SOIL CONSERVATION COUNCIL OF CANADA
CONSEIL CANADIEN DE CONSERVATION DES SOLS

Recruiting Soil to Tackle Climate Change:
A Roadmap for Canada

Conseil canadien du COMPOST Council of Canada

FAQs – How the Projections Were Calculated

Are the projected potentials for soil-carbon sequestration realistic?

The projections in the roadmap should be considered aspirational goals, rather than hard targets. What does this mean?

What "aspirational" means in this document is that the projections are theoretically achievable, and MAY be practically achievable as well, depending on many different technical, economic, and socio-cultural factors. The scope of this project did not allow for analyses of factors such as the economic costs of implementation, possible limitations in some soils due to soil type, etc. Accordingly, we present our projections as aspirational, similar in nature to the 4 per 1000 program being promoted by France.

Box 2-2: SOC vs CO_2 vs CO_{2e}

To convert the weight of soil organic carbon into an equivalent weight of atmospheric carbon, you must multiply by 3.67 – for example, *2 tonnes of **SOC** becomes 7.34 tonnes of **CO_2***. This is because the weight of the oxygen in CO_2 must be taken into account. **CO_{2e}** is simply a way of stating that all GHG impacts (e.g., CH_4, N_2O) have been converted into CO_2 equivalents for comparison purposes.

How were they calculated?

We calculated the projections using the following basic formula:

- *Scientifically documented typical carbon sequestration rate (tonnes of SOC per hectare per year) x*
- *Area affected (hectares of managed land) x*
- *Adoption rate (% soil managers adopting at least two new beneficial management practices) =*
- *Tonnes of SOC sequestered annually*

The sequestration rates and areas managed were differentiated by region, whereas the adoption rates were projected for all of Canada.

Could Canada actually achieve the goal of eliminating agriculture's greenhouse gas footprint?

Theoretically, yes. In practice, we just don't know. As mentioned above, there are many factors involved that could present formidable challenges. Examples include (but are not limited to): lack of widespread access to specialized equipment; perceived level of financial risk by soil managers; lack of markets for novel crops; and a lack of knowledge and expertise, among both soil managers and their advisors, with regard to implementing the various soil-health practices.

Canada's most innovative farmers have already shown us that increasing soil organic matter produces a host of benefits. These soil-health champions are developing solutions to a whole range of challenges on a daily basis, while becoming more profitable and resilient at the same time. So, achieving the targets set out in our Roadmap is not essential when it comes to success. Given the wide range of benefits that accrue from soil health, we can only win by encouraging and supporting our farmers and other soil managers in adopting soil-carbon-building principles and practices.