



Ontario Soil and Crop Improvement Association

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Request for Proposals

Living Lab – Ontario

Agronomic Monitoring and Soil Sample Collection

Project Background:

Living Lab – Ontario is a five-year innovation project delivered by the Ontario Soil and Crop Improvement Association (OSCIA) on behalf of Agriculture and Agrifood Canada (AAFC). This project brings together farmers, organizations, researchers, and other experts to co-develop, test, and evaluate beneficial management practices (BMPs) that address climate change challenges in livestock and cropping systems.

Living Lab – Ontario is one of thirteen living labs across Canada that are part of AAFC's Agricultural Climate Solutions (ACS) program. The project builds on the success of the previous living lab project in Ontario (2019-2023) but with a focus on identifying, evaluating and adopting BMPs that address climate challenges and solutions in livestock and crop production systems, including reducing greenhouse gas emissions and increasing carbon sequestration on farms.

Researchers from AAFC and Universities will be developing projects with producers to evaluate BMPs at approximately 40 farm sites across Ontario.

The BMPs to be tested in this project include:

- nitrogen efficiency and use
- cover cropping and grazing management
- manure storage management
- field edge practices

OSCIA is leading the delivery of this project on behalf of a consortium of agricultural organizations. OSCIA will be using service providers to support various aspects of the project including land management and operation data collection, agronomic sampling, and profitability mapping.

Services Required and Purpose: Agronomic Monitoring and Soil Sampling

Standardized agronomic monitoring and soil sampling will be conducted at Living Lab – Ontario sites according to site specific sampling plans developed by OSCIA, Living Lab research advisory groups, and the cooperators. Samples will be collected each year during the study over a 4-year period. The raw sampling results will be shared with the cooperators, OSCIA and the researchers, and aggregated trial results will be shared publicly. OSCIA will be using the data collected to populate a GHG model of each farm.

At present, the distribution of sites to be monitored includes six in southern Ontario, five in western Ontario, one in central Ontario, and two in eastern Ontario. Proposals should include scalability considerations; as the project is designed for ongoing co-development between cooperators and researchers, additional sampling locations (e.g. another 5-15 sites) and parameters may be required.

Activities:

- 1) Applying site specific monitoring plans in consultation with OSCIA and the Living Lab research advisory teams.

Baseline soil sampling package to be done only in the initial year of monitoring for each individual field:

- Clay %
- Silt %
- Sand %
- Total organic carbon
- Total carbon
- Total organic nitrogen
- Total nitrogen
- Surface soil type
- Horizon depth characterization to 45 cm

Aside from surface soil type and horizon depth, all baseline measurements will be taken at depths of 0-15 cm, 15-30 cm, and 30-45 cm.

Standard soil sampling package to repeat annually, at a depth of 0-15 cm:

- Organic carbon
- Organic matter
- pH
- Cation exchange capacity
- Phosphorus
- Potassium
- Magnesium
- Calcium
- Sodium
- Wet aggregate stability
- Bulk density
- Active Carbon (POxC)
- Solvita Burst-CO₂ (respiration)
- Potentially-mineralizable nitrogen

A small subset of sites will require the collection of soil samples taken at several points throughout the growing season—pre-fertilization in the spring (excluding 2024), at 50% silking for corn, and at black layer/harvest. These samples will be taken at depths of 0-15 cm and 15-30 cm.

- Mineral nitrogen (nitrate and ammonium)
- Gravimetric soil moisture

Agronomic sampling will include:

- Hand harvest grain yield
- Grain nitrogen content
- Grain carbon content
- Post harvest residue
- Cover crop biomass (collected at peak growth in fall, and again in spring for overwintering species/mixtures)
- Cover crop nitrogen content
- Cover crop carbon content

Optionally, propose other additional services which are complimentary to those listed above and offered by your business that could demonstrate value for the project.

Sampling plans will be designed to capture potential differences between plots at each site. Sampling frequency and parameters are subject to change as projects undergo regular co-development discussions between researchers and farmers to ensure all stakeholder needs are met throughout the lifecycle of the project.

- 2) Support sample processing
 - Propose one or more accredited laboratories to deliver analysis of the required parameters.
 - Ensure appropriate sample storage measures are in place prior to and during the delivery of samples to the laboratory. Where multiple laboratories may be used to process different soil tests, the service provider should be prepared to collect sufficient material for both or to arrange the transfer between labs.
 - Arrange for storage of dry samples after lab processing for the duration of the program.
- 3) Compile, review for quality control, and share results with OSCIA.
- 4) Through regular activity reports and ad hoc, contact OSCIA and cooperators to provide updates on service activities and project results.
- 5) Optionally, presentations may be made by the successful service provider at one or more Living Lab – Ontario events to connect your work directly with farmers, researchers, and other industry stakeholders.

Outputs and Deliverables:

- 1) Selection and confirmation of appropriate laboratories for analysis.
- 2) All sample results compiled, quality controlled, and summarized by site, submitted annually.
- 3) Optionally, presentations at one or more Living Lab – Ontario events.
- 4) Regular activity reports of work completed per targets from the sampling plan with related invoicing.

Submission Requirements:

All interested organizations must submit their proposal organized as follows:

- 1) A description of your organization's mandate and experience with this work, as well as the size of your organization and its capacity to work across Ontario during high volume periods (e.g. corn harvest).
- 2) Technical proposal- detailed plans identifying how key activities will be accomplished, and laboratories you will plan to use.
- 3) Budget- realistic cost estimate for all activities including labour, travel, and laboratory analysis fees. Labour should be broken out by personnel, number of days, and daily rate.
- 4) Personnel- Name and qualification of relevant personnel.
- 5) Up to three references that can provide similar past performance experience and evaluation, and/or a portfolio of relevant sample projects.

Evaluation Criteria:

Proposal will be evaluated based on the following criteria:

- Staffing capacity to manage the regional and seasonal variability of the project
- Relevance of prior project experience and/or organizational technical expertise
- Budget and indications of scalability

Questions:

Questions should be emailed to: livinglab@ontariosoilcrop.org.

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Applications must be received no later than July 25th, 2024.

OSCIA anticipates sending out a decision by August 14th, 2024.