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Food Loss and Waste Standard – Use in Monitoring Food Waste to Meet EU Reporting Obligations

Andrew Parry (Special Advisor,
WRAP)

Kai Robertson (Lead Advisor,
FLW Protocol, WRI)

28th February 2018



Topics covered



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- Brief background on origins of the Food Loss and Waste Standard (FLWS)
- What is the FLWS, and what are its advantages
- FLWS requirements vs flexibility (and how this can be tailored to align to the requirements of the CEP)
- Where is the FLWS being used
- How the FLWS can be used to aid national reporting
- Guidance/tools/support that is available now, and under development
- Summary
- Discussion

Origin of the FLWS



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A Steering Committee of seven expert institutions providing technical input, written content, strategic direction, and quality control.

STEERING COMMITTEE



Multi-stakeholder involvement

Over 200 stakeholders consulted

REVIEWERS AND PILOT TESTERS

Will Schreiber, 3Keel LLP

John E Hermansen, Aarhus University

Kabanda Samson, Africa Multi Investments and Development

Julian Parfitt, Anthesis Group

Rick Hodges, APHLIS/Natural Resources Institute, University of Greenwich

Anna Flyso, Arla Foods

Anna-Karin Modin Edman, Arla Foods

Richard Laxton, Arla Foods

Darby Hoover, Natural Resources Defense Council

Javiera Charad, Nestlé

Pascal Chapot, Nestlé

Nerlita Manalili, Nexus Agribusiness Solutions

Grace Lin Jiaying, NTUC Fairprice Co-operative Limited

Rich Martinelli, PepsiCo

Lucas Rafael Ivorra Peñafort, Pontificia Universidad Javeriana/AISO (Academia de Innovación para la Sostenibilidad)

Michael Hewett, Publix and on behalf of Food Waste

Recognitions

The FLW Protocol is grateful for the in-kind contributions of the many individuals who shared their feedback and insights.

Across every continent
Across the food supply chain
Across all types of organizations (academia, private sector, government, NGOs)

Ignatius Pumpuni, Ghana Cocoa Board

Jim Bracken, GS1 AISBL

Patsy Ramirez-Arroyo, Homera

Brian Higgins, Innovation Center for U.S. Dairy

Kata Tisza, International Solid Waste Association (ISWA)

Misuzu Asari, Kyoto University Environment Preservation Research Center

Andrew Shakman, LeanPath

Jacinta Nyaika, Lilongwe University of Agriculture and Natural Resources-Bunda College Campus

John Fischer, Massachusetts Department of Environmental Protection

Harriet Muyinza, NARO

Jean Buzby, United States Department of Agriculture

Hope Pillsbury, United States Environmental Protection Agency

Anna Vinogradova, Walmart

Cynthia Cummis, World Resources Institute

Laura Malaguzzi Valeri, World Resources Institute

Mary Sotos, World Resources Institute

Richard Waite, World Resources Institute

Samantha PuttDelPino, World Resources Institute

Tatjana von Bormann, WWF

Mungule D. Chikoye, Zambian Centre for Lifelong Learning Ltd

Institute of Sweden
Denmark

Foundation
Agriculture

What is the FLWS



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Launched June 2016

The FLWS is:

- A voluntary, global accounting and reporting standard
- For quantifying and reporting on the amount of food and/or associated inedible parts removed from the food supply chain (*referred to for simplicity sake as ‘food loss and waste,’ or FLW*)
- Intended for a wide range of entities - countries, companies and other organizations

[The Food Loss & Waste *Protocol* is the multi-stakeholder effort that developed the FLWS]

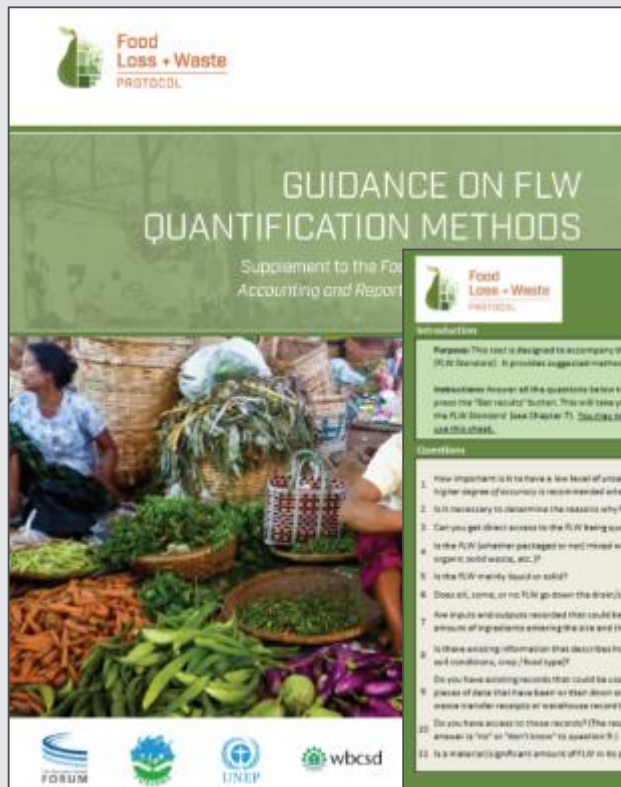
FLWS – requirements vs flexibility



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- Does not dictate what methods should be used to acquire the food waste data (but provides guidance on this)



Food Loss + Waste Protocol

FLW Quantification Method Ranking Tool

(June 2016)

Introduction

Purpose: This tool is designed to accompany the Food Loss and Waste Accounting and Reporting Standard (FLW Standard). It provides suggested methods for quantifying food loss and waste (FLW).

Instructions: Answer all the questions below to the best of your ability by using the drop-down menus, then press the "Get results" button. This will take you to the Results Tab which lists all the methods included in the FLW Standard (see Chapter 7). You can read more about the FLW Standard by visiting www.fao.org/flw.

Notes:

- The "Methodology Tab" explains how this ranking of methods was developed.
- The recommendations provided do not take into account the availability of resources (e.g., budgets, staff time). This tool does not consider which methods would work well in certain contexts (Methodology Tab) for additional details.
- We welcome your questions and suggestions. Please contact Brian Latham at BrianLatham@wri.org.

Questions

Please select answers from drop-down menus

1. How important is it to have a low level of uncertainty (high degree of accuracy in the FLW results)? Note: A higher degree of accuracy is recommended when monitoring targets.	<input type="radio"/> Very important (e.g., setting/measuring targets)
2. Is it necessary to determine the reasons why FLW is generated?	<input type="radio"/> No
3. Can you get direct access to the FLW being quantified?	<input type="radio"/> Yes
4. Is the FLW (whether packaged or not) mixed with other items or materials (e.g., soil, garden / yard waste, non-organic food waste, etc.)?	<input type="radio"/> Yes, FLW mixed with other material
5. Is the FLW mainly liquid or solid?	<input type="radio"/> Mainly solid
6. Does it, some, or no FLW go down the drain/sewer?	<input type="radio"/> Some
7. Are inputs and outputs recorded that could be used for inferring the amount of FLW? (e.g., in a factory, the amount of ingredients entering the site and the amount of product leaving the site).	<input type="radio"/> Yes
8. Is there existing information that describes how FLW varies in response to other factors (e.g., with climate, soil conditions, crop / feed type)?	<input type="radio"/> No
9. Do you have existing records that could be used for quantifying FLW? (For this purpose, records are individual pieces of data that have been or shall be used often for reasons other than quantifying FLW, e.g., waste transfer receipts or warehouse record books.)	<input type="radio"/> Yes
10. Do you have access to these records? (The response is automatically "not applicable" to this question if the answer is "no" or "don't know" to question 9.)	<input type="radio"/> Yes
11. Is a material/significant amount of FLW in its packaging?	<input type="radio"/> Yes

Get results
Please note any answers left blank will result in error

Reset questionnaire responses

What is the FLWS (resources @ www.FLWProtocol.org)



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TIMEFRAME

(insert timeframe)

MATERIAL TYPE

- Food
- Inedible parts

DESTINATION

- Animal Feed
- Biomaterial/processing
- Co/anaerobic digestion
- Compost/aerobic
- Controlled combustion
- Land application
- Landfill
- Not harvested
- Refuse/discards
- Sewer

BOUNDARY

- Food category = (insert text)
- Lifecycle stage = (insert text)
- Geography = (insert text)
- Organization = (insert text)

RELATE ISSUES

Pre-harvest losses and weights/produce packaging excluded from the weight FLW

(modify and/or insert additional relevant text)

Notes:

- The "Methodology Tab" explains how this ranking of methods was developed.
- The recommendations provided do not take into account the availability of resources (e.g., budget, staff/time). The tool does not consider which methods would work best for your organization. Use the "Methodology Tab" for additional details.
- For the complete user questions and suggestions, please contact Bruce (bruce@flwr.org)

Please select answers from drop-down menus

Very important (e.g., setting/measuring targets)

No

This template should be customized to show your scope

Indicate what material types and destinations are included as the scope - color in the box and add a check mark

About This Case Study

Webinars and Slides

QUANTIFYING FOOD LOSS AND WASTE - GUIDANCE AND METHODS

In this webinar, we provide guidance for how food loss and waste can be quantified in accordance with the FLW Standard. We also describe factors that may influence your quantification choices and provide an overview of the 10 commonly used quantification methods.

Webinar Slides | Webinar Video

What is the FLWS



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- Aims to support users in:
 - Understanding why to measure FLW
 - What to measure
 - How to approach measurement
 - How to report
- Provides:
 - Consistent language
 - Framework for consistent and transparent reporting

Requirements vs flexibility



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FLWS – requirements vs flexibility

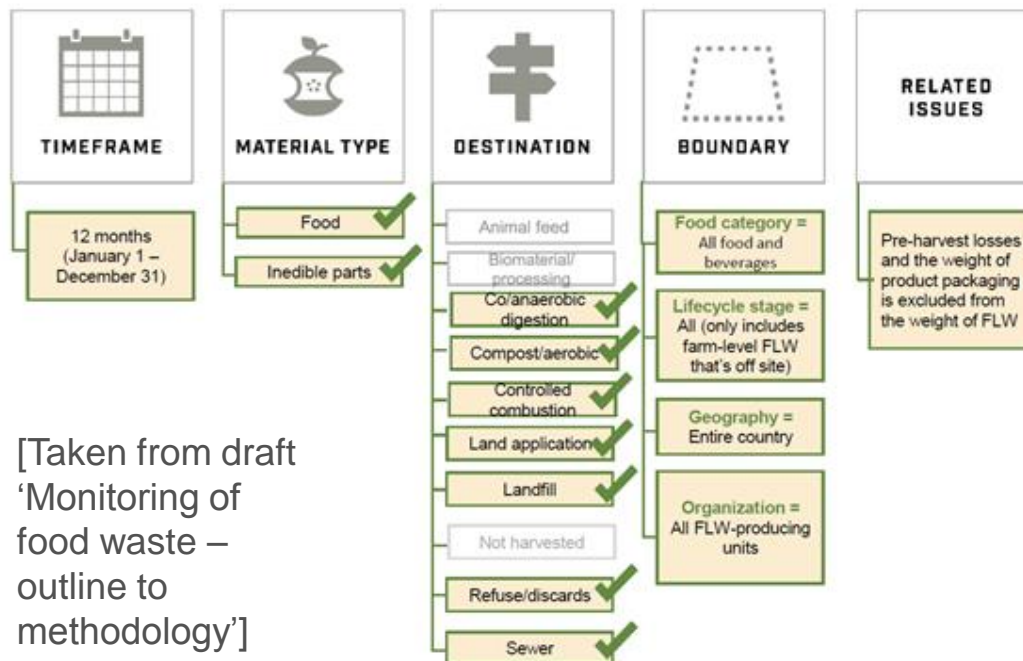


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- Does not dictate what is classed as food waste (but provides an adaptable template for users to show what is being included)

Proposed coverage of monitoring of food waste on the template of Food Loss and Waste Standard



[Taken from draft 'Monitoring of food waste – outline to methodology']

FLWS vs FUSIONS guidance



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Guidance on possible methods

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INTRODUCTION

1. DIRECT WEIGHING
2. COUNTING
3. ASSESSING VOLUME
4. WASTE COMPOSITION ANALYSIS
5. RECORDS
6. DIARIES
7. SURVEYS
8. MASS BALANCE
9. MODELING
10. PROXY DATA

APPENDIX A. QUANTIFYING FLW IF WATER IS ADDED

REFERENCES

ENDNOTES

Chapters include:

- Overview
- Advantages/ disadvantages
- Level of expertise required
- Cost
- Guidance on implementing



Recommended approach



Food waste quantification manual to
monitor food waste amounts and
progression

June 21, 2018

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FLWS requirements

- Note: Three of these requirements are only relevant in some cases (5,7,8)

1. Base FLW accounting and reporting on the principles of relevance, completeness, consistency, transparency, and accuracy

2. Account for and report the physical amount of FLW expressed as weight

3. Define and report on the scope of the FLW inventory

a. Timeframe

c. Destination

b. Material type

d. Boundary

4. Describe the quantification method(s) used

5. If sampling and scaling of data are undertaken, describe the approach and calculation used, as well as the period of time over which sample data are collected

6. Provide a qualitative description and/or quantitative assessment of the uncertainty around FLW inventory results

7. If assurance of the FLW inventory is undertaken (which may include peer review, verification, validation, quality assurance, quality control, and audit), create an assurance statement

8. If tracking the amount of FLW and/or setting an FLW reduction target, select a base year, identify the scope of the target, and recalculate the base year FLW inventory when necessary

Advantages of the FLWS



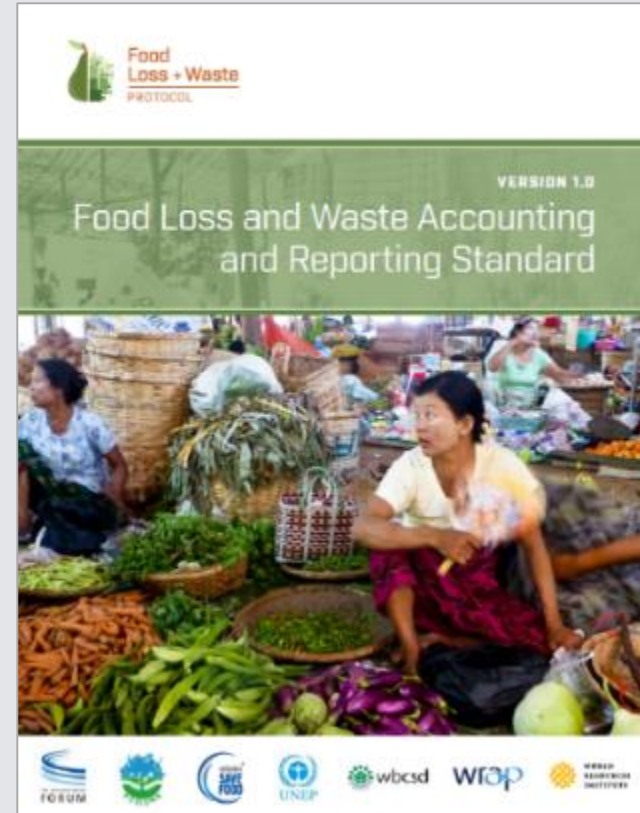
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- ✓ **Common language**
- ✓ **Reporting framework**
- ✓ **Practical guidance**

“... provides consistent language to use ... and standard ways to measure and report.”

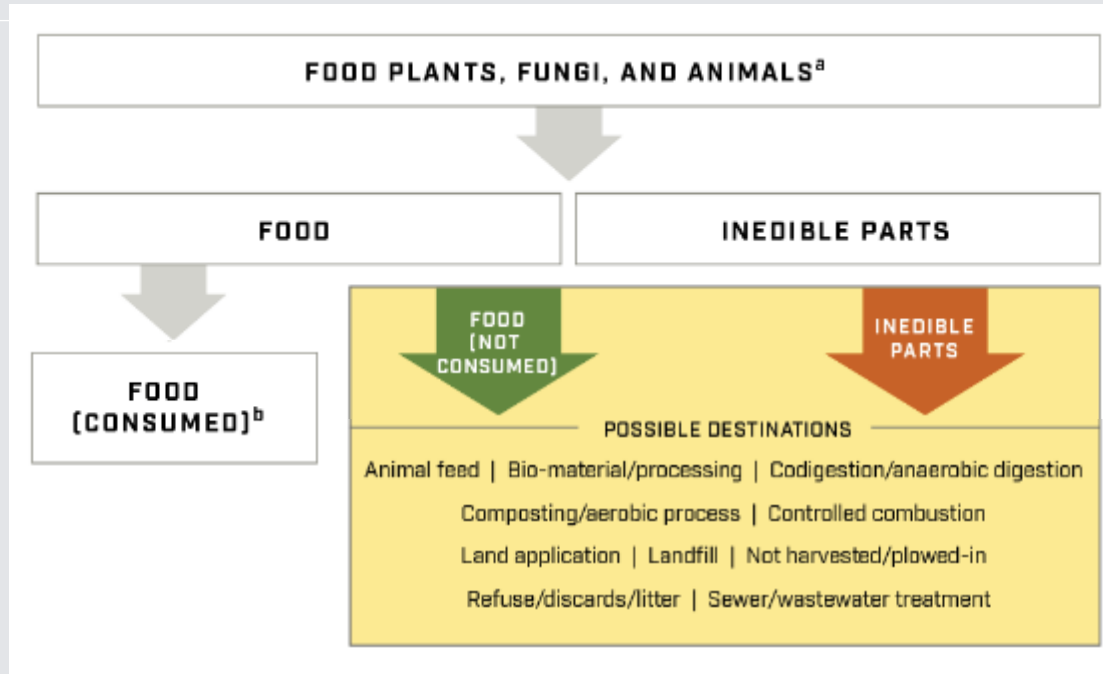
Kellogg Company



Consistency in language



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(1) Material Types (i.e., food and/or inedible parts)

AND

(2) Destinations (where material goes when it leaves the food supply chain; 10 possibilities)

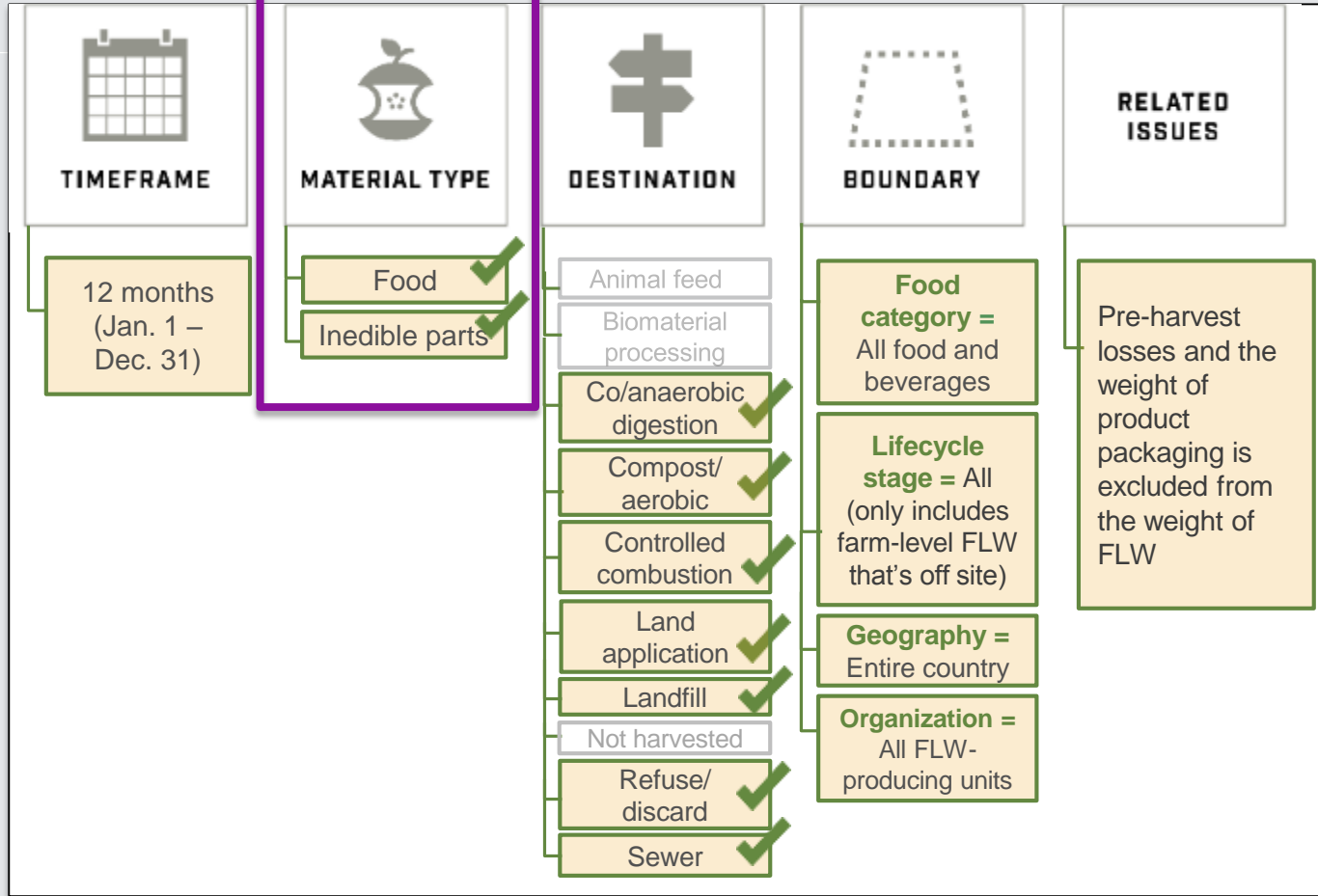
^a Intended for human consumption (i.e., excludes crops intentionally grown for bioenergy, animal feed, seed, or industrial use)

^b At some point in the food supply chain (including surplus food redistributed to people and consumed)

Scope described using FLW Standard



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Consistency in language



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Still food but in a different state!



This is edible = fit for human consumption

These are both “food” – originally intended for human consumption



This is no longer edible (not edible) = some might call it “inedible”

It's confusing to refer to “edible” versus “inedible” because there are also... inedible parts

Consistency in language



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This is (Inedible) **Food** = no longer edible, i.e., not fit for consumption

Avoid confusion and use “food” and “inedible parts”



This is the **Inedible Parts** = bones, rinds, pits/stones not intended for consumption

Consistency in definitions / language



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- Definition of food – FLWS definition from Codex Alimentarius Commission (2013)
- Inedible parts - cultural element
[WRAP carried out research to inform what was included in this]
- Food waste – still a variety of terms being used
 - WRAP moving away from avoidable, possibly avoidable and unavoidable, to:
 - Food waste = “wasted food” (elements intended for human consumption) plus “associated inedible parts”
(This language also used by U.S. environmental agencies)
 - Recommendation not to use ‘edible’ and ‘inedible’ (as can be misinterpreted)

FLWS in practice



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Examples of business users



Food Loss + Waste PROTOCOL

Why Measure? **FLW Standard** News & Updates About the FLW Protocol

Case Studies

Many companies and other organizations are using the FLW Standard. These case studies share why some are measuring food loss and waste and the benefits of doing so, how they define the scope of their food loss and waste inventory using the FLW Standard, and some of the innovations that are helping them achieve their goals.

Kellogg's
KELLOGG COMPANY: FOOD WASTE IN GLOBAL MANUFACTURING OPERATIONS

TESCO
TESCO'S OPERATIONS IN THE UNITED KINGDOM: FOOD WASTE IN STORES AND DEPOTS

DELHAIZE AMERICA
DELHAIZE AMERICA'S OPERATIONS IN THE UNITED STATES: FOOD WASTE IN STORES AND DISTRIBUTION CENTERS

Nestlé
NESTLÉ DAIRY FACTORIES IN PAKISTAN: LOSSES ACROSS THE VALUE CHAIN

[More in the Pipeline:](#) Cranswick plc, Danone, Campbell's, Sobeys, Walmart

Example of other users



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FOOD WASTE IN CITIES: NRDC
REPORT USING FLW STANDARD (SEE
APPENDIX A AND B)

Tesco suppliers initiative



- 25 major suppliers representing >£17 billion of sales
- Adopted targets aligned to SDG 12.3 (Champions 12.3 interpretation)
- Will measure and publish food waste data by September 2018
- Reporting template uses the FLWS
- Supported by WRI, Anthesis (Consultancy) and WRAP
- Workshop to discuss details and provide clarification
- Will feed into wider development of new resources



Working with Industry Leaders to agree principles of food waste measurement



- Mandate from the UK Industry Leaders Forum (ca 30 CEOs)
- Collaborative exercise with a range of business representatives to develop a set of principles for how food waste measurement should be approached
- Retail, hospitality & food service, manufacture, primary production
 - Accepted by the Industry Leaders Forum September 2017
 - Principles and signposting document published January 2018
[\[http://www.wrap.org.uk/content/food-waste-measurement-principles-and-resources-guide\]](http://www.wrap.org.uk/content/food-waste-measurement-principles-and-resources-guide)
- Implementation Roadmap to be developed by September 2018

Principles of food waste measurement (UK food industry) |



There are three principles of food waste measurement:

1. Food waste measurement and reduction should focus on farm to fork in pursuit of SDG Target 12.3
2. The framework of Target, Measure, Act represents the best way to make progress on food waste measurement and prevention
3. Consistent definitions of food, food waste and inedible parts, must be adopted by every organisation which commits to measure and reduce food waste

Adopting a common approach to measuring food waste, in line with the Food Loss & Waste Standard and Champions 12.3 clarification document, is essential to make progress.

Supporting these principles consistently across our industry will enable individual companies and industry as a whole to demonstrate congruence in how food waste is being measured and managed.

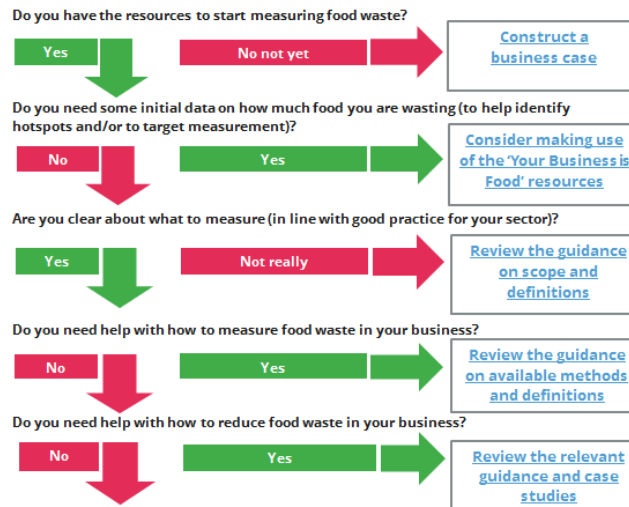
Principles of food waste measurement (UK food industry) |



Food waste measurement signposting tree

Why should I measure food waste? What should I measure? How should I do this? How can I take action to reduce food waste? Answer the questions below and navigate to relevant resources to find out.

Interactive guide – Just rollover and click to navigate



Contact WRAP to discuss how you can create a case study of your work

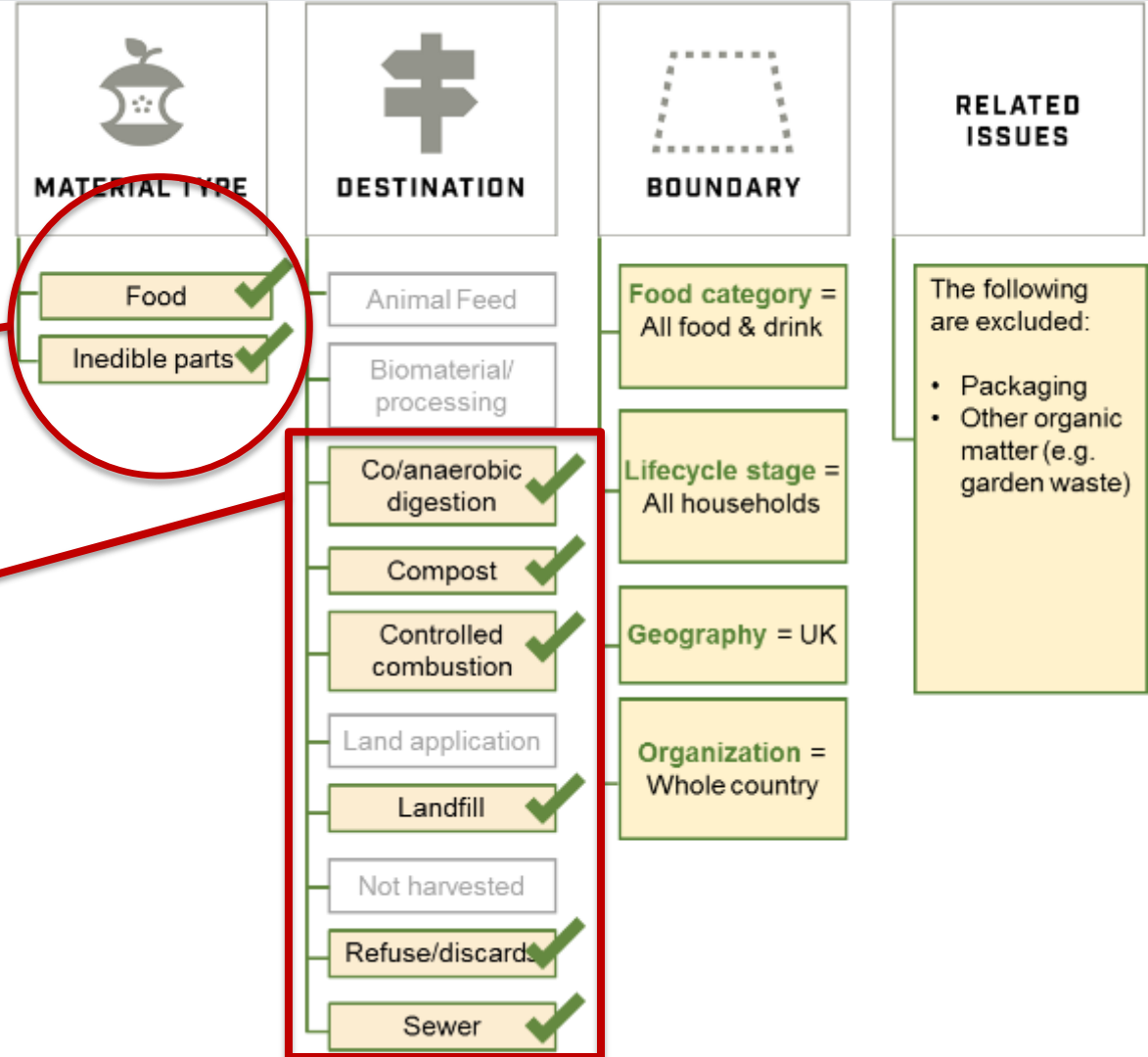
Email: foodspecialist@wrap.org.uk

Aligning UK household food waste data

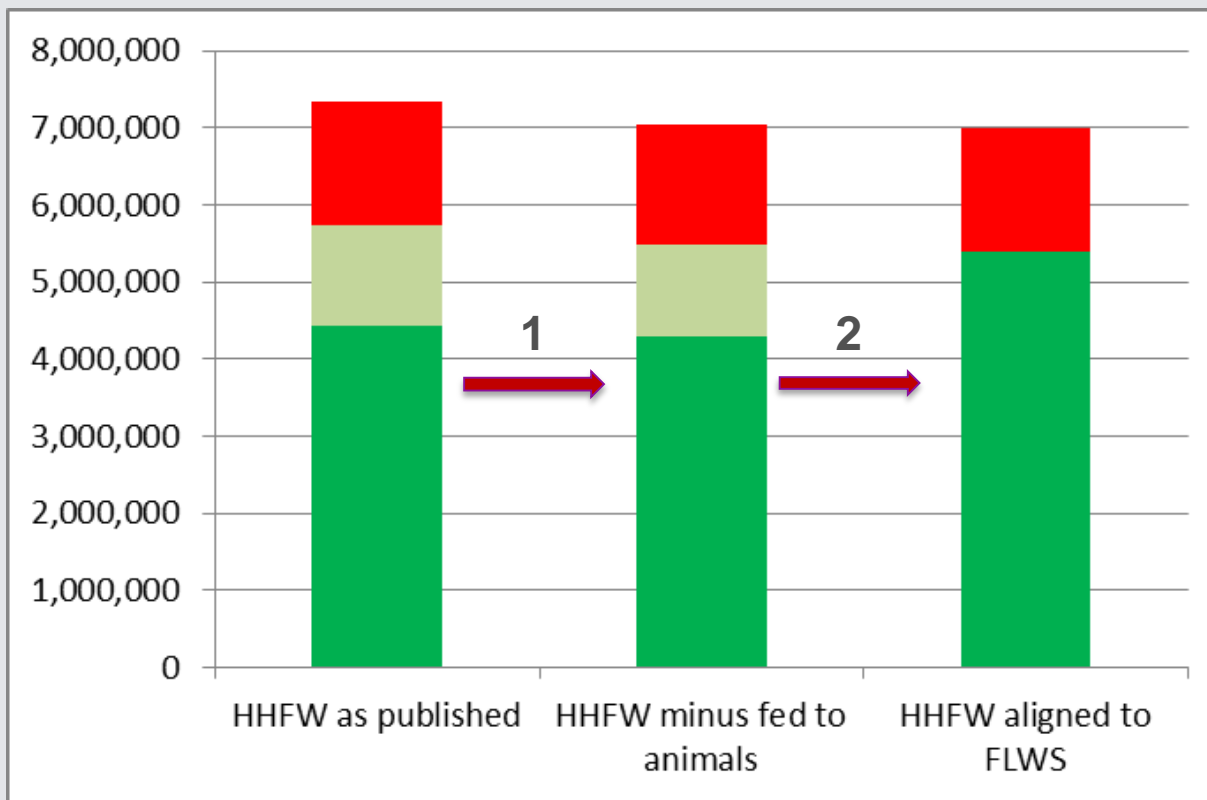
WRAP defined this as:

- Avoidable and potentially avoidable
- Unavoidable

Historically WRAP has also included food fed to pets/animals



Aligning UK household food waste data with the FLWS / FUSIONS language



1: Exclusion of 0.3 Mt of food fed to animals

2: Consolidation of three fractions (avoidable, possibly avoidable, unavoidable) **in to two** (food and inedible parts)

[Green = food and red = inedible parts in the final column]

How the FLWS can be used to aid national reporting



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FLWS as an aid for transparent national reporting



- Can form part of a strategy for Member States to acquire food waste data from supply chains
 - Ensure scope of data and method used for data generation is clearly reported. Reporting based on FLWS requirements provides clarity with respect to the reliability, consistency, and comparability of the data.
 - Integrate into existing or new reporting mechanisms (e.g. through voluntary agreements, trade body surveys, mandatory requirements etc.)
- Can help ensure Member State-funded research is consistent and comparable (e.g. on household food waste)

FLWS as an aid for transparent national reporting



- Needs to be complemented by:
 - Guidance on what to include in scope (e.g., related to material types, destinations, and boundary)
 - Guidance on methodological approaches
 - Tailored reporting template(s)
- Supplementary sector-level guidance / Q&As may be needed (and may be covered by future FLWS resources)
- Training / sector-level discussions are invaluable

Example reporting template (UK retail suppliers; based on FLWS)



FOOD WASTE INVENTORY BASED ON XXXX RECOMMENDATIONS AND FLW STANDARD REQUIREMENTS (see www.FLWProtocol.org for details and guidance)

SUMMARY

Company name: Company XYZ

Name of person filling out report: Mary Smith

Date submitted: Month Day, Year

- Overall food waste tonnage: 1,000 tonnes
- Food waste in tonnes as a % of food produced in tonnes: 10%

OPTIONAL:

- Quantitative breakdown of food waste tonnage by key categories (composition of food waste): Breakdown by category is published on Company XYZ's website
- Food waste amount by destination: Breakdown by destination is published on Company XYZ's website
- Tonnes of surplus food donated to charity or other human consumption streams, surplus food / inedible parts diverted to animal feed and/or bio-based materials/biochemical processing:
 Surplus food: 50 tonnes donated to charity; Animal feed: 100 tonnes of surplus food and inedible parts;
 Bio-materials processing: 30 tonnes of inedible parts. Breakdown by destination is also published on Company XYZ's website

1. Base FLW accounting and reporting on the principles of relevance, completeness, consistency, transparency, and accuracy

- **Relevance:** Data informs waste reduction activities
- **Completeness:** All direct global manufacturing locations are included
- **Consistency:** Use same methodology each year
- **Transparency:** Methodology, including assumptions, is published
- **Accuracy:** Varies depending on destination; calculation is validated by internal audits; ongoing work to reduce uncertainties

2. Account for and report the physical amount of FLW expressed as weight

Food waste reported in tonnes

3. Define and report on the scope of the FLW inventory

- **Timeframe:** 12 months; November 1, 2016 – October 31, 2017
- **Material type:** Food and associated inedible parts
- **Destination:** While multiple destinations fall under the definition of "food waste" for Company XYZ, food waste in this inventory only goes to anaerobic digestion and sewer/wastewater treatment
- **Boundary:**
 - Food category: Baked goods for retail (GSFA04.2; GSFA07.2; GSFA08.1; GSFA15.1)
 - Lifecycle stage: ISIC Group 1071 / 1075 Manufacture of bakery goods and prepared meals and dishes
 - Geography: United Kingdom, UN Code 826
 - Organization: 20 factories
- **Related issues:** Packaging weight is excluded. No separate calculation is needed to separate the weight of packaging from the weight of the food waste since the product weights used to calculate the total weight do not include packaging. The weight of water is excluded from the weight of FLW in calculations to the sewer/wastewater treatment.

4. Describe the quantification method(s) used. If existing studies or data are used, identify the source and scope
 Quantification methods include: direct weighing, records and waste composition analysis. Methodology is published on Company XYZ's website.

5. If sampling and scaling of data are undertaken, describe the approach and calculation used, as well as the period of time over which sample data are collected (including starting and ending dates)

N/A

6. Provide a qualitative description and/or quantitative assessment of the uncertainty around FLW inventory results

Sources of uncertainty include estimates made about the total mass of food waste to sewer/wastewater treatment

7. If assurance of the FLW inventory is undertaken (which may include peer review, verification, validation, quality assurance, quality control, and audit), create an assurance statement

N/A

8. If tracking the amount of FLW and/or setting an FLW reduction target, select a base year, identify the scope of the target, and recalculate the base year FLW inventory when necessary

- Base year is 2016
- Food waste reduction target of 50% by 2030
- Methodology is in place to determine when baseline recalculation is necessary

Example reporting format (3 US cities – businesses; based on FLWS)



ESTIMATING QUANTITIES AND TYPES OF FOOD WASTE AT THE CITY LEVEL:

TECHNICAL APPENDICES

Appendix A: Conformance with Food Loss and Waste Standard—Residential

The Food Loss and Waste Accounting and Reporting Standard (FLW Standard) provides a framework for accounting for and reporting on food loss and waste. The graphic below describes the scope of the ICI estimate using the FLW Standard.

BASELINE



TIMEFRAME

ONE WEEK (SEPT 2016 – JAN 2017)

- * This specific food is part of...
 - ** Each bucket contains...
- Note: At the time of materials used (Nashville), and to landfill collection.

Appendix B: Conformance with FLW Standard—Industrial, Commercial, Institutional (ICI)

A. ICI Estimates (All Cities)

The Food Loss and Waste Accounting and Reporting Standard (FLW Standard) provides a framework for accounting for and reporting on food loss and waste. The graphic below describes the scope of the ICI estimate using the FLW Standard.

BASELINE FOOD WASTE ASSESSMENT: ICI ESTIMATES (FOOD LOSS AND WASTE ACCOUNTING AND REPORTING STANDARD)



Example guidance to producers and manufacturers (UK retail supply chain)

XXX supplier workshop – Questions asked by attendees

This is a compilation of questions sent in advance, raised during the main session and in the break-out groups.

Table of Contents (ctrl & click to go to the relevant section)

1. [Boundaries \(what should my data cover?\)](#)
2. [Definitions \(how do I deal with certain materials or situations?\)](#)
3. [Methodology \(how should I be measuring?\)](#)
4. [Data sources \(where can I get data from?\)](#)
5. [Reporting \(how should my data be presented?\)](#)
6. [Other](#)

Food Waste Recommendations A Reference Document for Suppliers

Context

This document is intended to help you on your measurement journey by providing a summary of recommendations and optional best practices as well as related guidance.

You'll find answers to the following questions:

1. What are our recommendations?
2. What do I include when developing my food waste baseline?
3. What methods can I use to quantify food waste in my own operations?
4. What do I need to include in my report to XXXX?
5. Where can I find more information on measurement and reporting on food waste?

1. What are our recommendations?

The following are our recommendations:

- Clearly defined scope for own operations and timescale (see question 2)
- Report overall food waste tonnage
- Report food waste in tonnes as a % of food produced in tonnes
- Report scope, methods and assumptions in conformance with the *FLW Standard*¹

Optional best practice is to include:

- Quantitative breakdown of food waste tonnage by key categories (i.e., composition of food waste)
- Reporting food waste amount by destination
- Reporting amount of surplus food donated to charity or other human consumption streams, surplus food / inedible parts diverted to animal feed or bio-based materials/biochemical processing

2. What do I include when developing my food waste baseline?

The following lays out what we recommend suppliers use as their scope when developing a food waste baseline. This should be reported using the figure on page 5.

a. *Timeframe* (the period of time for which the food waste data is being reported)

Recommendation: 12 months

Guidance: Either calendar or fiscal year is acceptable.²

b. *Material type* (the materials that are included in the food waste inventory [food only, inedible parts only, or both])

Guidance / tools / support



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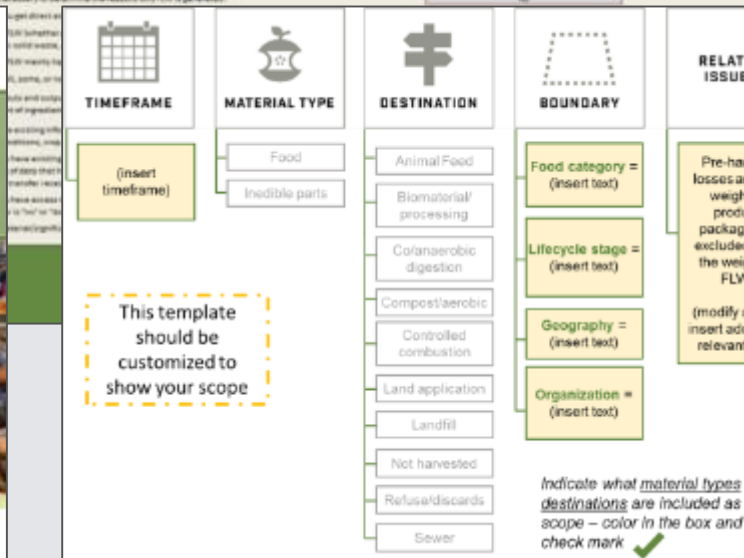
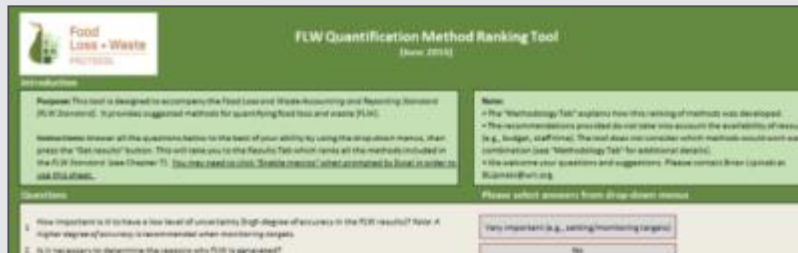
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Guidance / tools / support @ www.FLWProtocol.org



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ABOUT TESCO
About This Case Study

Webinars and Slides

QUANTIFYING FOOD LOSS AND WASTE – GUIDANCE AND METHODS

In this webinar, we provide guidance for how food loss and waste can be quantified in accordance with the FLW Standard. We also describe factors that may influence your quantification choices and provide an overview of the 10 commonly used quantification methods.

Webinar Slides | Webinar Video

Guidance / tools / support



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The *FLW Standard* does not require use of a particular quantification method – but provides an overview of 10 methods:

1. Direct weighing
 2. Counting
 3. Assessing volume
 4. Waste composition analysis
 5. Records
 6. Diaries
 7. Surveys
 8. Mass balance
 9. Modelling
 10. Proxy data
- Plus: Quantifying FLW if water is added
(Appendix A)

Tools & Resources

GUIDANCE ON QUANTIFICATION METHODS

You have several options for how to quantify food loss and waste.

In this companion to the FLW Standard, you will find guidance on 10 of the most common methods. To help you select which method may be most appropriate for your circumstances, try out the FLW Quantification Method Ranking Tool. This straight-forward tool offers suggestions based on a short set of questions.

[GUIDANCE ON FLW QUANTIFICATION METHODS](#)

[FLW QUANTIFICATION METHOD RANKING TOOL](#)


Individual Chapters from the Guidance on FLW Quantification Methods


GUIDANCE ON DIRECT WEIGHING	GUIDANCE ON SURVEYS
GUIDANCE ON COUNTING	GUIDANCE ON MASS BALANCE
GUIDANCE ON ASSESSING VOLUME	GUIDANCE ON MODELING
GUIDANCE ON WASTE COMPOSITION ANALYSIS	GUIDANCE ON PROXY DATA
GUIDANCE ON RECORDS	APPENDIX A. QUANTIFYING FLW IF WATER IS ADDED
GUIDANCE ON DIARIES	

GUIDANCE ON QUANTIFICATION METHODS

You have several options for how to quantify food loss and waste.

In this companion to the FLW Standard, you will find guidance on 10 of the most common methods. To help you select which method may be most appropriate for your circumstances, try out the FLW Quantification Method Ranking Tool. This straight-forward tool offers suggestions based on a short set of questions.

[GUIDANCE ON FLW QUANTIFICATION METHODS](#) 

[FLW QUANTIFICATION METHOD RANKING TOOL](#) 

Individual Chapters from the Guidance on FLW Quantification Methods

[GUIDANCE ON DIRECT WEIGHING](#) 

[GUIDANCE ON COUNTING](#) 

[GUIDANCE ON ASSESSING VOLUME](#) 

[GUIDANCE ON WASTE COMPOSITION ANALYSIS](#) 



[GUIDANCE ON RECORDS](#) 


[GUIDANCE ON DIARIES](#) 

[GUIDANCE ON SURVEYS](#) 

[GUIDANCE ON MASS BALANCE](#) 

[GUIDANCE ON MODELING](#) 

[GUIDANCE ON PROXY DATA](#) 

[APPENDIX A. QUANTIFYING FLW IF WATER IS ADDED](#) 

Introduction

Purpose: This tool is designed to accompany the *Food Loss and Waste Accounting and Reporting Standard (FLW Standard)*. It provides suggested methods for quantifying food loss and waste (FLW).

Instructions: Answer all the questions below to the best of your ability by using the drop-down menus, then press the "Get results" button. This will take you to the Results Tab which ranks all the methods included in the *FLW Standard* (see Chapter 7). You may need to click "Enable macros" when prompted by Excel in order to use this sheet.

Note:

- The "Methodology Tab" explains how this ranking of methods was developed.
- The recommendations provided do not take into account the availability of resources (e.g., budget, staff time). The tool does not consider which methods would work well in combination (see "Methodology Tab" for additional details).
- We welcome your questions and suggestions. Please contact Brian Lipinski at BLipinski@wri.org.

Questions

- How important is it to have a low level of uncertainty (high degree of accuracy in the FLW results)? *Note: A higher degree of accuracy is recommended when monitoring targets.*
- Is it necessary to determine the reasons why FLW is generated?
- Can you get direct access to the FLW being quantified?
- Is the FLW (whether packaged or not) mixed with other items or materials (e.g. soil, garden / yard waste, non-organic solid waste, etc.)?
- Is the FLW mainly liquid or solid?
- Does all, some, or no FLW go down the drain/sewer?
- Are inputs and outputs recorded that could be used for inferring the amount of FLW? (e.g. in a factory, the amount of ingredients entering the site and the amount of product leaving the site)
- Is there existing information that describes how FLW varies in response to other factors (e.g. with climate, soil conditions, crop / food type)?
- Do you have existing records that could be used for quantifying FLW? (For this purpose, records are individual pieces of data that have been written down or saved often for reasons other than quantifying FLW, e.g., waste transfer receipts or warehouse record books.)
- Do you have access to those records? (The response is automatically "not applicable" to this question if the answer is "no" or "don't know" to question 9.)
- Is a material/significant amount of FLW in its packaging?

Please select answers from drop-down menus

Very important (e.g., setting/monitoring targets)

No

Yes

Yes, FLW mixed with other material

Mainly solid

Some

Yes

No

Yes

Yes

Yes

Get results

Please note any answers left blank
will result in error

Reset questionnaire
responses

Guidance / tools / support



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Video Tutorials



Webinars and Slides

QUANTIFYING FOOD LOSS AND WASTE – GUIDANCE AND METHODS

In this webinar, we provide guidance for how food loss and waste can be quantified in accordance with the FLW Standard. We also describe factors that may influence your quantification choices and provide an overview of the 10 commonly used quantification methods.

 Webinar Slides

 Webinar Video

Guidance / tools / support (on measuring)



wrap

Information sheet

Food waste measurement guidelines for the Hospitality and Food Service sector

Introduction

The aim of these guidelines is to improve data-reporting of food waste collections made from businesses in the Hospitality sector. The guidelines have been written in consultation with the [Commitment 2025](#).

Good practice will enable food businesses to track the amount of food waste collected, and understand how much food (and packaging) is going into the waste stream. In turn, this will help business managers to save financially by throwing away less food.

Primarily, the guidelines will be of interest to:

- Operations managers in the HoFS sector that have contract management and waste-data reporting, or
- Waste Management Contractors (WMCs) that are collecting waste collection data or working with new accounts.

The document provides insights into current waste data reporting key considerations when interrogating data returns by site as a whole. The intention is to continually improve waste-data reporting, with necessary prompts for new staff that may have no previous experience of waste management, to continually monitor performance with a view to reducing waste.

Tip: If you can't measure it, you can't manage it. The comprehensive management information will allow you to manage your contract, saving you money, helping you to reduce waste, and your carbon footprint.



On-board vehicle weighing (OBW) equipment – key considerations

Before discussing the use of OBW, it is assumed that the HoFS business is already source-separating food waste and other Dry Mixed Waste (DMW) and that the use of OBW will help improve this practice.

1. OBW is becoming increasingly prevalent and is being installed on older vehicles, hire trucks and new vehicles. Check with your WMC whether OBW is installed.
2. New OBW equipment is dynamic (i.e. the bin weight is updated in real-time).

Average bin-weight estimates – key considerations

1. The use of 'industry average' bin weights for monitoring individual business waste arisings is not recommended as good practice. For Courtauld 2025 data reporting, it is expected that at least average bin weights from a minimum of 50 or 100 actually weighed bins, such as paper notes or electronic data entry) that the fullness of bins is taken into account at each lift. This is necessary to ensure that the data in food waste arising (insufficient to change the number or type of bins but sufficient to affect their fullness) are recorded on a lift-by-lift basis.

Being developed for sectors which have specific clarification needs, in collaboration with sector representatives

- Hospitality and food service sector
- Dairy, fresh produce, meat initially
- What material to include, food vs inedible parts, waste in liquid streams etc.

Obtaining reliable OBW equipment, obtaining accurate tonnage data per bin per lift is difficult. Overall tonnage data is easily obtainable from WMCs if the WMC has dedicated food waste collection vehicles. Bin-lift data will be reliant on collection crews logging the weight of bins and then multiplying them by the adoption of a typical bin weight. In the absence of effective OBW vehicle capability, collection weights are based on estimates. To be of reasonable quality, the data must be based on a representative sample of bins from that business. Data based on estimates from WMCs is unacceptable for Courtauld 2025 data reporting purposes and all report data on this basis within 12 months of having started Courtauld 2025.

If bin weights are used, it should be made explicit in the contract that the 'industry standard' (see point 1 above) or 'client specific'. If it is not possible to know how big a sample size has been used to determine the standard and from which sites it was derived, so that you can assess if the data is a genuinely representative sample. The WMC should be required to reset the sampling regime to reset the client specific standard on a regular basis (at least once a year) to reflect any changes in underlying waste mix or food waste initiatives.

Guidance / tools / support (on reporting)



Food waste reporting guidelines for the Hospitality and Food Service sector

1 Introduction

The aim of this fact sheet on the [Food Loss and Waste Standard \(FLWS\)](#) is to help the Hospitality and Food Service (HaFS) sector understand its use in delivering robust food waste measurement as part of a waste reduction strategy. As a foundation, all businesses should be regularly measuring their food waste at a site level and taking action. These guidelines will help a business define what and how to measure, and also provide a consistent standard for those businesses wishing to report their food waste.

This document will help you to understand why the FLWS is relevant to your business's approach to food waste reduction. It will clarify the standard in the context of a commercial kitchen, using practical examples, and a frequently asked questions (FAQ) section, so that you have sufficient knowledge to effectively define and measure your food waste. If your business is only just starting to capture data on food loss and waste, then there are a number of useful resources that can help you to kick-start this process and these are detailed in the FAQ section of this guidance document.

2 What is the Food Loss and Waste Standard?

The [FLWS](#), led by the World Resources Institute (WRI) as Secretariat of the Food Loss and Waste Protocol, enables companies, countries, cities and others to quantify and

Describing different streams of purchased food that the business doesn't use

Does food donated via charities count as food waste?

The FLWS explicitly rules "food rescued" (such as redistribution schemes) out of the scope of food waste. It advises, however, that given the importance of rescuing food, users record the weight of rescued food (separately from their FLW inventory) and provides guidance in Appendix E of the Standard.

In terms of characterising the "food category" of a food waste stream - what if the stream is heavily mixed - soups, stews, plate scrapings etc.?

The food category can be broadly described (e.g., all food and beverages sold at the operation). However, if more detailed information is available, it is ideal to be more specific in describing the food category so that one inventory can be more easily compared to another.

The FLWS recognises that (see pg.51): "For an entity (e.g. a restaurant or retailer) interested in understanding what types of food make up its FLW, the GSFA, CPC, GPC, or UNSPSC codes may not provide sufficient detail [to describe the food category] for items that are composed of multiple ingredients (e.g., prepared meals, soup)". In the case of multi-ingredient items, the FLWS recommends an entity describe such items "with a commonly used name (e.g. beef stew)" and "instead of describing all ingredients, it may be more practical for an entity to select the main ingredient(s) that represent a significant proportion of the item's overall weight (e.g. for beef stew this might be beef, broth, onions, and potatoes)".

How do we account for quantities lost down the drains from cleaning, washing plates and cooking implements etc.?

Firstly, it is important to note that it is only food and drink that should be measured under the FLWS, not cooking or washing water. The FLWS is agnostic about what quantification method is used; however, it requires that whatever method is used is described. You may find it useful to see how the Kellogg Company tackled this in the "Methodology Section" of their case study on the FLWS website: <http://flwprotocol.org/case-studies/>

When measuring, how do we categorise mixed food waste from plate scrapings received back in the

With respect to the FLWS, to be transparent in describing your scope, you should record whether or not you include "plate waste" as part of the "lifecycle stage." Plate waste does not have to be separated into

Challenging areas – food waste to sewer



- Households – Use of diaries (preferably not combined with investigating other disposal streams)
- Challenging for most other sectors:
 - The exception is the dairy sector, where a recommended method has been developed:
 - Record effluent COD load (pre-treatment)
 - Convert into 'milk equivalents' (use conversion factor: 1kg COD = 0.223kg milk)
 - Record & report estimate of milk equivalent tonnages
- Effluent volumes, BOD/COD, solids NOT good proxies for food waste in most cases
- Ideally assess volumes prior to dilution/mixing
- More research / practical learnings required (e.g. ZWS)



Challenging areas – food waste in sludge



- 'Sludge' waste streams will not be equivalent to the amounts of food in this waste stream – due to dilution and/or concentration (depending on the on-site processing that the food waste may have undergone)
 - % of food in 'sludge' varies greatly by sub-sector, from ca. 9% to 60%
- Ideally an estimate of food waste is made prior to any on-site processing and the production of the 'sludge'
- If this isn't possible, estimate based on analysis of the process, the sludge, and/or an assessment of the mass flows through the process
- Data on the amounts of sludge containing food waste may be available from the waste contractor, or if applicable, from regulatory returns
- Assumptions about the % of food in sludge fractions should be made clear when reporting food waste data
- Potential approaches are outlined in the FLWS's Guidance on FLW Quantification Methods (Appendix A) and WRAPs 'Quantification of food surplus, waste and related materials in the supply chain'

Summary



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- The FLWS was developed through extensive collaboration (with links to FUSIONS)
- Increasingly being used by food businesses and others
- Supported by Champions 12.3
- Allows flexibility regarding choice of food waste definition (i.e., scope) - but consistent scope needed for monitoring and tracking progress against targets
- Does not prescribe methods to obtain data, but does have requirements to ensure consistency and transparency in reporting
- Increasing amounts of guidance and support for its use (training, FAQ etc.)
- WRI available to advise and happy to receive feedback (FLWS resources are evolving)

Businesses appreciate a harmonised approach



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CHAMPIONS 12.3

GUIDANCE ON INTERPRETING SUSTAINABLE DEVELOPMENT GOAL TARGET 12.3

12 SUSTAINABLE DEVELOPMENT GOALS

THE OPPORTUNITY

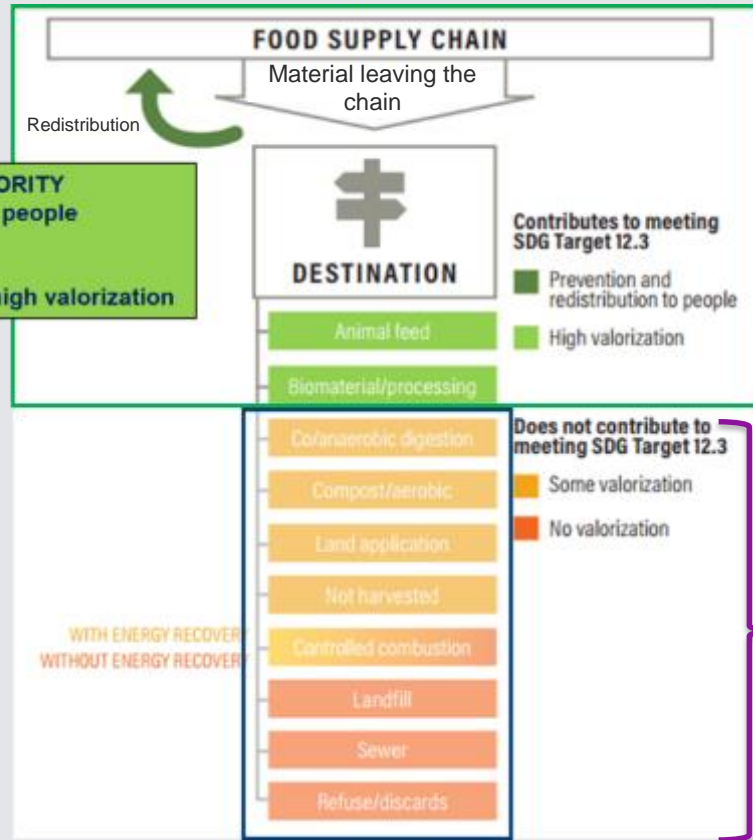
Food intended for human consumption that is lost or wasted is a challenge of epic proportions... according to the latest available global estimates compiled by the Food and Agriculture Organization of the United Nations (FAO), approximately one-third of all food produced in the world is never eaten or wasted (FAO, 2013). This large level of inefficiency has substantial impacts. It results in roughly 300 million tonnes of greenhouse gas emissions per year (FAO, 2013). It contributes to food insecurity and malnutrition... in a world where one in nine people are malnourished (FAO, 2013). In fact, food loss and waste results in a 74 percent reduction in available food calories... (from grain) and an equal reduction in available, particularly given that fruits and vegetables are the most frequently lost or wasted food groups for weight (Gagnoli et al., 2013). In addition, food that is harvested but ultimately lost or wasted represents about one-quarter of all waste used by agriculture each year, meaning food loss is greater than the size of China, and generates about 10 percent of global greenhouse gas emissions.

ABOUT THIS PUBLICATION

This publication provides an interpretation of Sustainable Development Goal Target 12.3... the new definition for food loss and waste... (from grain) and an equal reduction in available, particularly given that fruits and vegetables are the most frequently lost or wasted food groups for weight (Gagnoli et al., 2013). In addition, food that is harvested but ultimately lost or wasted represents about one-quarter of all waste used by agriculture each year, meaning food loss is greater than the size of China, and generates about 10 percent of global greenhouse gas emissions.

AUTHORS

This publication was prepared by the Food Waste Action Plan... (from grain) and an equal reduction in available, particularly given that fruits and vegetables are the most frequently lost or wasted food groups for weight (Gagnoli et al., 2013). In addition, food that is harvested but ultimately lost or wasted represents about one-quarter of all waste used by agriculture each year, meaning food loss is greater than the size of China, and generates about 10 percent of global greenhouse gas emissions.



1. **What sectors are covered?** One should interpret Target 12.3 as covering the *entire* food supply chain, from the point that crops and livestock are ready for harvest or slaughter through to the point that they are ready to be ingested by people (Figure 1). Entities should seek to reduce food loss and waste within the boundaries they control, and seek to help drive reductions up and down the supply chains where they have influence.

How to learn more



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- ✓ Sectoral guidance and other tools under development
- ✓ Monthly webinar series (third Wednesdays); prior webinars posed online
- ✓ If you aren't already signed up for the news update, do so at the bottom of any page @ FLWProtocol.org

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SWEDISH INTERNATIONAL DEVELOPMENT
COOPERATION AGENCY



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Discussion

Andrew Parry (Special Advisor, WRAP)

andrew.parry@wrap.org.uk

Kai Robertson (Lead Advisor, FLW Protocol, WRI)

robertson.kai@gmail.com

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