



# AGTIV Mycorrhizal Inoculant Evaluation on Potatoes



## Purpose

This project is testing the effects of AGTIV mycorrhizal inoculant on potato crops. The inoculant is intended to improve plant growth, health, and increase overall yield and quality of the crop. With the added fungi in the soil, the mycorrhizal inoculant is also supposed to improve soil health and structure. This trial is testing the effectiveness of the inoculant on improving crop production and soil health, with the goal of determining whether the inoculant could improve the quality and yields of crops grown in northern Ontario, therefore benefiting farmers with increased profits from these crops. Long-term benefits could also be provided from improved soil quality, resulting in higher-quality crops in the future.

## Background

The Northeastern Ontario Soil and Crop Improvement Association, in partnership with the West Nipissing/East Sudbury and West Sudbury SCIA's and the Northern Ontario Farm Innovation Alliance, conducted a three-year study to test the effects of Premier Tech's AGTIV mycorrhizal inoculant on potato, soybeans, and oats between 2018 and 2020. This current project builds on the findings of that project and will run from 2021 to 2023.

Mycorrhizae are a type of fungi that are found naturally in soils and form mutually beneficial networks with the roots of plants. These networks allow plant roots to reach and uptake minerals, nutrients, and water. As the fungal network expands, the plant has access to minerals, nutrients and water that, through its roots alone, it would not be able to reach. This relationship between plant and fungi stimulates root development and overall plant growth, resulting in healthier and more vigorous plants and therefore greater production and disease resistance. In addition to plant health, mycorrhizae improve soil structure, increase organic matter, and play a positive role in soil aggregation. Soil disturbances, especially frequent deep tilling, break up these fungal networks and reduce their positive effects.

Many trials studying the use of mycorrhizal inoculants on different crops have shown improvements in plant health and yields. Therefore, there is a strong possibility that this product would be a viable option for northern Ontario potato farmers to help improve crop production.

Premier Tech offers the AGTIV line of biologically active treatments, which, through an inoculant applied at the time of planting, is intended to repopulate and re-establish mycorrhizal networks. The AGTIV line includes treatments optimized for different crops.

This product line is of interest to farmers in the north, and as such, was selected as the

mycorrhizal inoculant product to be used over the course of this project.

## Methods

Premier Tech's AGTIV Potato Liquid mycorrhizal inoculant will be tested annually on potato crops in the Sudbury region. In 2021, the inoculant was tested on two fields at one location.

Within each field strips of inoculated and non-inoculated potatoes were alternated. The size and spacing of these strips were determined by each farmer's equipment, but each plot had at least four strips of both inoculated and non-inoculated crops. In addition to the mycorrhizal inoculant, the crops also received standard fertilizer and pesticide treatments.

During the growth stage of the trials, tissue samples for both inoculated and non-inoculated crops were gathered and analyzed for comparison. Upon harvest, differences in yields between inoculated and non-inoculated strips were recorded to gauge the effect of the inoculant on crop productivity. All soil and tissue sample analyses were conducted by A&L Canada Laboratories in London, Ontario

Figure 1: Trial plot set-up. At least four reps of inoculated and non-inoculated strips were planted at each plot site over a 5-acre area.







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