Canadian Beef Advisors – Industry Goals to 2030

Updated February 19, 2025

Land Use and Biodiversity Goals

These goals are not presented in any particular order:

- Maintain the 35 million acres of native grassland, of which the majority is in the care of beef producers[1]:
  - by focusing on economic viability of producers and
  - by supporting programs that incentivize conservation
  - in collaboration with Canadian crop groups (e.g. Canadian Roundtable for Sustainable Crops)
- Maintain a network of natural landscapes and healthy functioning ecosystems through well-managed grazing systems that maintain sustainable plant communities and healthy rangelands
  - Maintain and enhance the 68% of wildlife habitat capacity within agricultural lands being supported by beef production
  - Enhance the ecosystem services (e.g. carbon sequestration, etc.) provided on the 12 million acres of seeded grassland in the care of beef producers 1
  - Encourage practices that build soil organic matter and enhance soil biodiversity resulting in both carbon sequestration and water infiltration

Context

The Northern Great Plains is one of four remaining temperate grasslands left in the world. This landscape is facing increased pressure due to growing population, a rising middle class and changing diets. Climate change is shifting the areas suitable for growing crops to include grassland regions that were previously unsuitable for crop production. This means some grasslands are at greater risk of conversion.

The Census of Agriculture reported 3.99 million acres of grasslands converted between 2006 and 2016. Carbon emissions due to this plow up is estimated to have released 11.86 million metric tonnes CO2-eq, which is equivalent to the annual emissions of 2.6 million passenger vehicles.[2] Grasslands also increase water filtration and reduce soil erosion resulting in lower nutrient export and enhance water quality for downstream municipalities. Healthy functioning ecosystems found on grazing lands include wetlands, riparian areas, and naturally occurring trees and shrubs found there. These resources are stewarded by beef producers across the country.

Land use change is driven by market prices for various commodities with land going to the commodity or purpose (e.g. non-agricultural uses) that provides the greatest return in the short term. In order to prevent land use change there must be a financial incentive for producers. Whatever market mechanisms are provided, they must be available to all producers across Canada. To this end, producers could benefit from encouraging a broader move towards an adaptive agricultural system supported by a sustainable economy that provides a financial benefit for ecosystem services associated with beef production and the preservation of critical grasslands.[3] In addition, we believe that maintaining and building public trust in the benefits provided through Canadian beef production will have positive financial consequences that will support these goals.

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[1] Reference Statistics Canada 2016 and CRSB NBSA 2016

[2] Prairie grasslands conservatively hold 70-180 tonnes of carbon (C) per hectare (ha), with most in soil organic carbon. Large reductions in grassland soil C of up to **30-41%** have been found due to cultivation (Whalen et al. 2003). Wang et al. (2014) was a metanalysis of Canadian soil carbon sequestration research covering 80 years from 1927 to 2007. Over the time, Canadian Grasslands were a net C sink in top 15 cm with 5.64 tonnes of C per ha in stocks on average; sequestered at an annual rate of 190 Kg/ha/yr over the time period covered.

[3] A sustainable economy encourages waste within the system to be reduced, reused or recycled; while valuing all aspects such as external environmental benefits. By valuing these current externalities it allows true valuation to occur explicitly in the marketplace. It is recognized that the environmental system is open to drivers from outside like the shifting climate patterns driving adaptation.

Grassland biodiversity is largely impacted by two land use change processes: habitat loss and natural landscape fragmentation (aka: increased patchiness). Research has shown that transitioning land from complex to simple landscapes is a major source of biodiversity loss. Limiting land conversion would have a positive impact on biodiversity. Land conversion away from grazing plays a bigger role in biodiversity loss, than does the specific grazing management system used. Although all types of grazing influence biodiversity, it appears that low or moderate grazing has the most positive effect on multiple species groups. Further research is needed to understand how different grazing management (of systems and intensities) impact biodiversity on grasslands.

How the goals could be achieved

The table below provides ways that can contribute to achieving the goals.

Increase Revenue from Grasslands:	Grazing Management:	Fill Data and Research Gaps:
• Encouraging a broader move towards a sustainable economy that provides a financial benefit for ecosystem services that come from beef production • Develop market mechanisms that provide Ecosystem Service payments • Explore tax incentives and programs that encourage keeping native grasslands intact	• Support research on understanding the impact of grazing management on ecosystem services (e.g. carbon sequestration, water filtration and biodiversity) and increase revenue through productivity enhancements • Build awareness and use of range and riparian health assessments by producers • Assist producers managing for habitat outcomes based on local land and climate characteristics and key biodiversity elements	• A robust understanding of land conversion across Canada. Satellite monitoring would provide greater accuracy than survey results. • Collect multi-taxonomic biodiversity information on all Canadian grasslands

FAQs

Q: **What about other ecosystem services?**
In addition to goals around habitat and biodiversity, there will be goals set around other ecosystem services associated with beef producing landscapes such as water quality, water quantity, and carbon benefits. These are being addressed separately.

Q: **Is there scientific literature that supports these goals?**
A: The amount of land used by beef production and the habitat capacity it supports is reported in the National Beef Sustainability Assessment (CRSB NBSA, 2016).

Q: **Why was a zero land conversion goal not set?**
A: Land use change is driven by markets that are outside of the control or influence of individual producers. A critical aspect of a sustainable beef industry is the economic viability of producers. This includes having the flexibility to shift land use to remain in production long term. While maintaining native grasslands is a high priority, it is recognized that producers may shift seeded pasture and hayland (e.g. perennial forages) in and out of annual crop as part of a rotation. The expectation is that land taken out of tame grassland or hayland would be replaced with a similar number of acres seeded down elsewhere.

Q: **Is Land use change driven by annual crop (cereals, oilseeds, pulses, etc.) prices and urban sprawl?**
A: Regionally pressures for land conversion differ with eastern Canada experiencing greater pressure from urban sprawl. In the west, the ability to safeguard the existing 1.5 billion tonnes of Carbon stored on lands managed with cattle is threatened by competing uses and the economic returns to grain versus beef production. If grain prices increase, it will be difficult to prevent further land conversion. This is the reason why emphasis is on encouraging a sustainable economy that values ecosystem services from grasslands and provides a financial incentive to producers. This has the potential to account for some of the social benefits not currently being considered when evaluating the economic returns of grain versus beef production.

Q: **Does maintaining a network of natural landscapes mean there would be a network of connected protected areas?**
There are international discussions about creating a connected network of protected/preserved ecosystems. This goal is designed to be achieved through the maintenance of active grazing lands utilized for beef production. This specifically excludes removing land from agricultural uses to protect it through recreational uses. It is recognized that grazing is important to supporting healthy functioning ecosystems on Canadian grasslands.

Q: **Land use requires a coordinated approach with the crop sector, how does this goal compare?**
A: The Canadian Roundtable for Sustainable Crops (CRSC) is currently drafting their Code of Practice. They have a section on land use that discourages conversion of native grassland. The CRSC and CRSB are sharing information on areas of mutual interest.

Q: **Why was a goal around land used for feed production not set?**
A: Producers need the flexibility to shift to least cost rations to be economically viable and competitive internationally. In addition, crops and livestock are integrated with the livestock sector able to utilize grains unsuitable for human consumption and upcycle the value of these by-products from the grain sector. The 2016 NBSA reported that 9% of land used for beef production was barley or other annual crops. The GHG goal addresses targets for yield improvements that will reduce the amount of land necessary. It should be recognized that use of high-quality feed grains can reduce methane emissions from cattle and therefore trade-offs between land use and emission intensity must be weighed carefully.

Q: **There is a lack of clear science on measuring biodiversity, how was that addressed?**
A: One of the criteria used in developing benchmarks for the goal setting process was that the data must be national in scope, representing all beef producers in Canada. While there is greater depth of detail with regional research projects underway, they were not used as they were not national in scope. The national metric chosen was the Wildlife Habitat Availability on Farmland Indicator by Agriculture Canada with application to lands utilized for beef production as presented in the 2016 National Beef Sustainability Assessment (CRSB NBSA 2016). Ongoing research is needed to take regional lessons learnt and apply them nationally with data collected across the country.

Q: **Why was a goal not set on maintaining or increasing grassland bird populations?**
A: Grassland birds are considered a good indicator of overall biodiversity and riparian health. The grassland bird population is rigorously tracked and reported by North American Bird Conservation Initiative Canada in “The State of Canada’s Birds”. However, there is a significant amount of the lifecycle of grassland birds that occurs outside of the geography of Canadian beef producers. There are threats that impact the population outside of the control of Canada (i.e. specifically harvesting rates on the wintering grounds).

Q: **Why was a goal on quality of biodiversity not set?**
A: Quality of habitat is important. However, it is also extremely difficult to measure and there is currently no national baseline dataset available. The Wildlife Habitat Availability on Farmland Indicator by Agriculture Canada provides an indicator of habitat capacity. Research and data collection will continue on methods of measuring habitat quality.

Q: **Was the cost of implementing these goals calculated?**
A: It was recognized that there are costs to industry in changing practices to achieve these goals. However, it was also noted that there is no downside to efficiency improvements, which support climate goals and industry productivity. Producers have historically adopted and invested in practices that are economical and provide value. Ongoing production efficiencies tend to be quickly adopted when they make economic sense to individual operations.

Historically incremental improvements have been made with a focus on production efficiencies and economic viability. When the entire system is considered, there are efficiencies and gains to be made that would benefit producers and the entire supply chain. In addition, investments maybe needed that lead to quality and improved economic outcomes.

Update on Progress (February 2025)

- The 2016 Census of Agriculture reported that 35 million acres of natural land for pasture. This decreased to 33.9 million acres in 2021 (Statistics Canada, 2016, 2021).
    - The CRSB NBSA 2016 reported 32 million acres of pasture being managed for beef production.
- The 2016 Census of Agriculture reported that 12 million acres of tame or seeded pasture. This decreased to 11.93 million acres in 2021 (Statistics Canada, 2016, 2021).
- Wildlife habitat capacity is broken into reproductive and feeding functions to highlight the importance of reproductive habitat. The CRSB NBSA 2016 reported that land used for beef production contributed 71% and 53% of wildlife habitat capacity needed for reproduction and feeding on crop and pastureland, this increased in 2021 to 74% for reproduction and 55% for feeding.
- The 2025-30 National Beef Strategy outlines the plan industry is following to achieve these goals with Status Updates reporting progress. The Canadian Roundtable for Sustainable Beef’s National Beef Sustainability Assessment follows Government of Canada methodology for Wildlife habitat capacity.

For further information, go to: Beefstrategy.com

References

Canadian Roundtable for Sustainable Beef. (2016). National Beef Sustainability Assessment: Environmental and Social Assessments. Calgary, AB: Deloitte. Abbreviation: (CRSB NBSA, 2016).

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