

CRSB Research Priorities & Recommendations

Updated June 2020

Background

The Canadian Roundtable for Sustainable Beef (CRSB) published the first National Beef Sustainability Assessment (NBSA) in October 2016. The CRSB intends to update the NBSA every 5-7 years, with the next iteration being delivered in 2023 to allow for substantial data updates and address research gaps. An [interim report](#) with updates on the metrics coming from outside sources was completed in January 2020. Several research and data gaps have been identified; these gaps need to be filled in order to improve the next NBSA.

There are several completed and in-progress efforts addressing the priorities published in July 2017. The current research priorities have been updated to exclude areas that are being addressed and include new areas that have been raised. For more details go to the July 2017 version of the Research Priorities for background information.

Environment

1. Develop cost-effective methods of reducing GHG emissions or emissions intensity in primary production.
 - a. **Feed** - Improve feed and forage yields, quality, digestibility, efficiency and better matching protein supply to animal requirements.
 - b. **Innovations** in products and/or management that could increase productivity, efficiency and/or reduce, reuse or recycle waste along the supply chain.
 - c. **Animal productivity** - Improve animal health and genetics that extend the reproductive life of animals, improve reproduction rates, increase productivity, reduce mortality rates, reduce the age of first reproduction, and reduce the prevalence of common diseases.
All of these will contribute to a lower GHG intensity of Canadian beef.
2. **Carbon Sequestration** – Quantify the impact of land management on carbon storage potential; developing and/or incorporating regionalized values for soil cover, type and climate parameters.
 - a. Develop ways to validate annual carbon sequestration using satellite data
 - b. Develop carbon protocols that are effective for producers with minimal measuring and reporting burden
3. Quantify the economic, agronomic and biodiversity benefits of integrated annual crop, forage and beef production systems.
4. Improve **land use** data quality - clarifying national land use conversion numbers and identify land that is at high risk of conversion.
5. **Water Use, Efficiency and Risk:**
 - a. Quantify the water security risk to forage, grasslands and feed production for beef production across Canada posed by projected climate change

- b. Quantify the value of grasslands and agricultural management practices that provide benefits (such as groundwater recharge, water filtration of runoff, faster recovery from flood or drought).
- c. Develop a National Riparian Health Indicator using satellite data. AAFC Brandon is using high resolution ortho E-cognition imagery at 30m resolution, which has been shown to be accurate 95% of the time.
- d. Quantify the impact of native and tame pasture management on water use, cycles and watersheds in eastern Canada.
- e. Quantify phosphorus excretion rates of grazing animals, and N impacts on GHG emissions and P runoff and leaching impacts on water quality/eutrophication compared to adjacent cropland and assess whether forage or pasture strips act as a buffer to mitigate nutrient entry into waterways. Regional gap in eastern Canada.
 - i. Update AAFC estimates for erosion on pastureland
- f. Encourage full Life Cycle Inventories to be completed for feed grains used in beef production, including water footprint analysis. Current data from the Canadian Roundtable for Sustainable Crops only provides GHG emission data.

6. Biodiversity

- a. Update and refine the Wildlife Habitat Capacity of Farmland Indicator (WHAFI) developed by Agriculture and Agri-Food Canada (AAFC) with current data. Such refinements could include:
 - i. Improve granularity of the analysis, by assessing breeding and feeding requirements for increaser and decreaser species separately, and by considering taxonomic groups or endangered species separately.
 - ii. Differentiate biodiversity impacts between native and tame (improved) pastures to quantify the contribution of beef production to the maintenance of biodiversity.
 - iii. Better understand how grazing systems and management practices can affect biodiversity using multi-taxon criteria.
 - b. Compare results from a Life Cycle Assessment approach (FAO LEAP recommended methodology) using Alberta Biodiversity Monitoring Institute (ABMI) data to WHAFI data published in the NBSA.
7. Canadian specific information regarding beef (not just red meat) **food waste**, after the packer's gate at processing, retail/foodservice and the consumer.

Social

- 8. Support the monitoring of **farm health and safety**; including accident rates and communicate on ways to prevent fatalities.
- 9. Support research and extension efforts into **mental health and wellbeing** of producers, farm employees, and veterinarians.
- 10. Assess factors driving **workload**, implications of high workload and identification of economically viable management practices that could reduce workload.
- 11. Support research and technology transfer of **pain mitigation practices** addressing painful

procedures

12. Advance **monitoring of antibiotic use** and responsible management.

Economic

13. Assess the economic feasibility and acceptance of various recommended management practices (RMPs) for different production systems across Canada
 - a. Evaluate various winter-feeding strategies as feed is a major cost
 - b. Identify practices for different production systems that result in win-win situations that are both lower cost of production and have lower economic impact
14. Quantify the value of **natural capital** from beef production.
 - a. Evaluate ways that natural capital can be monetized for producers to discourage land use conversion
15. Quantify the proportion of existing Canadian production sold using **niche market** attributes, the potential size of these markets, costs and premiums associated with them.
16. Support technology transfer that increases the uptake of sustainable production practices that are aligned with the *Certified Sustainable Beef Framework* indicators.
 - a. Support research to better understand producer decision making around barriers and adoption of sustainability practices
 - b. Support ongoing and existing technology transfer efforts by industry.

Note: there is ongoing research into consumer trends and perceptions through the CRSB communications and marketing committee as well as through various members.

Conclusion

The above research recommendations will ensure future iterations of the National Beef Sustainability Assessment are more robust and informative to drive continuous improvement. Questions arising out of the above recommendations can be directed to Brenna Grant (projects@crsb.ca).

The CRSB is a collaborative, multi-stakeholder organization devoted to advancing sustainability in the Canadian beef industry. Its mission is to facilitate the framework for the Canadian beef industry to be a global leader in the continuous improvement and sustainability of the beef value chain through science, multi-stakeholder engagement, communication and collaboration