Upfield™

Methane emissions reporting methodology

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Why report methane separately?

Methane emissions have contributed 40% of the 1.3°C degrees of warming we've seen to date.[1] In the short- term it has 80 times the warming potential of carbon dioxide; Agriculture is the predominant source: 32% of anthropogenic methane emissions come from livestock (particularly from manure and ruminant enteric fermentation) whilst a further 8% come from rice cultivation.[2]

Due to its short life, reductions in methane emissions will have an almost immediate climate impact.

> *"Cutting methane is the strongest lever we have to slow climate change over the next 25 years and complements necessary efforts to reduce carbon dioxide. The benefits to society, economies, and the environment are numerous and far outweigh the cost. We need international cooperation to urgently reduce methane emissions as much as possible this decade." Executive Director of UNEP.*[3]

Whilst relatively few companies in the agri-food sector currently report their methane emissions separately, the recent COP26 announcement on a Global Methane Pledge, a collective EU and US goal for reducing man-made methane emissions by at least 30% from 2020 levels by 2030, means we are likely to see more businesses setting ambitious targets and actions over the years to come. Reporting emissions is more likely to lead to greater reductions and the potential co-benefit of supply chain resilience.

Estimating methane emissions using existing data

Greenhouse gas (GHG) emissions are typically estimated by obtaining activity data such as fuel use (volume, mass or energy) or distance travelled (miles or km by vehicle type) and applying a standard emissions factor. Most LCA databases, such as ecoinvent and WFLDB, include the methane emissions from different origins, i.e., biogenic, fossil, land transformation and peat oxidation, or unspecified.

Calculating methane is usually therefore straightforward for scope 1, electricity in scope 2 and most parts of scope 3: it is possible to use existing activity data and apply the specific methane-related CO_2e factor rather than the CO_2e factor from all types of GHG emissions.

How to report methane emissions

Methane emissions should be reported alongside and considered in the context of overall greenhouse gas emissions. For consistency methane should, as a minimum, be reported in CO_2 equivalents (CO_2e) using GWP-100. The IPCC Sixth Assessment Report (AR6) gives GWP-100 of 27 for biogenic-source emissions and 29.8 for fossil-sourced emissions, or emissions from land transformation and peat oxidation, as well as for those from unspecified origins. Emissions from both sources should be reported separately unless one source is insignificant. Estimates of the GWP of methane are updated periodically by the

[1] https://www.carbonbrief.org/guest-post-the-global-methane-pledge-needs-to-go-further-to-help-limit-warming-to-1-5c

[2] https://www.unep.org/news-and-stories/story/methane-emissions-are-driving-climate-change-heres-how-reduce-them

[3] https://www.unep.org/news-and-stories/press-release/global-assessment-urgent-steps-must-be-taken-reduce-methane

IPCC but these take time to be adopted by the relevant accounting standards (e.g. GHG Protocol). For consistency, the same GWP values should be used for methane reporting as used in the latest complete (all GHG) corporate inventory from which the methane impact is derived to avoid the need to recalculate the whole inventory. Note that if the GWP values used do change then comparative (prior) years inventories should be restated as needed using the same GWP values.

The short-term impact of methane should also be reported using GWP-20 for consistency with standard GWP- 100 reporting. This may be complemented by other ways of estimating the warming potential or temperature potential (e.g. GWP* or GTP). Note that the equivalent impact for the total inventory should also be calculated if the two are to be subject to comparisons.

This is very much the start of a dialogue on methane emissions accounting, and as Upfield continues to discuss and explore opportunities to strengthen and harmonise approaches to measuring and accounting for methane emissions and gain feedback from their network of partners, we expect more opportunities to develop across policy, governance, science and technology.

Methodology

We followed the general corporate GHG footprint methodology using the same underlying activity data used for the corporate GHG inventory and applying methane-related CO_2e factors for scopes 1 and 2 and scope 3. The impact assessment of converting methane from different origins to CO2e is based on the Environmental Footprint (EF) v3.1 published by the European Commission, which uses the IPCC AR6 (2021) GWP-100 values for methane. The methane emissions factors come from the World Food LCA Database (WFLDB) and ecoinvent database.

Limitations

Reporting methane emissions separately is a relatively new concept for the agriculture and food sector and there are limitations to these first methane calculations. The key limitations are:

- The limitation of the general corporate GHG footprint method also applies to the methane accounting. For example, the methane emission factors might have lower spatial differentiation than activity data when considering country or regional difference of ingredient, packaging and energy production.
- Where CO_2e emissions factors are not broken down by gas, we have had to estimate emissions using proxies where necessary. This might lead to minor inconsistency between the general corporate GHG footprint and methane footprint.
- A few categories are excluded from the current methane estimate, due to data availability and time constraints, i.e., private fleet, business travel, outbound transport and the categories estimated with the Environmentally extended input-output (EEIO) database. However, they are expected to have less than 5% of the corporate methane emissions.

The opportunity

To scale agri-food sector-wide methane emissions reporting at the level and pace required to meet the Global Methane Pledge commitments, we must consider opportunities to drive consistency and credibility of target setting, data collection, analysis and reporting methods, factoring in the challenges of measuring impacts across different commodities and geographies:

- Target setting: Develop meaningful, robust and simple targets that resonate with key stakeholders including investors, civil society and consumers.
- Data collection: Given that relatively few organisations currently track their methane emissions, there is a lack of primary data available to adequately quantify on-farm impacts. More work is required to collect primary data, with an immediate focus on supply chains with the most material emissions. In the meantime, secondary data can drive on farm positive behaviours, but data quality, verification and transparency of accounting methods is key.
- Data analysis: Methane footprints can enable greater understanding of the drivers of emissions, which supports consumer education and sustainable diets. Insights need to be relevant and understandable, not only enabling farmers to understand what is driving their methane emissions but also what practical steps they can take to reduce emissions in the context of their wider GHG impacts whilst enhancing productivity.
- Reporting methods: When considering reporting methane emissions separately, the industry should consider taking learnings from established standards such as GHG protocol guidance and emerging frameworks such as the FLAG SBTi guidance which set out principles for wider GHG accounting. Learnings too can be taken from other sectors such as Oil and Gas, including the Methane Guiding Principles (https://methaneguidingprinciples.org/methane-guiding-principles/)