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.

Under the GHG Protocol, emissions are considered under four areas:

1. **Scope 1** includes direct emissions that are released into the atmosphere arising from activities owned or controlled by the organisation. These include emissions from combustion in boilers, furnaces, and vehicles owned or controlled by the organisation, as well as emissions from natural biomass decomposition, (e.g., release of soil carbon into the atmosphere due to land disturbance).
2. **Scope 2** includes indirect 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 linked to an organisation's activities which are not under the control of the organisation. Scope 3 emissions can be further subdivided into upstream emissions (i.e., indirect embedded emissions associated with the production process) and downstream emissions (i.e., indirect operational and end-of-life emissions).
4. **Off-scope** – some activities do not affect the inventory of GHG emissions recorded in Scopes 1, 2 and 3 but are recorded off-scope using a project based or intervention approach (also known as counterfactual reporting).

Increasingly, compost producers and AD (Anaerobic Digestion) operators are looking at the GHG Protocol to measure and manage their GHG emissions. The GHGP's draft *Land Sector and Removals Guidance* is expected to provide a framework for assessing carbon emissions and removals associated with land use, land use change, as well as the production and consumption of biogenic products (e.g., compost and digestates). However, further R&D work is likely to be needed to determine how to apply the guidance in practice to accurately account for carbon emissions and/or removals associated with the production/consumption of compost and digestate.

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Project Scope

Aim

The project aims to evaluate the carbon accounting benefits associated with producing and applying compost and digestate to land. Further, the project endeavours to develop guidance to account for these benefits under the Greenhouse Gas Protocol.

Objectives

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

1. To demonstrate to compost producers and AD operators the benefits of engaging with the GHG Protocol as a key step towards understanding their commercial activities within the global imperative to minimise climate-warming emissions.
2. To provide guidance to operators on how to account for the production and application of compost and digestate under the GHG Protocol.

Methodology

- Assess all relevant GHGP standards and guidance documents and determine which are relevant to accounting for the carbon cycle of compost and digestate.
- Gather information from a survey of scientific literature and other sources (e.g., research published by the International Solid Waste Association) to characterise the nature of carbon pools present in compost and digestates and further 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.
- Analyse existing 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.

Project Deliverables

- A final report containing:
    - An assessment of the natural capital/carbon cycling impacts of producing and using compost and digestate
    - Practical guidance on how composts and digestates can be accounted for under the GHG Protocol with reference to the draft Land Sector and Removals guidance. (To allow operators to properly account for their use when calculating their carbon footprint.)
- 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