Case Study Heinz reduces water use by nearly 25%

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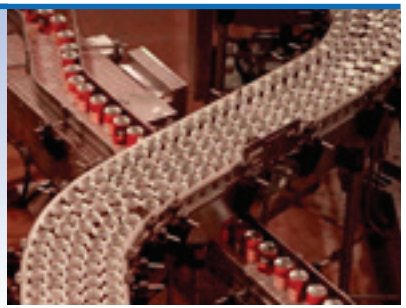
> "Communicating the amount of water used by individual processes and shifts to the water users, motivated them to reduce their water use and look for more savings – a lot can be achieved without capital investment"
>
> Simon Taylor, Heinz Site Manager, Westwick

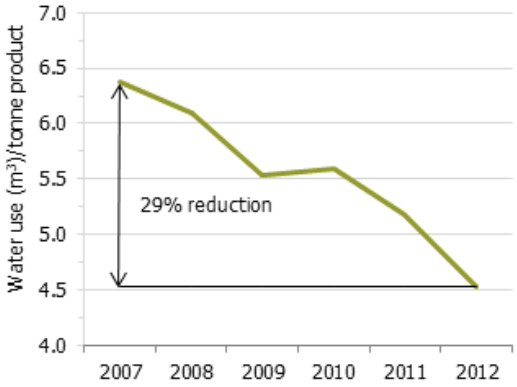


Heinz has five manufacturing sites in the UK. Since joining the FHC in April 2011 the sites have received on-site technical support and staff training from FHC technical advisors.

Overall the sites have reduced their annual water use by nearly **25%** between 2007 and 2012. This is equivalent to nearly 300 Olympic-sized swimming pools. Between 2011 and 2012 the sites collectively achieved a 5% water reduction.

Water intensity[1] has been reduced by **29%** (1.9 m^3 water per tonne of product) compared to the 2007 baseline, which is illustrated in Figure 1. This is a notable achievement given that production for these sites increased by 6% over the same period.

Figure 1: Water intensity trend at Heinz sites



Kendal site

At Kendal, Heinz recently changed its infant feeding manufacturing process to increase the efficiency of its milk evaporation and drying processes. This has led to a significant reduction in steam usage through more efficient drying.

The benefits have not only included reductions in water use, but also associated energy use and waste and waste water generation.

The site recently reviewed Cleaning-In-Place (CIP) use, with a view to optimise water and chemical use and recover CIP waste water for reuse. This was achieved by splitting the process into several zones which allows the CIP sets to run separately and more efficiently. The CIP programmes now tailor water flow and temperature to the cleaning needs of each part of the process, which has saved water, energy and time to achieve the required high standard of cleanliness.

wrap
The Old Academy
21 Horse Fair
Banbury, Oxon 0X16 0AH
Tel: 01295 819 900
Fax: 01295 819 911
E-mail: info@wrap.org.uk
Helpline freephone
0808 100 2040
www.wrap.org.uk

Kitt Green site

The Kitt Green site near Wigan is Europe's largest food canning plant[2] housing 17 filling lines and around 20 km of drainage. It accounts for a significant proportion of Heinz's water use (around two-thirds). The site first opened over 50 years ago and replacement and upgrading of equipment is on-going.

One example of a recent significant reduction in water use achieved is through the replacement of float valves at the inlet to the two water reservoirs feeding the employee services building, comprising the canteen, welfare facilities and office accommodation. The original valves were installed when the factory was built and were worn and leaking. This resulted in excessive water use during production, or the reservoirs overflowing when the factory was not running. The installation of new valves has eliminated the leaks and the cost associated with abstracting water unnecessarily. Between 2011 and 2012 the site reduced its water intensity by 11% (Table 1).

Westwick site

The Heinz Westwick factory produces frozen oven chips and potatoes for the Aunt Bessie's brand[3]. The site has made significant water use reductions by applying a number of techniques, including:

- holding weekly water meetings with representatives of the engineering, production and site services departments;
- increasing the number of meters on site and the frequency of meter readings; and
- communicating daily the water use for various processes on the site, showing both the water use per 12-hour shift and the total used in the 24-hour production day.

By monitoring water use better the site is able to identify areas with potential for water reduction. Some of the opportunities identified have since been implemented, resulting in significant water savings (Table 1) and improved water management. These include the following low-cost water saving solutions:

- the amount of water used on one part of the process differed significantly between shifts, averaging between 20 and 30 m^3. A water use target of 18 m^3 was set which has been achieved, and usage is routinely monitored to ensure it doesn't rise again;
- installing a new meter on a water cooled drum on a frying line revealed that it was using almost twice the amount of water required, so an optimum water use target was set and maintained;
- monitoring the water use in the post peeling potato washer highlighted that water use was high during some shifts.
- the control valves were changed to manage the amount of water used based on the characteristics of the potatoes, which vary depending on the product, the time of year and the weather conditions when they are harvested; and
- one of the main reductions of fresh water use was re-using water from the site waste water treatment plant. The treated water is used in the steam collapse vessels (used for peeling the potatoes), and in the water supply to the air scrubber plant, where it is used for both air cleaning and cooling. Installing the water reuse line has resulted in a 50% reduction in water use in those processes, without compromising quality.

The site continues to identify further water saving opportunities.

Table 1: Water intensity[1] reduction between 2011 and 2012

Heinz site	Water intensity reduction
Kendal	8.9%
Kitt Green	11.0%
Westwick	23.7%

[1] Water intensity is expressed as water use per tonne product

[2] Site area 226,175 sq. metres, with an annual throughput of around 1.1 billion cans (417k tonnes)

[3] Aunt Bessie's Potato Products are produced by Heinz under licence from Aunt Bessie's Ltd, owner of the Aunt Bessie's brand and registered trademarks. Aunt Bessie's Ltd is part of the William Jackson Food Group

WRAP
The Old Academy
21 Horse Fair
Banbury, Oxon 0X16 0AH
Tel: 01295 819 900
Fax: 01295 819 911
E-mail: info@wrap.org.uk
Helpline freephone
0808 100 2040
www.wrap.org.uk