
Food waste in primary production in the UK



An estimate for food waste and food surplus in primary production in the UK

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Front cover photography: Wheat ready for harvest

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1.0 Introduction

Food waste occurs along the whole food supply chain, from farm to our homes. Out of all stages of the supply chain, food waste at the farm stage – also known as primary production - is perhaps the most difficult to quantify. WRAP has been reporting on UK food waste for over 10 years, providing robust estimates for manufacturing, retail, hospitality and food service and households. In 2015, food waste across these sectors amounted to around 10 Mt, with a value of more than £20 billion. There are no reliable estimates for food waste in primary production¹.

This is mainly because farming is subject to the uncertainties of the natural world. Yields vary from year to year, as well as the quality, size and shape of the product, timing of harvest and other factors. Customer demand also fluctuates, and is itself influenced by many factors. All of these areas of variability are not only potential drivers of waste, but also lead to the robust measurement of waste being difficult, time-consuming and costly. To robustly assess food waste in primary production would require measurement across a large enough sample of farms, for each of the major food products produced in the UK, across several years. The method of measurement would ideally need to be direct measurement by trained researchers, as current experience shows that asking farmers through questionnaires results in underestimated waste levels (WRAP, 2017). Due to the scale of such an undertaking, neither the UK nor any other nation or entity has managed to undertake such a thorough assessment.

This report outlines an updated estimate for food waste and food surplus in primary production. These estimates indicate the potential scale of food surplus and waste in primary production and reinforces the importance of acquiring more evidence and prioritising this area for action, which was reiterated in the Defra Resources and Waste Strategy².

Due to difficulties outlined above, this estimate is not based on direct-measurement, but instead partially relies on studies previously commissioned by WRAP and a substantive literature review. A similar approach has been previously undertaken by a Nordic co-operation representing Finland, Sweden, Denmark and Norway (Hartikainen, et al., 2018).

2.0 Methodology

The wastage and surplus rates for each agricultural product were obtained through an international literature review. 85 studies were found that reported food wastage rates in primary production as both primary and secondary sources. Studies from both academic and grey literature were included.

Recognising that data specific to the UK is not available for many sectors, the estimate is based on the principle of working from the 'best available data' taken from around the world. Whilst the literature includes data across a broad range of countries, for

¹ WRAP published an indicative estimate for food waste in primary production in 2017, of around 2.5 Mt, see <http://courtauldreview.wrap.org.uk/delivering-change/tackling-on-farm-food-waste/>. This was based on the assumption that 5% of UK agricultural production may have ended up as waste.

² See Chapters 5 and 7 at <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

generating the UK estimate we have only included estimates from comparable geographies, namely Europe, North America and Australia. Where the literature includes multiple waste rates for the same sector, we have included all of them, which should compensate for some seasonal and geographical variability. The wastage rate (percentage) shown in Tables 1 and 2 is the average of the averages (or middle values) reported in the studies themselves, whereas the minimum and maximum reported here is the highest and lowest average reported in the literature.

Where possible, we gathered data points by individual stages in primary production, for example harvest, grading, storage, packing. To facilitate this we have developed primary production process maps (as the typical stages in primary production vary from sector to sector) for the main food sectors produced in the UK. Due to limitations in the data, these process maps were not completed with data for all crops. However, they are important building blocks for improving future estimates, as using process maps reduces the likelihood of leaving out wastage at any stage.

To calculate the tonnage and financial value of surplus and waste, wastage rates are multiplied with food production volumes and values for the year 2017. Food production and value statistics are taken from Agriculture in the UK (Defra, 2018a) and Horticulture Statistics - 2017 (Defra, 2018b). These have been recalculated to represent only production intended for human consumption³, and the amount harvested⁴ (rather than amount ready for harvest or sold off farm), which amounts to 50.5 Mt.

Food surplus and waste definitions and scope follow the UK Food Waste Reduction Roadmap guidelines (WRAP, 2018), and are outlined at the end of the document. In summary, food intended for human consumption is counted as waste if it ends up disposed, composted, ploughed back or sent to anaerobic digestion, but counts as surplus rather than waste if it is redistributed, fed to livestock or if it is used to produce bio-based materials. It does not count as either waste or surplus if it reaches secondary markets, such as juicing. The word surplus does not signify that the crop is in addition to the expected yield. The scope of this study starts when a food crop or animal are ready for harvest or slaughter⁵, and includes all waste that happens on farm, including any waste from grading, packing and washing if these processes happen on farm, customer rejections including rejections at arrival to slaughterhouse and dairy factory.

Assumptions that were made in the interpretation of the reported data are outlined in Table 4.

³ The food waste estimate includes inedible material associated with food, such as potato and onion peels, where these are included in the tonnage of food produced.

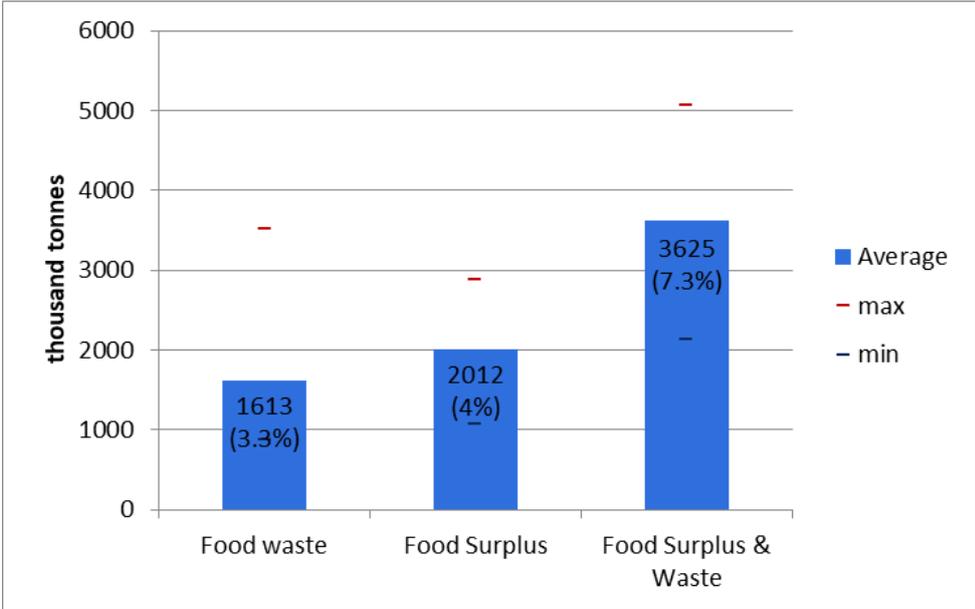
⁴ Harvested amount is the most commonly used denominator for waste percentages (when other denominators were used in the literature, waste percentages were recalculated to the amount harvested as a common denominator).

⁵ This scope and definitions are consistent with FUSIONS Definitional Framework for Food Waste (Östergren et al., 2014) and Champions 12.3 SDG 12.3 interpretation document (Hansen, 2017)

3.0 Results

Based on the analysis undertaken using the 'best available data' approach, the central estimate for the total amount of food surplus and waste is 3.6 million tonnes per annum (Figure 1), or 7.2% of all food harvested. This estimate carries some uncertainty due to methodological limitations described above. As an illustration of the range between the extreme values, the sum of the lowest estimates for all sectors is 2.2 million tonnes, and the sum of all of the highest estimates is 5.0 million tonnes a year.

Figure 1 Total estimated annual food surplus and waste for UK primary production



If this wasted and surplus food had been sold at market values, it would have had a value of £1.2 billion. Some small part of this value is recovered through sales for animal feed.

The food waste component of the above is estimated at 1.6 million tonnes per annum, or 3.2% of all food harvested (Table 1). The sum of the lowest estimates for all sectors is 0.9 million tonnes, and the sum of all of the highest estimates being 3.5 million tonnes a year. Sugar beet, potatoes, and carrots make up more than 50% of the overall estimate for food waste in primary production (by weight), and the top ten products contribute 80% of the total. When clustered in to product types, horticultural crops make up 54% of the total, cereals 30%, livestock 8% and milk 8%.

The amount of surplus food – that is the material that was intended to become food, but goes instead to non-waste destinations, such as animal feed, redistribution and to become bio-based materials is estimated at additional 2.0 million tonnes per annum (4.0% of all food harvested), as shown in Table 2.

Table 1 Top 20 sectors and others in Food waste by volume (2017, UK primary production)

Sector	UK production for human consumption ('000 tonnes)	FW %			Estimated food waste totals		References
		Average	Min	Max	'000 tonnes	Value (£ millions)	
Sugar beet	8,918	3.9%	3.0%	5.0%	347	9	Hartikainen et. al. 2018, BBRO, 2019
Potatoes	6,218	5.4%	2.3%	11.4%	335	48	Hartikainen et. al. 2018, Tesco and Society 2014, IMechE 2013, FAO 2011, WRAP 2011
Carrots	968	15.7%	6.0%	17.4%	152	24	Beausang et al 2017, Hartikainen et al 2017a, Hartikainen et al 2017b
Milk	14,954	0.8%	0.3%	1.0%	116	34	Hartikainen et al. 2018, Redlingshofer et al. 2017; Tesco and Society, 2014, Gustavsson et. al. 2013
Wheat	7,196	1.3%	1.0%	12.9%	93	26	Hartikainen et al 2014, Hartikainen et al 2018, FAO 2011
Poultry	1,879	3.5%	1.7%	4.0%	66	85	Modelled on Chicken; Hartikainen et al 2018; Tesco and Society 2014, Gustavsson et al., 2013
Onions	380	17.3%	8.0%	28.8%	66	23	Hartikainen et al 2018, Tesco and Society 2014, WRAP 2011
Oilseed rape	2,167	3.0%	0.0%	6.0%	65	23	Redlingshofer, et al., 2017
Barley	2,301	1.3%	1.0%	12.9%	30	11	As wheat
Cabbage	224	13.0%	N/a	N/a	29	14	Hartikainen et al 2017a, Johnson et al 2018
Lettuce	104	24.8%	17%	45.0%	26	47	WRAP 2017, Beausang et al 2017 Hartikainen et al 2017a, Tesco and Society 2014,
Apples	261	9.4%	4.7%	18.5%	25	13	Hartikainen et al 2017, Tesco and Society 2014, Hartikainen et al 2017B, WRAP 2011
Pigs	892	2.7%	0.2%	5.0%	24	35	Hartikainen et al 2018
Peas	135	17.0%	5.0%	21.4%	23	6	Hartikainen et al 2017a; Hartikainen et al 2017B,
Parsnips	101	15.7%	6.0%	17.4%	16	5	As carrot
Cider Apples & Perry Pears	301	5.0%	N/a	N/a	15	2	No data - based on WRAP expert judgement
Strawberries	130	10.7%	8.0%	14.0%	14	30	Beausang et al 2017, Hartikainen et al 2018, WRAP 2017
Sheep	320	4.1%	N/a	N/a	13	49	Wallman 2011, Knowles 1998
Brussels Sprouts	51	25.0%	N/a	N/a	13	14	Beausang et al 2017
Tomatoes	95	13.3%	1.0%	19.5%	13	14	Hartikainen et al 2017a, Wallman et al 2011, WRAP 2011
Other 30 sectors	2,907	4.3%			125	139	Waste was estimated in similar vein for 30 other sectors
TOTAL	50,501	3.2%	1.7%	7.0%	1,604	651	

* n/a = not available

Table 2 Top 10 sectors and others in Food surplus by volume (2017, UK primary production)

Sector	UK production for human consumption ('000 tonnes)	FS %			Food surplus total ('000 tonnes)	References
		Average	Min	Max		
Potatoes	6,218	8.6%	6.8%	12.4%	533	Hartikainen et. al. 2018, Tesco and Society 2014, IMechE 2013, FAO 2011, WRAP 2011
Wheat	7,196	10.2%	3.8%	13.0%	738	Hartikainen et al 2014, Hartikainen et al 2018, FAO 2011,
Carrots	968	17.3%	12.0%	22.6%	167	Beausang et al 2017, Hartikainen et al 2018, Hartikainen et al 2017
Barley	2,301	10.2%	3.8%	13.0%	236	As wheat
Sugar beet	8,918	1.0%	N/a	N/a	89	Hartikainen et. al. 2018, BBRO 2019
Milk	14,954	0.6%	0.0%	2.2%	82	Redlingshofer, et al., 2017
Oilseed rape	2,167	1.5%	0.0%	3.0%	33	Hartikainen et al 2017, Tesco and Society 2014, WRAP 2011
Apples	261	10.8%	5.3%	21.3%	28	Hartikainen et al 2017, Tesco and Society 2014, WRAP 2011
Oats	313	10.2%	3.8%	13.0%	32	As wheat
Other 40 sectors	7,104	0.8%			56	Surplus was estimated in similar vein for 40 other sectors (although only another 7 sectors have any material as food surplus)
TOTAL	50,501	4.0%			2,012	

* n/a = not available

Surplus food is predominantly comprised of products that for various reasons are not sold to the market for human consumption but are typically used as livestock feed. It was not possible to quantitatively separate the amount of surplus food that goes redistribution, animal feed and bio-material, but based on conversations with the sector the large majority of this material goes to animal feed.

This typically happens with grains, root vegetables, brassicas and top fruit such as apples. Some of the milk not appropriate for human consumption is also used to feed calves. Soft fruit, leafy and other vegetables such as onions are typically not used as livestock feed due to their limited nutritional value to livestock. Until 2017, a system of quotas had operated across all Member States for sugar beet production. The 2018 crop was the first produced without a quota. But it is not yet clear whether this has had, or will have any impact on the rates of food surplus.

Livestock (meat) material would count as surplus if it went to category 3 rendering, however based on the currently available information, losses on farm are typically incinerated.

Table 3 Top 20 sectors and others in combined food surplus and waste by volume (2017, UK primary production)⁶

Sector	UK production for human consumption ('000 tonnes)	FWS %			Estimated food surplus and waste totals		References
		Average	Min	Max	'000 tonnes	Value (£ millions)	
Potatoes	6,218	14.0%	9.0%	23.7%	868	125	Hartikainen et. al. 2018, Tesco and Society 2014, IMechE 2013, FAO 2011, WRAP 2011
Wheat	7,196	11.5%	5.0%	14.0%	830	230	Hartikainen et al 2014, Hartikainen et al 2018, FAO 2011,
Sugar beet	8,918	5.0%	4.0%	6.0%	446	11	Hartikainen et al.,2018
Carrots	968	33.0%	17.6%	40.0%	319	50	Beausang et al 2017, Hartikainen et al 2017a, Hartikainen et al 2017b
Barley	2,301	11.5%	5.0%	14.0%	265	103	As wheat
Milk	14,954	1.3%	0.3%	3.2%	198	58	Hartikainen et al. 2018, Redlingshofer et al. 2017; Tesco and Society, 2014, Gustavsson et. al. 2013
Oilseed rape	2,167	4.5%	3.0%	6.0%	98	34	Redlingshofer, et al., 2017
Poultry	1,879	3.5%	1.7%	4.0%	66	85	Modelled on Chicken; Hartikainen et al 2018; Tesco and Society 2014, Gustavsson et al., 2013
Onions	380	17.3%	8.0%	28.8%	66	23	Hartikainen et al 2018, Tesco and Society 2014, , WRAP 2011
Apples	261	20.3%	10.0%	39.8%	53	29	Hartikainen et al 2017, Tesco and Society 2014, WRAP 2011
Parsnips	101	33.0%	17.6%	40.0%	33	10	As carrot
Oats	313	11.5%	5.0%	14.0%	36	12	As wheat
Cabbage	224	14.0%	N/a	N/a	31	15	Hartikainen et al 2018, Johnson et al 2018
Lettuce	104	24.8%	17%	45.0%	26	47	WRAP 2017, Beausang et al 2017, Hartikainen et al 2018, Tesco and Society 2014
Beetroot	78	33.0%	17.6%	40.0%	26	10	As carrot
Peas	135	19.0%	17.6%	21.4%	26	7	Hartikainen et al 2018
Pigs	892	2.7%	0.2%	5.0%	24	35	Hartikainen et al 20148, Tesco and Society 2014, Gustavsson et al., 2013
Turnips and Swedes	101	20.0%	n/a	n/a	20	6	As carrot
Cider Apples & Perry Pears	301	5.0%	N/a	N/a	15	2	No data - based on expert judgement
Strawberries	130	10.7%	8.0%	14.0%	14	30	Beausang et al 2017, Franke et al 2013, Hartikainen et al 2018, WRAP 2017
Other 30 sectors	2,881	6.2%			165	265	Surplus and Waste was estimated in similar vein for 30 other sectors
TOTAL	50,501	7.2%	4.4%	9.9%	3,625	1,156	

* n/a = not available

⁶ Note that the combined food surplus and waste estimates are not necessarily the sum of the separate food surplus estimates (Table 2) and the food waste estimates (Table 1), due to the interplay between food surplus and waste destinations.

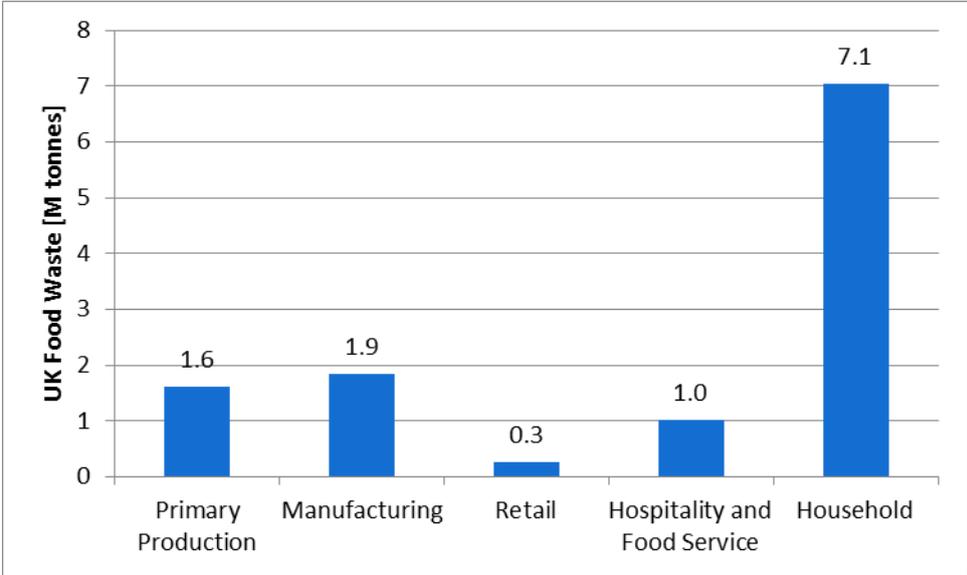
The UK combined central estimate for food waste and surplus (3.6 million tonnes per annum) includes food waste that is ploughed in or composted as well as material going to livestock feed and redistribution to people. The top 3 sectors: Potatoes, Wheat and Sugar Beet, make up more than 55% of the total estimate by volume. When clustered in to product types, horticultural crops make up 58% of the total, cereals 32%, livestock 4% and milk 6% of food surplus and waste volume.

Tables 1 to 3 also show the minimum and maximum estimates for each sector found in the literature. Whilst minimum and maximum estimates were not available for all sectors, for those where data is available the weighted average minimum food waste rate was 1.7% (0.9 million tonnes) and the weighted average maximum food waste rate was 7.0% (3.5 million tonnes). The breadth of these illustrates the potential to reduce the amount of food waste and surplus by aiming to achieve best practices.

Prior to the current estimate described in this report, WRAP published an indicative estimate of 2.5 million tonnes per annum for food waste in primary production in the UK. This was based on an assumption that on average 5% of product may end up as waste from all of the main agricultural sectors. This is at the higher end of the range identified in this current report, but the previous analysis did not include separate assessments of food surplus and food waste.

Figure 2 shows the central estimate of food waste compared to food waste tonnage measured for other stages of the food supply chain.

Figure 2 UK Food Waste in Primary Production 2017 estimate compared to other stages in supply chain in 2015 (other stages taken from Courtauld Commitment 2025 Food Waste Baseline for 2015, WRAP 2018)⁷



⁷ The volume of primary production in 2015 were higher for grains than in 2017, but lower for vegetables and potatoes; waste volume estimate for 2015 would therefore be similar to 2017. For both years the harvested production was about 51 million tonnes.

4.0 Limitations

As outlined above, it is acknowledged that this approach, based on a combination of single-year studies and literature review, cannot give as robust an estimate as a study based on multi-year measurement by trained researchers and a large enough sample of farms across each sector would.

Most data sources used here estimate food waste in primary production for a specific season. Given the strong influence of weather conditions, pests and diseases, it cannot be assumed that waste rates from one season will necessarily apply in other seasons – yet in the absence of multi-year studies, this is the best data available. Using the most widely available data should even out some of these seasonal variations.

This estimate could be underestimating the amount of waste, as most sources used questionnaires (farmers self-reporting) as a measurement method, which as had been shown from the few studies that compared farmer self-reporting to direct measurement (WRAP 2017, Hartikainen et al 2017b), tends to underestimate, especially for the amount of crop left in field.

As mentioned above, the scope of this study starts when a food crop or animal are ready for harvest or slaughter, and includes all waste that happens on farm, including any waste from grading, packing and washing if these processes happen on farm, customer rejections including rejections at arrival to slaughterhouse and dairy factory. However, some studies, which were used to inform the estimate, did not give a clear description of the boundaries, so it is possible that some sector estimates are not based on the correct boundaries.

When interpreting the data reported by other studies, assumptions often had to be made in order to match their data to the accepted food waste scope boundaries and definitions. These assumptions are outlined in Table 3.

Table 4 Assumptions and dealing with missing information

Source of ambiguity / uncertainty	For these studies/ crops/ stages	Assumption taken
Studies reporting waste percentage but which do not define the denominator used in calculation of percentage	Studies that estimate wastages by process stage within primary production	% of amount going to that process stage
	Studies that estimate wastages across whole primary production	% of harvested yield
	Studies that estimate in-field losses separately	% of harvested yield
Studies with no information about destinations, therefore no clear split between food waste and food surplus	Potatoes, Apple and other top fruit	Grade-outs assumed to be used as animal feed or go to other non-waste destinations. Left in the field, harvesting waste are assumed to be ploughed-in.
	Carrots and dairy	Split between waste and surplus is taken as average from the studies that do include this information.
	Meat / livestock, eggs, soft fruit, onions, lettuces	Assumed that no material is used as livestock feed, therefore all lost material is food waste
Studies with min & max but no average	(few individual studies)	Take the middle between min and max as average
Data missing	Apples and pears for cider (Sugar beet also only has on data point)	We assumed fruits for cider incur 5% loss
Commodity crop where intended market (e.g. animal feed, bio fuels or human consumption) may not be known by the grower	Combinable crops, e.g. barley, oilseed rape and oats	Food surplus and waste calculated only for production reported as entering the human food supply chain in Agriculture in the UK (Defra, 2018a). This would include, for example, wheat rejected by a bakery and sent to animal feed instead.

5.0 Reasons for waste

The difficulties in measuring food waste in primary production that are mentioned above also mean that it is generally not possible to attribute food surplus and waste volumes with any specific cause. This was WRAP's experience of working with growers in the strawberry and lettuce sectors (WRAP, 2017), and is generally reflected throughout the literature.

There are, however, a number of generally accepted causes of waste. These include localised conditions such as weather and soil type about which there are limited opportunities to influence. Pre-harvest factors such as variety selection, crop management and pest and disease incidence impact waste rates (Beausang et al, 2017). Similar factors will also apply in livestock sectors, e.g. breed selection, livestock management and disease incidence.

Post-harvest factors such as fluctuations in both supply and demand (Redlingshofer et al, 2017), product handling (Beausang et al, 2017), storage conditions (FAO, 2011) and failure to meet quality requirements (WRAP, 2017) are also recognised causes of food surplus and waste. In relation to this last point, it is worth noting that consumer preferences may have a significant impact on food waste in primary production.

6.0 Future plans to improve the estimate

As noted above, there is considerable uncertainty around reported data for food surplus and waste in primary production due to the difficulties in gathering reliable data. Whilst the estimate for food waste described here is considered a significant improvement on the previous indicative estimates for the UK, continuous improvements drawing on more UK-specific data are needed.

[Innovative Farmers](#) is the not for profit farmer network delivered by a consortium including LEAF. Innovative Farmers is piloting a farmer-led approach to gathering data on food waste in the apple, carrot, egg, tomato and wheat sectors in England. The work is supported by WRAP and funded by DEFRA, and the resulting data will be used to refine our waste estimates where appropriate.

The [Food Waste Reduction Roadmap](#) was developed by the UK food and drink industry in conjunction with the IGD and WRAP to tackle food waste in the UK. UK industry's uptake of the 'Target Measure Act' approach is already filtering down to on-farm measurement and data that the private sector share will also be used to refine our waste estimates. One such example is G's Fresh who have published data on food surplus and waste in their operations, including on food waste that occurs as a result of crop not being harvested and during harvesting (G's Fresh, 2019). In order for their estimates to help improve the overall picture of food surplus and waste in primary production in the UK, those would need to be disaggregated by each sector (product).

The amount of research into food waste in primary production, both in the UK and overseas has increased over the last couple of years. WRAP continues to engage with this research community and will be offering to share a Microsoft Excel version of our estimate and supporting calculations in return for any new evidence that they can contribute to it. If appropriate, this may also be integrated into [The Food Waste Atlas](#), the online reporting tool for food loss and waste.

Please [contact WRAP](#) if you have any evidence or data that you would like to contribute to these estimates.

7.0 Collaborative action to tackle waste

At the same time as developing the evidence base, through the Courtauld Commitment 2025 WRAP is helping deliver practical solutions to food waste in primary production. This voluntary agreement brings together food and drink businesses to deliver collaborative, whole supply chain solutions, including on farm. Whilst this collaboration is on-going, examples of work already delivered includes a project [with strawberry growers](#) (WRAP, 2019a) to demonstrate the business case for investing in more efficient

production systems, and work [with potato growers](#) which has revealed the potential of measuring waste and performance for identifying opportunities for significant improvements in farm productivity.

With the support of the Courtauld 2025 *Fresh Produce Working Group*, WRAP has published best practice [guidance on setting and maintaining quality specifications](#) (WRAP, 2019b). Farmer feedback often suggests that quality specifications are one of the primary causes of waste, so WRAP is also supporting business to implement this guidance in UK supply chains.

There are also several private sector initiatives to reduce food waste in primary production. For example, R&D in areas such as variety and breed selection, crop management and livestock husbandry all continue to improve utilisation and reduce waste. Whole supply chain solutions are also being developed through collaborative industry efforts, e.g. to improve best practice in setting and maintaining quality specifications.

As well as the private sector initiatives highlighted above, WRAP has also published the [Food Surplus Network](#) to help smaller businesses and farmers identify the range of opportunities to market surplus produce. This includes a number of new business-to-business online trading platforms, emerging markets for added value products made from waste and a broad range of organisations redistributing surplus to charitable causes.

8.0 Definitions⁸

Food Any substance that is – or was at some point – intended for human consumption. This includes both food and drink. This includes material that has spoiled and is therefore no longer fit for human consumption.

Inedible Parts Components associated with a food that would never have been intended to be consumed by humans – such as shells, bones, pits/ stones. ‘Inedible parts’ do not include packaging, or food that could once have been eaten but has been spoiled or passed its ‘use by’ date. For some businesses, it may be helpful to separately quantify ‘inedible parts’ and ‘food’ (e.g. when developing a meaningful food waste reduction target), as opportunities to reduce or redirect the inedible parts to higher value options may be limited. What is considered ‘inedible parts’ can vary in different supply chains and geographies. To enable some consistency for UK businesses, industry stakeholders have agreed specific definitions of ‘inedible parts’ for relevant products. These are available in the following sector guidelines: Meat Processing Sector Guidance; and Fresh Produce Sector Guidance⁹.

Food waste For the purposes of this report the term ‘Food Waste’ describes any food and inedible parts sent to any of the Food Waste Destinations:

- Anaerobic digestion/Codigestion

⁸ Taken from WRAPs UK measurement and reporting guidelines (WRAP, 2018)

⁹ Both available online at <http://www.wrap.org.uk/food-waste-reduction-roadmap>

- Composting/ aerobic processes
- Incineration/ controlled combustion
- Land application
- Landfill
- Sewer / wastewater treatment
- Not harvested/ploughed-in
- Other (including unmanaged disposal). This definition excludes any material that is sent for redistribution to people, animal feed or, conversion into industrial products (collectively referred to as 'food surplus').

Food surplus For the purposes of the UK guidance, the term 'food surplus' describes any food and inedible parts that were at risk of becoming waste but are instead sent to the following:

- Redistribution to people (e.g. through a charity or commercial redistributor)
- Animal feed
- Bio-based materials/biochemical processing (e.g. feedstock for other industrial products)

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