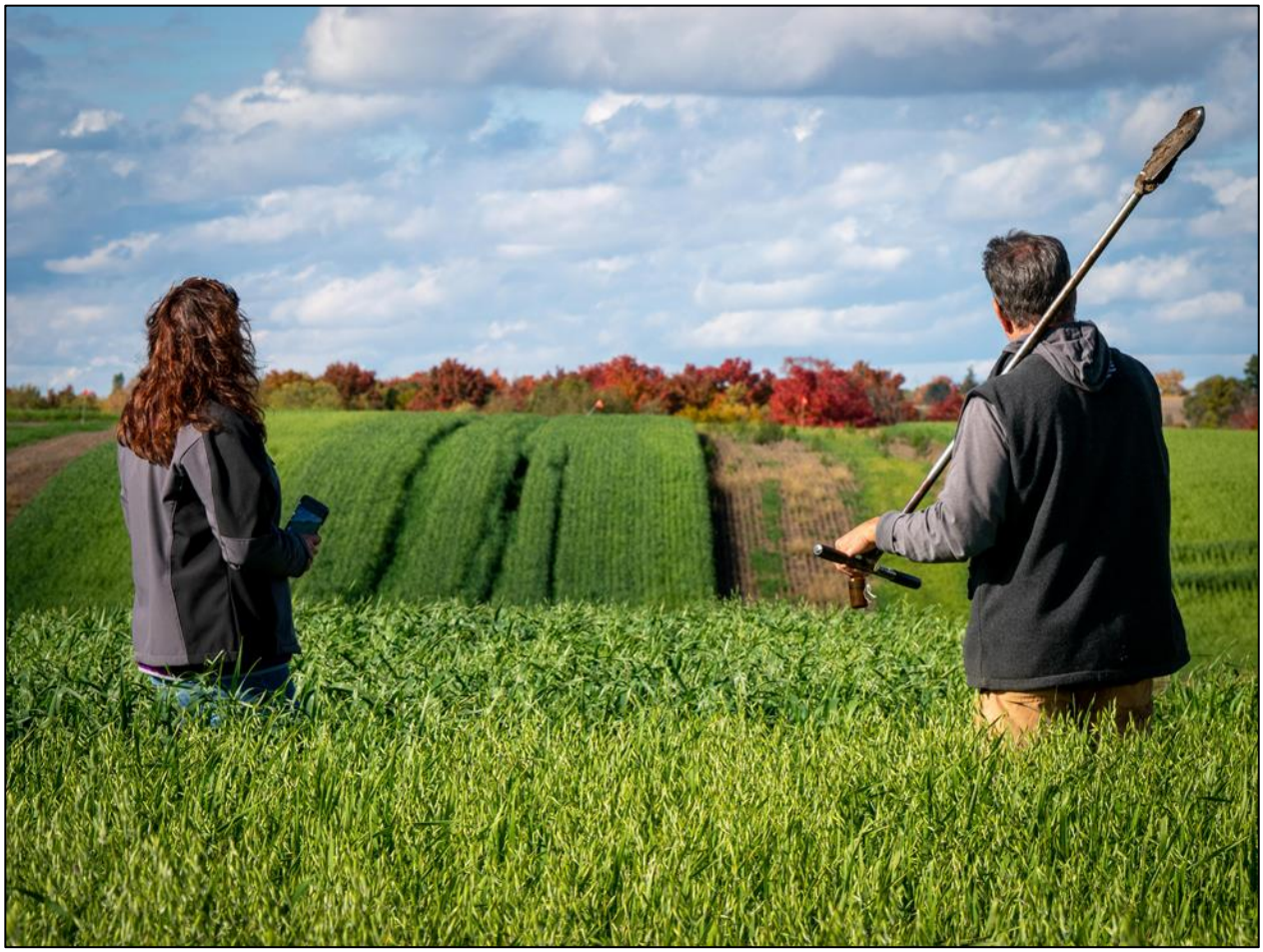

2020 Technical Report

Date: March 31, 2021

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Acknowledgements

The On-Farm Applied Research and Monitoring (ONFARM) program is a four-year, applied research initiative delivered by the Ontario Soil and Crop Improvement Association (OSCIA) on behalf of the Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA) to support soil health and water quality research across farms in Ontario. This program is funded by the Canadian Agricultural Partnership, a federal-provincial-territorial initiative. OSCIA would like to acknowledge the support of several organizations and members of the agricultural community for their contributions to the program:

- Soil health data is collected, compiled, and analyzed by the Soil Resource Group located in Guelph Ontario. Soil Resource Group (SRG) plays an instrumental role in organizing soil health trials and working directly with ONFARM cooperators.
- Five partnering Conservation Authorities (CAs) are implementing the Priority Subwatershed Project (PSP) component of ONFARM. They are currently working in the six priority subwatersheds to collect key water quality, water quantity, and land-use data to achieve the program objectives. CAs are also providing technical advice and working directly with cooperating sites to carry out ONFARM outreach activities. Partnering CAs include: Ausable Bayfield Conservation Authority (ABCA), Essex Region Conservation Authority (ERCA), Maitland Valley Conservation Authority (MVCA), Lower Thames Valley Conservation Authority (LTVCA), and Upper Thames River Conservation Authority (UTRCA).
- Representatives from Agriculture and Agri-Food Canada (AAFC) and Environment and Climate Change Canada (ECCC) sit on the ONFARM Technical Working Group and provide valuable input on several technical aspects of the program such as data management and collection.
- OSCIA would like to highlight the critical role that the participating ONFARM Cooperators play in accommodating the research program's objectives on their respective farms. ONFARM is an applied research program that is being implemented on working farms across the province. ONFARM would not be possible without the dedication from cooperating farmers and the agricultural community.

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1.0 Introduction

1.1 Technical Report Overview

2020 marked the first full program year of the On-Farm Applied Research and Monitoring (ONFARM) Program and the first full year of data collection for the project. The objective of the 2020 Technical Report is to summarize the ONFARM research sites established in 2019 and 2020, describe the data collected, highlight technical achievements, and present preliminary results. Technical reports for ONFARM will be created and updated annually as additional results and analyses become available.

1.2 Project Description

ONFARM is a four-year, Canadian Agricultural Partnership funded initiative that was announced on December 5, 2019 by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). ONFARM is delivered by the Ontario Soil and Crop Improvement Association (OSCIA) with the support from various organizations including OMAFRA, Agriculture and Agri-Food Canada (AAFC), several Conservation Authorities (CAs) and The Soil Resource Group (SRG). ONFARM is also supported by a network of cooperating farmers who are essential to the success of the program.

ONFARM builds on work completed under the Great Lakes Agricultural Stewardship Initiative's (GLASI) Priority Subwatershed Project (PSP), supports Ontario's Soil Health and Conservation Strategy, and helps the industry meet commitments under the Great Lakes Water Quality Agreement. The three pillars of ONFARM that will benefit Ontario's agricultural industry are:

1. Continuation of the monitoring and modelling established in the Priority Subwatersheds (PSP),
2. Establishment of on-farm paired trials in-field to identify soil health indicators and test the effectiveness of best management practices in cooperation with farmers,
3. Enhanced engagement opportunities with stakeholders and farmers to foster a network of demonstration farms.

1.3 Organizational Structure and Research Sites

ONFARM can be divided into three separate components based on the three pillars: The Soil Health Component, The Water Quality Component, and the Outreach and Engagement Component. All components are administered by OSCIA; however, the Soil Health and Water Quality components are also guided by the ONFARM Technical Working Group. Established in late 2019, the Technical Working Group acts as a technical/scientific advisory and coordination group to provide guidance, ensure consistent methodologies and procedures for sampling, monitoring, site and cooperator selection for

soil health paired Best Management Practice (BMP) trials, data collection and reporting across the program. The Technical Working Group includes the following members:

- Ontario Soil and Crop Improvement Association (OSCIA)
- Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA)
- The Soil Resource Group (SRG)
- Ausable Bayfield Conservation Authority (ABCA)
- Essex Region Conservation Authority (ERCA)
- Maitland Valley Conservation Authority (MVCA)
- Lower Thames Valley Conservation Authority (LTVCA)
- Upper Thames Valley Conservation Authority (UTRCA)
- Environment and Climate Change Canada (ECCC)
- Agriculture and Agri-Food Canada (AAFC)

The ONFARM program is being implemented on working farms across the province in cooperation with several partnering organizations and cooperating farmers. In total 33 ONFARM research sites were established in 2019 and 2020. Each research site is owned and operated by an agricultural producer who has agreed to work with researchers to manage the field plots where trials are conducted. Twenty-five sites were chosen to study soil health paired BMP trials. The remaining eight sites include Edge of Field (EOF) water quality monitoring stations that are integral to the PSP component. The location of each ONFARM Cooperator site is shown in Figure 1.

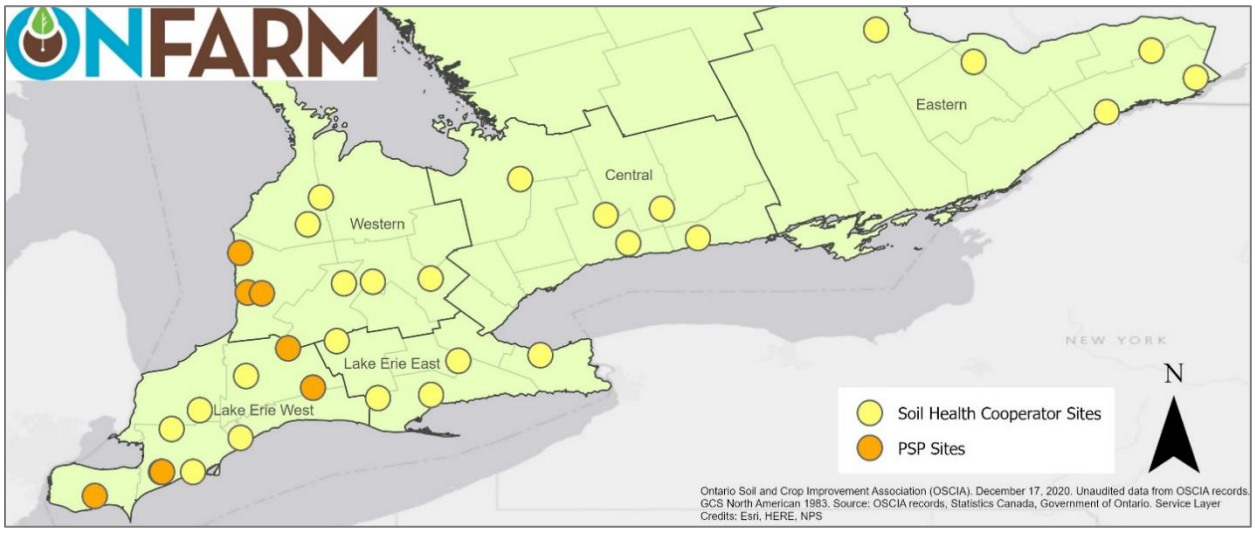

Figure 1. Map of ONFARM Cooperator sites by type. Priority subwatershed edge of field (EOF) sites are identified in orange and soil health research sites are identified in yellow.

In addition to their roles on the Technical Work Group, SRG and the CAs play an instrumental role in the collection of ONFARM soil and water data. SRG is responsible for carrying out activities in the soil health component and partnering CAs are responsible for carrying out the water quality component in their respective PSP watersheds. The subsequent sections will detail the data collection and technical achievements made by ONFARM and its data collection partners in 2020.

2.0 Soil Health Paired BMP Trial Sites

2.1 Overview

Section 2.0 highlights the design of the soil health paired BMP component of the ONFARM program. It provides an overview of the cooperating sites, the types of data being collected, and provides some preliminary results from the 2020 program year for this component being undertaken by SRG. A significant achievement for this component in 2020 was that all field work was conducted, and data retrieved despite the challenges presented by the global Covid-19 pandemic. For more information about each site please visit the interactive map found on the ONFARM website: https://www.osciaresearch.org/onfarm-applied-research/interactive-map/

2.2 Paired BMP Trial Sites

Twenty-five farm sites were selected to study soil health in five regions of the province: Lake Erie West, Lake Erie East, Western, Central, and Eastern Ontario. The sites were selected by SRG in consultation with the Technical Working Group and the OMAFRA Soils Team. These twenty-five sites are focused on paired soil health BMP trials to identify soil health indicators and test the effectiveness of BMPs across a variety of soil types, in collaboration with farmers from a range of sectors including livestock and field crops. A breakdown of the twenty-five paired BMP sites by region and type of operation is shown in Figure 2.

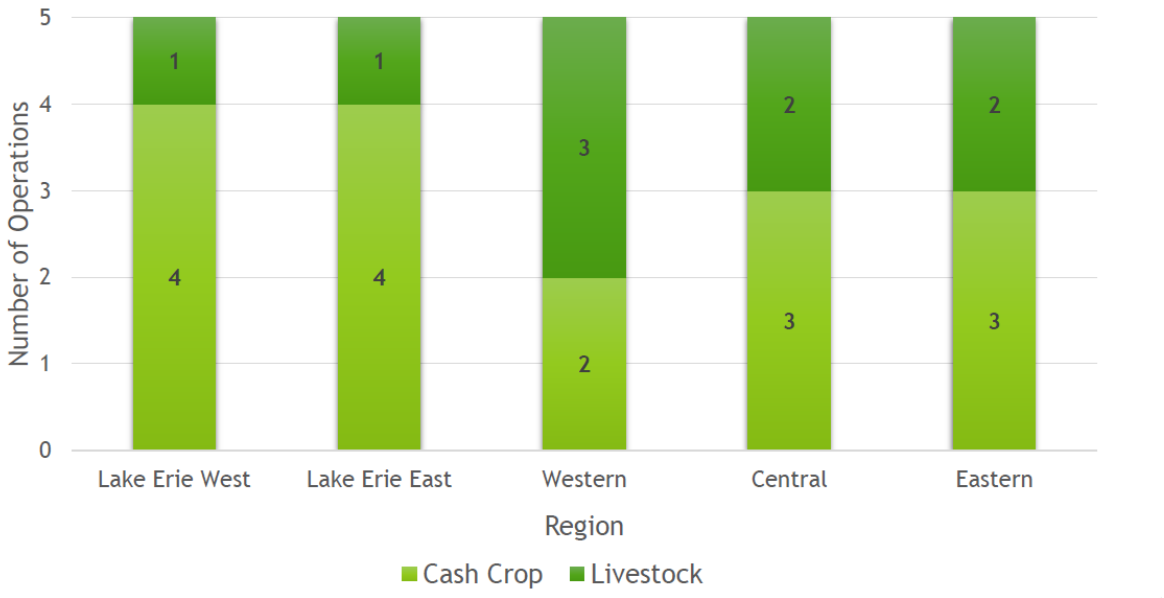

Figure 2. Overview of Paired BMP Cooperator sites by ONFARM region and type of agricultural operation (cash crop or livestock).

Paired trials at each of the sites will examine the impact of BMPs such as cover crops, several forms of tillage, and adding various sources and rates of organic amendments to understand their effects on soil health indicators in different soils across the province. The predominant soil type at each paired BMP site across the five geographic locations is shown in Figure 3.

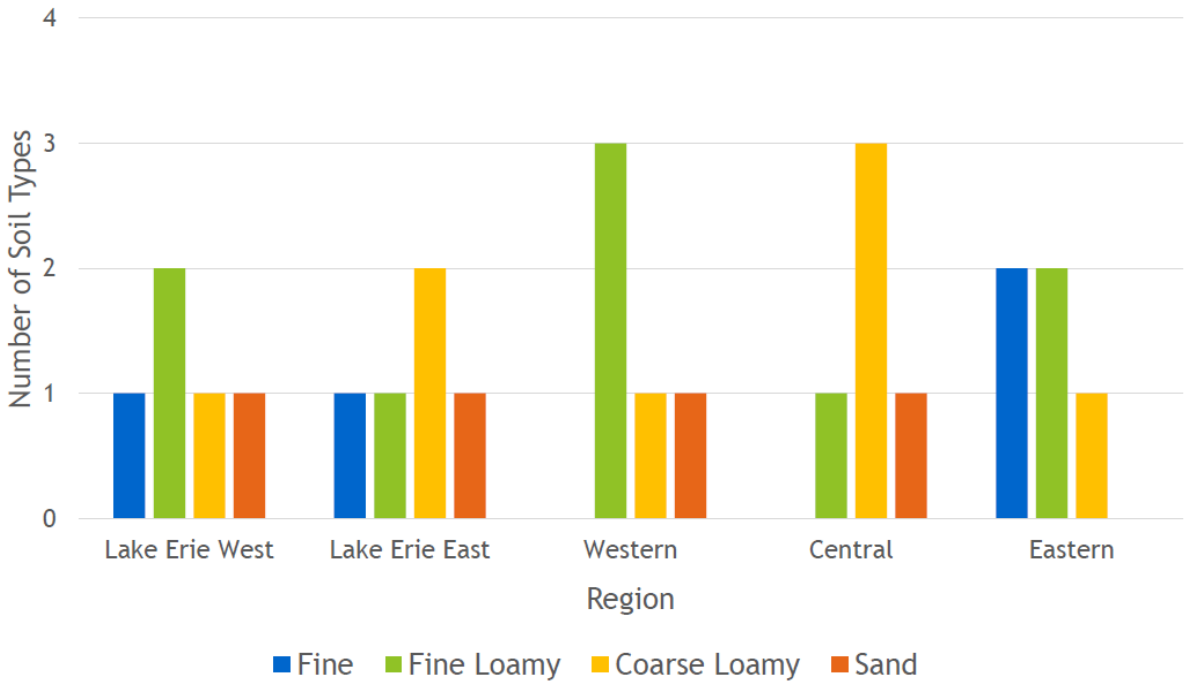

Figure 3. Predominant soil textures found at each of the Paired BMP Cooperator sites by ONFARM region.

Different tillage regimes, cover crops and organic amendments are being used together in different combinations to best evaluate their effectiveness on improving soil health across time, soil conditions and crop rotations. Different cover crops will be planted with or without organic amendments using different timing, application, and tillage methods. Most importantly, these trials occur on working farms and are managed by the cooperators themselves, driven by their questions and plans. A breakdown of the BMPs established in 2020 at each soil health paired BMP research site can be found in Table 1. All sites are implementing some form of no-till or reduced tillage. Cover crop treatments include different species and/or termination practices, and organic amendments come from various sources, including on-farm sources or externally sourced inputs such as compost or biosolids.

Table 1. ONFARM BMP Trial Site location and 2020 Management.

Region	Site #	Crop (2020)	BMP (2020)	Tillage (2020)
Lake Erie West	1	Winter Wheat	Cover crops (3 mixes) including biostrips	No-till
Lake Erie West	2	Soybean	Cover Crops, manure	Minimum till
Lake Erie West	3	Soybean	Cover crops, compost	No-till
Lake Erie West	4	Winter Wheat	Cover crop biostrips, Manure	No-till
Lake Erie West	5	Corn	Cover crops, Biosolids	Vertical till
Lake Erie East	6	Winter Wheat	Cover crops, digestate, manure	No-till
Lake Erie East	7	Winter Wheat	Cover crops	No-till
Lake Erie East	8	Buckwheat	Cover crops (3 mixes)	No-till
Lake Erie East	9	Corn	Interseeded cover crops	Strip till
Lake Erie East	10	Corn	Cover crops, manure	Vertical Till
Western	11	Winter Wheat	Cover crops, biosolids	No-till
Western	12	Winter Wheat	Cover crops, compost	No-till
Western	13	Corn	Interseeded cover crops	Minimum Till
Western	14	Winter Wheat	Cover crops, manure	No-till
Western	15	Winter Wheat	Cover crops composted manure	No-till
Central	16	Rye	Cover crops, manure, biosolids	No-till
Central	17	Winter Wheat	Cover crops, biosolid compost	No-till
Central	18	Winter Wheat	Cover crops (3 mixes)	No-till
Central	19	Winter Barely	Cover crops, compost	No-till
Central	20	Corn	Interseeded cover crops	No-till
Eastern	21	Winter Wheat	Cover crops, biosolids	No-till
Eastern	22	Spring Wheat	Cover crops (3 mixes)	No-till
Eastern	23	Spring Wheat	Cover crops, manure	Minimum Till
Eastern	24	Spring Wheat	Cover crops, manure	Minimum Till
Eastern	25	Soybean	Interseeded cover crops	Minimum Till

2.3 Data Collection

To examine the effect different BMPs are having on soil health, ONFARM is collecting data about each paired BMP trial site and associated farm through various means such as farmer interviews, soil sampling, agronomic monitoring, remote sensing, and examining historical records openly available or provided by the farmer (e.g., weather or yield data, respectively). This data will establish baseline conditions and comparable measurements to determine the effect each BMP is having on key soil health indicators and crop performance. Different types of data collected for ONFARM is shown in Table 2.

Table 2. Examples of data being collected at each ONFARM paired BMP research location. The table is not exhaustive and additional data may also be collected at each site.

Data Collected	Examples
Farm-level data	Enterprise type, commodities, crop rotation and tillage system, available equipment
Field data	Plot location, dimensions, digital elevation information, key features, current cropping and tillage systems, management history
Treatment data	• Baseline/control (check) treatment specifications • Tillage + planting equipment changes – reduced tillage management • Crop/cover crop – species, rates, timing, control • Addition of organic amendments – type, source, characteristics (physical/chemical), rate, application method, timing
Benchmark data	Topographic (slope, GPS), soils information (horizon, profile, pedon, laboratory data), soil health tests (physical, chemical, biological)
Agronomic data	Emergence and stand population, yield, cover crop and/or crop residue

In 2020, a full pedological assessment was completed at each site to characterize the soil profile and risk of soil degradation across the site. Samples collected were analysed for baseline properties of pH, organic matter, calcium carbonate, and soil texture (percentage of sand, silt, and clay). Samples were also taken to determine bulk density and a full crop nutrient analysis typical of agricultural soil tests. Data is being collected from each site on at least nine key parameters used to describe or indicate the health of the soil. These parameters will also be linked to the agronomic data collected to explore their relationship with crop performance measurements such as yield. Specific soil health indicators measured are:

- Soil Organic Matter
- Aggregate Stability
- Potentially Mineralizable Nitrogen
- Water Infiltration
- Soil Profile Information
- Solvita Labile Amino Nitrogen
- Solvita CO2 Burst
- Active Carbon
- Nematodes

Agronomic assessments were also completed in 2020 for all 25 sites. The assessments performed and the approximate time of completion are in Table 3. Weeds, disease, and insects were also noted, if present, during each of the field visits.

Table 3. Timeline of agronomic assessments completed at soil health paired BMP trial sites in 2020.

Assessment Completed	Months Completed
Emergence and plant counts	April-May
Crop Scouting	June
Hand Harvest Yields	July to November
Cover Crop Species Survey	August to September
Organic Amendment Application Assessments	August to November
Cover Crop Biomass Hand Harvest	September to October

2.4 Soil Health Sampling Design

In-field trials were established in 2020 within the working fields, with representative benchmark sampling locations to test specific BMPs and serve as reference points for repeat measurements. At each BMP trial site, there are three to five separate treatment strips with one serving as a “check”, or reference, where no new BMPs were implemented. Figure 4 shows a representative example from one BMP trial site established in 2020.

Figure 4. BMP trial Site 12 with field treatment strips and benchmark sampling locations.

Figure 5 shows a conceptual sampling design used to determine soil health sample locations at each site. Because slope and landscape position can influence soil properties, three soil zones were identified at lower slope, mid slope and upper slope positions across the management direction. Side-by-side management treatment strips were then established that incorporated the different soil zones. Sampling areas (blue circles) were established within each of the three soil zones per treatment strip with a defined radius surrounding the benchmark location (red mark). To capture the potential variability of soil parameters in each sampling area and to statistically compare benchmarks, three replicate samples were taken within zones around each benchmark spaced out in a trillium pattern (yellow ovals). For soil parameters sent for laboratory analysis, replicate samples were taken from a mixed composite sample of 24 individual soil cores at 0-15cm depth. A second composite sample of eight soil cores was taken for nematode analysis at a 5-20cm depth. Each benchmark location was georeferenced using high accuracy global positioning system (GPS) coordinates to ensure the same area can be sampled in the future.

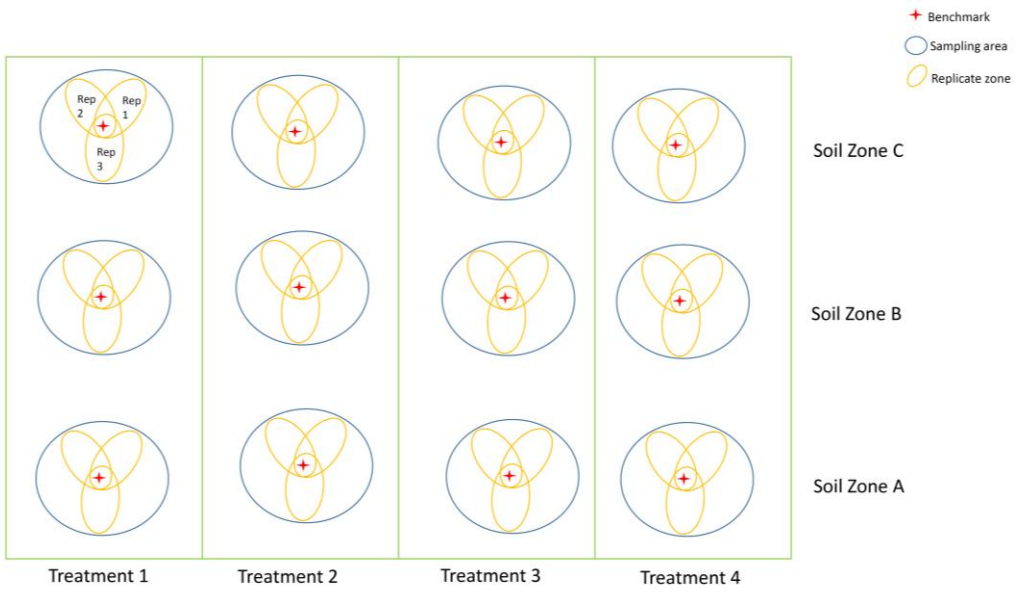

Figure 5. Conceptual field treatment and sampling design for paired BMP trial sites.

2.5 Preliminary Soil Health Data

Preliminary ONFARM data from 2020, the first year of soil health paired BMP trial sites, is quite extensive. It is still being compiled and undergoing statistical analysis. Figure 6 shows an example of the breadth of data collected in the 2020 program year for two soil health measurements, active carbon, and soil organic matter.

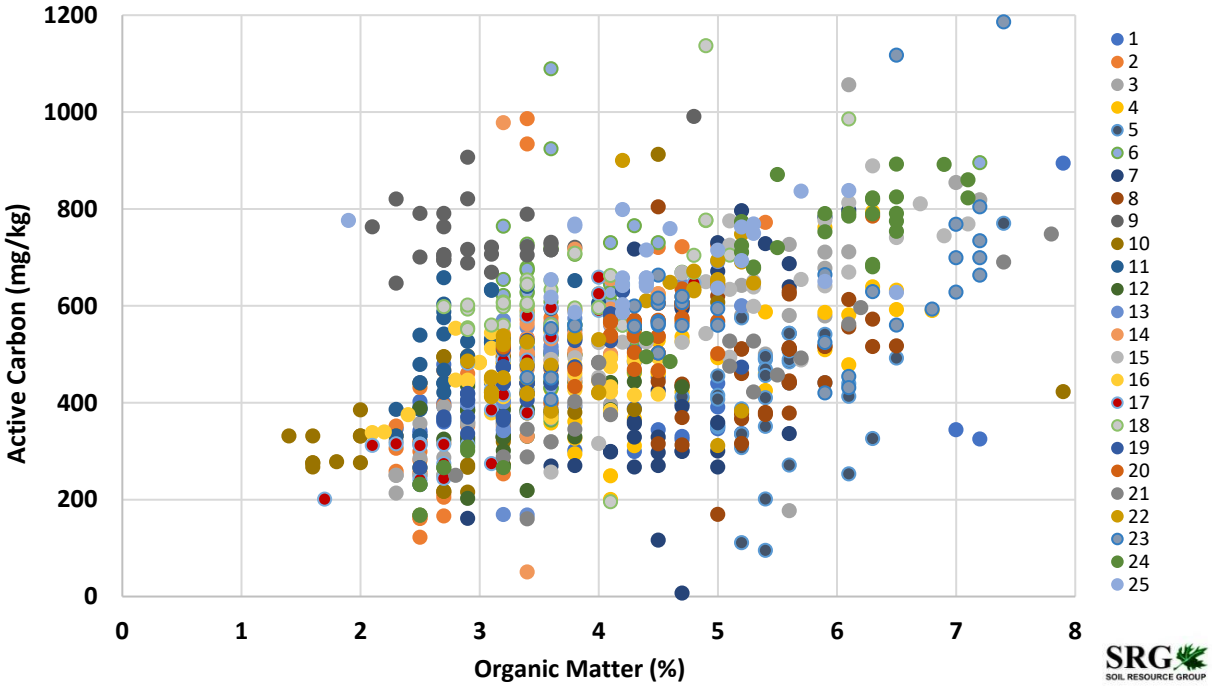

Figure 6. Results of two soil health indicators active carbon and organic matter measured in 2020 across all twenty-five BMP trial sites.

Figure 6 shows the results from all twenty-five sites of two correlated soil health indicators, soil organic matter and soil active carbon, and demonstrates the variability that exists across the predominant soils and landscapes found in the province. One data point from Eastern Ontario was omitted from Figure 6 as the site shows an OM content more than 30%. In preliminary analysis of individual sites and factors, relationships are emerging and will be explored in further statistics analysis and future reporting. For example, Figure 7 demonstrates some of the differences that appeared at a site when data was separated by landscape position.

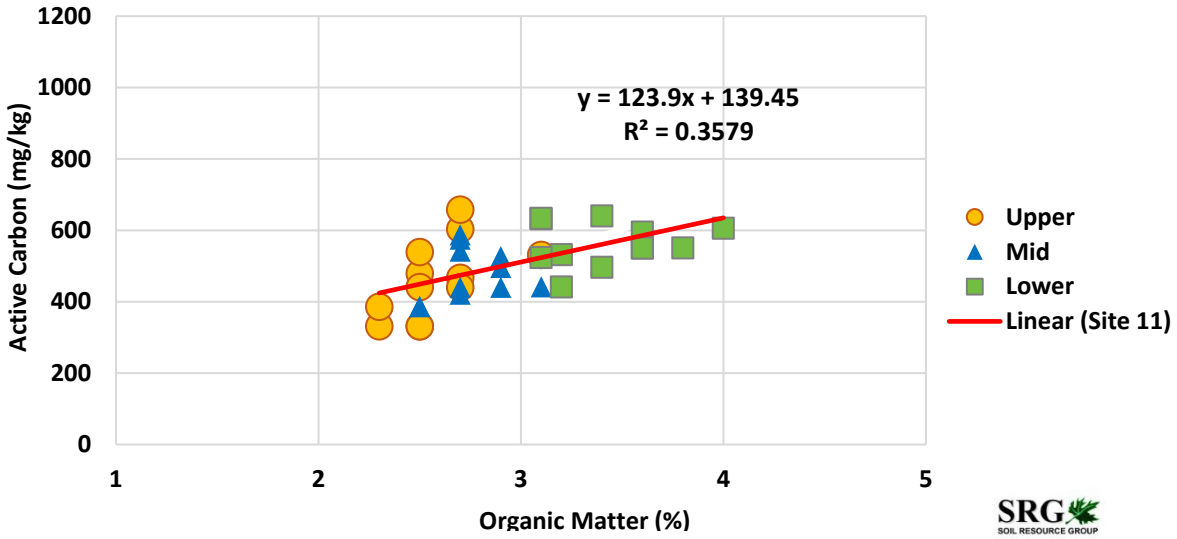

Figure 7. Relationship of two soil health indicators and landscape position measured at BMP Trial Site 11 in 2020.

Active carbon and organic matter percentages increased as landscape position decreased. This example illustrates both the complexity of the dataset and that exploring these types of relationships are key in attempting to measure change over time. ONFARM will continue to explore similar relationships at each site and across all sites to determine if impacts to soil health parameters can be attributed to the BMPs being tested.

Program results to date are preliminary and in-depth statistical analysis will be completed throughout the remaining program years. Changes in some soil health parameters can take years before measurable differences can be determined. This is in part why ONFARM is a multi-year project and will explore ways to sustain itself as a longer term applied research project beyond the current duration of the program.

2.6 BMP Data Collected

General categories for BMPs include reduced/no till, cover crops, and organic amendments; however, there is a lot of variability within each of these categories that may influence soil health measurements and crop performance. Therefore, data is also being collected about the implementation of each to help inform results of the soil health and agronomic measurements. For example, in 2020 cover crop assessments were performed at each site to determine the dominant cover crop species, the emergence of the stand, and to estimate cover crop biomass. This will help in determining carbon and nutrient contributions from the cover crops and will better contextualize future soil and agronomic measurements. In 2020 the application of various organic amendments was monitored to determine the evenness of

spread and nutrient distribution across the spread pattern over the benchmark areas. Pictures taken during the tests conducted in 2020 are shown in Figure 8. Paired with application rates and nutrient analyses for each amendment type, this information will be used to inform soil health and crop results.

Figure 8. Application monitoring of various organic amendment treatments used at BMP Trial sites in 2020.

3.0 Priority Subwatersheds and Edge of Field Sites

3.1 Priority Subwatershed Project Overview

In addition to the twenty-five paired BMP soil health research sites, eight Edge of Field (EOF) monitoring sites have been established in six Priority Subwatersheds (PSPs) of the Lake Erie and Lake Huron Basins. The locations of these sites can be seen in Figure 1. A map of each PSP's geographic location is shown in Figure 9. These eight sites will also examine key soil health indicators and monitor the impact that different BMPs and agricultural practices have on nutrient loading and water quality. These efforts will build upon work completed under the GLASI program and will be coordinated by several CAs including ABCA, ERCA, MVCA, LTVCA, and UTRCA. The PSPs and their managing CAs are:

- Garvey-Glenn (MVCA)
- Huronview Demonstration Farm (ABCA)
- Gully Creek (ABCA)
- Upper Medway (UTRCA/AAFC)
- Kettle Creek (UTRCA)
- Jeannettes Creek (LTVCA)
- Wigle Creek (ERCA)

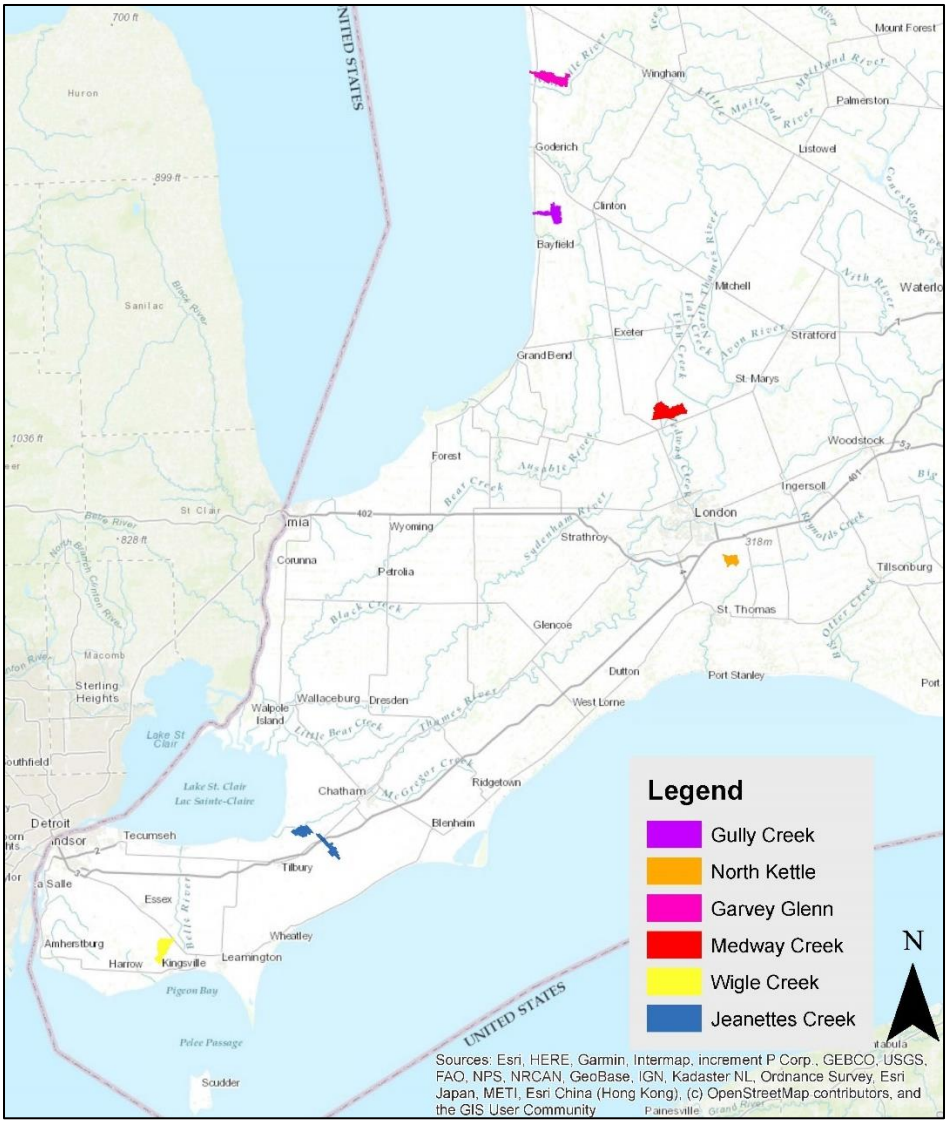

Figure 9. Location of ONFARM Priority Subwatersheds (PSP)

Each PSP has established a network of water quality monitoring stations that aim to collect water quality samples, particularly during peak flow events, which is when peak nutrient loading is anticipated. Within each PSP data is captured at subwatershed outlet stations, upstream subwatershed stations and EOF Stations. Collected data will be used to calculate nutrient loads, evaluate the effectiveness of BMPs, and calibrate subwatershed models. Each CA will also be conducting several assessments and surveys to capture data about land-use and land management within the watershed. The goals of the ONFARM PSP component are to better understand phosphorus movement throughout the agricultural landscape, model the water quality impact of agricultural BMPs at a subwatershed watershed scale, and continue the soil health investigations outlined in Section 2.0.

3.2 Priority Subwatershed Data Collection

Data collection within the PSPs and specifically at the EOF monitoring stations started in 2019 and continued throughout the 2020 ONFARM program year. Data was collected from various sources and examples of the types of data collected are shown in Table 4.

Table 4. Examples of data being collected at each EOF locations and within PSPs. The table is not exhaustive and additional data may be collected at each site.

Data Collected	Examples
Weather	Rainfall, snowfall, snowpack, relative humidity, ground temperature (5 cm, 15 cm, 30 cm), ground water level
Hydrologic layers	Stream/water body layer, municipal drainage layer (open and closed), tile surface inlet locations, subsurface tile drainage layer
Land use layers	Non-agricultural land use boundaries, land-based BMP layer (WASCoB, buffer, etc.), field boundaries, agricultural land use by field
Farmstead characteristics	Nutrient storages, livestock housing capacity/actual livestock numbers
Field/soil characteristics	Soil phosphorus (P) and potassium (K) test (0-6”), potentially mineralizable nitrogen (N) (0-6”), Soil organic carbon (0-6”), soil aggregate stability, bulk density, infiltration
Field activities information	Fertilizer application, manure application, tillage, surface residue cover, planting, point discharges
Water quantity	Stream flow
Stream water quality	Total suspended solids, total P, total dissolved P, Total Organic P, Total N, Nitrate-N, Ammonia-N, Organic-N

At EOF sites data is collected by automatic sampling equipment and manual sampling methods. In 2020, planned EOF stations were operational and configured to automatically collect samples during periods of high flow such as run-off events. One EOF station collecting water at high flow is shown in Figure 11 and the inside of an automated sampling station is shown in Figure 10.

Figure 11. Automated sampling equipment used to collect water samples at EOF sites during runoff events.

Figure 10. EOF automated sampling station at high flows. Image provided by UTRCA.

Run-off events were continuously monitored throughout the entire year. The cumulative number of run-off events sampled at all PSPs by season is shown in Figure 12. Across all PSPs, 20 events were sampled in spring, 13 events in summer, 38 events in fall, and 36 events in winter. The total number of events sampled from the start of the program in late 2019 is 107 events.

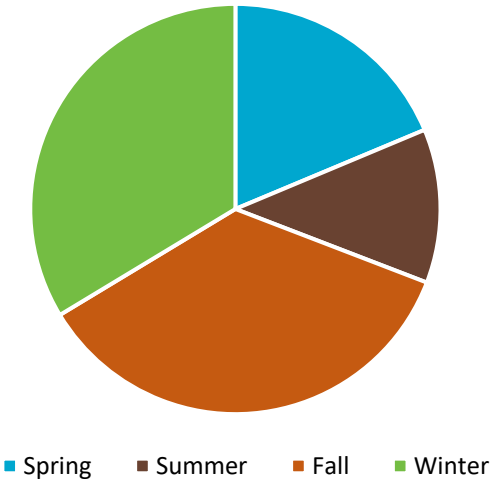

Figure 12. Distribution of all 107 runoff events sampled under the ONFARM program across all subwatersheds by season. 20 events were sampled in spring, 13 events in summer, 38 events in fall, and 36 events in winter.

As of February 2021, a total of 1137 water samples were collected within all PSPs for laboratory analysis. The COVID-19 pandemic delayed water sample processing of due to laboratory closures and local health restrictions. Data is still being obtained, processed, and analyzed. CA staff have been inputting the data into the Kisters Water Information System (WISKI) database for long term storage. The WISKI database enhances the collection, management, reporting and advanced development of water networks. This database allows data to be safely stored in a way that is also easily accessed for use in the modelling component. CAs are completing quality assurance, quality control, and are interpreting 2020 data to calculate nutrient loads. Accurate understanding of the results in each PSP will be a long-term effort and ONFARM expects to share more results from the PSP component in 2021. ONFARM is also in the planning phase of creating models to better extrapolate and interpret results. More information about the PSP models can be found in Section 3.4.

In 2020, each EOF site was sampled for the full suite of soil assessments described in Section 2.0; however, the treatment designed differed slightly compared to the paired BMP trial sites. Cover crop, tillage, and organic amendment BMPs were explored at EOF sites, but benchmark locations were chosen to compliment the pre-existing EOF water quality sampling infrastructure. The trillium sampling pattern (Figure 5), sampling depth and composite sample methodology from the soil health component was maintained. Aligning soil sampling to the EOF water quality monitoring will allow for future determination of potential relationships between soil health measurements and water quality.

3.3 Land Management Surveys

In each PSP soil, water quantity, and water quality measurements will also be complemented with additional assessments to describe the land-use practices within each PSP. This information will be critical

in later program years to create subwatershed models and determine the cost-effectiveness of certain land management practices for agricultural operations within each subwatershed. In 2020, visual surveys were conducted by CA staff throughout each PSP to better identify the types of crops and land management practices occurring within each watershed. These visual assessments, or windshield surveys, will be completed each year and be complimented with detailed land management surveys conducted with farms operating in the PSP areas. In 2020, the land management survey strategy was determined by the Technical Working Group and survey questions were digitized into the ESRI Survey 123 database platform. This will allow CAs to align survey questions and standardize results to compare data across all PSPs. The surveys will collect information about each farm's history, cropping practices and production cost information.

3.4 Modelling and Cost Benefit Analysis

In 2021, ONFARM will engage the research community to develop water quality models with the PSPs. Understanding that landscape level changes and modifications to agricultural practices can take several years to accurately understand downstream impacts to water quality, models will be created to inform longer-term projections. Previous models developed for GLASI showed encouraging results, but a key finding from GLASI's water quality modelling was that longer term data is required to for these to be truly meaningful. The data collected by ONFARM partners from land management surveys, water quantity, water quality and soil properties will be used to configure, update, and calibrate PSP models initiated under GLASI. The integration of the financial information within the models will allow for easier assessment of cost-efficacy of implementing phosphorus reducing BMPs. The models will have the capability to:

1. Estimate PSP nutrient loads;
2. Run simulations to estimate phosphorous reductions that result from the implementation of agricultural BMPs;
3. Partially estimate the distribution of load sources within each PSP;
4. Assess the cost-effectiveness of implementing agricultural BMPs on reducing nutrient loading.

4.0 Future ONFARM Milestones

ONFARM made several important achievements in its first full year of implementation. Soil health paired BMP and EOF sites have been established in cooperation with project partners and cooperating farms. In addition, baseline soil health measurements have been taken for all project sites and the amount of soil information collected in 2020 alone amounts to over 9000 individual datapoints. Data analysis is on-going, and future methods for storing, sharing, and presenting data are being explored. In Spring 2021, ONFARM is expected to release a data management plan that will highlight key data considerations and outline methods for data use, storage, and sharing. Planning is underway for the next growing season and SRG will conduct another round soil sampling, agronomic assessments, and BMP measurements in 2021.

EOF sites are operational and field stations are collecting water quantity and water quality data. Data is being assessed and inputted into the WISKI Database for future analysis. In 2021, ONFARM expects to engage the research community to assist in modelling the effectiveness of BMP implementation at reducing nutrient loads in the Lake Erie Watershed. In addition to collecting water quality and quantity

data, CA staff have also been hard at work digitizing land management surveys. Land management surveys will collect critical land-use and crop production information in the PSP areas to inform future models and data analysis. To further explore the cost-effectiveness of land management and cropping decisions, CA staff will also be working with select producers in each PSP to create profitability maps of their fields. Profitability maps will be used as a tool to work with producers and help inform sound management practices that work for each producer's farm business, and the surrounding landscape.

A strong foundation has been laid in 2020 to help guide the program forward throughout the remaining program years. As more data is analyzed and becomes available, project results will be shared in several formats. To learn more about how ONFARM plans to share results and engage the agricultural community please visit the ONFARM website and see the 2021 Outreach and Engagement Strategy. Please also visit our news page to stay up to date on project information and future activities.