

# Technical Working Group on Regenerative Soils: Recommendations

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Prepared by:	
Name	Position
Sean Smukler, UBC	Member Lead
Greg Rekken, MAF	Ministry Lead
Heather O'Hara, BC Farmers' Market Association	Member
Mike Bomford, KPU	Member
Karn Manhas, Terramera	Member

## Scope and Purpose

Soil health is regarded as a foundational component of regenerative agricultural practices. Identifying, promoting, and adopting agricultural practices that are regenerative therefore requires a clear understanding of their impacts on soil health. Currently, there is no general agreement on how best to assess soil health along with a lack of site and crop-specific evidence for the diversity of production in British Columbia. A strategy is therefore needed for the cost-effective monitoring and evaluation of the soil health impacts of regenerative practices for the diversity of production systems in British Columbia. The aim of this TWG was to develop a high-level set of recommendations for a provincial monitoring and evaluation strategy for soil health. These recommendations would serve as guidance for developing a series of prioritized actions and projects that are required to effectively monitor and evaluate soil health from farm to regional scales.

In this document, we identify the needs and provide a set of prioritized recommendations for actions with an associated timeline. We have categorized these into five primary areas:

1. Soil health baseline
2. Monitoring and evaluation
3. Data management and sharing
4. Visualization and dissemination
5. Long-term Support

### 1. Soil health baseline

Identified needs:

- Very little data provincially defining the status or trajectory of soil health. Producers do not have any benchmarks to compare to.
- Limited provincial data that can be used for measuring the regenerative nature of new and alternative practices on soil health.
- Data that does exist has limited potential for broad comparison across regions or over time.

- Absence of provincial soil health assessment protocol.

#### Recommended actions:

- Identify and agree to a set of soil health indicators.
  - Establish a Soil Health Working group focused on developing soil health indicators that are tiered in terms of cost, effort, and accuracy. The tiered approach will ensure farmers have options for tracking soil health themselves in a way that can be validated by provincial scientists collecting more rigorous data. This work would need to be coordinated with the ongoing protocol development of the BC Climate Action Research Network (BCACARN). Timeline: 2023-24.
  - Foster the adoption of standard research practices by establishing and publishing sampling and analysis protocols for soil health indicators. Work with commercial labs to offer these analytical services via an inclusive soil health indicator package. Timeline: 2023-2024.
- Launch a series of projects at various scales to develop a provincial baseline of soil health indicators.
  - Require a minimum of soil health baseline sampling for the adoption of any provincially funded BMP projects. Timeline: 2023-24.
  - Develop regional sampling projects to target key land uses and commodities on agricultural lands and digitally map these indicators by region: 2024-27.
  - Ensure there are sufficient, effective, timely and affordable soil testing options accessible by farmers across BC.

## 2. Monitoring and evaluation

#### Identified needs:

- Little data linking soil health indicators with measurable changes in agricultural or environmental outcomes.
- Limited regional data showing how different practices impact soil health status.
- Producers do not fully understand the value of soil health for either short- or long-term production benefits and resiliency or the benefits to (i) soil biodiversity, (ii) the environment, and (iii) plant, animal, and human health.
- Society is not recognizing the benefits that producers are providing in terms of enhanced ecological functioning of their land.
- The relationship between soil health and climate mitigation has not been effectively quantified for most BMPs.

#### Recommended actions:

- The Soil Health Working group engages with producers to identify and prioritize soil health outcomes that they are interested in quantifying.
- Develop a prioritization of regions, commodity groups and BMPs to evaluate. Timeline: 2023-24.
- Develop and launch a series of research and demonstration projects for that prioritized list. The projects would quantify soil health changes and outcomes particularly related to climate mitigation. Timeline: 2024-29.

### 3. Data management and sharing

#### Identified needs:

- Data that does exist is not widely shared and is largely inaccessible by researchers or the government.
- There are no common protocols for developing and sharing datasets.
- Responsibilities of data maintenance, quality assurance and analysis are unclear.

#### Recommended actions:

- The Soil Health Working group develops data-sharing protocols in coordination with ongoing efforts of BCACARN and the Living Labs Project. Work with national efforts to establish soil data-sharing infrastructure. Timeline: 2023-24.
- Enhance current data collection capabilities and capacity in the BC Ministry of Agriculture and Food and BCACARN to gather and share data until the national infrastructure is fully operational. Timeline: 2023-24.

### 4. Visualization and dissemination

#### Identified needs:

- Producers need to be able to easily interpret soil health data if it is going to be useful for them operationally.
- Currently, there is a large variation in the interpretation of soil health information.
- There is no centralized communication platform.

#### Recommended actions:

- Develop a series of soil health tools:
  - Establish a set of fact sheets based on the results of the above research and demonstration. Timeline 2025-30.
  - Create an online regenerative agriculture / soil health dashboard for producers to use to compare their soil health trajectory to regional benchmarks. Timeline: 2024-25.
- Create a multi-year extension program to promote and support the adoption of soil health indicators and tools across researchers and producers.
- Extension and outreach initiatives for both producers and agrologists
- Create a common framework so that soil health data is understood and interpreted in terms of benefits related to (i) biological diversity and function, (ii) environmental quality, and (iii) plant, animal, and human health.

### 5. Long-term Support

#### Identified needs:

- Without a historic soil health base line, along with coordinated and consistent monitoring, it is likely that changes in many soil health benefits will not be clearly quantifiable over the next five years.

- Providing guidance for maintaining and improving soil health requires a long-term commitment.
- At present, there is very little collaboration on the above identified needs for soil health in B.C. and no permanent organized group to address such needs in the future.
- No current plan to address the province's soil health needs into the future, leaving the province without a collaborative strategy to measure and improve soil health over the long-term.

Recommended actions:

- Develop support for maintaining the Soil Health Working group in the long-term so that collaborative decisions for a provincial soil health strategy are made as the long-term impacts of management are understood.
- The Soil Health Working group should be facilitated by the Ministry of Agriculture and Food's Resource Management Unit to provide technical support, ensure coordination of activities, alignment with provincial mandates, and transparency.