Aug 31, 2022

Submission from Green Party of Canada to Agriculture Canada Consultation: Reducing Emissions Arising from the Application of Fertilizer in Canada's Agricultural Sector

Introduction:

Thank you for the opportunity to comment on the emissions caused by Canadian agriculture. We welcome the consultation on Reducing Emissions Arising from the Application of Fertilizer in Canada's Agricultural Sector as one aspect of addressing the harmful effects of large-scale industrial agriculture on the environment and climate change.

The U.S. Environmental Protection Agency estimates global GHG emissions from agriculture at 24%, making agriculture the second largest emitter after electricity and heat. In Canada, agriculture is estimated to contribute to about 10% of emissions, of which about 17-18% comes from nitrogen (N). This may seem like a modest amount, and drives the (relatively modest) target of about 4 MT CO2 eq reduction. However, these are estimates of direct and indirect emissions (nitrous oxide) from fields and do not take into account emissions from manufacturing of N fertilizers. If we are to ensure a livable planet for our children, grandchildren and future generations, we must systemically change the way that Canada feeds itself.

The Federal government, in setting the targets, underestimates the contribution of nitrogen from agricultural emissions to total emissions because it excludes emissions from the manufacturing of synthetic nitrogen. Nitrogen fertilizer manufacture is very carbon intensive because it uses fossil fuels as both fuel and feedstock for the synthesis. Various studies on GHG emissions estimate about 40% of emissions of synthetic nitrogen fertilizers occur during production and transport, largely in the form of CO2 from burning fossil fuels for manufacturing. This is important because the government discussion paper excludes those industry emissions from the target, but they represent a significant opportunity for reduction.

It is not enough to simply reduce fertilizer emissions; we must completely rethink and restructure Canada's agricultural system if we are to meet the urgency of the climate

crisis, while anticipating, adapting to, and minimizing the impacts of a changing climate regime.

The imperative of the Paris Agreement is to hold global average temperature increase to no more than 1.5 degrees C above pre-industrial levels. We must not assume that our only available steps are incremental nor that the status quo is cast in stone. The time is now to act on creating sustainable solutions. Without deep, transformative and radical reductions in greenhouse gas emissions within our agricultural system, any emissions target the government sets will be irrelevant. Canada must reform the agriculture system to be sustainable without a dependence on synthetic fertilizers - especially those supplied by Russia - and with stronger supports for Canadian farmers to assist them through the transition.

Supporting the Agricultural Community:

Agricultural policies need to change from the fertilizer-heavy model we have today into sustainable, locally sourced agriculture. Without this systemic change, we cannot reach the goal of keeping global temperature no more than 1.5 degrees C above pre-industrial revolution levels. The agriculture community is not prepared for this change. Therefore, the government must support Canadian farmers to increase crop diversity, develop low-input agricultural systems and encourage Canada away from agricultural chemical dependence and move towards sustainability.

We must provide support to Canadian farmers in the form of:

1. Larger investments in support of farmers using organic practices and support them to transition to organic practices. This will help to create a more just and sustainable form of agriculture, less vulnerable to supply chain disruptions due to diseases, climate change and war - like the supply chain disruption we are experiencing, and the global food security crisis we are facing, due to Russia’s invasion of Ukraine. Large petrochemical corporations create financial burdens for non-organic farmers because farmers can only grow their non-organic green revolution crops if they use large amounts of high-cost artificial fertilizers.
2. Work with the provinces to fund the research and development of environmental farm plans to help farmers protect wildlife habitat areas and marginal lands, maintain water quality in streams, lakes and aquifers, and retain and improve soil quality, increase carbon sequestration and decrease water requirements.

3. Invest in science, infrastructure, and business development that supports farming practices which both mitigate climate impacts and improve adaptation.

4. Invest in supporting a shift to farming systems based on ecological principles, which work with nature and not against it.

5. Establish ambitious climate change emission targets for all components of the food system, including nitrogen fertilizer use, livestock production and transportation, and food procurement in federal institutions.

6. Re-establish the Prairie Farm Rehabilitation Administration measures to support adaptation to drought conditions.

7. To support humane and sustainable food systems, promote more plant-based eating and reduced consumption of animal-source foods to levels the ecosystem can sustain, which is consistent with the dietary recommendations of the Canada Food Guide.

8. Transition from Industrial Farming to Agroecological Farming. The National Farmers Union has expressed that with the current agricultural system in place, there is a "dramatic" "disconnect between the cost of farming and the rewards of farming."

The cost of farm inputs has risen faster than other costs; meanwhile the net farm income has not increased to meet these challenges. The purchasing power of the average farm family has decreased by almost five (5) times. Total operating costs of Canadian farms have risen by over 1300% since 1971, and in the same period (1971-2014) the Consumer Price Index has gone up 496%. This is because Transnational energy and agribusiness corporations only seek to maximize their own profits by selling inputs (inflows) and promoting production of monoculture crops (outflows) which are purchased at low prices from farmers to resell to consumers at high prices. This process exploits our farmers, limits their freedoms, is detrimental for the health of the environment and hurts consumers.

Canadian farmers feel alienated by the combined impacts of the Russian sanctions, driving up the costs of nitrogen fertilizers while simultaneously being asked to cut back on nitrogen fertilizer use to address the climate crisis. We urge the federal government to increase consultations with farmers, preferably going to rural communities and listening. Restoring the trust of the agricultural community is critical for climate policy and for democracy.

If Canada was to implement agroecological systems rather than an industrial one, costly inflows and unnecessary outflows would be eliminated. Using agroecology, farmers use a range of techniques that work in tandem with nature, using biocontrols and natural methods to fertilize and control pests, which eliminates the need for inorganic, industrial farming practices - and eliminating the need for synthetic fertilizers.

Agroecology:

We must subscribe to principles of agroecology such as those outlined by the National Farmers Union and La Via Campesina:

> Common Pillars of Agroecology - National Farmers Union
> Based On La Via Campesina's Declaration Of The International Forum On Agroecology (2015)
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> 1. Agroecology is a way of life, not just a set of technologies or production practices, and must be adapted to local contexts.
>
> 2. Production practices should be based on ecological principles and an understanding that life cannot be commodified.
>
> 3. Reduction of externally purchased inputs, and increased farm and community self-sufficiency will allow for greater farmer autonomy and strengthened rural economies.
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> 4. Peoples and communities who feed the world need their collective rights protected in order to secure their access and control over the commons (seeds, land, waters, knowledge, and culture).
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> 5. Knowledge sharing for food producers must be horizontal, peer-to-peer and intergenerational.
>
> 6. Direct, fair distribution chains, transparent relationships, and solidarity between producers and consumers are needed to displace corporate control of global markets and generate self-governance by communities.
>
> 7. Agroecology is political and requires us to transform the structures of power in society.
>
> 8. Youth and women are the principal social bases for the evolution of agroecology. Territorial and social dynamics must allow for leadership and control of land and resources by women and youth.

Break Canada's Dependency on Synthetic Fertilizers:

"(Applying) fertilizer judiciously -adding just enough, at the right place and time, to meet crop demands, but avoiding excess amounts left over" - is not the only, or most efficient, way to reduce agricultural N2O emissions. In fact, it is an excuse at best. If the federal government is truly committed to the Paris Agreement and the 2020 'A Healthy Environment and a Healthy Economy' climate plan, the federal government must take serious action to eliminate the use of synthetic nitrogen fertilizers in farming.

Canada relies on a small selection of 'Green Revolution' crops (wheat, soy, rice, canola, corn, etc.) developed for high yields only within a fertilizer and pesticide-intensive system. The staple crop varieties grown in Canada using nitrogen fertilizers are non-local and require more and more chemical fertilizers in order to sustain yields, and yet, only 20-30% of the synthetic nitrogen fertilizers sprayed on fields are converted into food while the rest runs off into bodies of water and corrupts our environments with pollution. These run-offs are also major contributors to the global crisis of oceanic "dead zones" and deadly algae blooms. Inundating our environment with synthetic fertilizers at the rate we have been since the 'Green Revolution' in the 1960's threatens biodiversity and, over time, reduces crop yields.

Federal government implemented a 35% tariff on all Russian imports, including fertilizer, on March 3rd, 2022. Ontario, Quebec, Atlantic Canada all heavily rely on fertilizer imports with around 85-90 percent, roughly 660,000-680,000 tonnes of nitrogen fertilizer imported from Russia, annually.

Because of our reliance on nitrogen fertilizer, the sanctions aimed against Russia imposed by the Canadian government jeopardizes Canada's capacity to produce the crop yields needed to combat the strain put on global food security by Russia's invasion of Ukraine.

This current agricultural system that we rely on is unsustainable and we must transition to sustainable practices before synthetic fertilizers lose their efficacy and we are left in a state of starvation similar to Cuba's "Special" era. The Federal Government must listen to environmental organizations and climate scientists and implement a Just Transition Act. The Sierra Club highlights alternative fertilizers as an important transitional farming practice.

Agricultural soil management needs to make the transition from chemical

fertilizers to agroecological methods. Healthy soil biota (the system of microorganisms, soil animals and plants living in the soil or pedosphere) can provide ten times better absorption of nutrients, which permits the same or better crop yields with 1/10 the application of soluble nutrients.

Canadian agriculture's chemical dependence requires large amounts of synthetic fertilizers to make up for the free and healthy ecological services that manure, other plants and the soil biota provide in natural systems.

"Today's scientific evidence demonstrates that agroecological methods outperform the use of chemical fertilizers in boosting food production where the hungry live — especially in unfavourable environments." (Former UN Rapporteur on the Right to Food Olivier De Schutter)

If the Federal government truly wants to help Canadian farmers and combat climate change, transformative and immediate action must be taken towards sustainability using agroecological systems.

Cuba - A leading example of sustainable, organic farming practices:

Cuba was forced to transition towards sustainable agriculture without the use of petroleum-heavy pesticides or huge farm machinery. The new de facto organic agricultural system is a great example of how a country can work towards being self-sustaining without a dependence on oil or synthetic fertilizers. In the 1990's, after the Soviet Union fell and the country lost 80% of its' international trade, Cuba was forced to adopt an agroecological system of farming - both the government and its' citizens were forced to innovate in order to sustain themselves. New research institutions were supported and policies and infrastructures were created. There was a focus on producing in a more localized space. Combining traditional knowledge with new scientific research on agroecology to produce diversified crops has allowed Cuba to climb out of an era of starvation that was named: "The Special Period in Peacetime."

Cuba now only facilitates between 30-40% import dependency due to its self-reliance in terms of vegetables, fruit, root crop and egg production. Of course, the system is not perfect, but this organic farming revolution was the only way the country could successfully eradicate hunger.

From 1991, the export and fertilizer-based system collapse, to 2021, Cuba's agriculture became almost entirely self-sustaining. It has laid a map that Canada

and the rest of the world can rely on to transition to sustainable practices. Cuba developed networks to share information between farmers about new methods for composting, worm composting, biological pest-management, and methods were restored for farming with animal traction instead of tractors. The Cuban government encouraged people to grow urban farms in every municipality, created infrastructure for providing resources, marketing and training to these farms as investments for the future; In 2017, the urban agricultural sector produced 1.27 tons of vegetables, fruits and herbs to distribute among hospitals, local residents and institutions – all produced without chemicals.

This is proof that food can be produced at high levels, with few resources and without degrading local environments.

Summary of GreenPeace Canada Recommendations for Reducing Emissions from Nitrogen Fertilizer in Canadian Agriculture:

1. Following these recommendations will break our dependance on synthetic fertilizers in a way that includes Indigenous voices, fosters healthy communities and supports local farmers.
2. Call on the Federal Government to set more ambitious targets to reduce the usage of nitrogen fertilizers. Currently, the Agriculture Canada is looking at the wrong target.
3. Reduce emissions arising from the application of fertilizers by a minimum of 50% below 2020 levels by 2030.
4. Reduce absolute emissions, not just more efficient emissions: to avoid the increase of synthetic fertilizer usage, and the resulting emissions, just in a slightly more efficient way.
5. Caps on the domestic production of artificial fertilizers. Without this, we could be reducing emissions locally, while still contributing globally. Synthetic Nitrogen fertilizers produced in Canada still contribute to N2O emissions in the countries where it is exported.
6. Decolonize agriculture in order to respect Indigenous rights and knowledge. The application of Indigenous knowledge throughout the food system is the solution to all of these interconnected problems caused by colonization and the future of agriculture must be grounded in respect and resourcing for indigenous knowledge holistically across food systems and agriculture.

7. Reductions in factory farming (reduce emissions from factory farms) - ensure that crops produced are consumed by people, not livestock, with feedstocks for animals that are not dependent on synthetic fertilizers. Replace industrial farming systems with agroecological farming that does not use chemicals - rely on local food systems with fully integrated animal and food sources.

    *Currently, factory farms growing feed crops use synthetic nitrogen fertilizers instead of animal manure. This problem is exacerbated by the fact that factory animals and their feed are grown/raised separately, even in separate countries, so the emissions from transportation are very high as well.

8. Larger investments in support of farmers using organic practices and support them to transition to organic practices. This will help to create a more just and sustainable form of agriculture, which is less vulnerable to supply chain disruptions due to diseases, climate change and war - like the supply chain disruption we are experiencing, and the global food security crisis we are facing, due to the war in Ukraine. Large petrochemical corporations create financial burdens for non-organic farmers because farmers can only grow their non-organic green revolution crops if they use large amounts of high-cost artificial fertilizers.

9. Stop any use of food crops as biofuels. Focus on sustainable energy sources instead of using crops for high-emission biofuels that create massive emissions at multiple stages: during transportation, fertilizer production, nitrous oxide release, combustion.

Shane Moffatt, Head of Nature and Food Campaign with Greenpeace Canada said: “Canada’s addiction to fossil fertilizers comes with a huge climate cost. It also leaves our food supply vulnerable to disruptions from natural disasters, disease and war, as the conflict in Ukraine has again shown. While profits are soaring for the multinationals controlling fertilizer production, the costs for farmers and the public also keep rising.

The solution to these interconnected problems is to finally break our dependence on fossil fertilizers. Our recommendations today show how this can be done in a way that supports local farmers, grows healthy communities and advances reconciliation with Indigenous people.”

Conclusion:

According to the United Nations Food and Agriculture Organisation, global use of nitrogen fertilizers is going to increase by over 50% by 2050. If immediate actions to reverse these trends are not taken, the climate pollution from their production will have even more severe repercussions.

As in all areas of climate policy – whether mitigation or adaptation – we are not doing enough and what we are doing is not done with sufficient urgency. Shifting away from intensive agriculture relying on enormous inputs of chemicals and energy, will also assist with adapting to an increasingly drought-prone climate.

We are running out of time, but it is not too late for transformative, radical solutions.

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