

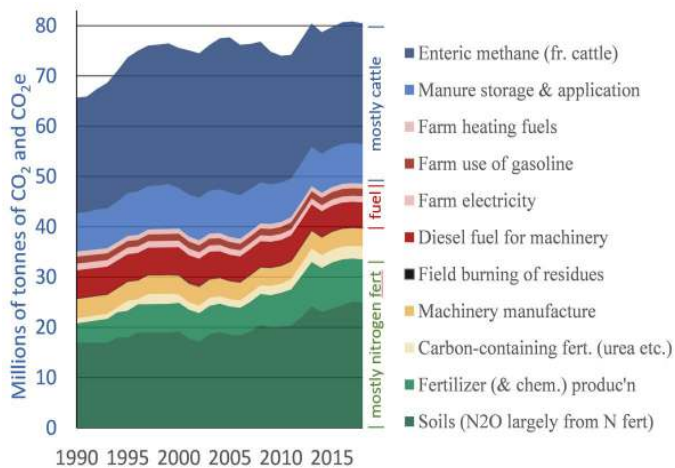


Agricultural Emissions:

Eight Important Insights and Eight Needed Policies

What we need to know about agricultural greenhouse gas (GHG) emissions:

1. Unless Canada and all nations slash emissions from all sources, Canadian farmers will face devastating temperature increases: 3 to 6 degrees Celsius this century. **This could mean the end for many farms.**
2. **Canada is committed to cutting overall emissions by 30% by 2030** and to making our country carbon neutral by 2050.
3. Despite these commitments, **agricultural emissions are going up**: 22% higher in 2018 than 1990.



Canadian agricultural emissions (incl. input manufacture and on-farm energy), 1990-2018

4. **Farm inputs are the problem.** Inputs include fuels, chemicals, fertilizers, plastics, etc. As input use has risen, so have emissions. For thousands of years, humans practiced agriculture but did not affect the atmosphere or climate. But over the past century, as farmers purchased more and more energy-intensive inputs, emissions have soared.
5. Nitrogen fertilizer is a *huge* problem—perhaps the largest single source of agricultural emissions. Nitrogen fertilizer is unique among human materials and processes in that it is a major source of all three main greenhouse gases: nitrous oxide (when used), carbon dioxide (in production), and methane (from its feedstock, natural gas). **Canadian farmers have doubled nitrogen use since 1993.**
6. **Cattle emit methane.** Another big part of ag. emissions is methane from cattle (and other grazing livestock) and from manure (see graph). Atmospheric methane concentrations have *tripled*. Major sources include fossil-fuel production, rice growing, landfills, and livestock. Methane is 28 times more powerful than carbon dioxide in driving climate heating. **But cattle also bring many environmental benefits**, as critical parts of soil-building grassland ecosystems and biodiverse mixed-farming operations.
7. **Healthy, carbon-rich soils are key.** They hold more water, host more biodiversity, and provide greater natural fertility. For climate resilience, we must restore and protect soils.
8. **Climate solutions can be farm-income solutions.** The gap between farmers' revenues and net incomes gets wider each decade. This gap reflects farmers' expenses—money they pay for fertilizer, fuels, and other inputs. Low-input approaches can reduce emissions and increase margins.

For details on all these points, see the NFU's report, [Tackling the Farm Crisis and the Climate Crisis](#).

Government policies we need to support farmers in reducing emissions:

- 1. Federal and provincial governments must refocus Canadian agricultural policy**—away from maximum-export, maximum-production, maximum-input, maximum-emission farm and food systems toward sustainability, resilience, higher net incomes, and increasing the number of farmers stewarding the land.

Programs should encourage more complex rotations, intercropping, and cover crops. Large-scale farming will likely continue on most of Canada's farmland, but government programs must support all farmers in moving *all farms*, big and small, toward climate-compatible, low-emission production methods.
- 2. We need government policies and financial assistance to help reduce emissions from on-farm energy use. As widely as possible, we must replace fossil fuels with low-emission electricity.** Governments should provide incentives and financing for on-farm solar arrays; fund R&D to create battery-electric tractors, trucks, and machinery; finance energy-saving retrofits for farm buildings and homes; and improve building codes for new construction.
- 3. Governments should help farmers reduce emissions from nitrogen fertilizer** by incentivizing efficiency (4R techniques), introducing policies to reduce total tonnage (targets, independent soil testing, a small tax on fertilizer to fund fertilizer-reduction research), and mandating low-emission production facilities (renewable energy and carbon capture).
- 4. Government programs, policies, and agencies should foster a reduction in input use overall.** Governments must fund research, hire and train independent agrologists, create demonstration farms, and fund independent soil testing to help farmers **maintain output while finding alternatives to emissions-causing inputs.**
- 5. Government policies and programs should help build food-system resilience by diversifying production approaches:** expanding the area farmed using low-input, organic, holistic, regenerative, and agroecological methods.
- 6. Maximize benefits from livestock while minimizing emissions.** Government educational efforts, policies, and support programs must work to proliferate best-possible grazing systems: rotational, multi-paddock, holistic, and regenerative. This will improve soils; support grassland ecosystems; and help integrate livestock into biodiverse, mixed farms. Farmers must be supported to reduce emissions per kilogram of meat or milk output by pursuing best possible genetics, herd health, and feeding.
- 7. We need new government agencies,** such as a Canadian Farm Resilience Agency (CFRA). Modelled on the Prairie Farm Rehabilitation Administration (PFRA) but updated for the 21st century and emerging climate threats, a CFRA could lead on-farm mitigation and adaptation, oversee wetlands restoration and tree planting, manage extension agrologists and independent soil testing, and operate demonstration farms where emission-minimizing production practices could be refined and showcased. **We need wartime levels of government action and leadership** to avoid massive damage to our climate, farms, food supply, and future.
- 8. Canadian governments must embrace food sovereignty:** local and regional food systems democratically shaped by the needs of producers, consumers, and communities, and focused on sustainability, justice, and the dependable provision of delicious, healthy food for all.

*Note: throughout this short document, details and caveats has been omitted. For a more detailed and nuanced version of the preceding points please read the NFU's report, [Tackling the Farm Crisis and the Climate Crisis](#).

If you are not an NFU member or associate member, please join and become part of our collective work to build a better, healthier Canadian food system. Please go to www.nfu.ca/join

The NFU is a proud, founding member of the coalition Farmers for Climate Solutions. Learn more [here](#).