

Muntons Sustainability Program

According to the Farm Sustainability Assessment standard developed by the Sustainable Agriculture Initiative Platform (SAI)¹ Muntons malt is 100% sustainable. The standard benchmarks over 300 existing farm assurance schemes and using the Farm Sustainability Assessment (FSA)² we have identified that the Red Tractor Scheme for our raw materials ranks as a silver scheme. Muntons assesses its operations across the full range of issues often described as the triple bottom line which looks to address sustainability in terms of People, Profit, Planet.



Muntons has been producing malt and malted ingredients for almost a century. The Company is a significant international player in the supply of malts, malt extracts, homebrew kits for beer and wine, flours and flakes and many other malted ingredients relevant to the food and drinks industry, exporting around half of its production.



Overview of Sustainability Activities and Progress

Muntons has maintained its performance in energy efficiency, with usage at a lower level than the government Climate Change Levy target. This has been achieved through a strong focus on energy efficiency. The ISO50001 energy management system is valued as an external verification of the activities being monitored by Muntons energy review team, and supported by a capital investment program that looks to minimise energy use, reduce greenhouse gas emissions and maximise production throughout.



Across its supply chain Muntons has continued to support sustainable farming practice through its *Sustainable Futures* group, which provides a forum for over 100 farmers to exchange best practice and provides them with expert advice on environmentally protective farming methods and sustainability reporting. This has aligned nicely with the proposed change to farm payments post-BREXIT which will likely be dependent on environmental protection rather than subsidy. Muntons is a leading member of the Sustainable Agriculture Platform (SAI) which has generated the world's first Farm Sustainability Assessment (FSA) to facilitate the audit of farm sustainability against an internationally agreed standard. By reference to the FSA standard Muntons can claim that it procures 100% sustainable barley and as a consequence produces 100% sustainable malt. Muntons has been audited by SGS to verify the claim that their malt is indeed 100% sustainable.

¹ <http://www.saiplatform.org/>

² <http://www.fsatool.com/>

The Group's Technical and Sustainability Director has chaired the SAI Arable Working Group which has championed the use of the Farm Sustainability Assessment to benchmark existing sustainability standards and allow a future improvement plan for farmers to consider which will improve their margins without increasing supply chain cost. He now sits on the SAI Executive Committee. SAI FSA has enabled the Muntons Group to engage with supply chain partners who source other crops from farms growing malting barley and thus reduce the demands on farmers to adopt multiple standards.

This year Muntons has made a significant step in ensuring its operations really do deliver against the measures needed for reducing temperature rise through climate change. The company has reduced energy use by 18% over the past 15 years which is much more than the government required under the climate change levy. Typically, however, for a company that values real action on climate change, Muntons is one of the very few businesses to set a **science-based target** and have a plan to achieve it in 15 years. The UK and EU government targets will get us only 30% of the way towards avoiding a 2°C global temperature rise. The science-based target for manufacturing is a 57% reduction from 2010 to 2050 which is thought impossible by many. In a bold move this year, Muntons had its targets for GHG reduction ratified by sciencebasedtargets.org and are aiming to reduce emissions by 45% by 2025 based on 2010 levels. Extensive activities in increasing efficiency pre-2010 are considered when setting a target lower than the rest of the sector. The aim is to meet this commitment through the installation of Biomass heating at both of Muntons UK malting sites.

All these activities allow Muntons to make significant and specific statements in support of the United Nations Sustainable Development Goals and it is pleased to share its compliance and audit data with stakeholders through the [Carbon Disclosure Programme \(CDP\)](https://www.cdp.com/) and [Suppliers Ethical Data Exchange \(SEDEX\)](https://www.seDEX.com/). Muntons were recently rated by CDP as grade A- for supplier engagement and has passed the SEDEX ethical audit for the third time with no non-conformities. All Muntons activities on sustainability are publicised on their dedicated webpage psmuntons.com.

Practical Sustainability

Muntons has continued to develop and enhance its sustainability website psmuntons.com. It is a valuable resource for those wishing to understand the range of areas covered through their work on sustainability. It contains case studies, articles, pledges and most importantly proof that they can demonstrate sustainable improvements in their process and within the supply chain.

Muntons is pleased to share its learning on making sustainability real and measurable. When you visit psmuntons.com you will read about its pledges, goals and achievements, and see some fantastic examples of how even recipes for well-known goods can be made more sustainable and taste even better than the original!



Farmer Sustainability Groups: Sustainable Futures

Muntons established that the major part of its supply chain carbon footprint emanated from the growing of malting barley and primarily from production and use of fertilisers. When Muntons joined the Sustainable Agriculture Initiative (SAI) it was very helpful to find a tool that defined sustainability at farm level and enabled a gap analysis to be generated so that farmers could understand what higher standards could be achieved.



In 2014 Muntons initiated an important development of collaboration by establishing farmer groups in a forum called **Sustainable Futures**. It is supported by a group representing several supply chains (barley, wheat, sugar beet) all keen to focus attention on supporting farmers and growers to minimise environmental impact, improve margin and verify the improvements being achieved. The group, comprised of representatives from various supply chains, NGO's and funders (see graphic, below), is administered through Future Food Solutions. Sustainable Futures has an annual conference and more frequent and smaller meetings of farmers to give them access to expertise on the most appropriate farming techniques and machinery to use and to make this more readily achievable by facilitating farmer peer groups to discuss the pros and cons of various farming methods.



The programme aim is to deliver sustainable solutions across the whole supply chain. It



does this through advanced peer learning and discussions between farmers and organisations, to create a platform for knowledge and information sharing on sustainable farming practices. Helping to reduce the environmental impact of farming by addressing the carbon footprint, ensuring the maintenance of positive soil conditions, finding alternative methods of pest and disease control and using the best precision farming equipment. Meanwhile, allowing farmers to maximize their return on costs and having a positive impact further along the supply chain.

It has proved to be particularly powerful to have face to face meetings on farms in the UK and Holland where farmers can discuss their concerns and learn from those who have implemented new measures and can show a financial and environmental benefit from doing so. The scheme has been positively welcomed by many farmers, particularly in Yorkshire. Although some were slightly sceptical at first, through partnerships and knowledge sharing about the adoption of precision farming techniques, the benefits have been successfully harnessed.

Two examples of how group members have found real benefit are shown below to whet your appetite to go to the website to view more³

Graham Potter- Wheat, Barley, Fodder Beet and Oil Seed Rape

“It’s been great fun and I have made a load of new friends. There are lots of meetings to go to, but I always like to go to them as there is a lot of knowledge sharing between farmers really keen to push their businesses forward”

Techniques adopted:

- 1) Precision farming using a Claydon Seed drill rather than cultivation.
- 2) Introduction of cover crops
- 3) Drone imagery to accurately feed crops when they need and identify nitrogen requirements.
- 4) Accurate soil maps

Benefit: Direct drilling has allowed Graham to achieve an accuracy of 2.5cm, allowing inter row cultivations, leaving the stubble standing and drilling between the rows. The introduction of cover crops has captured spare nutrients left from previous crops and helped to build up organic matter in the soil, improving soil structure and aiding worm activity. The use of drone imagery has helped to reduce waste and accurate soil maps have allowed the rate of spread of fertiliser to be varied. This has reduced any waste fertiliser, helping get more for less and preventing leaching into the water.

Graham made an enthusiastic presentation at the 2017 conference showing in real hard financial terms the benefits he had gained from being sustainable.



Till or No Till – who knows best?

Where some challenges have been faced, stakeholders have worked together to overcome and find sustainable alternatives. Take for example, the move of several farmers from traditional combination drill ploughing to No-Till direct drilling as part of precision farming techniques. Whilst this has increased the accuracy of drilling, allowing inter row cultivations and improved soil structure, it also creates a furrow in the soil which has encouraged a growing population of slugs.

Rather than using a blanket application of Metaldehyde pellets to address the slug problem which poses the risk of leaching into the local watercourse, farmers have shared experiences of a number of alternative practices. One is double rolling the same way as drilling and then 90 degrees the second time, making the soil more consolidated which is cheaper than a blanket application of pellets. Another option is to replace Metaldehyde with SluXX, a ferric phosphate compound which is less polluting and a good alternative. Additionally, Mzuri stubble rakes could be used at high speeds, disturbing the slug eggs and exposing them to the sunlight to dry them out, providing a cheaper and less environmental damaging solution.

³ <http://www.psmuntons.com/portfolio/sustainable-futures-farmer-groups/>

Muntons New Environmental target

Science-based target⁴:

Muntons has successfully achieved an external verification of its emissions targets, which aligns it with the reductions necessary to restrict global climate change to a 2°C rise by 2050. The agreed target is to reduce its emissions by 45% in the period 2010-2025. This is another first within malting and places Muntons on a par with several global organisations seeking to make real changes to business operations that generate absolute GHG reductions that are not just dressed up as CSR promotions with no real substance.



SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

United Nations Sustainable Development goals

Muntons is a strong supporter of the United Nations Sustainable Development Goals and this is having an impact in their supply chain as identified by the brief summaries against some of those goals shown below.

<p>3 GOOD HEALTH AND WELL-BEING</p>	<p><i>Malted ingredients are a rich source of vitamins and minerals, low in fat, high in fibre with many health benefits to help feed the world</i></p>	<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p><i>Innovation drives internal efficiencies and new product development</i></p>
<p>5 GENDER EQUALITY</p>	<p><i>Muntons has a policy of equal rights and opportunities irrespective of gender</i></p>	<p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	<p><i>Muntons has won national and international awards for sustainable leadership</i></p>
<p>6 CLEAN WATER AND SANITATION</p>	<p><i>Muntons has a policy to reduce water consumption and recycle and reuse where possible. It supports cleanwater wells in Africa through Brewgooder</i></p>	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	<p><i>Muntons provides clean label ingredients produced in hygienic, highly efficient facilities using ingredients sourced ethically</i></p>
<p>7 AFFORDABLE AND CLEAN ENERGY</p>	<p><i>Up to 14% of Muntons electrical requirement provided by on site Anaerobic Digestion and solar panels</i></p>	<p>13 CLIMATE ACTION</p>	<p><i>Externally verified Science Based Target for reduction of GHG emissions by 45% by 2025 compared to a 2010 base year</i></p>
<p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p><i>Muntons is an ethical company caring well for its employees as verified by SEDEX ethical audit & has a strong strategy for growth</i></p>	<p>17 PARTNERSHIPS FOR THE GOALS</p>	<p><i>Muntons facilitate Famer support groups: "Sustainable Futures". Member of the Sustainable Agriculture Platform</i></p>

⁴ See www.sciencebasedtargets.org

Ethical Supply

In 2017 Muntons were again successfully certified as being an ethical supplier through external audit according to the **Supplier Ethical Data Exchange** four pillar audit (SEDEX, SMETA audit). The four pillars are: Labour Standards; Health and Safety; Environment; Business Practices. They have chosen to maintain a 2-year cycle of audit for this important standard which is now being requested more frequently by key customers. There were no non-conformities. Muntons has reinforced its ethical status by formally adopting the **Modern Slavery Act** (Human Trafficking) and has a statement published on its website⁵.



Data sharing

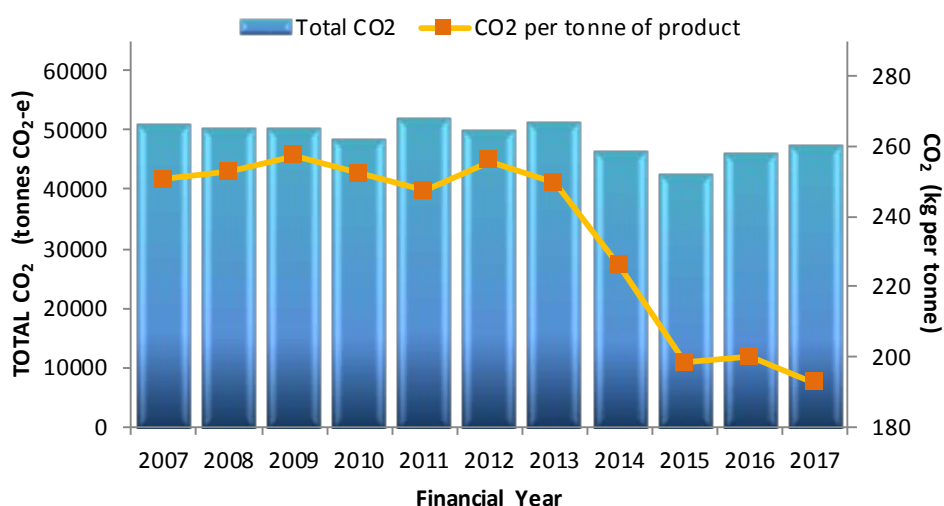
Muntons is also pleased to share its sustainability data with customers such as Diageo and Kellogg through the Carbon Disclosure Programme and through Data Exchange initiatives such as the GlaxoSmithKline forum. These seek to herald those leading on sustainability with the aim of encouraging other suppliers to invest and thus improve supply chain resilience. There is still a disconnect in many companies between wanting first class sustainability but placing contracts with the lowest cost supplier who often has no presence in the sustainability area whatsoever.



Sustainability Metrics

Carbon footprint is currently still the most quoted index of sustainability although in the next section other measures are described that are used in more detail. Muntons is committed to a continuous reduction in energy use. Since 1999 it has been part of a Climate Change Agreement (CCA) via a collective of UK maltsters. Muntons has consistently achieved its

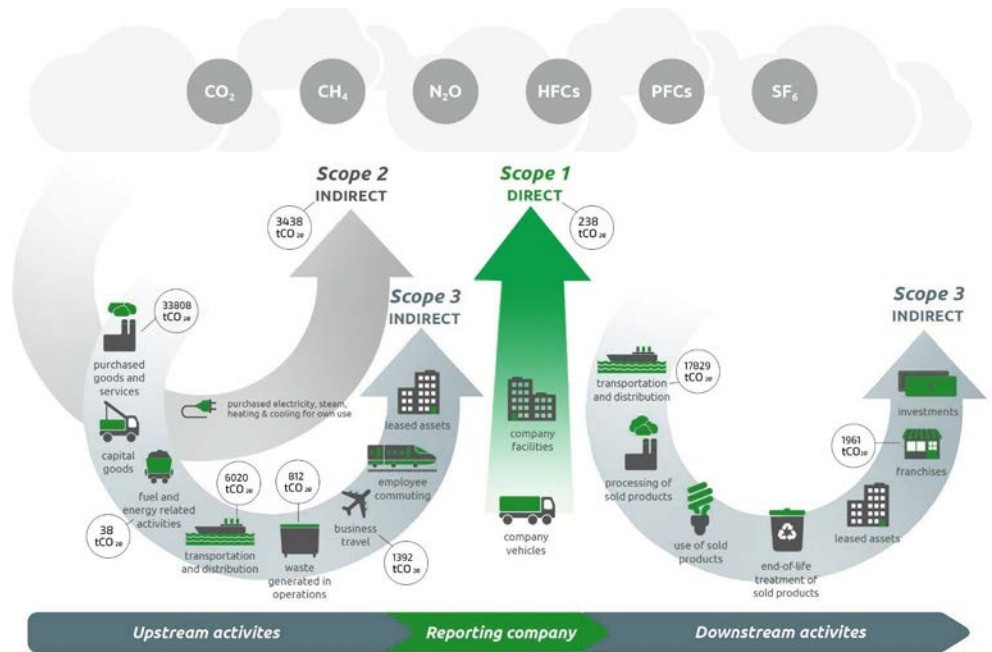
Carbon Footprint of Manufacturing Operations (Scope 1 + 2)



government emissions targets, gaining a reduction in the Climate Change Levy. It has also been taxed based on total emissions of carbon dioxide (CO₂) through the European Union Emissions Trading Scheme (EUETS) for a number of years. Its total emissions have stayed relatively flat whilst production volumes have increased which means that the specific emissions per tonne of product have reduced considerably. This has been achieved by continuous improvement and monitoring of energy usage and investment in more efficient technology where possible.

⁵ <http://www.muntons.com/wp-content/uploads/2017/06/Slavery-Human-Trafficking-Statement-2017.pdf>

Muntons are also able to report a breakdown of carbon footprint into scope 1, 2 and 3 emissions in line with mandatory carbon reporting guidelines (graphic, right). We have changed our scope boundaries and categorisation this year and updated historical emissions conversion factors which alters the proportions within the scopes but is a minor change to overall emitted GHGs.



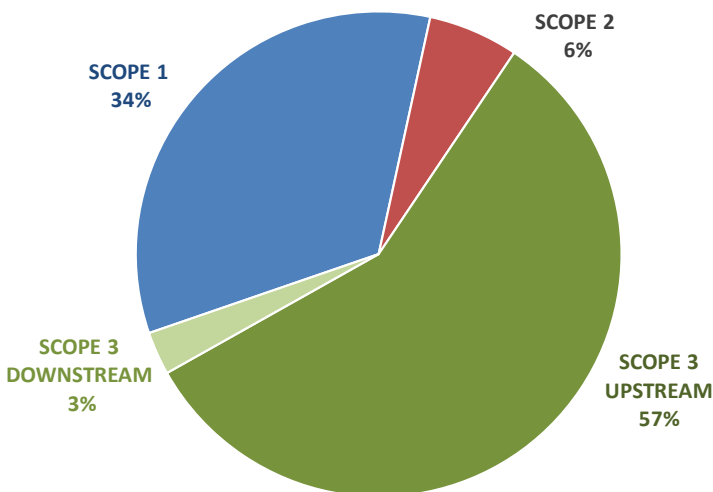
Muntons Carbon Footprint Analysis

CO ₂ equivalent emissions (CO ₂ e tonnes)								
	2010	2011	2012	2013	2014	2015	2016	2017
Scope 1	34417	37803	35363	36910	35236	33186	38309	39487
Scope 2	12885	12906	13147	13034	10048	8390	7040	7043
Scope 3	69563	76272	67206	65882	63676	66057	67643	70667
TOTAL	116866	126979	115715	115827	108961	107633	112992	117197

Definitions (new for 2018)

- Scope 1** Activities owned or controlled by Muntons e.g. plant, vehicles, gas use in boilers
- Scope 2** Emissions associated with *generation* of Purchased electricity
- Scope 3** Upstream: Raw material procurement Downstream: Products after they have left site. Emissions from *Transmission and Distribution losses of electricity use*

CARBON FOOTPRINT ANALYSIS BY SCOPE

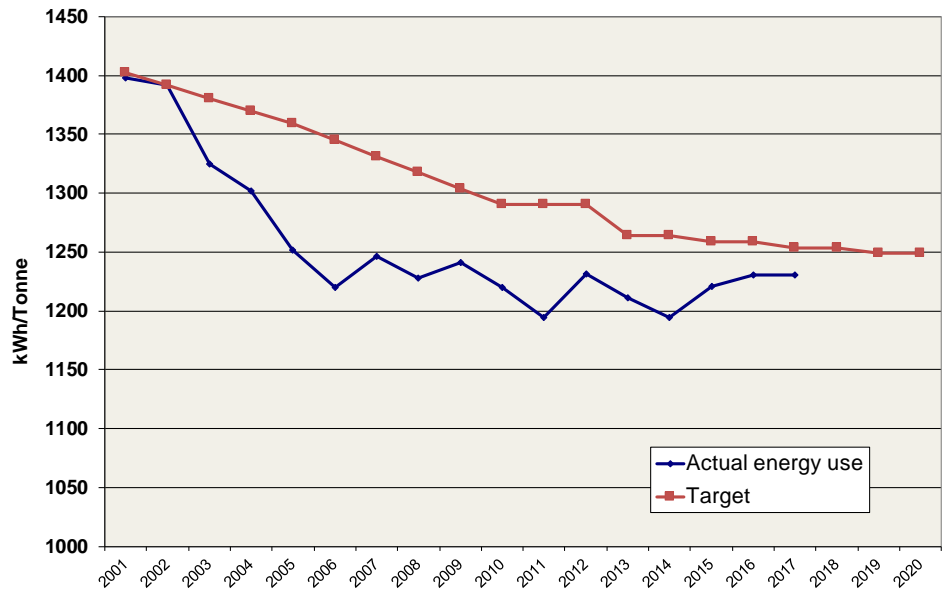


By scope the greatest proportion is Scope 3 at 60% and the biggest contributor to that is the upstream emissions from raw material sourcing. However, in that category we have through our attention to malting barley carbon footprinting, achieved a 26% reduction in barley carbon footprint over 10 years. Overall scope 3 emissions have thus stayed relatively flat even though we take in 19% more barley than 10 years ago.

Scope 2 emissions dropped from 2014/15 as we introduced electricity generation on site from the Anaerobic Digester plant.

Energy Use

The government Climate Change Levy (CCL) target is shown in red on the graph. Muntons is better than the target and is in line with the 2020 reduction target. Continual energy reduction has been achieved by improved monitoring and targeting and through the benefit of having ISO50001 energy monitoring auditing in place. These are supported by a

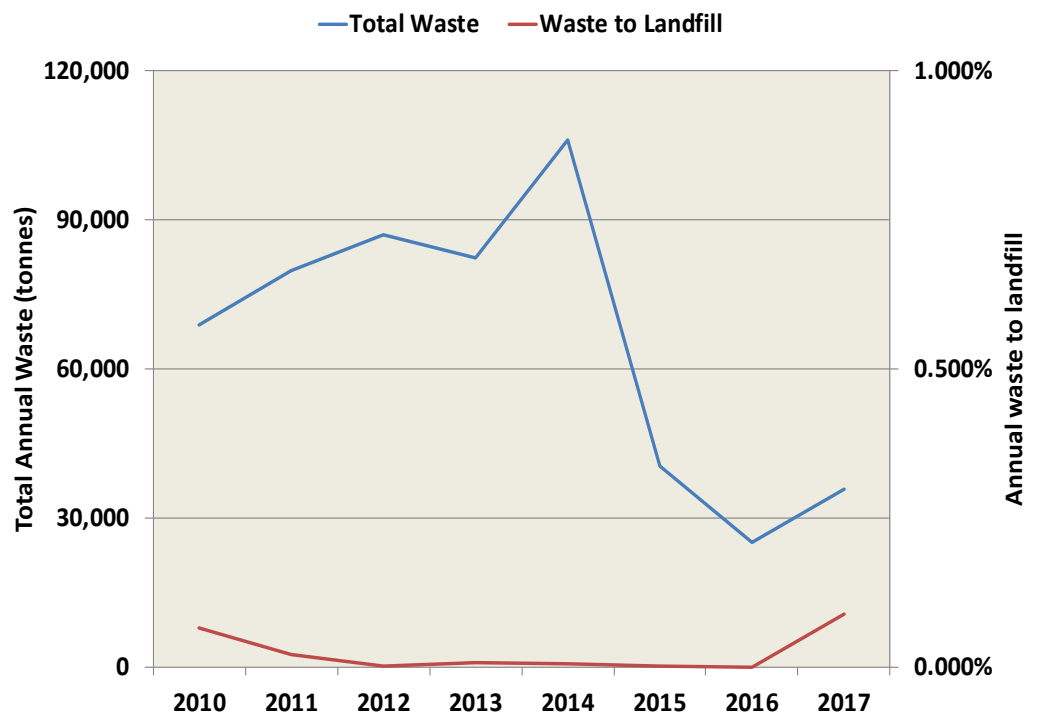


robust investment plan in energy investment. Data shown here is averaged for its Bridlington and Stowmarket sites and includes malt and malted ingredient production. The Stowmarket site is also taxed under the EU Emissions Trading Scheme and it has a separate absolute emissions target for that tax. At the Bridlington plant Muntons installed Solar Panels and the electrical energy generated from these can be viewed on a live feed on psmuntons.com.

Muntons completed its obligation to comply with the Energy Savings Opportunity Scheme (ESOS) audit requirement by virtue of already having ISO50001 in place.

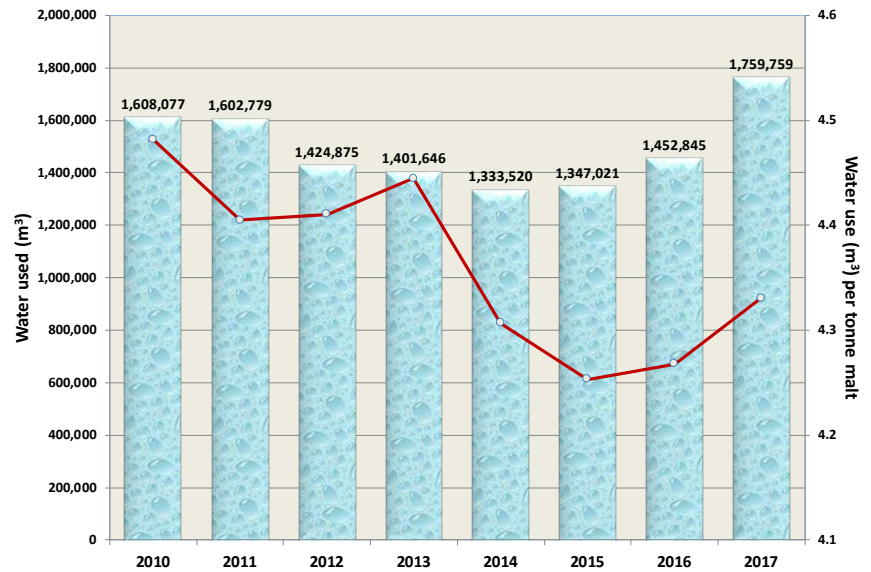
Waste

Muntons continue to operate with virtually no non-hazardous waste to landfill: less than 0.01% for each of the past 6 years. It constantly looks for opportunities to work with its waste contractor to minimise their landfill waste even further. Muntons is currently going through a major capital investment and building programme, hence their very small rise in waste is considered acceptable.



Water

Muntons has made a concerted effort to reduce water used in process. Since 2009 it has significantly increased production volume and new process additions at its Stowmarket plant. In 2017 it had a significant increase in malt production tonnage and output from the liquid extract plant requiring more water use. Seasonal variation in raw materials available for processing required slightly higher water use but the overall water consumption per tonne for malt (red line) remains at the lower end of water used in relation to industry best practice.



“Muntons sustainability strategy: invest green savings in green initiatives and continue to look to mitigate risk in the most environmentally and cost-effective way possible. Production will increase but the relative carbon footprint must decrease. Projects promoting sustainability and efficiency that have a payback better than 3 years are prioritised and fast tracked for capital investment.”

For further details please contact:

Dr Nigel Davies, Technical and Sustainability Director (e-mail: nigel.davies@muntons.com) or

Melissa Abbott, Sustainability and CSR Coordinator (e-mail: melissa.abbott@muntons.com)