



# Less Food on Your Fork

Climate Policy's Attack on Canadian Farmers

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# Climate Policy's Attack on Canada's Farmers

## EXECUTIVE SUMMARY

In December 2020, the federal government announced its intention to establish a country-wide target to reduce absolute levels of greenhouse gas (GHG) emissions arising from fertilizer application by 30% below 2020 levels by 2030. This article will summarize the rationale for the proposed voluntary emissions reduction measures; the differing estimates of the impacts of the measures on food production and farming incomes; and the possible playout of this issue in political terms.

Based on data for 2019, emissions from the use of synthetic fertilizers in Canada accounted for 12.75 million tonnes (Mt) of GHG emissions. Synthetic fertilizers thus contributed 1.7% of Canada's total GHG emissions of 730 Mt in 2019. Thirty per cent of 1.7% is 0.5%. Under current policy, no source of emissions, however small, is free from measures to reduce and ultimately eliminate it.

Minister of Agriculture and Agri-Food Canada Marie-Claude Bibeau has indicated that actions to reduce emissions reduction will focus not on a mandatory reduction in the use of fertilizers but on voluntary "*improving nitrogen management and optimizing fertilizer use*". The consultations with farmers' groups indicated that they shared three main topics of concern: the rationale for a 30% reduction; the exclusive focus on reaching an absolute reduction in emissions as contrasted with a reduction in emissions intensity (i.e. in emissions per unit of production); and the adverse impact of the proposed target on food production and farm incomes.

Fertilizer Canada contracted for a study on how reducing nitrogen-based fertilizer use by 20% would affect food production and farm incomes. It concluded that, in 2030, the total value of lost canola, corn and spring wheat production would be \$10.4 billion and the cumulative losses over the period 2023 to 2030 would be \$40.5 billion. A separate study estimated that to reach a 30% emission reduction with some yield increase would require an expenditure of \$4.6 billion over a ten-year time frame.

The organizations representing farmers in Canada have judged that it is pointless to challenge the merits of the emissions reduction targets, and they are seeking to accommodate the government's agenda in the hope of moderating it and/or reducing its cost. The government, however, seems unlikely to accept a voluntary reduction in emissions that achieves less than the 30% target.

The studies done to date have not examined the effects of the proposed target on food prices for consumers or on Canada's abilities to meet the demands of other countries for reliable and affordable food supplies. With 900,000 people in the world now facing starvation due to the effects of conflicts and supply chain problems, it seems that a real present global crisis counts for less than a possible future climate one.

# Climate Policy's Attack on Canada's Farmers

In December 2020, the government of Canada announced its “strengthened” climate plan, “*A Healthy Environment and a Healthy Economy*”. That plan included a number of measures affecting Canada’s farmers and food production, with the goal to reduce greenhouse gas (GHG) emissions. One of the measures was the establishment of a country-wide target to reduce absolute levels of GHG emissions arising from fertilizer application by 30% below 2020 levels by 2030. The initial announcement was followed by issuance of a discussion paper in July 2021<sup>1</sup> and the conduct of “consultations” which have now been completed.

This article will summarize the rationale for the proposed voluntary emissions reduction measures; the differing estimates of the impacts of the measures on food production and farming incomes; and the possible payout of this issue in political terms.



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<sup>1</sup> <https://agriculture.canada.ca/en/departement/transparency/public-opinion-research-consultations/share-ideas-fertilizer-emissions-reduction-target/discussion>

## Background

Agriculture was responsible for about 10% of Canada’s GHG emissions in 2019, or 73 megatonnes of carbon dioxide equivalent (73 CO<sub>2</sub>e). These emissions came mainly from three sources: enteric fermentation (24 Mt), crop production (24 Mt) and on-farm fuel use (14 Mt). **Based on data for 2019, emissions from the use of synthetic fertilizers accounted for 12.75 Mt. Synthetic fertilizers thus contributed 1.7% of Canada’s total GHG emissions of 730 Mt in 2019.** Thirty per cent of 1.7% is 0.5%. The government of Canada, however, is committed to reduce Canada’s GHG emissions to 45% below 2010 levels by 2030 and to “net-zero” by 2050. No source of emissions, however small, is free from measures to reduce, and ultimately eliminate, it.

Fertilizers are an essential input for the production of Canada’s agricultural crops. The federal discussion paper states that fertilizers “*have helped drive increases in Canadian crop yields over time, in the process leading to increased grain sales and exports, record farm gate receipts, and prosperity for Canada’s farm families.*” However, the application of nitrogen (N) fertilizer results in nitrous oxide (N<sub>2</sub>O) emissions, a potent greenhouse gas with (allegedly) a global warming potential 265 to 298 times that of carbon dioxide over a 100-year period.

Showing 14 records  Filter

Geography		Canada <a href="#">(map)</a>			
Harvest disposition	Seeded area (acres)				
Type of crop <a href="#">↑</a> <a href="#">↓</a>	2020 <a href="#">↑</a> <a href="#">↓</a>	2021 <a href="#">↑</a> <a href="#">↓</a>	2022 <a href="#">↑</a> <a href="#">↓</a>	2023 <a href="#">↑</a> <a href="#">↓</a>	
Sunflower seed <sup>10, 12</sup>	111,900	91,427	94,100	89,800	
Mustard seed <sup>10, 15</sup>	256,400	290,324	554,700	637,600	
Chick peas <sup>10</sup>	297,800	221,950	233,800	260,200	
Canary seed <sup>10</sup>	334,100	301,677	291,300	310,400	
Wheat, winter seeded in fall <sup>10</sup>	1,574,800	1,696,085	1,345,500	1,515,900	
Corn for grain <sup>10, 13, 14</sup>	3,559,200	3,676,418	3,623,500	3,724,800	
Oats <sup>10, 11</sup>	3,839,100	3,711,811	3,936,700	3,056,300	
Lentils <sup>10</sup>	4,232,800	4,200,686	4,321,300	3,975,600	
Soybeans <sup>10, 16</sup>	5,070,300	5,157,986	5,274,200	5,511,500	
Wheat, durum <sup>10</sup>	5,688,600	5,736,514	6,006,100	6,062,100	
Barley <sup>10, 11</sup>	7,561,200	8,322,139	7,044,700	7,084,800	
Wheat, spring <sup>10</sup>	17,926,200	16,021,936	18,036,400	19,389,900	
Canola (rapeseed) <sup>10, 12</sup>	20,782,600	22,270,249	21,395,700	21,596,800	
Wheat, all <sup>10, 18, 19</sup>	25,189,600	23,454,535	25,388,100	26,967,900	

**How to cite:** Statistics Canada. [Table 32-10-0359-01 Estimated areas, yield, production, average farm price and total farm value of principal field crops, in metric and imperial units](#)  
 DOI: <https://doi.org/10.25318/3210035901-eng>

The discussion paper, and subsequent comments by Minister of Agriculture and Agri-Food Canada Marie-Claude Bibeau, indicated that actions to reduce emissions reduction will focus not on a mandatory reduction in the use of fertilizers but on voluntary “*improving nitrogen management and optimizing fertilizer use*”. Documents obtained by independent media (True North) under Access to Information indicate that departmental officials consider the use of mandatory regulations as a “policy option” if a voluntary approach fails to meet its objectives.

As has happened before in many other cases of environmental policy, governments are often inclined to favour the “certainty” of regulation over reliance on freedom of choice.

The consultations with farmers’ groups indicated that they shared three main topics of concern: the rationale for a 30% reduction; the exclusive focus on reaching an absolute reduction in emissions as contrasted with a reduction in emissions intensity (i.e. in emissions per unit of production); and the adverse impact of the proposed target on food production and farm incomes.

CANADA | News

## Food banks and other food charities anticipate a 60 per cent increase in demand in 2023

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Published Wednesday, January 11, 2023 8:00AM EST  
Last Updated Wednesday, January 11, 2023 11:55AM EST



CTV National News: Larger reliance on food

<https://www.ctvnews.ca/canada/food-banks-and-other-food-charities-anticipate-a-60-per-cent-increase-in-demand-in-2023-1.6225412>

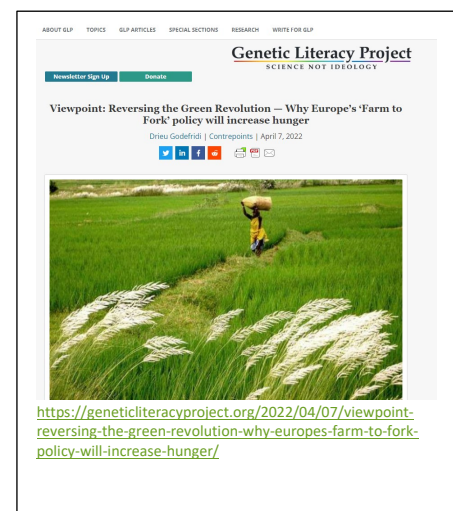
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A new report says reliance on food banks and other food charities is expected to increase by 60 per cent in 2023, following a 134 per cent growth of food program dependency in 2022.



### *Rationale for a 30% Reduction*

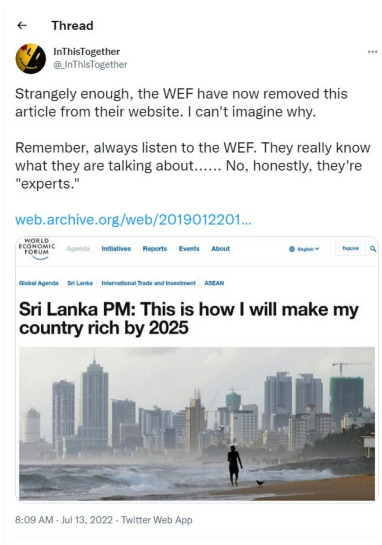
In testimony before a House of Commons committee, Dr. Shawn Marshall, a science advisor with Environment and Climate Change Canada, acknowledged that the 30% figure was more of a “policy” decision than one recommended by scientists. A clue as to the inspiration of the target was given by **Minister Bibeau in a speech given in 2021 as part of a sustainable agriculture webinar with European counterparts in which she described Canada’s measures as “very closely aligned” with the fertilizer reduction target in the European Union’s Farm to Fork strategy.** Under that strategy, the government of the Netherlands has committed to cut nitrogen emissions by 59% via a 7.5-



billion-euro buyout scheme. By comparison, Canada’s approach apparently is considered moderate.

Adding to these questions has been farmers’ concern about the lack of benchmark data, fertilizer-use data, and data to accurately measure actual emissions and measure progress towards targets – in other words, **the science isn’t settled on how to measure emissions from fertilizer use and it is not clear that accurate measurements are even possible.** According to Agriculture and Agri-Food Canada documents quoted in House of Commons committee hearings:

*“Estimates are based on experiments (small plots, research conditions) and may not be realized in every region or every condition at real scale.”*

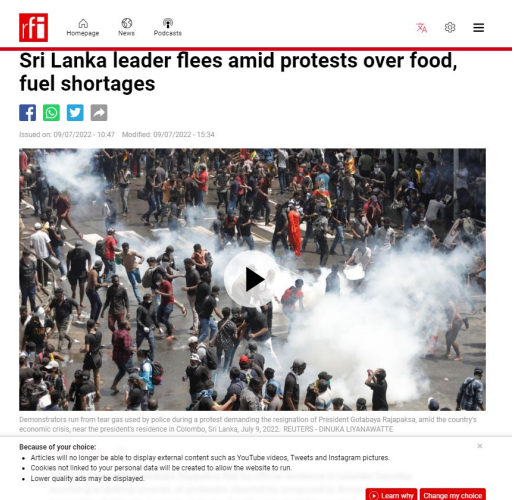


### Sri Lanka Crisis Reveals the Dangers of Green Utopianism

President Rajapaksa's fertilizer ban was not the only factor behind Sri Lanka's economic crash. But it's definitely part of the story.



<https://fee.org/articles/sri-lanka-crisis-reveals-the-dangers-of-green-utopianism/>



*Three news headlines showing the progressive collapse of the economy and explosion of civil unrest as food and fuel prices skyrocketed in Sri Lanka due to ‘green’ policies, especially cutting of fertilizer.*

Farmers’ objections to the target of an absolute reduction in emissions is based in large part on the unique conditions in Canada. For many years, groups like Fertilizer Canada have promoted a **4R Nutrient Stewardship** program that calls on farmers to apply fertilizer at the “right source, right rate, right time and right place” – an effort that the federal government previously endorsed.



Robert Saik, CEO of the independent consulting group AGvisorPRO, stated to True North that farmers are not getting any signal that the federal government has taken account of what farmers are already doing with respect to variable rates, nitrogen application and other practices. In effect, while Canada's nitrogen emissions from fertilizer use have increased significantly (up 54% from 2005 to 2019, according to Environment and Climate Change Canada), this is not due to excessive use of fertilizers but rather to increases in the area under crop production, the area under fertilizer-intensive crops, and an increase in soil degradation.

The reaction of many farmers and the agribusiness organizations has been generally one of concern, both about the design and the costs of the target. Many wonder whether it is even possible to meet given that 2030 is only seven growing seasons away. They want to know why the government questions the incentives farmers already have to be efficient in the use of fertilizers given that the cost of fertilizer has doubled over the past two years. They find fault with the use of 2020 as the baseline, as it does not recognize the progress made from large investments made in soil health and fertilizer efficiency while increasing crop production by 70% since 2006.

According to Fertilizer Canada, crops grown in Canada are already the "gold standard" when it comes to sustainability. Nitrogen use efficiency, a measurement of how well crops utilize nutrient inputs, currently sits at 72% in Canada, exceeding the world average. This compares to a nutrient use efficiency of 61% in western European countries. With the methodology used in the National Inventory Report of GHG emissions, Canada is a leader in emissions intensity compared to our competitors. Per unit of cropland, for example, Canada's nitrogen oxide emissions from fertilizer are half those of the United States (0.4 tonnes of CO<sub>2</sub>e compared to 0.8 tonnes CO<sub>2</sub>e).

### *Impact of the Target on Food and Farmers*

To quantify the impact of reducing nitrogen-based fertilizer use on food production and incomes, Fertilizer Canada contracted for a study by MNP LLP.<sup>2</sup> That study modelled the difference between a continuation of "business as usual" and a scenario in which there was a 20% reduction in the use of chemical fertilizers starting in 2023 and continuing to 2030 (in other

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<sup>2</sup> <https://fertilizercanada.ca/wp-content/uploads/2021/10/Final-Report-v2.2.1.pdf>



words, a much less severe case than that implied by the adoption of the federal target). The following are the main findings:

- By 2030, the reduction in potential yields of the three most important crops would be 23.6 bushels per acre per year for canola, 67.9 bushels per acre per year for corn, and 36.1 bushels per acre per year for spring wheat.
- **In 2030, the total value of lost production of these three crops would be \$10.4 billion dollars. The cumulative losses over the 2023 to 2030 period would be \$40.5 billion.**
- **These losses would be disproportionately concentrated in Saskatchewan and Alberta.**
- Assuming that all of the remaining supply were sold within Canada, by 2030 Canadian exports of canola would decline from more than 10 million tonnes today to 750,000 tonnes.
- Annual spring wheat exports would drop by 4.2 million tonnes by 2030.
- Annual corn production would decline by 6.2 million tonnes by 2030.

This study examined the impacts of the proposed target on only three crops. If it had been expanded to include other crop types, such as barley, oats and pulse crops, the costs would have been higher.

The Western Canadian Wheat Growers Association has indicated that income losses caused by lower projected yields in corn, canola and wheat would cost farmers \$2.95 billion a year in Alberta, \$4.61 billion a year in Saskatchewan and \$1.58 billion a year in Manitoba by the year 2030.

Fertilizer Canada commissioned a separate study utilizing a series of scenarios for major Canadian cropping systems across Canada based on broader and more intense application of 4R Nutrient Stewardship best management practices.<sup>3</sup> It found that Canada can reduce production levels with “aggressive but realistic” adoption rates of 4R management practices and substantially reduce nitrogen fertilizer N<sub>2</sub>O emissions by 1.6 MtCO<sub>2</sub>e, or 14%. **Achieving a 2.5 MtCO<sub>2</sub>e emission reduction would require zero yield increases plus a cost to farmers of \$495 million per year. To reach a 30% emission reduction with some yield increase would require an expenditure of \$4.6 billion over a ten-year time frame.** Farmers would have to weigh the risk of increased spending with the potential of experiencing below average yields or prices due to weather or markets in some years.

Fertilizer Canada’s conclusion from this is that *“Canada will have to balance the goal of reducing greenhouse gas emissions from fertilizer application against farm profitability, economic growth, and global food security. There is no free lunch in food production.”*

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<sup>3</sup> [https://fertilizercanada.ca/wp-content/uploads/2023/01/Fertilizer-Canada\\_ERI-Consultation-Response.pdf](https://fertilizercanada.ca/wp-content/uploads/2023/01/Fertilizer-Canada_ERI-Consultation-Response.pdf)

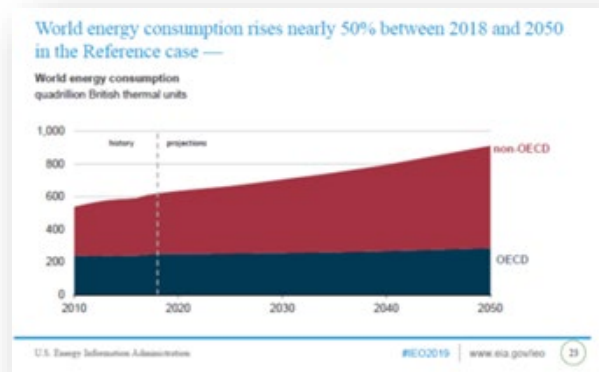
Gas	World Warming C/Century	Canadian Contribution C/Century	Alberta Contribution C/Century
CO <sub>2</sub>	0.85	0.016	0.0052
CH <sub>4</sub>	0.085	0.0016	0.00052
N <sub>2</sub> O	0.064	0.0012	0.0037
<b>Total</b>	<b>1.0</b>	<b>0.019</b>	<b>0.006</b>

six thousandths

-The world warming column is from: C. de Lange, J. Ferguson, W. Happer & W. A. van Wijngaarden, 2022, "Nitrous Oxide & Climate", *Atmos. & Oceanic Phys.* arXiv: 2211.15780.  
 -Canada produced 1.9% of CO<sub>2</sub> according to <https://www.worldometers.info/co2-emissions/>  
 -According to Environment and Natural Resources Dept. of Government of Canada in 2019 Alberta generated about 37% of Canada's carbon dioxide equivalent output.  
 -For simplicity, we assume same emission fraction for CH<sub>4</sub> and N<sub>2</sub>O as for CO<sub>2</sub>

Comments

Any commentary on climate policy measures must start with the observation that emissions reduction in Canada cannot possibly affect global trends in emissions, temperatures or climate because, even if one accepted the claims of climate activists about the science, the growth in global emissions is being driven by economic and population trends in the non-OECD countries. A measure that aims to reduce Canadian GHG emissions by 0.5 % is of no possible significance at the global scale, as the effects would be far too small to measure. Not to put too fine a point on it, incurring billions of dollars in costs to attain this reduction constitutes a futile exercise in virtue signaling.



Canadian farmers' response to this may be better assessed from a political viewpoint rather than from the perspectives of science, engineering or economics. The organizations representing farmers in Canada have judged that it is pointless to challenge the merits of the

**emissions reduction targets, and they are seeking to accommodate the government's agenda in the hope of moderating it and/or reducing its cost.**

I would argue that there is a fundamental flaw in this approach. In my view, farmers' organizations have failed adequately to consider the context of the Trudeau government's demonstrated approach to climate policy. That approach is one based on single-minded adherence to the absolutist goal of reducing and eliminating hydrocarbons-based energy uses, regardless of the costs. **The target of reducing fertilizer-caused emissions by 30% is simply an interim one. The ultimate goal, endlessly repeated, is to eliminate all GHG emissions and therefore to eliminate hydrocarbons-based fertilizers no later than 2050.**

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Accommodation, even if successful, will only buy time and even then, not much of it. Any farmer contemplating the idea of spending millions of dollars to meet the 2030 target would be foolish not to consider what will come next. Thus, voluntary approaches are doomed to fail, and the federal government will impose regulations, first based on the 30% reduction by 2030 and later based on complete elimination of GHG emissions arising from fertilizer application.

The other integral feature of the Trudeau government climate policy is its practice of using taxpayer funds as a way to circumvent any obstacle to the fulfillment of its agenda. When faced with the fact that forcing uneconomic technological change (e.g. mass adoption of electric vehicles) into the marketplace will not work because the costs are too high, the Trudeau government simply provides billions of dollars in subsidies to alter producers' and consumers' behavior. It will not be surprising if Canadian farmers, observing the well-established pattern, simply seek federal subsidies to cover their expenses, shifting the burden to taxpayers. Alternatively, the Trudeau government would probably be glad to offer a "farm buyout" program similar to the one proposed in the Netherlands.

The studies contracted for Fertilizer Canada add a useful analytical basis for assessing the potential impact of the proposed emissions target on farmers and food production, but it leaves out the important dimension of the impacts on consumers. We simply don't know how much the increased costs borne by farmers under any of the likely scenarios will affect food prices for consumers.

## There May Not Be Enough Food For Everyone in 2023



<https://time.com/6246278/david-beasley-global-hunger-interview/>

BY BELINDA LUSCOMBE JANUARY 11, 2023 9:03 AM EST

*David Beasley, the head of the World Food Programme, talked to TIME about why he is worried about 2023.*

**We do know that measures to reduce Canada’s ability to supply food to the rest of the world could hardly come at a worse time.** Canada is the largest producer and exporter of canola in the world. It is also the fourth largest exporter of wheat. According to the World Food Programme (WFP), by mid-2022 345 million people in the world were estimated to be food insecure (defined as “lacking reliable access to a sufficient quantity of affordable, nutritious food”), and more than 900,000 people worldwide were fighting to survive in famine-like conditions.<sup>4</sup> The latter figure is ten times more than five years ago, and is the direct result of conflicts (estimated by WFP to be the cause of 70% if starvation-like conditions) like that in the Ukraine, post-pandemic disruptions to supply chains and droughts in some regions. What a sad irony that policies allegedly intended to solve a future global problem should end exacerbating a genuine current one.

### Conclusion

So far, Canada’s agribusiness community voices a mild support for the federal government’s climate policy objectives. Its response to the proposed “voluntary” emission reduction programs has been comparatively mild and it has offered analyses that support the case for continued but accelerated best practices that might, if accepted by farmers reduce nitrous oxide emissions from fertilizers by 14% by 2030 at moderate cost. This seems unlikely to satisfy the government’s plans. At stake is the competition between three goals, not all of which can be met – sharply reduced GHG emissions, the economic prosperity of Canada’s farms, and the affordability and security of food supply. Given the global food problems, the whole world may be watching how this is resolved.

<sup>4</sup> <https://www.wfp.org/global-hunger-crisis>

### About the Author

Robert Lyman is an economist with 27 years' experience as an analyst, policy advisor and manager in the Canadian federal government, primarily in the areas of energy, transportation, and environmental policy. He was also a diplomat for 10 years. Subsequently he has worked as a private consultant conducting policy research and analysis on energy and transportation issues as a principal for Entrans Policy Research Group. He is a frequent contributor of articles and reports for Friends of Science, a Calgary-based independent organization concerned about climate change-related issues. He resides in Ottawa, Canada. [Full bio.](#)

### About Friends of Science Society

Friends of Science Society is an independent group of earth, atmospheric and solar scientists, engineers, and citizens that is celebrating its 20th year of offering climate science insights. After a thorough review of a broad spectrum of literature on climate change, Friends of Science Society has concluded that the sun is the main driver of climate change, not carbon dioxide (CO<sub>2</sub>).

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