



Hand-harvested crops

Grower guidance



Target
Measure
Act

March 2020

Overview

This guide is for growers to help assess the amount of crop that becomes surplus or waste instead of reaching its intended market. Following the guidance will help you plan and undertake field measurements, as well as understand when to use the supporting templates.

The recommended process for completing a food surplus and waste report is summarised in the diagram opposite and explained throughout this guide.

Plan

- Review this guide.
- Decide when to measure.
- Gather the equipment needed for taking field measurements (see page 4, step 8).

Measure

- Undertake field measurements.
- Complete the **Field Record Sheet & Reporting Template**.

Calculate

- Convert field measurements to a food surplus and waste report.
- The **Field Record Sheet & Reporting Template** will generate this automatically.

Review

- Consider options for getting more from your data.
- Consider sharing data and benchmarking.
- Consider opportunities to increase crop utilisation.

This guidance is a summary version with the essential information you need to act. There is also an equivalent guide available for crops harvested by machine available at www.wrap.org.uk/roadmap-grower-guidance

This guidance forms part of the UK's **Food Waste Reduction Roadmap**. It is consistent with **The Courtauld Commitment 2025**, the **Food Loss & Waste Accounting** and Reporting Standard and **Champions 12.3 best practice**.

The guide has been developed by WRAP. We are grateful for the contributions and guidance from dps ltd, G's Fresh, Worldwide Fruit, and other industry contacts.

"Tackling food waste is a critical issue. As growers we are proud to collaborate with our supply chain partners on this."

Jeremy Linsell, Grower at ChromeSword Limited, Braiseworth Orchards.

This guidance is for growers who would like to reduce food waste and improve performance.

We recognise that administrative burdens should be minimised for small businesses and, by publishing this guidance, WRAP has no intention that this triggers any standard or obligatory requirements for small businesses to measure waste.

This guidance is consistent with the 'Target, Measure, Act' approach that has been developed by WRAP and IGD under the Food Waste Reduction Roadmap and is implemented, on a voluntary basis, by 60% of the UK food and drink sector.

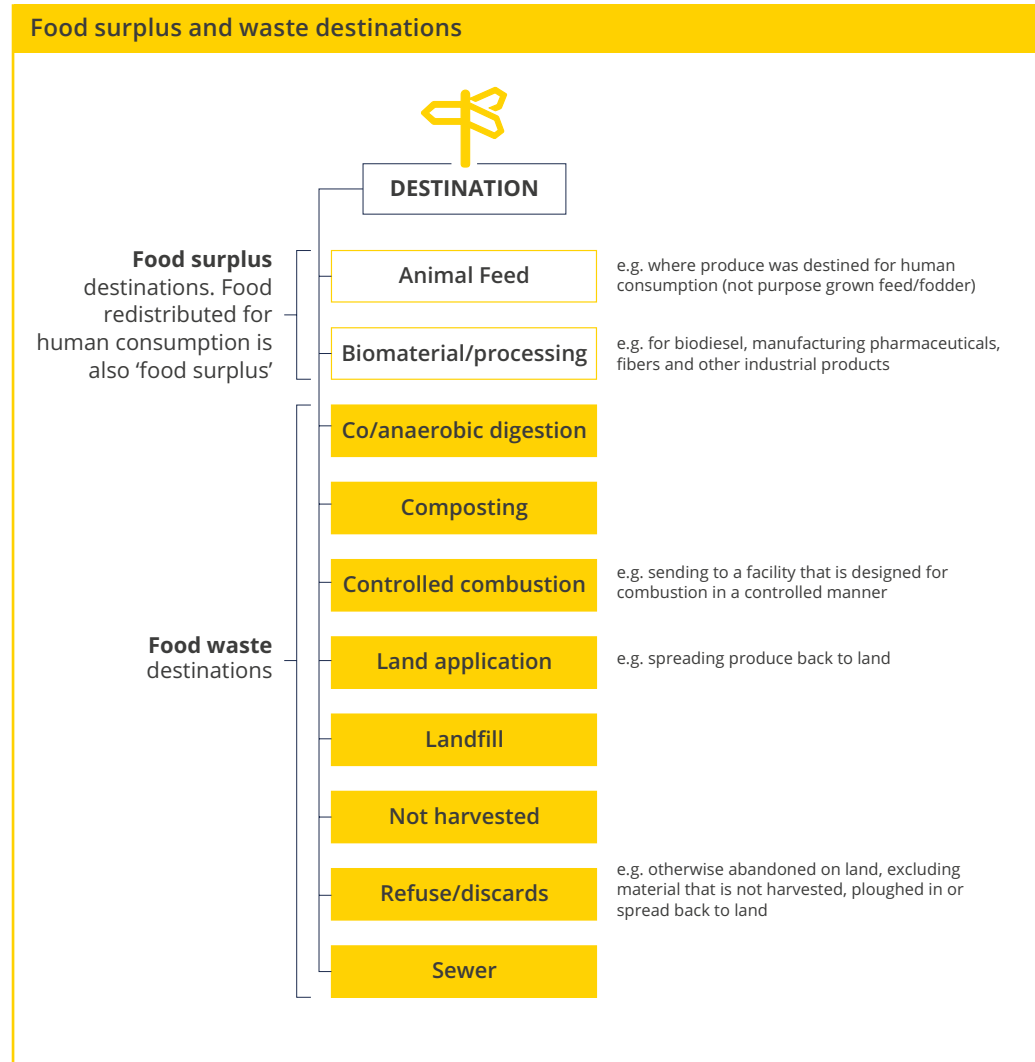


What to measure

This guide relates to **in-field** measurement of food surplus and waste. Guidance on measuring other operations in the fresh produce supply chain is available here <https://wrap.org.uk/roadmap-grower-guidance>

Food waste measurement is only relevant to produce that was intended for the human food supply chain, including food that has spoiled. The terms 'food surplus' and 'food waste' have specific definitions based on the final destination of the produce, as illustrated in the diagram opposite.

'Food' may include inedible parts. It is best practice, but not a requirement, to report the inedible proportion and specify what it is. Examples include peel, pips/stones and outer leaves. A list of inedible parts for common crops is available here <https://www.wrap.org.uk/sites/files/wrap/fresh-produce-sector-guidance.pdf>



Planning and Measuring

There is no obligation to follow any particular methodology to complete a food surplus and waste report, but you may wish to follow the recommended process below. Completing your assessment in accordance with this guidance should also satisfy requirements from customers.

This section will help you decide how and when to take sample measurements. You should include an assessment of crop left in the field after the harvesting team has stopped picking, and an assessment of whole blocks or fields that do not get harvested (e.g. ploughed in / walk-by).



1

Consider which of your colleagues will be responsible for undertaking the measurements and decide when to involve them in the planning process.

2

Decide which crop(s) you will measure. If you are measuring multiple crops, it is best practice to assess each crop separately. Where relevant, decide whether to measure all or only some varieties.

3

Where you grow crop in multiple blocks, fields or farms, decide whether you will measure across all of these or only some. If the latter, decide which are the most representative of your total area.

4

Decide what time frame is relevant to the crop(s) that you will measure. Normally this would be a whole season, for example, the 2020 season. If the crop is harvested multiple times throughout the season, decide whether to take sample measurements several times over the season.

5

Where a whole field or block does not get harvested (e.g. ploughed-in / walk-by), you can calculate the food surplus and waste based on the size of the unharvested area (i.e. cropped area, not field size) and the average yield; there is no need to take sample measurements. If the crop is ploughed in before it reaches full weight, you may prefer to take in-field measurements (as described below).

6

Decide your sampling strategy for measuring after the harvesting team have finished:

- a. In-field measurements should be taken immediately after harvest, so decide when that will be.
- b. Take measurements in at least three sampling areas across any field/block. Taken together, the sampled areas should be representative of the field/block as a whole.
- c. For row crops, each sampling area should be at least one row wide and 10m long.
- d. For other crops, each sampling area should be at least 50m² (e.g. 10m x 5m).
- e. Consider what health and safety risks there might be and take appropriate mitigating action.

7

Download or print off the [Field Record Sheet & Reporting Template](#) to help you record the in-field measurements, this also includes information on what to include and exclude in your measurements.

8

Gather in advance any equipment that will be needed to undertake the in-field measurements. For example, hi-vis clothing, the field map, a measuring tape, flags/canes to mark out the sampling areas, bags or containers for unharvested crops, scales, the Field Record Sheet and pen, a camera.

9

Now you have everything you need to complete your field assessment. Once you have taken your measurements, follow the steps below to calculate an overall food surplus and waste estimate and to review your results.

Calculating waste

Calculating the overall food surplus and waste estimate

The overall food surplus and waste estimate should be expressed as both a tonnage and a percentage of the total yield of the crop assessed. Download the [Field Record Sheet & Reporting Template](#) and complete the Field Record Sheet to calculate the overall estimate automatically.

Remember that the result of your calculations is an estimate. The best way to improve accuracy is to follow the guidance on the size of each sampling area and to repeat measurements across three sampling areas.

Repeating measurements over multiple seasons or crops will generate a more reliable assessment and overcome seasonal variations. If you are comparing your performance over time, comparing averages taken over three crops/seasons is recommended. For example, you might compare the average of your measurements for 2021-23 with the average for 2019-21.

Review your results

There are several ways in which you can review your data and identify opportunities to reduce surplus and waste:

- **Consider whether your data is similar to what you expected.** Is there any variability in your measurements? Are there any waste hotspots? Are you comfortable with the waste levels, or would you like to improve performance? Have you compared your results with the published [sector averages and min/max ranges](#)?
- **Sharing your results with other growers** can identify significant differences in performance and help identify solutions to improve. If you would like to collaborate with other growers, agree with them a consistent approach to taking measurements so that your data will be comparable. For example, would you include grading or not? Or is it useful to record additional data about damage from a new crop pest? Recording whether waste is 'within spec', 'edible but not marketable' or 'inedible' will help you understand the value of product left in the field.
- **Improving performance is normally best achieved through a whole chain approach**, particularly as solutions for your business may lie with a supply chain partner, and vice versa. If you would like to do this, discuss it with your partners at the outset so that you can plan a joined-up approach. Collecting information on the causes of waste will help you identify solutions.
- **Setting a food waste reduction target** for your business is an effective step towards delivering improvements. Most businesses set targets that are consistent with or which contribute to the [Courtauld Commitment 2025](#) and the [UN's Sustainable Development Goal 12.3](#), to reduce food waste by 50% by 2030.
- The [Cool Farm Tool](#) is an online greenhouse gas calculator for farmers which also has a Food Loss & Waste metric (integrated into their greenhouse gas module). The metric, which is compatible with this guide, enables farms to record and share their data. The tool is free to use for farmers.

Further information

Additional resources that may help you identify solutions:

1. The [Food Surplus Network](#) is a simple web resource for farmers. It provides summary information and contact details for the growing number of market places and outlets for surplus.
2. A number of 'Target, Measure, Act' [case studies](#) showing how businesses have achieved food waste savings. Grouped by sector, these provide practical ideas that could be applied in your context.
3. The [Food Waste Reduction Roadmap](#) web page has a range of tools, guides, resources and templates.

If you have any feedback about this guide, please contact FoodWasteRoadmap@wrap.org.uk



WRAP's vision is a world in which resources are used sustainably.

Our mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling.

Find out more at www.wrap.org.uk

IGD and WRAP have led an industry-wide programme of work developing the Food Waste Reduction Roadmap, showing how the UK food industry will help achieve the UK's Courtauld 2025 targets, and the UN's Sustainable Development Goal 12.3 to halve food waste by 2030.

To find out more and get involved, contact our experts FoodWasteRoadmap@wrap.org.uk

www.wrap.org.uk/food-waste-reduction-roadmap

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