Research Hub TO SUPPORT THE ORGANICS SCHEMES

Project Brief:

How the benefits of applying compost and digestate to soils can be accounted for under the Greenhouse Gas (GHG) Protocol

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Project Background

In recent years, industry and governmental organisations have focused considerable attention on monitoring their greenhouse gas emissions. The Greenhouse Gas (GHG) Protocol provides internationally recognised accounting standards, tools and training for businesses and government to measure and manage climate-warming emissions.

1. **Scope 1** considers emissions that are released directly into the atmosphere arising from activities owned or controlled by the organisation. These include emissions from combustion in owned or controlled boilers, furnaces, vehicles and emissions from controlled process equipment.

2. **Scope 2** includes emissions associated with the consumption of purchased electricity, heat, steam and cooling. These emissions are not under direct control of the organisation.

3. **Scope 3** includes other indirect emissions which are linked to an organisation's activities which are not under the control of the organisation and include things like waste disposal and carbon dioxide produced.

Increasingly, compost producers and AD operators are looking at the GHG Protocol to measure and manage their GHG emissions. Within Scope 3, there is currently no guidance that relates to the application of compost and digestates to land and the associated GHG emissions and/or benefits (i.e., carbon sequestration). The absence of such guidance makes it difficult for operators to properly account for the application of compost and digestate when conducting protocol assessments.

Project Scope

Aim

The project aims to evaluate the soil health and carbon sequestration benefits associated with applying compost and digestate to land. Further, the project endeavours to develop guidance to account for these benefits under Scope 3 of the Greenhouse Gas Protocol.

Objectives

To fulfil this aim, the project's key objectives are as follows:

1. To illustrate to operators the benefits of engaging with the GHG Protocol as a key step towards a fuller understanding of their commercial activities in the globally important actions to minimise the climate-warming emissions.
2. To provide guidance to operators on how to account for the use of compost and digestate when applied to land under the GHG Protocol.
3. To provide guidance to operators on the benefits to soil conditions of the applications of composts and digestates applied as whole digestate, dewatered solid digestate and liquid digestate.

Methodology

- Analysis of REAL data on compost and digestate for the typical organic matter contents and any other parameters that are needed to determine the likely effects when applied to land and provide recommendations on how these should be accounted for when considering the GHG protocol.
- Gather information from survey of the scientific literature and other sources (for example the International Solid Waste Association) in order to characterise the nature of the carbon pools present in compost and digestates and evaluate the impact of the additions of these complex sources of organic material on the labile (rapidly decomposing) and recalcitrant (slowly decomposing) carbon pools in the soil and the manner which these pools enhance the physical properties of soils through improvements in soil structure, increased water retention, increased robustness to external pressures such as cultivation, reductions in vulnerability to erosion and the increase in the sites within a soil for adsorption and retention of ions. In addition, the supply of plant nutrients from these organic resources will be assessed and their role in reducing the need for applications of manufactured fertilisers.

Project Deliverables

- Develop practical guidance on how composts and digestates can be accounted for under Scope 3 of the GHG Protocol. Any novel guidance should engage with the GHG Protocol to incorporate this information within their technical guidance.
- Fully recognise the benefits to the improvements in soil health of using compost and digestate and allow operators to properly account for their use when calculating their carbon footprint.
- Help promote the use of composts and digestates to end users, highlighting the positive benefits to soil health and the overall environmental carbon efficiency.
- Regular meetings with the REAL Project Management Team to provide project updates and agree project milestones.
- A final meeting with REAL to discuss the project in its entirety, during which the appointed contractor shall present the findings enclosed in the final report.