

# Written submission to AGFO's study of soil health in Canada

Submitted by the National Farmers Union (NFU)

March 8, 2024

## 1. Introduction

Canada's National Farmers Union (NFU) was created by an Act of Parliament in 1969. We are a voluntary, direct-membership organization made up of Canadian farm families.

## 2. Purpose of this submission

NFU members have closely examined dozens of meeting transcripts and written submissions. We are very impressed with the quality of the evidence that has been provided by your many expert witnesses.

The purpose of this submission is primarily to:

- address aspects that warrant additional discussion;
- point out historical aspects that relate to AGFO's current work;
- support suggestions made by some presenters and express concern about information provided by other witnesses;
- recommend a strategic means of achieving the major goals of these hearings through the establishment of a multi-disciplinary federal agency.

## 3. Historical aspects

*"The nation that destroys its soil, destroys itself."* - Franklin Delano Roosevelt.

Civilizations have risen and fallen, their longevity often limited by the care of their agricultural soils. The fundamental importance of soil is a frequent theme in Classical and various religious texts. Canadians may believe that widespread degradation of our soils cannot happen to us. History warns us otherwise.

Although the maintenance of soil health is a never-ending process, there may be something of a 'dead end' when soils are so severely depleted or eroded that they are beyond effective rehabilitation.

Senator Black's initiative began with an acknowledgement of the work done by Senator Sparrow and his colleagues forty years ago. Their landmark study (which will be referred to as *Sparrow*) began with a number of conclusions followed by twenty specific recommendations. Several of *Sparrow's* decades-old concerns are worth noting today due to their persistence.

Among *Sparrow's* thirteen conclusions, almost half address three themes that recurred during the recent months of testimony:

- soil health is complex, it cannot be dealt with in isolation, and therefore "demands policy and program coordination" (*Sparrow* conclusions #5 & 6);

- good information exists but getting it to the farmer is the key, hence the need for “extension officers and soil management technicians” (*Sparrow* # 10 & 11);
- farmers need financial support in order to underwrite the costs of good soil management (*Sparrow* #12).

These three themes were also prominent in soil conservation studies that were conducted during the intervening forty years (eg. Agriculture Canada’s *Land: A Fragile Resource*, 1986; *Recruiting Soil/Roadmap* by SCCC and CCC, 2022).

The message seems clear: we know *what* needs to be done, and we have always known *why*. We just can’t seem to decide on *how* or *who*. This submission focuses primarily on the latter two elements and offers a practical, proven model for achieving what almost everyone agrees “needs to be done.”

#### **4. External issues**

The scope of AGFO’s enquiry precludes wide-ranging consideration of ‘elephants in the room’ such as climate change, pesticides and biodiversity decline, despite their urgency and their connections to soil health.

This submission includes a concise set of concerns regarding these out-of-scope issues in *Annex A*. We ask that senators please take a few minutes to consider this broader context and acknowledge those ‘externalities’ in their report, if only in terms of their urgency.

#### **5. Structure: the need for an agency**

A necessary step in order to achieve what needs to be done, as Ms. Wensley wisely pointed out (Feb. 29/24), is creating “mechanisms and structures” that will actually do the work. She was once Australia’s Soil Ambassador, a role to highlight the importance of soils.

Ms. Wensley and many other witnesses also stressed the need for broader public engagement and support. They are correct.  
Public support is necessary but it, alone, is not sufficient.

Nor, even, is a surge of support within government. During AGFO’s final hearing Don Lobb described what happened following *Sparrow*: “We had a flurry of activity; a lot of programs that lasted three or four years. And a generation later, much of the impact from that effort has been lost... we’re starting over again.”

A formal body is needed to direct, coordinate and (most importantly) sustain the many tasks, policies and incentives that are required to improve and maintain soil health.

## 6. Need for permanence

Perhaps the greatest urgency at this moment in history is for federal decision-makers to be realistic about the scale and persistence of the problems that loom before us, many of which are expected to afflict food security, both domestically and globally.

Those realities raise the following questions:

- What evidence points to the likelihood of a *reduced* need for action on soil health?
- Is it not both realistic and prudent to proceed on the assumption that there will be a *never-ending* (and probably, ever-increasing) need for monitoring and effective action on soil health?

Several witnesses used the term, “strategic resource” in reference to soils. The hint seems to be that we ought to regard our soils and their productive capacities in a quasi-military context, as vital to our security as is national defence.

The NFU shares that view and asks, “No-one would dream of having a non-permanent or outsourced agency in charge of national defence. Is not a permanent agency to safeguard our soils just as essential to our country’s long-term security?”

Canada is a nation with three-quarters of its farmland in northern latitudes, much of it in regions where moisture is a frequent limitation and where climatic changes are more pronounced. Canada is surely among the nations *most in need* of a permanent agency to integrate data and provide direct support to farmers on soil health and related agricultural fundamentals.

If it is accepted that soil health is an ongoing process and *not* a transitory problem (eg. the practice of summerfallowing, now greatly reduced) that can be solved, then we should proceed on the assumption of permanence.

The need for a stable, multi-disciplinary agency is what the ecological evidence points to, overwhelmingly.

## 7. Integration and coordination

Not only does a never-ending task like soil health require a permanent delivery platform/agency, the complex interactions between soil health and various natural and human systems require the agency to address a wide range of interdisciplinary needs: water management, crop suitability, farm machinery and production methods, soil supplements and agrichemical products, etc.

To be effective, these multi-disciplinary functions need to be integrated. Many witnesses have mentioned silos, both in academia and within governments. ‘Siloed’ structures impede research, hinder the flow of data and other information, and can lead to inappropriate policy development.

Consequently, there seems to be little merit in having an agency dedicated solely to soil health. Instead, the NFU proposes the creation of an agency to coordinate the research, policies and extension services that are needed to achieve soil health and related ecological and societal benefits.

The NFU has outlined the functions and even suggested a name for this coordinating agency: Canadian Farm Resilience Agency (“CFRA”).

That acronym will sound familiar to those who know their Prairie history because it echoes the “PFRA” which served Prairie farmers so well for almost eight decades. Because of PFRA’s effectiveness we should look to it as a partial template upon which to model a new multi-disciplinary agency.

A two-page document outlining the rationale and the functions of our proposed CFRA is attached to this submission.

## **8. Lessons from the past: the PFRA**

As was mentioned by numerous witnesses and as outlined in this document’s *Annex A*, Canadian soils and domestic food production face multiple threats. Global trends are as undeniable as they are threatening. We can hope for the best but we should certainly begin preparing for the widely predicted adverse developments that may afflict soil health and food security.

Thankfully, we do not have to ‘reinvent the wheel’ when it comes to devising an effective federal response to a major environmental crisis. We have a model that saved countless Prairie farms and communities from the ravages of the chronic droughts that afflicted Prairie farmers from 1929 until 1939.

Our Dominion government was slow to respond to farmers’ plight but when it did, it did so in a very effective way. In April 1935 an Act was passed which created the Prairie Farm Rehabilitation Administration (PFRA).

This is no place for a history lesson but a few concise points may be instructive:

- The primary purpose of the PFRA was to halt “soil drifting” but its role quickly expanded because of the scale and complexity of that task.
- The PFRA’s mandate was for five years. It proved to be so beneficial to farmers and to Prairie communities that it continued for another seven decades until its termination in 2013.
- The PFRA was structured in two divisions: water and “cultural practices.”
- The range of professionals who were employed by and interacted within the PFRA was exceptionally broad: hydrologists & water engineers, surveyors, tree nursery personnel, forage specialists and crop scientists (including personnel borrowed from the

Experimental Farms), technicians, implement designers and fabricators, entomologists, soil scientists, “irrigationists,” community pasture managers and, most famously, their front-line field personnel who both guided farmers and learned from them.

Thankfully, the Dominion government had existing capacity within its Experimental Farms and, in conjunction with the three Provinces, was able to mobilize multi-disciplinary teams to assess local situations and advise both farmers and senior administration of what needed to be done.

A four page document outlining the main functions of the PFRA accompanies this submission.

### **9. Long-term environmental crises: then and now**

There are parallels between what North American farmers faced during the Dust Bowl and what today’s farmers may face as our ecological ‘polycrisis’ becomes more severe.

In both Canada and USA, the interrelated plight of both farmers and their precious soil was met by large scale, integrated federal responses during the 1930s.

Given the scale and the expected escalation of climate change and other trends, NFU members believe that the need for front-line federal assistance to farmers will be greater than it was in 1935, not less.

AAFC should plan accordingly. Step One is to *acknowledge the gravity* of what seems to be ahead of us. Step Two is for AAFC to quickly *rebuild* its own capacities. They will be needed.

### **10. Government capacity vs outsourcing**

Over the decades, AAFC’s capacity to serve farmers has been greatly diminished. The loss of capacity may be most pronounced in the areas of crop breeding and extension services, both of which are now dominated by the private sector.

AAFC’s capacity has become so diminished that it now outsources the administration of some of its programs (eg. OFCAF).

As taxpayers have seen with outsourcing by other departments (eg. ArriveCan and Phoenix Pay), deficiencies in our government’s in-house capacities can lead to very poor results (a dysfunctional product, low accountability and very high costs).

Farmers and their soils need practical, sustained supports created by knowledgeable decisions-makers, not an inconsistent patchwork of outsourced services that may do more harm than good. We cannot risk costly, inferior outcomes.

Not only is our soil at risk (to echo *Sparrow's* title), so is our ability to produce sufficient food in the decades ahead. In anticipation of those risks, AAFC needs to expand its expertise in multiple areas.

### **11. Extension services**

The most important single feature of NFU's proposed CFRA is the provision of advice to farmers by knowledgeable agrologists who are *not* employed by companies that sell inputs.

The need for independent agrologists and for improved extension services seems undeniable. It was a major concern in *Sparrow* and has been raised by numerous witnesses. Some have gone even further and stressed the need for alternatives to the prevailing/'conventional' model of intensive agriculture.

Ms. Lapierre, speaking on behalf of Equiterre, said, "It is of vital importance to reinvest in research and advisory services not related to the input sales industry" (Oct. 25/22).

Alternative models are needed not only for soil health; they are also needed to address climate change. Canada has set ambitious emissions targets that will be very difficult to meet. Canadian farmers can and should do their part in reducing emissions and helping our country achieve these targets.

As the NFU delineated in our 2019 discussion paper, high-input agriculture is also high-emitting. Since we need to reduce emissions, we must somehow find ways to reduce external energy-intensive inputs and transmit those methods to farmers who are willing to try them.

Such a transition seems unlikely to occur if farmers receive most of their advice from personnel whose employers have a direct interest in increasing input sales. The need is for external inputs and emissions to decline, not increase.

Another element is the training received by agrologists. P.Ag accreditation programs could benefit from a broader array of instructional courses to encourage lower-input agricultural practices.

NFU's discussion paper (*Tackling*, Nov. 2019, 102 pgs) may be examined here: <https://www.nfu.ca/publications/tackling-the-farm-crisis-and-the-climate-crisis/>

### **12. Data**

Throughout the hearings, no subtopic was raised more frequently than data. Many witnesses argued that we need more data. That argument is correct: there are many aspects of soil health that remain under-studied. We also need baselines across multiple dimensions, followed by regular testing, in order to determine which practices are most effective at improving soil health.

Other presenters argued that we are awash in data. Dr. David Lobb sharply observed, “There is an obsession with collecting data, and no-one knows what to do with it... everyone is generating data, and no-one has a clue what they are going to do with them, except for soil organic matter...” (Nov. 30/23).

Dr. Lobb’s father said during his final testimony, “For the first time in history, we now have the knowledge and the tools to protect and improve soil health....”

Even *Sparrow* noted, “there is a great deal of information available about soil conservation”; the key problem is in transferring that information to the farmer (Conclusion #10).

During her Feb. 29<sup>th</sup> presentation, Ms. Wensley stated that to be truly useful, data need to be “collected and managed in a way that is nationally consistent, comparable and accessible.”

A few witnesses argued that soils data need to be more than just nationally consistent, they need to be consistent (or at least, comparable) with international standards if Canadian farmers hope to benefit from the international trade in carbon credits.

However, the NFU is concerned that entrepreneurs’ desire to have “soil health move into the commodity market” in order to “sell credits created in Canada to global markets” (Nov. 23/23 testimony) may skew the management of soil data to suit the purposes of commercializing soil carbon data and soil health in general.

The NFU has multiple concerns over the current approach to soil-based agricultural offset schemes. Our publication titled, *18 Reasons* (July 2023, 18 pgs) provides a complete explanation and offers alternative recommendations, all of which may be examined here: <https://www.nfu.ca/publications/reasons-why-offsets-wrong-approach/>

Data management regarding soil carbon and other aspects of soil health needs to be conducted for the long-term benefit of the soil. This public good, not commercialization, must be the priority. There are legitimate concerns over the potential for the criteria, collection and uses of soil data to be distorted and misapplied by non-farmers whose primary purpose may be to profit from it.

In addition to being consistent (or at least comparable) with those of other countries, some agency needs to fund and be responsible for both the permanent storage and the operability/accessibility of the collected data.

In service of the public interest, our federal government should assume primary, permanent responsibility for the many aspects surrounding Canadian soil data and the monitoring of farming practices that affect soil health.

An agency such as the proposed CFRA would be well-positioned to assume and integrate the various responsibilities for soils-related data.

### **13. Truth to Power**

A CFRA could, if it were structured so as to have a degree of independence within its ministry, fulfill two additional functions.

In the final paragraph of his Jan. 15/24 submission, Don Lobb wrote:  
*Soil, as an essential and strategic natural resource, should be the responsibility of a government entity other than an agricultural ministry. Within agriculture, “support” for production always trumps soil care and protection....*

The NFU agrees with Mr. Lobb’s observation: AAFC has competing priorities, several of which can subvert soil health.

Senator Black and others have pointed out that soil health is a jurisdictional orphan: unlike water, no-one has assumed primary responsibility for soil health. The proposed CFRA could do just that and if it had a measure of independence, it could advocate strongly for soil health within its ministry.

Returning to our historic model, we should note that the PFRA did just that. Its primary function was to rehabilitate the abused soils that were drifting across the Prairies.

In the process, the PFRA also served a less well-known and perhaps unappreciated function: the necessary job of providing senior officials in Ottawa with information that they did not always wish to receive. James Gray’s book and various media reports hint at annoyances in Ottawa over a few unorthodox PFRA activities out west.

Gray’s history provides anecdotal and other evidence regarding the dedication of PFRA employees. They witnessed and felt the pain of farming families. Addressing their urgent needs was a priority: paperwork and other bureaucratic requirements could be sorted out later.

It was the willingness of PFRA employees to go ‘above and beyond’ their job descriptions which has made their efforts the stuff of legends. However, employee conduct that strays beyond defined roles is not always appreciated by distant superiors.

Nor is criticism of prevailing government policies, yet that is what we find in the PFRA’s last major document, *Prairie Agricultural Landscapes (PAL, 2000, 196 pgs)*:  
<https://publications.gc.ca/collections/Collection/A98-3-4-2000E.pdf>



A central concern expressed in *PAL* is the connection between our federal government's trade targets, the resulting focus on boosting production, financial pressures on farmers (which are linked to the combination of high input costs and commodity prices that are lowered by the increased production that is obtained via those inputs)... all of which put additional pressure on the resource base (topsoil, water quality, habitat loss, etc).

The authors of *PAL* knew what they were observing and were honest enough to say so, albeit in understated language such as this:

*Much of the primary production growth needed to meet the CAMC trade target is expected to come from the Prairies.... This increase in production... will pose numerous challenges to the sustainable management of the resource base.... The implications of these changes... must be evaluated from economical, sociological and environmental perspectives (PAL, p. v).*

There are similar statements throughout *PAL* which advocate for soil protection, the financial welfare of farmers and the needs of Prairie communities. These statements were sometimes accompanied by phrases implying that more consideration ought to be given to all three concerns.

#### **14. “Agri-culture”**

Dr. Cristine Morgan (Feb. 13/24) had some very perceptive things to say about the “culture” in agriculture including the merits of including a sociologist and an economist when developing strategies to encourage local adoption of changes in practice.

Her observation regarding the value of a social scientist's perspective is reminiscent of the insights provided by a SK anthropologist, Katherine Strand. Her PhD thesis is recent and very comprehensive (2021, 467 pgs).

Its content is both historical and current. It includes farmers' observations regarding the ongoing cultural shift toward mega-farms, rented land and the high-tech methods that are used on large Prairie operations, and the resulting effects on local economies, communities and cultures.

There is much in her thesis that relates to soil health and to the decades of first-rate service by our federal government to assist farmers with soil conservation, much of which may be of interest to your committee.

Ms. Strand's thesis may be downloaded here:

<https://escholarship.mcgill.ca/concern/theses/db78tj061>

## 15. Urgency

There was a sense of urgency in *Sparrow*. It has been maintained over the decades by dedicated advocates like Don Lobb and was expressed by multiple witnesses, often in connection with climate change and biodiversity loss.

NFU members take these threats very seriously. Like Mr. Lobb, we worry about what our grandchildren are inheriting. These threats are likely to have profound effects not only on soil health but on every aspect of food security, domestic and global.

The changes that are described in Ms. Strand's thesis appear to be taking us wrong directions: speculation by investors and increasing concentration of farmland ownership, removal of shelterbelts that were established to protect soils, hollowed-out SK communities, etc.

To top it all off, we have increasing concerns about Prairie water supply. There is much to be concerned about.

## 16. Loss of prime foodland

When Sen. McNair asked Don Lobb to comment on urgency, Mr. Lobb raised the long-standing concern over the amount of prime foodland that is lost to urbanization and infrastructure (eg. highways) each year.

This issue has received relatively little attention during the hearings. Two of the most concerning sentences in *Sparrow* are these:

“Over one-third of Canada's Class 1 agricultural land is within two hours drive of Toronto. When climatic factors as well as soil conditions are taken into account, it is more accurate to say that *half of Canada's best farmland* is within that radius.”  
(*Sparrow*, p. 59, emphasis added).

The ongoing loss of Canada's very best farmland is a particularly intractable one because it is tied up with property rights, jurisdictional issues, etc. Preservation of prime foodland may be one area where the “underused tool” (as Ms. Wensley put it) of legislation may soon be necessary.

An area where the Government of Canada should exercise its powers to preserve quality farmland is the ‘frozen’ airport land northeast of Toronto. This large, continuous tract of land is controlled by Transport Canada. It has value not only as a long-term food security asset to the GTA but also as a potential case-study of the effects of uncertain land tenure on soil health, local farm services and other agricultural issues.

As Mr. Lobb pointed out, the inexorable math on a 0.5% annual loss of farmland results in a 30% accumulated loss over 60 years, much of it on the better quality soils. Hence his blunt question, “Is that urgent?”

## 17. Final argument

The central focus of this submission has been on *how* the objective of soil health may be attained and *who* should lead and sustain such efforts.

NFU's suggestion that an entire agency be created to perform these functions is, admittedly, a rather 'big ticket' request to any government, especially one that faces severe fiscal constraints.

The fear, however, is that without the sustained leadership of a coordinated, multi-disciplinary agency like a PFRA/CFRA, we may find ourselves in forty years time reflecting on a repeat of the governmental response that Don Lobb described following *Sparrow*: "a flurry of activity... three or four years... [with the result that we are now] starting over again."

It is hoped that some of the information in Annex B, especially the details that were revealed by the Auditor General's 1997 Report, will encourage Senators to view the CFRA model not as a fiscal and political impossibility but rather as a necessary, enduring, cost-effective investment toward improving soil health and a great deal more.

The NFU is not alone in advocating for such a response. Kier Miller, speaking on behalf of the Soil Conservation Council of Canada, referred to the PFRA and said, "I think we need something like that again" (Oct. 4/22).

Many other witnesses mentioned the need for specific services (eg. soil testing and data management, extension services and technology transfer), the need for coordination among those services and the need for them to endure. All of these are features of the NFU's proposed CFRA.

The Epilog [sic] to Nowland and Halstead's 1986 Report is worth repeating in its entirety:

"The actions necessary for success in land resource research outlined in this report were substantially endorsed by the conference, 'In Search of Soil Conservation Strategies in Canada', held in Saskatoon in April 1986. The discussion emphasized the urgency for immediate action to conserve soil before it is too late, and for *more coordination* in the use of existing resources. Many of the components are already in place, but it became obvious that conservation programs would be infinitely more effective with the designation of a *lead agency at the national* level, working through provincial lead agencies. This approach seems to be *the only way* to achieve the focus and program thrust appropriate to the gravity of land resource problems in Canada" (pg. 50, emphasis added).

## 18. Annex A: “Polycrisis” and ecological tipping points

As many witnesses have alluded, much of the urgency regarding protection of soils extends beyond soil health per se. AGFO has, quite necessarily, restricted the scope of this enquiry: without such restrictions its focus would likely shift to many of our country’s most pervasive environmental and cultural problems.

That said, a few contextual/”big picture” points may be worthy of senators’ consideration.

**a. Polycrisis:** just as *Sparrow* pointed out that soil conservation is complex and cannot be dealt with in isolation, the term, “polycrisis” reminds us that our most worrisome ecological trends are complex, interconnected and cannot be dealt with in isolation, either.

**b. Tipping Points:** the identification by Steffen & Rockstrom, et al. of nine “planetary boundaries” has particular relevance to soils. Five of the nine ecological processes are most directly connected to agriculture: land system change, biodiversity loss, global freshwater use, and the nitrogen and phosphorus cycles.

The latter two have obvious connections to soil health. They are also two of the three boundaries that are viewed by Steffen’s research team as being most out of balance with Earth System. The third transgressed boundary is biodiversity loss.

The link to Steffen’s 2015 study is here:

<https://www.science.org/doi/epdf/10.1126/science.1259855>

The phosphorus cycle is particularly worthy of senators’ attention because of increasing concerns over the long-term supply of this essential crop nutrient.

This issue has barely been mentioned during the hearings.

**c. Climate Change:** It is another of Steffen’s nine planetary boundaries, of course, and senators do not need to be reminded of its potential to subvert food security, both domestic and global.

Agriculture is somewhat unusual insofar as it is a high-emitting sector yet there is considerable potential for our sector to remove CO<sub>2</sub> from the atmosphere. The NFU has done extensive work on climate change, all of which may be examined here:

<https://www.nfu.ca/campaigns/climate-change/>

Returning to the topic of urgency, we should consider this eventual possibility:

The federal government could, following a single catastrophic harvest, find itself dealing with public outrage over unaffordable food prices coupled with unprecedented crop insurance payments to farmers, without which farmers may be unable to even start on next season’s crops.

## **Annex B: Supplementary information re. PFRA**

### **a. Value for money**

In 1997 the Auditor General conducted a review of the PFRA (20 pgs). This document is revealing for multiple reasons including its inclusion of various funding details:

- net expenditures in 1997-98 were expected to be \$64.5 million (article 24.8);
- “These expenditures represent 5.2 percent of the Department’s total budget” (art. 24.8);
- PFRA’s “culture of responsiveness is evidenced by its role during the 1997 flooding of the Red River Valley...” (Exhibit 24.2);
- PFRA’s “familiarity with local conditions... and its network of offices across Western Canada” made it particularly effective in responses that required collaboration with external agencies;
- PFRA’s Client Services provided front-line supports to farmers yet it expended only 5 – 10% of PFRA’s budget.

Bottom line: the Canadian public received exceptional value from its PFRA dollars.

The 1997 audit may be downloaded here (file = 1050 pgs).

[https://publications.gc.ca/collections/collection\\_2015/bvg-oag/FA1-1-1997-eng.pdf](https://publications.gc.ca/collections/collection_2015/bvg-oag/FA1-1-1997-eng.pdf)

To assist the committee’s researchers, the PDF of Section 24 (20 pgs) accompanies this submission.

### **b. Impermanence and the loss of corporate memory**

Few people know more about the inner workings of both agriculture and our federal government than Wayne Easter, a PEI farmer, long-serving MP (now retired) and former minister of several portfolios.

In a discussion about the PFRA, Mr. Easter confirmed the exceptional quality of its decades of service. When asked about how a researcher might obtain information about the inner workings of the PFRA, Mr. Easter expressed concern that its invaluable “corporate memory” may have been lost via retirements and the discarding of documents.

The latter concern is supported by Katherine Strand’s description of an event in 2015 that “stands out as particularly significant” (Strand, p. 383).

That event was the literal dumping of much of the contents of the library at the Swift Current Station:

*The Station established the Library in the late 1930s.... most technicians and scientists were shocked and saddened to hear the news about the Library closure. They viewed the Library as an asset for their work and believed that the archives were important both historically and scientifically (Strand, pgs 383- 385).*

Ms. Strand was encouraged to take any materials that could be of use and was advised, “Well you can take them now or dig them out of the dumpster in a few months’ time.”

Another employee observed that “he could not believe how quickly the Library was dismantled when it took over 70 years to create” (p. 386).

According to media reports and Ms. Strand, Swift Current was just one of 16 research libraries that were closed around that time.

The survival of Swift Current’s herbarium and its historical samples may also be precarious.

### **c. Jurisdictional barriers**

A major barrier to the re-creation of a multi-disciplinary federal agency like the PFRA is the tangle of intergovernmental jurisdictions.

Here, too, there are lessons that may be learned from the PFRA. James Gray’s book describes not only the remarkable achievements of the PFRA’s earliest years, it also examines the negotiations and compromises that it took to bring the three Prairie provinces on board.

## **18. References**

Gray, James, *Men Against the Desert*, 1967, 250 pgs.

Nowland, JL and RL Halstead, *Land: A Fragile Resource*, Canada Committee on Land Resource Services, Research Branch, Agriculture Canada, Publication 5221/B, 1986, 51 pgs.

Soil Conservation Council of Canada (SCCC) and Compost Council of Canada (CCC), *Recruiting Soil to Tackle Climate Change: A Roadmap for Canada*, 2022, 89 pgs.

## **19. Documents that accompany this submission:**

- NFU’s two-page proposal re. CFRA;
- NFU’s four-page summary re. PFRA;
- The 1997 Auditor General’s report on PFRA performance.

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## The Canadian Farm Resilience Agency (CFRA)

A new institution to lead agricultural emission reduction and climate adaptation

We are in a climate emergency. Canada needs to rapidly reduce emissions from all sectors. In agriculture, we need a rapid, coordinated, science-guided, and least-cost transition to financially secure, emission-minimizing farms and food systems.

This will be a challenge. Reducing greenhouse gas (GHG) emissions from agriculture is one of the most complex emissions-reduction tasks facing Canada. Most sectors can focus on one GHG, carbon dioxide, but agricultural emissions are split between three GHGs: carbon dioxide, nitrous oxide, and methane. In other sectors, there is often one main source of emissions (e.g., combustion in engines) but agricultural GHGs emerge via diverse pathways including animal digestion, fertilizer application, fuel use, and manure handling. In other sectors, emission reduction can be straightforward (e.g., replace conventional cars with electric vehicles) but on-farm actions are specific to farm types, scale, place, and time (e.g., solutions for a large Alberta grain farm will be different than those for a small New Brunswick dairy). Finally, in many sectors, changes can be made at just a few firms (e.g., steel companies) but Canada has 200,000 farming operations, each needing to understand their particular emissions and implement solutions. Farmers will not succeed if they face these difficulties alone.

The challenges, large today, will increase with each passing year. Canada has committed to reduce emissions by 40% by 2030 and reach net zero by 2050—just 28 years from now. Farmers and AAFC are at the *beginning* of a *multi-decade* undertaking during which pressure for ever-larger emissions cuts will *intensify*, with each round of reductions more difficult than the one before. **AAFC is at the beginning of decades of intensifying and expanding work and needs to build significant capacity.**

Farmers need extensive, long-term support in:

- understanding and quantifying emissions,
- using fertilizer with maximum efficiency and effectiveness,
- optimizing and reducing use of other inputs,
- optimizing livestock systems,
- managing water and improving soils, and
- accessing agronomic advice independent of agribusiness corporations.

Additional programs and government capacity are needed. **To create this capacity, coordinate these programs, and provide long-term leadership to the sector, a new institution is required. A Canadian Farm Resilience Agency (CFRA) is needed.**

Over...

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Built on the positive legacy of the Prairie Farm Rehabilitation Administration (PFRA) (see box, below) but updated for the 21<sup>st</sup> century, a CFRA would lead and coordinate emissions reduction, resilience building, climate adaptation, data collection, research, and outreach and education. **Just as the PFRA was the right response to the challenges of the 1930s, a CFRA is the right response as we move toward 2030.** A CFRA could be a “super PFRA,” with an expanded mandate and designed to operate across Canada. A CFRA could provide an important presence in the countryside and lead long-term, integrated thinking and research to help chart a path for agriculture as we move toward the near-zero-emission Canada of 2050.

**A CFRA could:**

1. Hire, train, and deploy public servant agrologists (independent of input sellers) to:
  - a. Help farmers complete and implement expanded Environmental Farm Plans, nutrient management plans, and emission reduction plans;
  - b. Advise on nitrogen fertilizer management, including 4R implementation;
  - c. Work with farmers to explore and adopt emission-minimizing approaches that optimize input use or find alternatives to purchased farm inputs; and
  - d. Help farmers connect with government programs and access incentives;
2. Provide comprehensive soil testing to support fertilizer rate optimization and reduction;
3. Facilitate research into input optimization/reduction and emissions reduction, including collaborative and participatory research with farmers;
4. Monitor and help maximize soil health, carbon sequestration, and soil organic matter gains, thus aiding water retention, flood mitigation, and drought resilience;
5. Collect data, assist in GHG measurement, verify model results, “ground truth” research results and emissions data, and document farmers’ adoptions of BMPs;
6. Create and staff a network of demonstration farms to assess, refine, and showcase low-emission production techniques and serve as regional hubs where researchers, farmers, Indigenous communities, and others meet to develop solutions;
7. Work with farmers to protect and restore wetlands, grasslands, and treed areas;
8. Provide tree seedlings to support afforestation, silvopastures, tree rows, and shelterbelts and provide seed for grassland restoration;
9. Manage land set-aside and permanent-cover programs; and
10. Re-establish community pastures and create strategic feed reserves.

**What was the PFRA?**

Canada has faced climatic challenges before. In the 1930s, drought and dust storms swept across parts of Canada. As a response, the Prairie Farm Rehabilitation Administration (PFRA) was established in 1935 to “provide for the rehabilitation of drought and soil drifting areas in the Provinces of Manitoba, Saskatchewan and Alberta.” Over its 77-year history, the PFRA brought together administrators, researchers, engineers, and extension staff to conserve soils, rehabilitate damaged land, spread new farming practices, develop water supplies and flood protection, provide trees for shelterbelts, establish and administer community pastures, and provide widely respected advice on farm resilience practices.

**The National Farmers Union (NFU) engages in long-term thinking and policy development to maximize the social, economic, and environmental sustainability of Canadian farms.**

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