Food and Drink Water Use Reporting

2015

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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 recycling and re-use.

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In partnership with FDF and Dairy UK

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Front cover photography: Water drop

Executive summary

Following the success of the Federation House Commitment, reporting of the water efficiency improvements made by the food and drink manufacturers has become the responsibility of industry.

The Food and Drink Water Use Reporting scheme allows former FHC signatories to continue to report their water use data. It comprises of 56 companies across 223 sites.

Data is collected and reported via the FDF and Dairy UK.

This report summarises the collective water savings made in 2014 by those companies that continue to report via the Food and Drink Water Use Reporting scheme.

Between 2007 and 2014, participants collectively made a **15%** reduction in their water use (excluding that in product). This reduction is equivalent to **6.2 million m^3** water or 2,467 Olympic-size swimming pools.

Water intensity has been reduced by **22.9%** compared to the 2007 baseline. This equates to a water reduction of 0.53 m^3/tonne of product. This is a notable achievement given that production for these sites increased by 10.2% over the same reporting period.

Between 2013 and 2014, participants reported a 0.27 million m^3 reduction in annual water use. This represents a saving of around **£0.4 million** in the purchase of water alone.

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Introduction

The Federation House Commitment (FHC) ran from 2008 to 2014 and was managed by WRAP in partnership with the Food and Drink Federation (FDF) and Dairy UK, and supported by Defra and the Environment Agency. Since its launch, the FHC helped signatories across the food and drink manufacturing sector turn their commitments into real water savings.

FHC was a voluntary agreement that aimed to help reduce overall water usage by food and drink manufacturers, and to contribute towards the UK Food and Drink industry target of reducing water use by 20% by 2020.

Following its success, the FHC has transitioned accountability for water efficiency improvement to the industry. From 2014, water use data is collected and reported via FDF and Dairy UK, and 2014 data from other former FHC signatories was collected and combined with the data collected by FDF and Dairy UK. Collectively, this is known as Food and Drink Water Use Reporting.

Progress to date

Data overview

It is important to note that a direct comparison between this report and data in previous reports (FHC reporting) cannot be made. This is because at the time of each analysis, the dataset will vary depending on which sites report and the sub-sector they represent.

To determine the year on year trend since 2007, and to give a like for like comparison, only sites reporting data for 2007 (the baseline year), 2013 and 2014 have been considered in this analysis.

The Food and Drink Water Use Reporting measures reduction in water use against a 2007 baseline. This is expressed as two key performance indicators (KPIs)[1]:

- Absolute KPI: water use (excluding that in product) shown in bold in Table 1; and
- Relative KPI or water intensity: water use (excluding that in product) per tonne of product (Table 3).

For completeness and consistency with previous reports (FHC reporting), data relating to total water use (which includes water in product) is shown on page 9 and in Table 1 and Table 4.

The methodology used to analyse the data is summarised on page 8.

[1] *Other KPIs, relating to total water use, are discussed later in this report.*

2014 Water reduction progress

- Between 2007 and 2014, FHC signatories collectively made a **15 %** absolute reduction in their water use (excluding that in product).
- This represents a saving equivalent to **6.2 million m^3** or enough water to fill around 2,467 Olympic-size swimming pools.

Water use data for 2007 (baseline), 2013 and 2014 are summarised in Table 1 and Table 2. The relationship between water use and production is shown in Figure 1.

Table 1: Annual water use compared to baseline year for 223 sites with comparable data

	Water use (million m^3)			Production
Year	**Water use (excluding that in product)**	Water in product[2]	Total water use	Finished Product (million tonnes)
2007	**41.0**	5.2	46.2	17.6
2013	**35.1**	5.7	40.8	19.3
2014	**34.8**	5.8	40.6	19.4

- Between 2013 and 2014 participants reported a 0.27 million m^3 reduction in water use.
- This represents a saving of around **£0.4 million** in the purchase of water alone[3].

Table 2: Percentage water use reduction relative to baseline based on 223 sites with comparable data

Water use (excluding that in product)	
Year	% reduction relative to baseline
2007	-
2013	14.4%
2014	15.0%

In addition to the significant water savings that have been achieved, it is likely that further environmental benefits will have been realised, including savings in energy consumption, raw materials and associated carbon impacts.

[2] ***Note:*** *The water in product intensity (water in product per tonne of finished product) has increased between 2007 and 2013/14 and this can be attributed to a number of reasons, including one or more of the following:*

- *a site manufacturing a number of products may vary the proportion of each product manufactured each year to meet customer demand, which may result in an overall change in the volume of water used each year;*
- *companies invest in new product development (NPD) which means that the type and number of products manufactured on individual sites is subject to change over time, as is the volume of ingredient water used; and*
- *the way in which a site calculates its ingredient water may vary although this is generally picked up during the data analysis stage.*

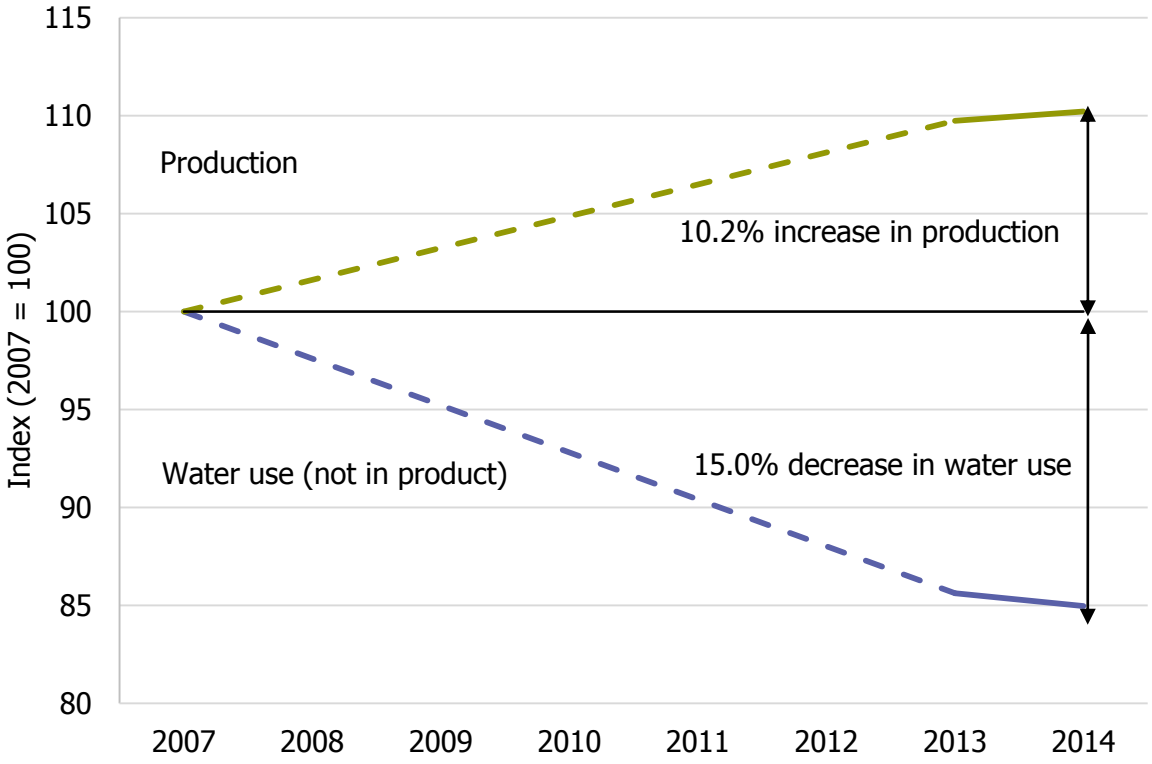
[3] *Assuming that all water savings are from the public water supply, and an average cost of £1.49/m^3 applies, based on the average standard user tariff for 2014 from main water companies in England and Wales.*

Comparing water use and production

- Between 2007 and 2014, participants collectively made a **15%** absolute reduction in their water use (excluding that in product)
- During this period, production across the sites represented increased by 10.2%.

The trend in water use and production between 2007 and 2014 for the 223 sites with comparable data is shown in Figure 1. This shows that there is a downward trend in water use of 15% between 2007 and 2014 (Table 2). Concurrently, production saw an increase of 10.2% (17.6 to 19.4 million tonnes), with a 0.4% increase in production figures over the last 12 months.

Figure 1: Water use and production trends between 2007 and 2014[4].



Water reduction trend

- Between 2007 and 2014, participants collectively made a **22.9%** absolute reduction in their water intensity.
- This represents a saving of 0.53 m^3 per tonne of finished product.

Reporting absolute reduction in water use does not take into account any changes in production. Water intensity (the ratio of water use to product) provides a complementary

[4] *In Figure 1 data for 2008 - 2012 are interpolated and shown as a dashed line, and assumed to be linear.*

method of assessing the food and drink sector's performance, and provides an important check that any changes in absolute water use are not solely the result of changes in production volumes. The water reduction trend is therefore best shown using water intensity, and is expressed as water use (excluding that in product) per tonne of product.

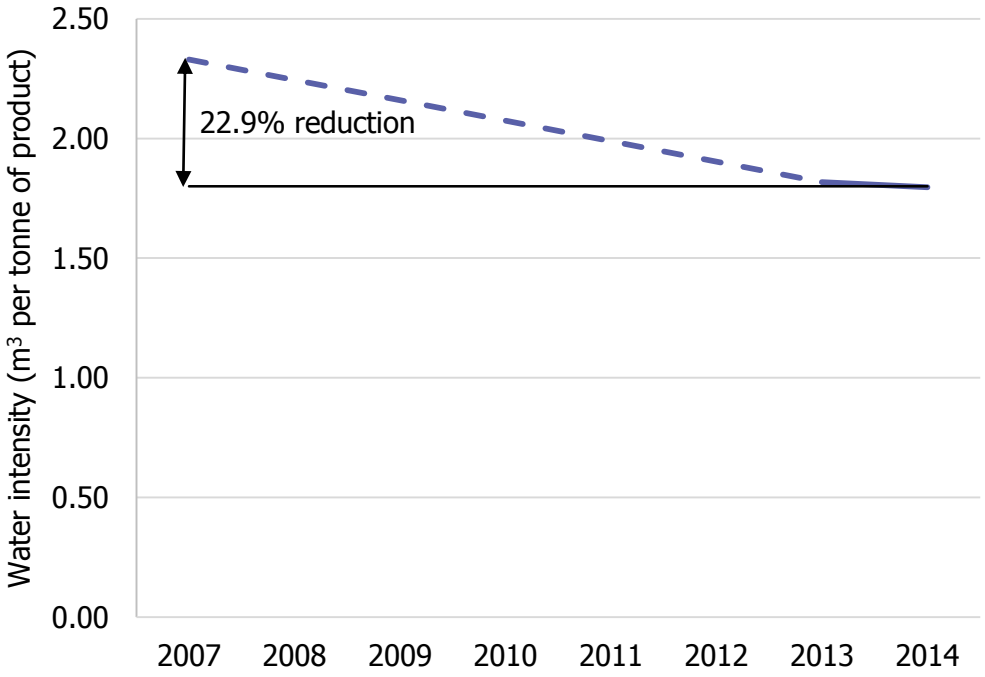
Participants have made good progress in reducing water. A 22.9% reduction in water intensity was achieved between 2007 and 2014. This is summarised in Table 3 and shown in graphical format in Figure 2.

Table 3: Water intensity trend for 223 sites with comparable data

Water use (excluding that in product)		
Year	m^3 per tonne of product	% reduction relative to baseline
2007	2.33	-
2013	1.82	22.0%
2014	1.80	22.9%

Figure 2 shows the water intensity for the 223 sites with comparable data. It shows that the reduction in water intensity between 2013 and 2014 has slowed down, similar to the trend seen between 2011 and 2012, whereas between 2012 and 2013 the reduction appeared to have picked up and was attributed to participants starting to implement the more capital-intensive investments. The current change in trend may also reflect the difference in the dataset used for the analysis this year compared to previous years.

Figure 2: Water intensity reduction trend[5]



[5] *In Figure 2 data for 2008 - 2013 are interpolated and shown as a dashed line, assumed to be linear.*

Increasing the diversity of product ranges accompanied by shorter production runs between changeovers can result in increased production downtime. This can lead to a requirement for additional cleaning and potentially an increase in water use compared to previous years.

Appendix 1 Glossary and abbreviations

Term	As defined in this report
Dairy UK	Dairy UK is the trade association for the Dairy industry, and represents the interests of the entire dairy supply chain including farmers, producer co-operatives, manufacturers of dairy products, and processors and distributors of liquid milk throughout the United Kingdom. Dairy UK's members represent about 85% of UK milk production.
EA	The Environment Agency (EA) is an Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs. Its principal aims are to protect and improve the environment, and to promote sustainable development.
FDF	The Food and Drink Federation (FDF) is the voice of the UK food and drink industry, the largest manufacturing sector in the country.
FHC	The Federation House Commitment (FHC) ran from 2008 to 2014. Since its launch, the FHC helped signatories across the food and drink manufacturing sector turn their commitments into real water savings. FHC was a voluntary agreement that aimed to help reduce overall water usage by food and drink manufacturers, and to contribute towards the UK Food and Drink industry target of reducing water use by 20% by 2020. The FHC was managed by WRAP in partnership with the Food and Drink Federation (FDF) and Dairy UK. Signatories signed up to five steps as part of their commitment: ▪ Step 1: Develop a water use baseline; ▪ Step 2: Assess water use at each nominated manufacturing site; ▪ Step 3: Develop site specific action plans; ▪ Step 4: Implement the actions identified in the action plan(s); ▪ Step 5: Report annual water use and production data to WRAP and its contractor. These were based on a calendar year.
FISS	The Food Industry Sustainability Strategy (FISS) was drawn up in 2006 with the aid of stakeholders and sets out how all those involved in the UK food and drink industry beyond the farm gate (manufacturers, wholesalers, retailers and food service providers) can, through widespread adoption of best practice, help achieve sustainable development.
Food and drink industry	For the purpose of this report, the food and drink industry is defined as retail, hospitality and food service, wholesale and manufacturing.
Food and drink industry water reduction target	The FISS estimated that the food and drink industry in England and Wales uses 252 million m^3 water per annum. Based on these findings, the FISS Water Champions Group recommended a food and drink industry water reduction target of 20% by the year 2020, against a 2007 baseline, which the Strategy considered to be achievable through the implementation of best practice in water use across the industry.
KPI	Key performance indicator.

Term	As defined in this report
Production	Finished saleable product, excluding reject product (expressed in tonnes).
Total water use	This is the sum of public water supply and directly abstracted water. It includes water used as a raw material in the preparation of the product (ingredient water), employee water use (washrooms), and non-consumptive water use (such as cooling water).
WRAP	WRAP's vision is a world where resources are used sustainably. WRAP work in partnership to help businesses, individuals and communities improve resource efficiency. Established as a not-for-profit company in 2000, WRAP is backed by government funding from England, Northern Ireland, Scotland, and Wales. WRAP became a registered charity in 2014.
Water use (excluding that in product)	Water use (excluding that in product) is defined as any water brought on site (mains or direct abstraction) that is used as a raw material in the product subtracted from the total water use. It is often referred to as ingredient water and includes water used in reject product. It is not the same as the water content of a product, since the latter excludes losses from any baking process but includes any water already in the ingredients brought onto site (e.g. syrups, sauces and fillings).

Appendix 2 Supporting information

The Food and Drink Water Use Reporting measures reduction in water use against a 2007 baseline and reports on annual water use (excluding that in product) to show progress towards the industry's targets. Production levels are taken into consideration to quantify changes in water efficiency independent from increases or decreases in production.

Water use data was received from 223 sites from 56 participating companies.

How is the water reduction measured?

A detailed data methodology for data collection, analysis and reporting is used to deliver consistent reporting; Hyder worked with WRAP to review this methodology to ensure that it provides a true representation of the progress of participating companies.

Participating companies provide data to Hyder between January and March. The data is reviewed for accuracy, based on knowledge of the site and reporting from previous years (via the FHC). Any discrepancies are discussed with the site to clarify and ensure accurate reporting.

Comparison between years has been calculated as percentage reduction relative to the 2007 baseline.

Water use (excluding that in product)

Participating companies report two water-use metrics:

- annual **total water use**, which includes all water used at a manufacturing site including water in product (WIP); and
- annual **water in product** (WIP).

These metrics are used to calculate annual **water use (excluding that in product)**. By reporting water use (excluding that in product), the industry is reporting the amount of water that can be reduced by implementing best practice on site, it is not commenting on potential product changes.

Figure 3: Water use (excluding that in product) calculation

water use (excluding that in product) = Total water use – WIP

WIP is the amount of water that is used as a raw material in product. It is also sometimes referred to as 'ingredient water,' and is determined by the water requirements of the product and the manufacturing process.

Because the main industry focus is on annual water use (excluding that in product), the main body of the report relates to this metric[6]. However, there are other KPIs that relate to total

[6] *Expressed as either an absolute KPI (water use excluding that in product) or relative KPI (water use excluding that in product per tonne of product).*

water use[7] and for completeness and consistency with previous reports (FHC reporting), these are summarised in the following sections.

2014 Water reduction progress: total water use

Over the past year participating companies have continued to reduce water use on site. Based on 223 sites with comparable data for 2007, 2013 and 2014, total water use by participants has reduced by 0.2 million m^3 over the last year and 5.6 million m^3 (12.2 %) between 2007 and 2014 (see Table 4).

Table 4: Total water use compared to baseline year for 223 sites with comparable data

Total water use		
Year	Total water use (million m^3)	% reduction relative to baseline
2007	46.2	-
2013	40.8	11.7%
2014	40.6	12.2%

As mentioned in the Progress to date section of the report, water intensity (i.e. the ratio of water use to product) provides a complementary method of assessing signatory performance. Water intensity is shown in Table 5; a 20.4% reduction in water intensity was achieved between 2007 and 2014.

Table 5: Water intensity compared to baseline year for 223 sites with comparable data

Total water use		
Year	m^3 per tonne of product	% reduction relative to baseline
2007	2.63	-
2013	2.11	19.5%
2014	2.09	20.4%

[7] *Expressed either as an absolute KPI (total water use) or relative KPI (total water use per tonne of product).*

www.wrap.org.uk/content/federation-house-commitment

recycle