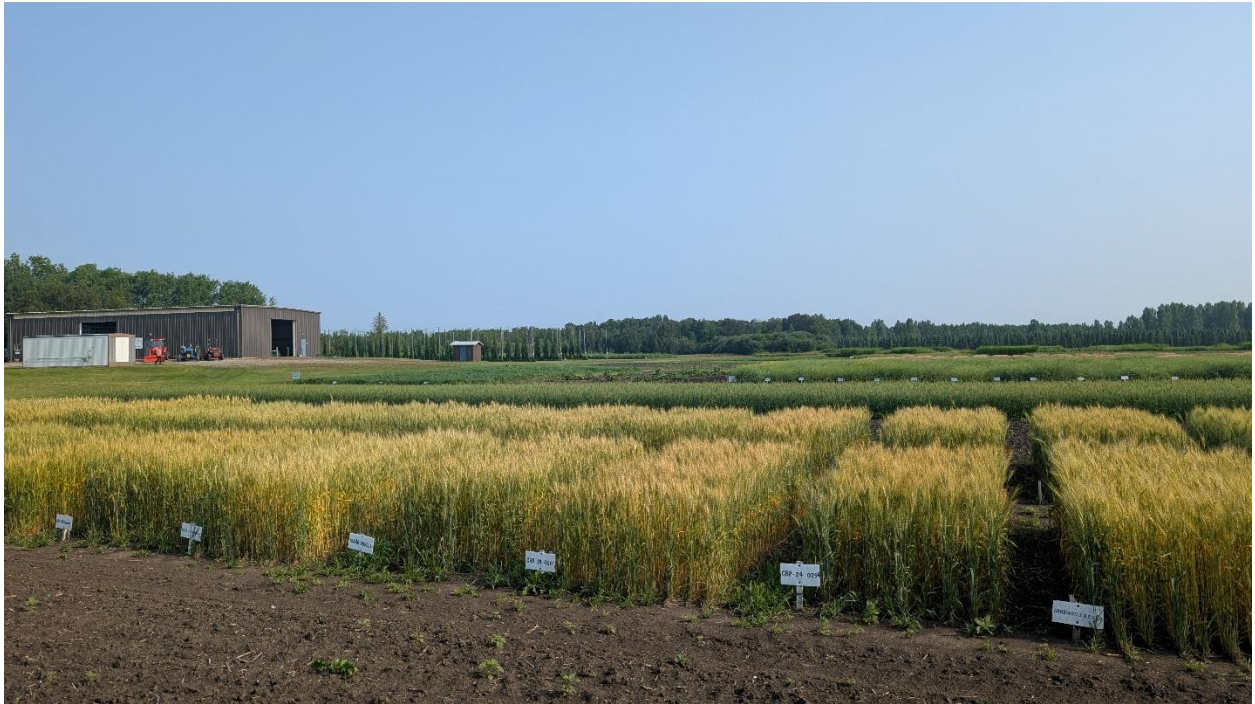


Research in the South – Impact in the North

\$7 million put toward agricultural studies at the University of Guelph

Logan Ettles, Northern Ontario Farm Innovation Alliance



Ontario Crop Research Centre – Emo. Ontario's northernmost agricultural research station (Logan Ettles, 2026).

As planting began this spring the provincial government announced its' investment of nearly \$7 million into the future of agriculture through the Ontario Agri-Food Innovation Alliance. This investment provided funding for more than 30 research projects at the University of Guelph for the 2026/27 academic year, which will be put to good use by Canada's leader in agricultural science.

Research plays an important role in maintaining and expanding the viability of agriculture in Northern Ontario. While not all projects are conducted in Northern Ontario, many of the upcoming [research projects](#) at the University of Guelph show great potential for advancing agriculture in Northern Ontario. We've highlighted the "ones to watch" below.

Projects

Soil Health

Laying the groundwork for success is important in any industry; but in agriculture, working the ground is crucial. A healthy crop starts with healthy soil, which is the focus of two promising research endeavors.



Combine harvesting grain. Side effects may include soil compaction (Brielmann Ag, Rainy River, Harvest 2025).

Dr. Richard Heck’s research on **“Quantifying the Compactability of Agricultural Soils in Ontario”** translates well to northern farming. Compaction in agriculture limits gas and water movement through the soil while hindering root growth. This research will outline differences in physical soil health across Ontario and establish how historic management of soils influences compactability. The results of this study will help inform best management practices for farmers managing heavy machinery traffic on-field or working in wet conditions; both common occurrences for producers in a shortened window for production that leads to increased compaction. This is especially true for farmers in the fertile Northern Claybelt, where field flooding is endemic and tile drainage is imperative for profitable cropping.

The work of Dr. Ben DeVries nicely complements Heck's compactability research. DeVries' recently announced study focuses on **precisely mapping agricultural wetlands and flooding using satellite imagery**. Although this research is focused on Southern Ontario farmland, the methods and results may have important implications for province-wide farming. The identification of agricultural wetlands can improve soil health and local biodiversity while helping farmers manage their field drainage. Furthermore, the use of satellites to analyze these flooding trends makes the methods quite scalable as an investigatory tool. With the Ontario government's recent undertaking to open up more farmland in the North (see [Bill 109](#)), this research could provide helpful insight for clearing and selling new agricultural land in an environmentally informed manner.

Food Production

With a growing world population, the agriculture industry must continually adapt. New technologies are making farming more efficient, sustainable, and productive, all while fairly compensating farmers more for their essential work. Here are some of the research projects that are enhancing Ontario's food production capability.

Revitalizing Indigenous food systems is vital for advancing food sovereignty and strengthening cultural continuity. Dr. Joanna Bernhardt is working on **"Strengthening Early Life Survival of Lake Whitefish for Indigenous Food Systems Under Warming and Nutritional Stress."** Currently, the Saugeen Ojibway Nation is developing hatchery programs that will support Ontario's aquaculture production and wild fish conservation efforts. This research will ensure that Whitefish larvae survive and thrive in an aquaculture environment. The Saugeen Anishnaabek have lived for millennia on the Saugeen (Bruce) Peninsula, where Whitefish from the Great Lakes remain an important staple in their diet, culture, and economy. Whitefish are abundant across much of Ontario, holding deep significance for many northern communities, including Whitefish River First Nation (near Manitoulin) and Atikameksheng Anishnawbek (near Sudbury). This research will help support Indigenous food systems and species conservation across the province while providing insight into the conservation of other native and historically important fish species.



Lake Whitefish (@Piter1977 via Canva.com).

Dairy Cattle

As Canada's number one veterinary school, it is no surprise that the University of Guelph is continuing to support dairy cattle research in this academic cycle. The livestock sector contributes largely to the North's farm cash receipts, mainly due to the ability to utilize marginal lands for livestock production, saving more productive land for higher-value cash crops. These marginal lands are perfect for grazing pastures and growing hardy forage. Dairy remains the top commodity produced in Northern Ontario and this research will make dairy farms more efficient.



Robotic feeding in a Powassan dairy barn (Emily Seed).

Dr. Trevor DeVries is researching **optimal feeding patterns for robot milked cows**. His team is testing how effectively automated milking systems can deliver individualized feeding plans to cattle. This research could improve dairy farm profitability while reducing greenhouse gas emissions by automatically providing perfectly balanced meals.

To enhance processing, Dr. Alice Marciniak is testing **new processing methods to utilize early lactation milk**. Produced right after calving, this milk is rich in proteins, fats, and prebiotics, but is currently underutilized because it is difficult to process with conventional equipment. Dr. Alice Marciniak's research is testing new methods of separating these macronutrients to reduce product waste.

In addition to research focusing on dairy production enhancements, funding has been provided to **study cow wellbeing**. Dr. Stephen LeBlanc is leading a study to monitor inflammation in dairy cows around calving. All cows experience this type of inflammation, however sometimes a cow will have an extreme response making them more susceptible to disease. This study is focusing specifically on dry-off period when a cow stops lactating.

The goal is to see if managing inflammation during this transition can prevent more severe health issues from materializing down the line.

Grain Farming

Grain farmers will be happy to hear about Dr. Jennifer Geddes-McAlister's research on **“Protecting Wheat from Newly Emerging 3ANX Chemotypes of Fusarium Head Blight”** (FHB). FHB is a fungal infection that impacts crop yields and can contaminate grain with dangerous mycotoxins. Although FHB is not prevalent in the northern Ontario, crop diseases have a history of adapting, evolving, and spreading; especially as the climate changes. This research focuses on understanding a new mycotoxin that wheat does not have natural defence mechanisms against. This better understanding will help farmers protect their wheat crop during its early stages of growth.



Corn at the Ontario Crop Research Centre in New Liskeard (Annie Gauthier, 2026).

Corn for grain is a relatively new cash crop in northern rotations. While traditionally utilized as livestock forage in the north, it is now being grown for its diverse market value, with uses ranging from syrups to fuel. During processing, corn is steeped in sulphuric acid to prevent microbial growth that would rot the product. The research of Dr. Kevin Keener searches for a safer **alternative to sulfuric acid by steeping corn in plasma-activated water**. This

technology uses non-thermal plasma to give water the same anti-microbial properties required for steeping corn, without any harsh acidic byproduct. Plasma-activated water is an exciting technology for agriculture that may lead to a range of anti-microbial applications. For example, non-thermal plasma has the potential to be used as a seed treatment that may improve clubroot resistance.

As corn establishes itself as a high-value cash crop in the North, farmers must implement precise best management practices to optimize success. Another grain-focused project is Dr. Laura Van Eerd's research on **soybean-corn crop rotations**. In this rotation, rye is the only reliable cover crop. However, it has the unfortunate side effect of inhibiting corn growth. This research evaluates the impact of rye on corn yields with the goal of developing best management practices to optimize fertilizer use.

Infrastructure

One of the biggest hurdles to successful agriculture in the North is the lack of infrastructure to support the trade. Isolation from the agricultural hubs in the south means long and expensive freights to processing plants. Northern Ontario simply does not have the population to support large processing plants locally. Furthermore, because of the shorter growing season less focus is given to community upgrades that support farming such as improved drainage, erosion management, and roads that can support larger machinery. These challenges have northern farmers working on extra thin margins, and the solution to these problems will take careful planning.

Dr. Sylvanus Kwaku Afesorgbor is conducting **research to minimize the trade-barriers between provinces**. This analysis will facilitate Canada's food sovereignty while reducing the expense and waste resulting from excess transportation. This research is aimed at streamlining recent trade agreements between Ontario, Manitoba, Nova Scotia, and New Brunswick and informing the implementation of Ontario's new legislation: *Protecting Ontario through Free Trade Within Canada Act*. The results of this research are promising for Northern Ontario, as they may lead to a solution for the problem of high transportation costs.



Potato storage (@artstreet via Canva.com).

Another project that may mitigate transportation problems is Dr. Loong-Tak Lim's research on storing potatoes. When potatoes are exposed to light they begin to sprout new plants. Although this is good for the potato lifecycle, it creates toxic glycoalkaloids that should not be sold at the grocery store. **This research is testing a new, edible coating that may be used to extend the shelf life of potatoes** in the grocery store or during long transportation.

Finally, Dr. Leath Deacon is accounting for all the previously described farming challenges and more to **better understand the needs of rural communities**. The researchers plan to conduct a large-scale survey over many years to ensure that rural voices are heard. The data from this survey will be analyzed and paired with administrative, geospatial, environmental, agricultural, and economic data to create a holistic understanding of rural Ontario's infrastructure needs. This research will provide the evidence needed to make informed policy decisions that help rural communities sustain themselves and manage their growth.

Take Home

Agriculture in the North is a continuously growing industry, contributing more than \$500 million to Ontario's GDP while supplying 30 000 jobs in the province. Furthermore, the North has over one million acres of potential unused farmland, which means that northern agriculture has plenty of room to grow. Continued support for agricultural research, especially research that benefits agriculture in the North, helps to ensure a long, viable future for sustainable agriculture in Northern Ontario.

There are many more exciting research projects that have been funded by the Ontario Agri-Food Innovation Alliance, including ongoing projects from previous years. Check them out on the University of Guelph's website here:

<https://www.uoguelph.ca/alliance/projects/2026-27-projects>

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