

Custom Application an Important Part of ONFARM Research

Custom operators are playing a key role in supporting soil health and water quality research trials in a new program testing in-field practices. The On-Farm Applied Research and Monitoring (ONFARM) program is a four-year, applied research initiative delivered by OSCIA on behalf of OMAFRA to support soil health and water quality research across farms in Ontario. This program is funded by the Canadian Agricultural Partnership, a five-year federal-provincial-territorial initiative. The ONFARM program conducts extensive soil health and water quality analysis on 33 farm sites across southern Ontario. This includes 25 soil health trial sites where best management practices (BMPs) are being compared side-by-side and eight edge-of-field (EOF) monitoring sites where soil health and water quality monitoring and modeling is being done in streams adjacent to the fields. ONFARM's network of sites and the partnerships with excellent cooperators will help to build a stronger understanding of BMPs and their effects on soil health and water quality on Ontario agriculture.

ONFARM features a wide range of BMPs and farm types, from cover crops to organic amendments and from livestock to cash crop operations. Several of the soil health BMP trials across the province include custom application of organic amendments (manure, compost and biosolids). Other custom work being done at ONFARM trials includes interseeding of cover crops and spraying. Bruce Hudson, owner of Panmure Farms near Ottawa, Ontario is a custom applicator himself. He knows the value of having a custom applicator's help, stating "It is extremely beneficial to have reliable and timely application." Bruce's farm includes a 200 sow farrow-to-finish operation and nearly 1,000 acres of cash crops and vegetables. He grows corn, IP and crush soybeans, cereals, sweet corn, and other vegetables.

In the summer of 2020, after his harvest of spring wheat, Bruce began his ONFARM BMP trial. The four treatments were performed in two replications:

- Untreated check
- Liquid hog manure at 2,700 gallons/ac
- Cover crop mix (peas, radish & oats) at 38 pounds/ac
- Liquid hog manure at 2,700 gallons/ac + cover crop mix (peas, radish & oats) at 38 pounds/ac

The soil health BMP trial management schedule for Bruce's farm is:

2020: Spring wheat under minimum tillage followed by manure and/or a cover crop

2021: Corn under minimum tillage with a late interseeded cover crop

2022: Soybeans under minimum tillage followed by a cover crop



Though Bruce is a custom herbicide and nutrient applicator, he relies on a custom applicator to spread his manure. He hired a custom applicator to do just that on his ONFARM trial site in 2020. Understanding the value that custom applicators provide, Bruce explains, "Good trial results require coordination and cooperation with your custom applicator."

A good distance from eastern Ontario, Brett Schuyler, owner of Schuyler Farms near Simcoe, has his own ONFARM BMP trial to determine how cover crops can improve soil health in a

corn-soybean rotation. Brett, with the help of his family and employees, grows field crops, apples and sour cherries and also some lamb. To interseed a cover crop mix into corn, Brett hired custom applicator Ron Haverkamp.

Ron is a custom applicator with a 500 acre operation in Norfolk County, with land in Haldimand County as well. Regarding Brett's ONFARM trial, Ron explains "In 2020, we ventured into interseeding covers in standing corn. We plant around the V4 stage using an APV air seeder mounted on a tined weeder. We have planted using different rates ranging from 12-18 pounds/ac of a mix consisting of radish, clovers, ryegrass, and brassica."

Ron says, "Success with cover crops require a long-term mind set. We are definitely seeing the benefits in terms of yield, reduced inputs and soil fertility. Start simple and build from there. It will be worth it in time."



Brett attributes the success of getting his ONFARM trial off the ground to Ron. "We do not have interseeding equipment, so it was critical that we bring in a custom operator to get this done." Brett says. "Ron was able to provide the service and made the whole process simple. If Ron was not available to interseed the corn I doubt we would have been able to do the trial."

Brett is planning to use the same cover crop mix in 2021 as he did in 2020. In 2020, the cover crop was applied at a rate of 12.5 pounds/ac:

- 60% Italian Ryegrass
- 28% Crimson clover
- 7% Berseem clover
- 3% Nitro Radish
- 2% Vivant Hybrid Brassica

In 2021, Brett is going to do a second treatment using cereal rye drilled in after corn harvest.

The soil health BMP trial management schedule for Brett's farm is:

2020: Corn under minimum tillage with an interseeded cover crop

2021: Corn under minimum tillage with an interseeded and post-harvest cover crop

2022: Soybeans under minimum tillage followed by a cover crop

Guelph-based consultancy, The Soil Resource Group (SRG) is managing the research trials and soil sampling activities for all 25 soil health BMP trial sites and 8 EOF monitoring sites. Don King, Principal Consultant at SRG states, "having a custom operator come in that has the equipment, knowledge and experience to apply the right amount of amendment or interseed a cover crop in the ONFARM trial gives the farmer the chance to try it and see how it may work in their system and gives them the confidence to more widely adopt it. It also takes the worry out of a lot of things."



Work is underway at all cooperator sites to verify and validate soil health indicators. Data analysis from three field seasons of trials will determine multi-year crop and economic effects of selected BMPs. Cooperators and their local soil and crop improvement associations are imperative in sharing information locally, regionally and beyond to increase the interest in, and adoption of BMPs to enhance soil health and water quality in an economical way. Furthermore, ONFARM will lay the groundwork for a long-term, viable network of demonstration farms to serve as outreach and education sites for Ontario's agricultural industry.

OSCIA helps to share information about the great work its research partners and cooperators are doing via videos, factsheets, articles, and more. Check out the ONFARM website for an interactive map of all project sites, reports, photos, and more!

<https://www.osciaresearch.org/onfarm-applied-research/>

Questions about ONFARM? Please contact onfarm@ontariosoilcrop.org. Follow OSCIA on Twitter (@OntarioSoilCrop) for updates on #ONFARM and all OSCIA programs.