IFC Food Loss and Waste Impact Tool – FAQs

This FAQ document accompanies the IFC Food Loss Impact Tool version 3.

1) **What is the purpose of the IFC's Food Loss impact tool?**

The purpose of the IFC's Food Loss impact tool is to enable users to quickly and easily estimate the impacts associated with projects that help prevent food losses at either the production, transportation, storage, processing, retail, or landfill stages of the value chain.

These impacts include GHG emissions but also indicators for food security, land use, biodiversity, water, and fossil fuel use.

What inputs do I need to provide?

At a minimum, data must be provided on Country, Commodity, and Production Type (animal proteins only), weight of the Commodity, and the food loss rate after the project.

For some commodities (eggs, flour and cotton), default food loss rates are not available hence food loss rates before the project must be provided by the user.

A range of optional inputs can be provided to increase the accuracy of the estimate calculated by the tool.

2) **How are food losses and greenhouse gas emissions calculated where I cannot provide site-specific data?**

The tool uses a database of food loss rates and greenhouse gas emission factors to establish a baseline when the user cannot provide site-specific data. For more information on what inputs are mandatory and how default data is used by the tool, please see the guidance and the methodology documents. NB: It is important to note that, although the tool can provide baseline food loss rates using existing estimates, it is highly recommended where possible to measure the actual food loss rate prior to implementing improvements to ensure greater data accuracy.

3) **Can I analyse a commodity or country that is not included in the list?**

No. Originally, the tool had 50 commodities and 117 countries. The latest version of the tool includes 80 commodities and 160 countries, totalling up to 12,800 unique combinations of commodity / country. At this moment only this specific list of combinations can be analysed, although additional commodities and countries may be added in future versions of the tool. For more information on what data is included in the database, please see the methodology document.

4) **I am only interested in some specific value chain stages, how can I set-up the tool to only focus on those?**

The tool delivers impact results per intervention project, based on food loss reductions at a specific supply chain stage. The impacts from one or several intervention projects can be modelled at once, as long as the commodity, country, weight of commodity post-project and food loss rate after project are indicated for each of the supply chain stage(s) where there is an intervention project.

The user is free to input different commodity weight and food loss rates for each of the intervention project(s) they wish to model.

5) **What does CO_2e mean?**

Carbon dioxide equivalent (or CO_2e) is a metric measure used to compare emissions from various greenhouse gases on the basis of their global-warming potential (GWP). It indicates the number of metric tons of CO_2 emissions that would have the same global warming potential as one metric ton of another greenhouse gas. Even though the tool provides a breakdown of gas emissions (CO2, N2O, and methane); nevertheless, all greenhouse gases included in the tool are measured in terms of CO_2e.

6) **I have a Life-cycle Assessment for my specific commodity, how can I use it in the tool?**

The tool is designed to utilise optional LCA inputs for commodities. Any manual input for greenhouse gas emissions will supersede the tool's default data.

7) **How should I measure and report food losses?**

Food losses should be measured and reported in accordance with the methodology provided by FAO (SDG 12.3.1: Global Food Loss Index)

8) **How do I measure the quantity of nitrogen applied to synthetic fertilizers?**

Nitrogen data can be reported in terms of nitrogen rate per hectare and/or the corresponding crop yield. The data should only account for synthetic fertiliser, therefore not including manure or other organic fertilisers. For example, if 100kg of synthetic fertiliser is applied with a NPK composition of 25:20:10, the input would be 25kg of nitrogen.

9) **How does the tool calculate the amount of losses avoided by a reduction in food loss rates along the value chain?**

The tool calculates avoided losses by calculating the amount of food losses that would have been generated to produce the same quantity of clean product (i.e., net of losses) using the pre-improvement loss rate. For example, if supply chain improvements results in a reduction in food losses from 10% to 5% and yield 100 tonnes of clean product, the tool calculates the losses that would have been needed to achieve the same 100 tonnes of clean product with a 10% loss rate:

$$^{100}/_{(1-0.1)} = 11{,}1\ tonnes$$

And subtracts post-improvement food losses at a 5% loss rate:

$$^{100}/_{(1-0.05)} = 5.2\ tonnes$$

The difference between these two values represents avoided food losses:

$$11.1 - 5.2 = 5.9\ tonnes$$

10) Why transport and storage have higher emissions associated at the post-processing stages than at the pre-processing stages, despite having the same characteristics?

Losses at the post-processing stage are associated with higher emissions because they include emissions from production, transport (pre-processing), storage (pre-processing), and processing stages, while losses at the pre-processing stage only include production.

11) Why are the production, transport, and storage stages not available for meat and aquatic products?

Production, transport, and storage for meat product would relate to livestock and are therefore outside the scope of the tool. Emissions from these stages are implicitly included in the emission factors for meat at the subsequent stages included in the tool. There are other tools available that look at the emissions associated with livestock production.

12) What Scope of emissions are included within the tool? How does it compare to an LCA?

The tool follows a project-based accounting method and cannot be clearly defined in terms of Scope. The methodology can be described as upstream value chain or cradle-to-gate footprint that only covers the food loss portion, i.e. a subset of a company's overall VC or LCA boundary.

13) Is this a recognised carbon footprinting methodology?

No established footprinting methodology is currently available for the purposes of this tool because its boundaries do not fit any of the existing standards, although the methodology aims to be consistent with project and LCA accounting principles where possible.

14) Can I sell credits based on the emission reductions results from the tool?

No, the tool only provides an approximation of GHG emissions avoided by a reduction in food losses.

15) What are the data sources used within the tool?

Due to the extensive scope and boundaries of the tool, data had to be gathered from several sources and expert opinions. A detailed review of all data used within the tool is available in the Methodology document.

16) Can the tool be used to calculate emissions from imports/exports?

Emissions associated with the import and export of commodities are included in the impact results. User can select whether or not the supply chain happens in the same or in different countries and select a geography for each of the supply chain stages.

Four transport journeys are covered in the calculations, one between each supply chain stage. Each transport journey is divided in three sub-journeys: within origin country, between origin and destination countries and within destination country. The tool includes default distances, transport type and related emission factor, and temperature control condition for each of those sub-journeys which the user is able to adjust in the interface.

17) Why do we have default numbers for commodities that are not produced in certain countries?

The tool is designed to include a comprehensive dataset of emission factors for all possible combinations of countries and commodities. Missing values are calculated by looking at average values associated with products from the same commodity group and/or from the wider region. Generally, it is not possible to know if a data point for a certain combination of commodity and country is missing because of lack of data (in which case an approximation can still be found within the tool), or simply because that commodity is not cultivated in that country (in which case the combination will never be used).

18) Why is the waste treatment emission factor for compost, recycling, incineration and sanitary landfill equal zero?

The calculation of the waste treatment emissions follow the methodology from IPCC on Solid Waste Disposal. The main gases released from waste treatment are biogenic carbon dioxide and biogenic methane.

Biogenic carbon dioxide emissions are considered balanced out with the biogenic carbon dioxide removals happening at plant growth, which is why the emission factor is zero for incineration and compost.

In the case of sanitary landfill, these are equipped with landfill gas collection systems, whereby the methane released by the waste is captured and reused and not released directly in the atmosphere, which is why the emission factor is zero in the tool.

In the case of recycling, the emissions from this type of waste treatment are transferred over to the next user, which is why the emission factor is zero in the tool.

19) How can I calculate the amount of methane and nitrous oxide emitted based on tonnes of CO_2 equivalent?

The tool uses data that relies on IPCC AR4 Global Warming Potential (GWP) of 25 for methane and 298 for nitrous oxide. To translate tonnes of carbon dioxide equivalent to actual tonnes of methane and nitrous oxide, divide the tCO_2e by the respective GWP value.

20) What can the tool tell me about the impact of losses and waste on food security?

While it is not possible to directly quantify the impact of reducing food losses and waste on food security in a given country, the tool offers valuable context by estimating the magnitude of nutritional content wasted and the country's vulnerability to food security challenges. The tool provides three key indicators: (1) the estimated number of people whose daily energy requirements could be met based on the caloric value of the avoided food losses for a given commodity; (2) the estimated number of people whose daily protein requirements could be met based on the protein content of the avoided food losses; and (3) the share of the population in the commodity's countries of production and distribution that is at risk of hunger.

21) How is the impact on water use and water resources calculated?

The tool estimates avoided water consumption by calculating the water footprint of the selected commodity in its country of production. This includes green water (rainwater stored in soil and used by

plants), blue water (surface or groundwater used and not immediately returned), and grey water (freshwater needed to dilute pollutants to meet quality standards).

The tool also provides a water risk profile for the production country, covers physical risks (e.g., water availability, drought, quality), regulatory risks (e.g., governance, infrastructure), and reputational risks (e.g., environmental and socio-economic factors), each scored from very low to very high and ranked globally. The country profiles are based on country-level averages across all industries (meaning sector-specific or subnational risks may differ substantially) but can offer useful context for interpreting avoided water use. For example, lowering losses of a water-intensive crop could help reduce pressure on water resources in countries facing significant levels of water stress.[1]

22) How does the tool evaluate the impact of food losses on land use and biodiversity?

Based on crop yields, the tool estimates the land area required to produce the quantity of food corresponding to the avoided losses. While this does not necessarily translate into a direct reduction in land use within the production country, it helps illustrate the extent to which lowering food loss rates can ease pressure and competition for land, both among different crops and between agricultural and natural land.

In addition, the tool provides a biodiversity risk score for the production country. While this score does not imply a direct link between reducing food losses and biodiversity outcomes, it provides context for interpreting the land-use estimates. For example, lowering losses of a land-intensive crop could help ease pressures in countries already facing significant biodiversity loss and degradation of ecosystem services.[2]

23) What is needed for the tool to work?

The tool requires Macros and ActiveX to be enabled. ActiveX is available for the following versions: Excel for Microsoft 365, Excel 2024, Excel 2021, Excel 2019, and Excel 2016. ActiveX is not compatible with the web version of Excel (Excel for the Web), therefore needs to be downloaded on the desktop.

24) What does IFC do to help reduce food loss?

IFC has made agribusiness a priority because of its potential for broad development impact and especially strong role in poverty reduction. We combine investments and advisory services to help the sector address higher demand and escalating food prices in an environmentally sustainable and socially inclusive way. IFC invests across the agribusiness supply chain—from farm to retail—to help boost production, increase liquidity, improve logistics and distribution, and expand access to credit for small farmers. Reducing food losses is one of IFC's three climate smart agriculture focus areas.

Learn more about IFC's priorities in Agribusiness.

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[1] More information on the risk profiles can be found in WWF Risk Filter Suite - Data & Methods.

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