up to 20% if multiple strategies were used across the primary production sector (Beauchemin et al, 2011). Closing the gap between high and low emitters within the Canadian production system will have meaningful impact.

Key categories for mitigating GHG emissions in Canadian beef production are:

1. Improving feed quality and digestibility,
2. Improving animal health and genetics,
3. Reducing food waste,
4. Enhancing Agriculture Conservation & Stewardship.

Investment in research and increasing the adoption of current best practices are core to advancing the mitigation of GHG's in beef production in Canada.

#### Improving feed quality and digestibility

Feeding low-quality and low-digestibility feeds (such as grass and hay) result in higher enteric emissions in beef production versus higher quality feeds (such as barley and corn). The main proportion of GHG emissions from the Canadian beef system come from the cow-calf sector of the industry, as enteric emissions are heightened due to the consumption of lower quality feeds in this stage. Reducing the amount of nutrients that are excreted in manure will also contribute to reduced GHG production by manure. Improvements in feed quality, digestibility, and better matching protein supply to animal requirements will have meaningful impacts on reducing the GHG footprint of the beef industry (Reducing Greenhouse Gas Emissions from Livestock: Best Practice and Emerging Options, 2013).

#### Improving animal health and genetics

Increasing animal health and cultivating genetics can extend the productive life of animals, improve reproduction rates, increase productivity, reduce mortality rates, reduce the age of first reproduction, and reduce the prevalence of common diseases. These improvements reduce the number of animals kept for maintenance rather than production and subsequently, condense the GHG intensity of beef production in Canada.

#### Reducing food waste

The Food and Agriculture Organization (FAO) of the United Nations reported that one-third of all food produced for human consumption in the world is lost or wasted each year for various reasons. Food is lost or wasted throughout the supply chain, from initial agricultural production down to final household consumption. Food loss refers to the decrease in edible food mass at the early stages of the food chain, such as production and postharvest handling. Food loss occurs primarily in developing countries. Meanwhile, food waste refers to the discard of foodstuff at the retail and consumption levels, and is more commonly observed in high-income countries.

When considering the full life cycle of Canadian beef meat production, meat waste is one major source of the impact of the downstream stages (i.e. from processing down to the consumer level). In Canada, it is estimated that for every 1.24 kg of bone-free meat that leaves the packers, only 1 kg is consumed (CRSB, 2016 release pending).

The total GHG footprint of the Canadian beef industry could be reduced by 5% by cutting food waste in half. Efforts should be made to better understand the Canadian context of food waste and steps taken to prevent losses.

#### Agri-environmental conservation and stewardship

Research and demonstration has shown that well run cattle operations play a large role in maintaining healthy rangelands which provide a wealth of ecosystem services to society. These can include promoting biodiversity, wildlife habitat (including for Species at Risk), water filtration, nutrient recycling, and substantial carbon sequestration. Across the nation there are a number of existing programs that deliver education and capacity building-based programming for beef producers that further enable the delivery of multiple services from the landscape. The continued and enhanced funding for programs that work with producers to boost and support the understanding and uptake of beneficial management practices will benefit all society. Through research we have found that to maintain the quality of rangeland ecosystems a disturbance such as fire or grazing is required. The most economically viable way that we can replicate these natural disturbances is with the help of ranchers and their cattle. The CCA encourages the continued and increased funding of agriculturally focused conservation and stewardship programs that help to encourage environmentally orientated actions on agricultural operations that benefit all society. The Federal Government has financially supported agri-environmental programs such as the Environmental Farm Plans, Verified Beef Production Plus, Cows and Fish, MultiSAR, FRISP and others through agriculture and conservation funding.

#### Summary – Mitigating GHG Emissions

- invest in research regarding forage quality, feed additives, animal genetics and animal health as outlined by the Beef Cattle Research Council Research Strategy.
- Invest in research to better understand food waste causes in Canada and enhance communication efforts to reduce food waste at the consumer level.
- develop and support agriculture focused conservation and stewardship programs and initiatives that support the conservation of healthy rangelands and riparian areas and continued use by the beef industry.

#### Support National and International Climate Change Dialogue and Action

The Canadian beef industry has taken leadership roles in the Global Roundtable for Sustainable Beef (GRSB) as well as through the development of the Canadian Roundtable for Sustainable Beef (CRSB). These multi-stakeholder organizations are focused on advancing and communicating the sustainability of beef production in Canada and abroad. This new multi-stakeholder approach that enables collaboration is fundamental to strengthening the green economy in Canada. The CCA encourages support for the Canadian Roundtable for Sustainable Beef through Agriculture and Agri-Food Canada and Environment and Climate Change Canada staff participating and project funding.

Globally speaking an estimated 1 billion people living below the poverty line around the world derive at least part of their livelihood from livestock, and although efficiencies in developing agriculture systems may be lacking, the opportunity for improvement is significant. Ten times more women own

livestock rather than land and a growing body of evidence suggests that increasing women's control over assets, including livestock, has positive effects on food security, child nutrition, education, and women's wellbeing, as well as climate change.

As a global community, we must work together to continue to support the development of sustainable agriculture production systems in all regions. By addressing the gap between producers and production systems with the highest emission intensity and the lowest emission intensity, meaningful reductions are possible. Information sharing, problem solving, and innovation across national borders will be key to reducing the GHG footprint of livestock globally. We encourage the Federal Government to continue to support international initiatives that address this gap in GHG emission intensity, such as the Global Research Alliance on Agricultural Greenhouse Gases, the Livestock Environmental Assessment Performance (LEAP) Partnership and the Global Agenda Towards Sustainable Livestock.

### **Summary – Support National and International Climate Change Dialogue and Actions**

- support the Canadian Roundtable for Sustainable Beef through Agriculture and Agri-Food Canada and Environment and Climate Change Canada staff participation and project funding.
- support and engagement in the Global Research Alliance on Agricultural Greenhouse Gases and the Global Agenda Towards Sustainable Livestock.

### **Scientific Measuring and Monitoring**

Data collection and methodology development are key pillars to measuring and understanding the GHG footprint of beef production in Canada. Data gathered from the Farm Environmental Management Survey and the Agriculture Census are fundamental to the industry's ability to measure and monitor our GHG footprint. Continuation of data collection through these surveys is imperative. A global effort has been undertaken by the FAO and committed stakeholders to develop consistent methodologies for measuring the environmental footprint of beef production. This undertaking, the Livestock Environmental Assessment Partnership (LEAP), is critical to facilitating information sharing, problem solving and innovation across national borders. Canada's participation is key to advancing the sustainability of livestock globally as well as to positioning Canada as a world leader in sustainable agriculture production.

The Canadian beef industry has already benefitted from LEAP's early work through using the methodologies to undertake our domestic benchmarking exercise. This work will be used to communicate the current state of the sustainability of the Canadian beef industry, as well as to guide future targeted initiatives. It is imperative to utilize world recognized methodologies to enable comparisons, enhance transparency and undertake robust analysis.

Consequently, it is important that LEAP emerge as the pre-eminent global environmental assessment methodology. We recommend that the Government of Canada support the LEAP work program by offering the participation of Agriculture and Agri-Food Canada (AAFC) research scientists as technical advisors. Such participation will enhance the credibility of the LEAP results. Financial contribution to the project would also be beneficial.

## Summary – Scientific Measuring and Monitoring

- support the scientific measuring and monitoring of the GHG footprint in Canadian beef production through the investment in the Farm Environmental Management Survey and the Agriculture Census to ensure robust data sets that enable GHG monitoring.
- support the development of global GHG monitoring methodologies through the Livestock Environmental Assessment Partnership (LEAP) program by offering the participation of Agriculture and Agri-Food Canada research scientists as technical advisors and financial contributions.

## Conclusion

Red meat production is often negatively singled out in climate change discussions. In these discussions, it should be noted that there are large differences in GHG intensity within and across production systems across the globe. Consideration should be given to the fact that these differences are often driven by complex factors out of the control of the individual beef farmer or country market. Canada is the 11<sup>th</sup> largest beef producer and 3<sup>rd</sup> largest exporter of high-quality beef in the world and as such, our industry has a strong commitment to the social, economic and environmental sustainability of beef production. Though there is still work to be done, this commitment has resulted in innovations that have proved highly successful in the reduction of our GHG footprint, and Canadian producers are world leaders in sustainability. It is imperative that these successes be shared with other production systems to achieve the same standard worldwide.

Here in Canada, Canadians can enjoy beef as a part of a nutritious diet, knowing that our production system is state of the art, while still focused on continuous improvement. Through strategic investment and focus, further reductions in GHG can be and are being made. These investments will also have positive impacts for Canada's rural communities and the health of agricultural ecosystems that deliver public goods for all Canadians.

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