



SUSTAINABLE DEVELOPMENT COMPONENT

1. How do Quebec cattle producers stack up with their counterparts around the world in terms of GHG emissions?

GHG emissions from Canadian beef production are among the lowest, at about 50% of the global average.¹

The Canadian beef industry has set the goal of reducing GHG emissions by 33% by 2030.²

2. What proportion of total GHG emissions comes from cattle production?

Au Canada, la production bovine dans son ensemble est responsable de 2,4 % des émissions de GES, comparativement à 28 % pour le transport³.

3. Have there been any recent improvements with respect to GHG from cattle production?

In Canada, GHG emissions from cattle production fell by 14% from 1981 to 2011.³ This was made possible by increasing productivity, implementing pasture management practices that sequester carbon, using more digestible feed, using feed grown in Canada, and lowering on-farm mortality.

An update of GHG emissions in recent years is expected to be confirmed by fall 2023.

¹ CRSB. National beef sustainability assessment: Environmental and social assessment. 2016. Calgary, AB: Deloitte. https://crsb.ca/wp-content/uploads/2021/12/CRSB-EnvironmentalAndSocialAssessments_2016_full-report.pdf.

² Objectifs de la Table ronde canadienne sur le bœuf durable. [https://crsb.ca/benchmarks/goals-progress/#:~:text=per%20year.-,2030%20Goals%3A,to%20consumer\)%20by%2050%25](https://crsb.ca/benchmarks/goals-progress/#:~:text=per%20year.-,2030%20Goals%3A,to%20consumer)%20by%2050%25).

³ Inventaire officiel canadien des gaz à effet de serre. Gouvernement du Canada. <https://www.canada.ca/fr/environnement-changement-climatique/services/changements-climatiques/emissions-gaz-effet-serre/sources-puits-sommaire-2023.html>

⁴ LEGESSE, G., BEAUCHEMIN, K.A., Ominski, K.H., McGeouch, E. J., Kreobl, R., MacDonald, D., Little, S. M., McAllister, T.A. 2015. Greenhouse gas emission of Canadian beef production in 1981 as compared with 2011. *Animal Production Science*, 56(3), 153. Doi:10.1071/an15386. <https://www.publish.csiro.au/an/an15386>

¹ CRSB. 2016. "National Beef Sustainability Assessment: Environmental and Social Assessments." Calgary, AB: Deloitte. https://crsb.ca/wp-content/uploads/2021/12/CRSB-EnvironmentalAndSocialAssessments_2016_full-report.pdf.

² Goals of the Canadian Roundtable for Sustainable Beef. [https://crsb.ca/benchmarks/goals-progress/#:~:text=per%20year.-,2030%20Goals%3A,to%20consumer\)%20by%2050%25](https://crsb.ca/benchmarks/goals-progress/#:~:text=per%20year.-,2030%20Goals%3A,to%20consumer)%20by%2050%25).

³ Legesse, G., K.A. Beauchemin, K.H. Ominski, E.J. McGeough, R. Kroebel, D. MacDonald, S.M. Little, T.A. McAllister. 2015. "Greenhouse gas emissions of Canadian beef production in 1981 as compared with 2011." *Animal Production Science*, 56(3), 153. DOI: 10.1071/AN15386. <https://www.publish.csiro.au/an/an15386>



4. What are the main environmental practices currently being promoted by cattle producers?

Cattle producers understand the need to produce more food with fewer resources. The Canadian Roundtable for Sustainable Beef (CRSB) promotes an extensive set of farming practices. These include pasture management to foster diversification of wildlife species, energy efficiency measures, erosion prevention, wildlife habitat preservation, and optimized manure use.

In 2016, the CRSB also recognized [VBP+ certification](#), a program that meets HACCP (Hazard Analysis Critical Control Point) requirements. The practices covered by VBP+ apply not just to natural resources and the environment, but also to animal health and welfare, livestock feed, on-farm biosecurity, efficiency and innovation, and people and community. The Producteurs de bovins du Québec (PBQ) is a member of the CRSB.

5. What is the participation rate for this certification program?

VBP+ is the most effective way to encourage cattle producers to adopt the best possible environmental practices. Certified farms currently account for 54% of fed cattle production in Quebec. Major efforts are being made to get cow-calf producers interested in the program; this is gaining traction, with more and more producers choosing to get involved every year. We expect at least twenty new cow-calf producers to become certified by the end of 2023.

6. What proportion of GHGs from cattle production comes from the cows' digestion?

Since cows are ruminants, fermentation from their digestion generates methane gas, which the animals expel by burping. These emissions are referred to as "enteric emissions," and they represent 40 to 75% of GHGs from cattle production.⁴

Many strategies are currently being tried in Canada to reduce enteric methane levels, including increasing animal productivity, selecting animals that produce less methane, increasing forage digestibility, adding certain fats to feed, and using high-starch forage. A list of these strategies has been published to help familiarize farmers with these strategies.⁵

The Synergraze company, based in Calgary, is currently developing a seaweed-based feed additive that could reduce up to 90% of enteric methane emissions from cattle. In the same vein, a product called Bovaer can be added to cattle feed to reduce methane emissions. These products are in the process of being approved by Health Canada for sale in the coming months and years.

⁴ Beauchemin, K.A., H.H. Janzen, S.M. Little, T.A. McAllister, S.M. McGinn, 2011. "Mitigation of greenhouse gas emissions from beef production in western Canada – Evaluation using farm-based life cycle assessment." *Animal Feed Science and Technology*, 166-167, 663-677. <https://www.sciencedirect.com/science/article/abs/pii/S0377840111001660> and Legesse, G., K.A. Beauchemin, K.H. Ominski, E.J. McGeough, R. Kroebe, D. MacDonald, S.M. Little, T.A. McAllister. 2015. "Greenhouse gas emissions of Canadian beef production in 1981 as compared with 2011." *Animal Production Science*, 56(3), 153. DOI: 10.1071/AN15386. <https://www.publish.csiro.au/an/an15386>

⁵ "Exemples d'investissements et équipements ayant un impact sur la réduction des GES en production bovine." Available at <https://www.agrireseau.net/bovinsboucherie/documents?a=1&r=GES>



7. What other factors are considered in examining the environmental impact of cattle production?

Water management, soil management, and biodiversity.

In terms of **water management**, only 3% of the water used in beef production comes from drinking water sources: the well water consumed by the cows. Apart from this, most (94%) of the water used in the industry is “green” water, which comes from the rain and snowmelt that allows the plants eaten by the cows to grow. It takes 459 litres of water to produce a kilogram of deboned beef.⁶ By comparison, it takes 3,158 litres of water (most of it irrigated) to produce a kilogram of almonds.⁷

When it comes to **soil management**, various pasture and forage management practices are used to foster better forage production, thus contributing to carbon sequestration. Perennial plants (those that stay in the field long-term) have deeper roots that promote carbon sequestration in the soil.⁸ Cattle producers are also implementing better manure and litter management measures, which reduce carbon emissions; these include performing nutrient analyses, which are used to correct nutrient deficiencies to help plants grow.⁹

⁶ Exemples d'investissements et équipements ayant un impact sur la réduction des GES en production bovine. Disponible au <https://www.agrireseau.net/bovinsboucherie/documents?a=1&r=GES>

⁷ Getahun Legesse, Marcos R.C. Cordeiro, Kim H. Ominski, Karen A. Beauchemin, Roland Kroebel, Emma J. McGeough, Sarah Pogue, Tim A. McAllister. Water use intensity of Canadian beef production in 1981 as compared to 2011. *Science of the Total Environment* 619-620 (2018) 1030-1039. <https://www.sciencedirect.com/science/article/abs/pii/S0048969717332527#:~:text=The%20estimated%20intensity%20of%20blue,2011%2C%20a%2020%25%20decline>

⁸ 88 acres.com. Water footprint of seeds vs nuts <https://88acres.com/blogs/news/water-footprint-of-seeds-vs-nuts>. Site web consulté le 17 mai 2023.

⁹ SAMSON, M.-E., THIVIERGE, M.-N. 2022. Rôle des plantes fourragères pérennes sur les stocks de carbone et la santé des sols.

⁶ Legesse, G., M.R.C. Cordeiro, K.H. Ominski, K.A. Beauchemin, R. Kroebel, E.J. McGeough, S. Pogue, T.A. McAllister. “Water use intensity of Canadian beef production in 1981 as compared to 2011.” *Science of the Total Environment*, 619-620(2018), 1030–1039.

<https://www.sciencedirect.com/science/article/abs/pii/S0048969717332527#:~:text=The%20estimated%20intensity%20of%20blue,2011%2C%20a%2020%25%20decline>

⁷ 88acres.com. “Water footprint of seeds vs nuts.” <https://88acres.com/blogs/news/water-footprint-of-seeds-vs-nuts>. Website accessed on May 17, 2023.

⁸ Samson, M.-E., M.-N. Thivierge, 2022. “Rôle des plantes fourragères pérennes sur les stocks de carbone et la santé des sols.” Video created as part of the *Des solutions pour lutter contre les changements climatiques et leurs répercussions en production fourragères* training. Project funded by the *Programme d'appui à la lutte contre les changements climatiques en agriculture*, through the *Plan d'action 2013-2020 sur les changements climatiques*. Available on the ASIO platform of the Ordre des agronomes du Québec.

<https://asio.oaq.qc.ca/Web/MyCatalog/ViewP?pid=Hz%2bL4eQ7kA0I7a2znDtCow%3d%3d&id=6jwbGccPbMUtpEdFx%2frwXg%3d%3d>

⁹ Fournel, S., 2022. “Stratégies de réduction des émissions de GES en lien avec la gestion des effluents.” Video created as part of the *Des solutions pour lutter contre les changements climatiques en production bovine* training. Project funded by the *Programme d'appui à la lutte contre les changements climatiques en agriculture*, through the *Plan d'action 2013-2020 sur les changements climatiques*. Available on the ASIO platform of the Ordre des agronomes du Québec.

FAQ

Les Producteurs
de bovins du
Québec



Capsule réalisée dans le cadre des formations Des solutions pour lutter contre les changements climatiques et leurs répercussions en production fourragères. Projet financé par l'entremise du Programme d'appui à la lutte contre les changements climatiques en agriculture, en vertu du Plan d'action 2013-2020 sur les changements climatiques. Disponible sur la plate-forme ASIO de l'Ordre des agronomes du Québec.

<https://asio.oaq.qc.ca/Web/MyCatalog/ViewP?pid=Hz%2bL4eQ7kA0l7a2znDtCow%3d%3d&id=6jwbGccPbMUtpEdFx%2frwXg%3d%3d>



également en pratique des actions permettant de mieux gérer les fumiers et les litières, diminuant ainsi les émissions de carbone. Par exemple, en analysant leur teneur en éléments nutritifs pour les utiliser au moment où les plantes ont besoin de nutriments pour croître¹⁰.

Au chapitre de la biodiversité, le Québec dispose d'un grand territoire agricole dont une portion des terres n'est pas propice à des cultures destinées à l'alimentation humaine, mais très appropriée pour faire pâturer des animaux! Ce sont ces mêmes terres qui sont l'environnement naturel de plus de 1 000 espèces d'animaux, de plantes et d'insectes. Les mélanges d'espèces de plantes dans les champs favorisent un habitat pour la faune. Plusieurs producteurs ont planté des arbres qui favorisent la séquestration du carbone dans les parties ligneuses de l'arbre et dans le sol à proximité des arbres.¹¹ Ces arbres servent aussi de nichoir pour plusieurs espèces d'oiseaux.

¹⁰ FOURNEL S. 2022. Stratégies de réduction des émissions de GES en lien avec la gestion des effluents. Capsule réalisée dans le cadre des formations Des solutions pour lutter contre les changements climatiques en production bovine. Projet financé par l'entremise du Programme d'appui à la lutte contre les changements climatiques en agriculture, en vertu du Plan d'action 2013-2020 sur les changements climatiques. Disponible sur la plate-forme ASIO de l'Ordre des agronomes du Québec.

¹¹ CODRON, C., COGLIASREO, A., 2022. Avantages de l'agroforesterie en contexte de changement climatique. Fiche réalisée dans le cadre des formations Des solutions pour lutter contre les changements climatiques en production bovine. Projet financé par l'entremise du Programme d'appui à la lutte contre les changements climatiques en agriculture, en vertu du Plan d'action 2013-2020 sur les changements climatiques. Disponible sur la plate-forme ASIO de l'Ordre des agronomes du Québec.