

Uncover your *True Cost* of Food Waste with DIRECT



Food & Fibre
Gippsland



direct

empauer

Addressing and acting on Food Loss and Waste provides major *financial, environmental, and social opportunities.*

The extent of **Food Loss and Waste** is significant: it accounts for



32%
of global food supply by weight ¹



25%
of all water used in agriculture ¹



23%
of all fertiliser used on Earth ²



1 in 4
of all food calories available on the planet ³



8%
of total global greenhouse gas emissions ¹

Given the volume, waste and impacts caused, reducing Food Loss and Waste is imperative.

Acting on food waste holds promise in triple bottom line outcomes on a global scale. Estimates show that over **US\$ 1.2 trillion worth of food, or 1.6 billion tonnes, is lost every year across the food supply chain.** This current trajectory is set to increase to US\$ 1.5 trillion, or 2.1 billion tonnes, by 2030.

The importance of this issue is reflected by its inclusion in the United Nations Sustainable Development Goals (UN SDG), under goal 12

– Responsible Consumption and Production – where a specific target,

Target 12.3, was set to halve food loss and waste along production and supply chains, including post-harvest losses by 2030.



¹Tackling Australia's Food Waste (Global Statistics) Department of Agriculture, Water and the Environment (Australia) 2021

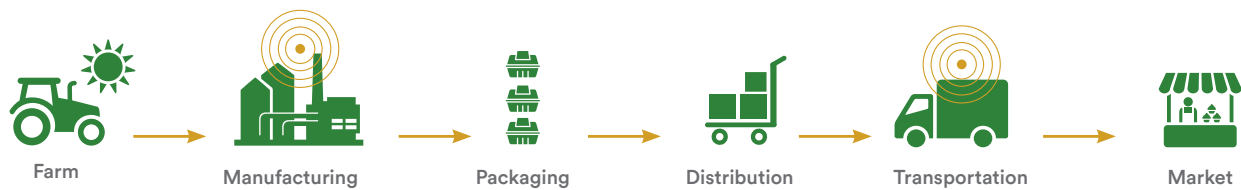
²Kummu, M., H. de Moel, M. Porkka, S. Siebert, O. Varis, and P.J. Ward. 2012. Lost Food, Wasted Resources: Global Food Supply Chain Losses and Their

Impacts on Freshwater, Cropland, and Fertiliser Use. Science of the Total Environment 438: 477–89

³World Resources Institute: Creating a Sustainable Food Future Instalment Paper 2: Reducing Food Loss and Waste (calorie statistic)

An overview of DIRECT

Measuring your Food Loss and Waste is central to reducing it



You can only manage what you measure. Your business needs to understand where loss and waste is occurring and from such an understanding, better business decisions can be made.

Empauer has created DIRECT, a software tool designed to measure, pinpoint, track, assess and enable you to reduce your food waste and associated costs.

DIRECT allows you to:

- map food and non-food material flows (inc. associated costs) across your food supply chain,
- quantify your business' 'true cost of waste', and
- undertake scenario comparisons to reduce costs and increase resource efficiency.

New income streams may eventuate as a result of DIRECT's findings, resulting in food waste no longer costing your business and instead providing an additional source of revenue.

DIRECT provides you with a gold standard compliance framework. The tool is aligned to international standards and protocols in aimed at reducing waste such as:

The Food Loss and Waste Accounting and Reporting Standard (**FLW Standard**), developed by the global and multi-stakeholder FLW Protocol (convened by the World Resources Institute); and

ISO-14051, a general framework for material flow cost accounting (MFCA).

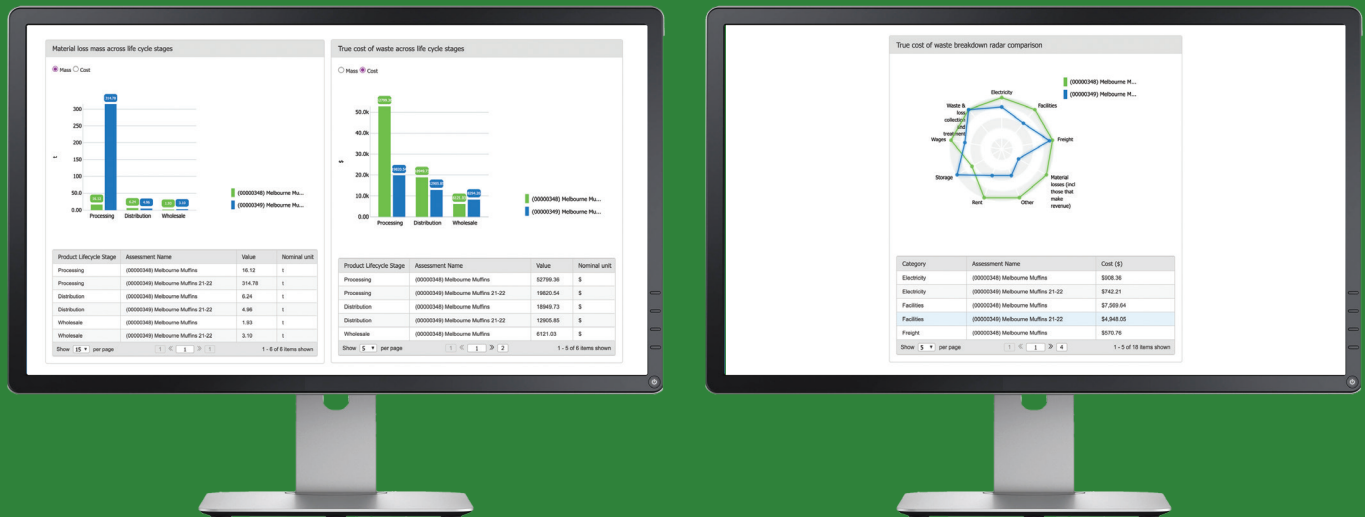
ISO-14052, Practical implementation in a supply chain (MFCA).

ISO-14053, Phased implementation in organizations (MFCA).

These alignments provide consistency, flexibility and both internal and public reporting value.

DIRECT's interface, data gathering options, input data, terminology, and reporting are all aligned to these global standards, allowing enhanced credibility and trust in the quality of your results and reporting, which will be comparable to other studies done around the globe, thereby placing the results in a meaningful context.

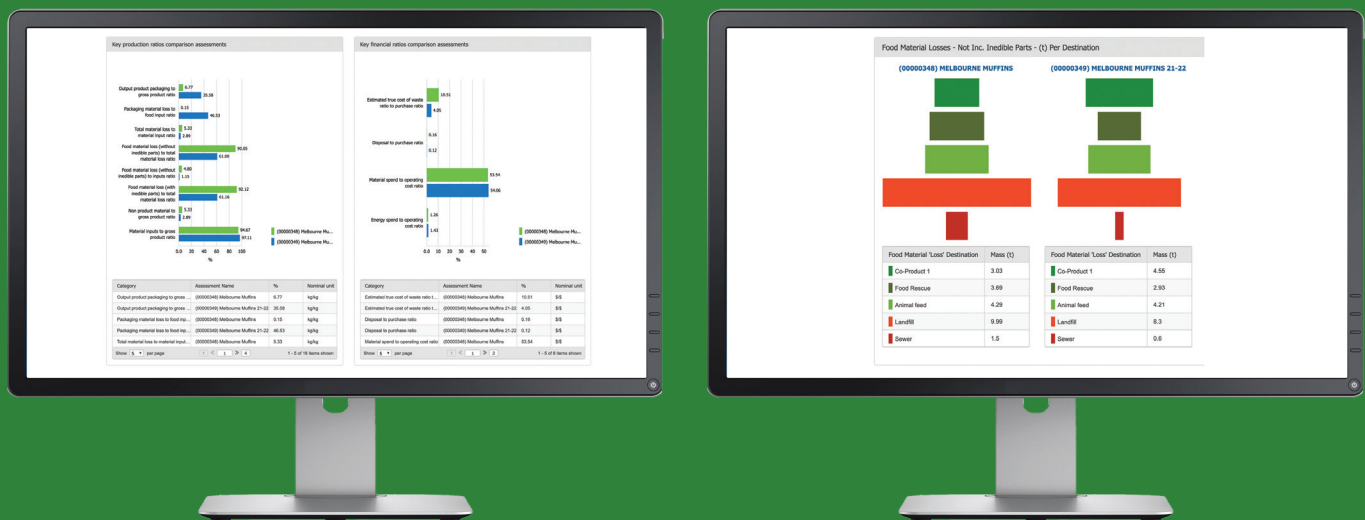
DIRECT *benefits* and how it *works*



- DIRECT provides a comprehensive way to track where and how food waste occurs along your entire food supply chain, calculate the costs, and chart your progress.
- DIRECT's data and tracking capabilities, makes your goals of reducing food waste achievable.
- To capture the true cost of waste, DIRECT also tracks non-food waste resources including water and packaging.
- DIRECT can help your business save money and better leverage your resources. The tool can be used to assess and improve your organisation's resource efficiency, as well as sustainability and financial strategies, by benchmarking and projecting improvements over time.
- DIRECT finds where there is extra profit to be made. E.g. farmers from produce they would otherwise discard, for retailers in driving supply chain efficiencies.

Your food supply chain can make the shift to maximum efficiency, as DIRECT:

- Provides charting, reporting & dashboard comparisons of scenarios and supply chain operations
- Maps material loss tonnage per destination
- Ranks valorised food material losses
- Detects material loss mass and cost hot spots from one process to another and across the food supply chain
- Tracks material flow, costs and income of co-products, food rescue & waste streams
- Charts key production mass and financial ratios
- Identifies where financial opportunity/ additional revenue could be generated from shifting otherwise lost material to a different destination



Ease of Use

DIRECT has been designed with a step-by-step data entry wizard, guiding the user through a simple process of inputting project information, including material mass and cost inputs, material flows and destinations, as well as business costs, both easily and efficiently. Prompts and pop-ups are also integrated into the tool to provide guidance to the user when required.

Insightful whole supply chain mapping

DIRECT allows for multiple processes in your company to be linked together to give a full map of your supply chain, with the outputs to one stage being able to be used as the input for the subsequent stage. As a result, DIRECT can identify upstream and downstream effects along the supply chain that contribute to waste production.

Scenario Comparisons

DIRECT can compare between a measured baseline and different hypothetical scenarios, allowing your business to assess the potential benefits of different measures taken to mitigate waste, and their interaction with the supply chain.

New business opportunities

By capturing and measuring material destinations, DIRECT helps your businesses identify ways of turning a waste stream into a potential source of additional revenue, or social outcome through food rescue.

Visual and Meaningful Results

Results generated by DIRECT are simple and easy to understand, and are displayed in graphs, charts and heat maps for both mass and cost. DIRECT gives you the ability to compare different scenarios alongside each other, via a dashboard, providing a clear hypothetical view of the benefits

Features/benefits of a DIRECT license

Alongside access to DIRECT, you can plug in your organisation's data and take the guess work out of food waste management, along with training and expert support tailored to your business needs.

How DIRECT can help

DIRECT manages the crucial data and provides the assessment framework organisations need to dramatically reduce food waste.

DIRECT can be linked to any product life cycle management suite, empowering your business with cloud-based tracking, dashboards, and assessment tools. That means organisations can see exactly where waste occurs, and how much it costs at each point in the supply chain. Armed with this data, they can start making real changes for the better.

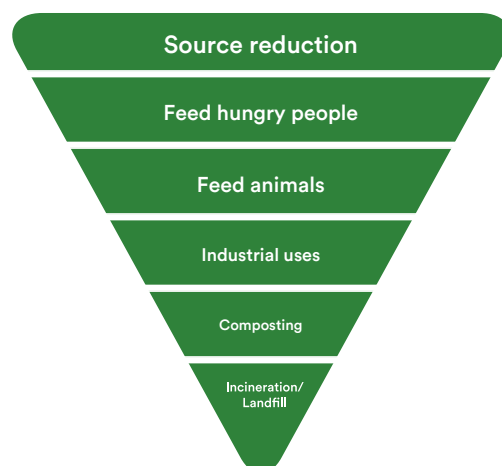
With DIRECT you use real data to reduce waste – quickly and decisively.

In summary, DIRECT helps to:

- Gain insights into the material inputs and flows occurring across a single process stage or entire supply chain.
- Understand exactly where material loss occur and how much it costs to not turn material inputs into products.



- Undertake a mass balance approach by tracking material flow cost accounting for products, co-products, food rescue & waste streams.
- Quantify the 'true cost of waste', including ingredients, labour, and overhead.
- Align to the Food Loss and Waste Accounting and Reporting Standard (FLW Standard) and ISO-14051.
- Manage crucial data providing assessment framework for reporting & reduction of food loss & waste.
- Identify hot spots where waste occurs in sourcing, production, and transport processes and across the supply chain/life cycle stages.
- Assess the possibilities of turning material loss into financial gain.
- Build objective evidence to support the business case for resource efficiency.
- Track alignment to global and national sustainability standards.





DIRECT has been developed in partnership with RMIT University and the Fight Food Waste Cooperative Research Centre; whose activities are funded by the Australian Government's Cooperative Research Centre program.

If you want to see how DIRECT can help you identify the true cost of waste, contact Food and Fibre Gippsland.

www.foodandfibregippsland.com.au
info@foodandfibregippsland.com.au

Empauer Pty Ltd
 21-23 Stewart Street
 Richmond Victoria 3121
 Australia

www.empauer.com
 +61 3 9020 7295
info@empauer.com