



Regenerative and Sustainable Agriculture for Climate Change Adaptation and Carbon Sequestration: Rebuilding Soil Health and Increasing Crop Productivity of Canadian Potato Production Systems



LEAD RESEARCHER

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Regenerative and sustainable agricultural practices (RSAPs) are being studied in several locations across Canada to mitigate soil degradation and loss of biodiversity caused by intensive farming practices and ensure potato farms' long-term viability.

This year, the four experimental hubs consisting of seven fully replicated field sites with a block design were established and maintained. Fifteen flagship farms across Canada also tested different RSAPs similar to the hubs. At the 15 flagship farms, growers are evaluating the challenges and benefits of using RSAPs. The trials at the experimental hubs and flagship farms were successfully established and maintained over the growing season of 2024.

There were several meetings organized to discuss the experimental design, soil sampling protocol and methods of analysis among researchers and industry partners. Other meetings discussed how to perform a global analysis to evaluate the effectiveness of short two-year systems compared to longer term three or four-year systems, and low versus high plant diversity using samples collected in the trials. Plants, soil and gas samples were collected at the four experimental hubs and 15 flagship farms over the summer and fall.

Over the winter, soil and plant analyses will be done on collected samples with the data analyzed.

KEY TAKEAWAYS:

- RSAPs being studied include cover cropping, soil amendments, and livestock grazing.
- The four experimental hubs are located at the McCain Farm of the Future in Florenceville, N.B.; AAFC Harrington Station in P.E.I.; Dolbec Farm in Saint-Ubalde, Que.; Progest in Sainte-Croix, Que.; and Guelph University at the Elora and Simcoe Research Stations in Ontario.



TOP: Claudia Goyer digging potatoes in a field at the McCain Farm of the Future in Florenceville, N.B. in August 2024. Photo: Claudia Goyer, AAFC

ABOVE: A field of potatoes that is almost ready to harvest at the McCain Farm of the Future in Florenceville, N.B. in August 2024.

Photo: Sean Whiney, AAFC

- The 15 flagship farms are located at two farms in P.E.I. led by Ryan Barrett with the P.E.I. Potato Board, one farm in New Brunswick led by McCain Foods, six farms in Quebec and one farm in Ontario led by Andre Gagnon with Fancy Pak, four farms in Manitoba led by Amy Unger with MHPEC and McCain Foods, and one farm in Alberta led by McCain Foods.
- The growing season was good with less rainfall happening in Eastern Canada in 2024 compared to 2023. It was easier to plant crops in the spring as well as reduced scheduling issues between farm operations and scientific activity over the growing season.

