CRISP MALT
SUSTAINABILITY STATEMENT – GREAT RYBURGH MALTINGS (OCTOBER 2022)

This Statement has been prepared to outline the sustainable operational practices Crisp Malt are currently undertaking at the Great Ryburgh maltings. As explained in this Statement, it is Crisp's intention to continue and enhance these practices through to the expanded site, should planning permission be granted, to continue to reduce the carbon impact and the ecological impact of the proposal in the current Climate Emergency. It is Crisp's long-term strategy to achieve net carbon zero throughout its own operations, including at the Great Ryburgh site, by 2050 or sooner.

Strategy 1: ABC Grower Group

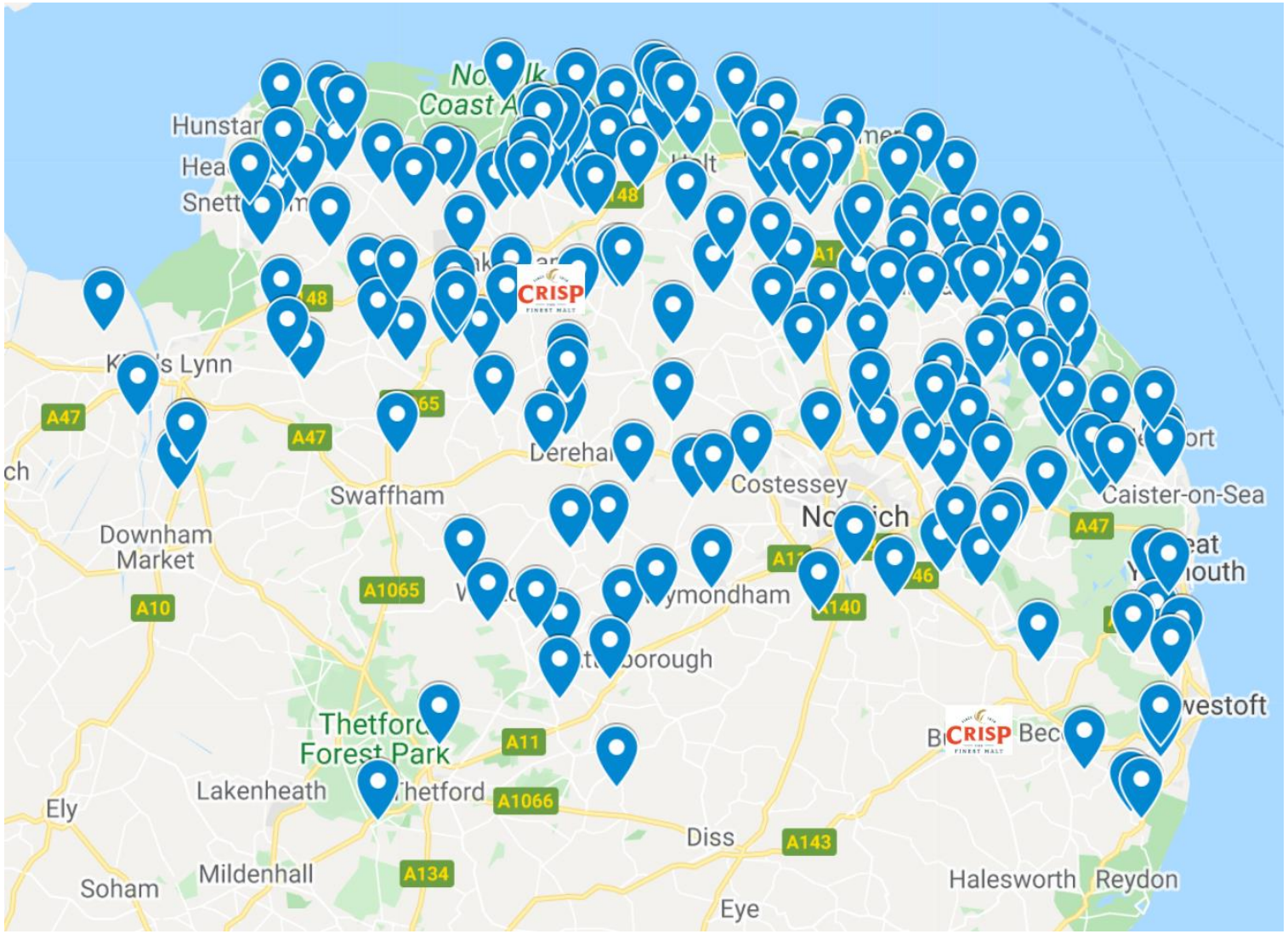
Current Situation

- Crisp Malt is supplied with barley and other cereals for malting by the ABC Grower Group. The Group was established by Crisp Malt, Adams & Howling and H Banham Ltd to improve local sourcing of barley for malting in 2006, in part to help reduce food and drink miles. The Group comprises just under 180 members within 50 road miles of the Great Ryburgh maltings. All ABC members are Red Tractor Assured – Crisp Malt only purchases grain from growers who belong to a recognised grain assurance scheme, which requires the growers to have sustainable agricultural practices in place influencing how the grain is produced.
- Over 100,000 tonnes of Crisp's current requirement for malting barley at its Great Ryburgh site is sourced directly through the ABC Grower Group, which comprises the majority of raw product required to produce the Great Ryburgh site's current throughput (up to 115,000 tonnes of malt per annum).
- Group Members are based throughout Norfolk and Suffolk, with the highest concentration in North Norfolk District, as demonstrated by the map of member farms overleaf.

Proposed Enhancements with Expansion

- Crisp's commitment to supporting and sustaining local agriculture through the ABC Grower Group is evident, whilst minimising food miles and carbon emissions. There is scope to further increase the number of Group members as part of the expansion proposals, subject to the barley types and varieties required by Crisp to satisfy consumer demands.

ABC Grower Group Locations



Strategy 2: Sustainable Agriculture Initiative (SAI) Membership

Current Situation

- The SAI Platform is a non-profit network of over 130 members worldwide, which is advancing sustainable agricultural practices. Membership of the SAI Platform provides Crisp with access to a range of tools to enhance sustainability within its cereal supply chain and drive its suppliers to adopt sustainable agricultural practices.
- For instance, the SAI Platform Farm Sustainability Assessment, which is supplemented with onsite audits, provides the ABC Group with a benchmark against global standards, and a tool to assess where on-farm sustainability improvements can be made. All ABC Grower Group members have achieved a minimum Silver Level certification from the SAI Platform Farm Sustainability Assessment. (minimum 100% coverage of essential questions in the Assessment, 80% of basic questions, and 50% of advanced questions). Crisp are working with the ABC Group to achieve Gold Level certification. The majority of Danish growers, who supply most of the barley required for Crisp Malt's Hamburg maltings, have already achieved Gold Level certification, therefore Crisp also has a proven track record in achieving this standard from its growers.
- ABC Group members have recently replied to a separate Crisp Malt survey regarding their adoption of practices such as cover cropping, improvement of soil organic matter improvement, integrated pest management, biodiversity improvement plans, use of minimum tillage and use of abated nitrogen fertiliser to further reduce their environmental footprint. Data from the survey showed that the majority of respondents were already using a number of sustainable agriculture practices. A single respondent had calculated the carbon footprint of malting barley at 165 CO_2e/tonne, which compares favourably with published data for the UK.

Proposed Enhancements with Expansion

- Crisp Malt is committed to maintaining its membership of the SAI Platform, to continue to work with the ABC Group to achieve Gold Level Certification and adopt sustainable agricultural practices.

Strategy 3: Combined Heat and Power (CHP) Unit and Renewable Energy

Current Situation

- The malting process requires energy input from both electricity and gas. To mitigate greenhouse gas emissions, Crisp operate a gas-fired combined heat and power (CHP) unit at its Ryburgh site. This allows Crisp to produce electricity on site, and to use the heat produced by the CHP unit within the malting process. Since 2018, the CHP plant has saved the emission of over 10,000 tonnes CO_2e.
- When running at capacity. the CHP saves approx. 4650tonnes of CO_2e per year. At this rate, the CHP produces c.62% of the Ryburgh site's power requirements, and 12% of the heat requirement.

Proposed Enhancements with Expansion

- With expansion, Crisp would generate demand to double the CHP capacity. This would generate an increase in CO_2e savings of a further c.4650tonnes of CO_2e per year and generate c.82% of the site's power requirement, and c.17% of the heat requirement. Subject to detailed design, there may be scope to increase the CHP's capacity even further with expansion of the wider site.
- Crisp are considering the introduction of renewable technologies to supplement the energy produced by the CHP unit. For instance, the use of solar panels on the roof of the proposed new warehouse is being explored. We understand that a planning condition could be applied to any planning consent to review and agree any renewable energy proposals associated with the development proposals prior to installation.
- Crisp will also consider new technologies when they are released, such as Hydrogen-fuelled CHP units. This technology is under development and will be considered when available.
- Electrical power supply used for all Crisp production facilities is certified as generated from 100% renewable sources by the energy supplier.

Strategy 4: Use of Best Available Technologies

Current Situation

- Crisp seek to employ the best available technology when replacing equipment, to reduce energy consumption and emissions from the site. Recently, Crisp replaced one of the large boiler systems at the Ryburgh site; the replacement equipment operates to a NOX emission limit of <100mg/m^3. The unit this replaced in operation achieved <200mg/m^3.
- Similarly, Crisp have installed inverter controls into all process fans and motors to reduce energy consumption, while Crisp are in the process of replacing all standard light bulbs with LED low-energy lighting fixtures. All motors are regularly upgraded with the latest, most energy-efficient versions in line with the European Efficiency Classification standard or International Electrotechnical Commission. For small motors, this can deliver an improvement in efficiency by approx. 10%, and 2-4% for larger motors.
- Crisp continue to invest in new control systems for the current processing equipment and for any new processing equipment. Automated computer based control systems allow monitoring of energy used, rapid investigation of faults which may result in energy wastage, control of equipment to ensure it is only in operation and using power when required.
- Crisp have recently invested over £15,000 to install 8no. additional meters to detect processes that may be causing energy wastage, to enable replacement equipment to be installed efficiently.
- Due to the nature of the malting process a significant amount of energy is used to transfer heat energy in the air around the process. To minimise these losses the maltings has already implemented many energy saving and recovery systems:
  - Glass tube heat recovery: damp warm air leaving the kilning production vessel passes over thin wall glass tubes, fresh dry air required for the process passes through in the opposite direction in the glass tubes, heating the incoming air by up to 10degC, reducing the energy required to heat the air up to the kilning temperature of 50-90degC.
  - Air recirculation systems: as the kilning processes dries the grain, a point is reached where the air is dry enough to be recirculated and the heat can be retained within the circulation system reducing the energy demand to heat the air, this is automatically controlled, and instrumentation is used to maximise the point when this process can be started.
  - Combined Heat and Power: as explained above, gas is used to generate power on site, this reduces power transmission losses for power being supplied to the site from external supply. In addition, the

heat generated by the engine is collected and transferred to preheat the fresh or recirculated air being supplied to the kiln

Proposed Enhancements with Expansion

- Best available technology will be instrumental in the design and equipment specification/selection for the proposed expansion, this is assessed by the EA permitting service and is a requirement for the granting of a PPC permit.
- It is proposed that the expanded Maltings will operate to the levels specified within the existing PPC and abstraction permits. Achieving these levels will require more efficient plant and machinery, with retrofitting of technology to existing plant. These measures are considered integral to the scheme and inherent mitigation, and as such these have been included within the earlier assessment of impacts. However, for clarity these measures will comprise:
  - The proposals for the Maltings include a significant upgrade to the effluent treatment plant, taking effluent from current and expanded operations. The upgraded plant could include phosphate removal technology and have sufficient capacity to ensure discharges are within the levels required by the existing PPC Permit.
  - Installation of approximately four additional dust collection filters to maintain emissions within the parameters set by best available technology and PPC permitting, these will be proven technology that is currently used in the processing.
  - New heating boilers or burners required for the kilning part of malt processing will operate to the Medium Combustion Plant Directive, and ensure that combustion sources operate within the existing PPC Permit levels or otherwise meet the standards of the Medium Combustion Plant Directive.
  - New machinery to increase the efficiency of water use and also greater re-use. For instance, a suite of measures are proposed to increase the efficiency of water use and also greater re-use, via new plant and retrofitting to the existing operations. The technological measures proposed are existing technologies and could comprise improvements to the following items and processes: the barley washer; steeping vessel design and the use of Optisteep technology, which circulates water, filters, cleans and oxygenates and returns to the steeping process; and water recovery technology using a membrane bio reactor followed by reverse osmosis, such that the treated water will be of sufficient quality to be re-used in the process (subject to customer agreement).

Strategy 5: Vehicle Fleet

Current Situation

- Crisp have adopted numerous measures to minimise fuel consumption and emissions from its vehicle fleet at Ryburgh:
  - 15 out of 18 of Crisp's HGV fleet are fitted with EURO6 engines. The three EURO5 trucks are due for replacement with EURO6 in 2022.
  - Crisp is investigating the possible of using lower carbon fuels such as HVO
  - Drivers are paid a fuel bonus based on lower consumption figures, and the trucks are fitted with telematics to manage driver behaviour.
  - Where possible, vehicles are backhauled to reduce total vehicle miles, and in some cases, remotely based subcontractors are used to avoid Crisp vehicles making inefficient journeys.

- Employees within certain roles are offered company vehicles, hybrid and electric vehicles are listed within the vehicles available. Crisp have an electric vehicle charge point on site, with plans to install 2no. additional points within the existing site.

Proposed Enhancements with Expansion

- Crisp Malt is committed to minimising fuel consumption and emissions from its vehicle fleet by maintaining the practices outlined above. Furthermore, 4no. additional EV charging points are proposed as part of the expansion, giving a total of 7no. EV charging bays within the site when combined with the 1no. existing bay and 2no. proposed within the existing site.

Strategy 6: Waste

Current Situation

- The waste that Crisp Malt produces is carefully monitored and segregated to ensure the maximum amount is recycled. For instance, organic waste (co-products) from the malting process is sold for incorporation into animal feed products. General site waste (e.g. paper and packaging) is segregated into dry recyclables, with various bin locations distributed around the site. Pallets are recycled back to suppliers for repair or alternative use, while oil and grease by-products are collected and recycled. All used electrical equipment on site is collected and sent for recycling as appropriate.
- Sludge from the site's effluent plant is the largest waste stream, and it is recycled through distribution to members of the ABC Group for land spreading, to provide nutrients and water for grass crops.

Proposed Enhancements with Expansion

- Recycling will continue to be maximised. As explained above, the expansion proposals will require a significant upgrade to the on-site effluent treatment plant, taking effluent from current and expanded operations. The upgraded plant could include phosphate removal technology, and it will have sufficient capacity to ensure discharges are within the levels required by the existing PPC Permit. It should be noted that phosphate output from the site will not increase following delivery of the proposed expansion.

Strategy 7: Water Consumption

Current Situation

- The Ryburgh site contains a wastewater treatment plant, in accordance with strict environmental legislation.
- Where possible, two wet phase steeping is utilised to minimise water usage and effluent production.
- Overfilling of steep vessels is avoided – vessels are filled with the volume of water necessary for the purposes of ensuring malt quality, this process is controlled with instrumentation and automated control systems measure the height of the grain after each filling and fills the water level to just above the grain level to ensure there is no excess wasted water above the grain that is not required.

Proposed Enhancements with Expansion

- As explained above, it is proposed that the expanded Maltings will operate to the levels specified within the existing PPC and abstraction permits. Achieving these levels will require more efficient plant and machinery, with retrofitting of technology to existing plant (specified within Strategy 4 above).

Strategy 8: Carbon Footprint Disclosure

Current Situation

- Crisp Malt regularly shares its sustainability data (including Scope 1 & 2 emissions, energy use, waste, water consumption) with customers through Carbon Disclosure Programme and Environment Data Exchange initiatives. Scope 1 emissions describes the direct emissions associated with the operation of the maltings which is primarily driven by fuel usage onsite. Scope 2 emissions are indirect emissions associated with the maltings consumption of purchased electricity and gas. The combined heat and power unit at Gt Ryburgh reduces Crisp's Scope 2 emissions.
- Using the Euromalt Carbon Calculator, Crisp are about to embark on carbon foot-printing their upstream Scope 3 emissions with the assistance of the ABC Grower Group. The process of calculating a carbon footprint for a product involves calculation of Scope 1 & 2 emissions plus other indirect emissions (Scope 3). These are both upstream and downstream.
- For malting, the most significant Scope 3 emissions are upstream and arise from the growing of cereals for malting. Euromalt is the European maltsters trade body and they have developed a calculator for the purpose of calculating the carbon footprint of malt.

Proposed Enhancements with Expansion

- Crisp Malt are committed to maintaining its sharing of sustainability data with customers through Carbon Disclosure Programme and Environment Data Exchange initiatives.

Strategy 9: Ethical Supply

Current Situation

- Crisp Malt is a member of the SEDEX ethical trading platform. The SEDEX platform is a reporting tool which allows transparent information exchange through the supply chain regarding sustainable sourcing, business ethics, health & safety and labour standards. Access to Crisp's SEDEX information is made available to customers.
- Crisp have been successfully audited in 2016 against the SEDEX Members Ethical Trade Audit (SMETA) four-pillar audit (this includes Environmental practices and Health & Safety, Business Ethics and Labour Standards). Another audit is due to be undertaken in 2022 or 2023.

Proposed Enhancements with Expansion

- Crisp Malt are committed to maintaining its membership of the SEDEX ethical trading platform, so the expansion proposals will audited alongside the existing site.

Strategy 10: Net Zero Carbon Strategy

- Crisp Malt is committed to achieving net-zero carbon by 2050, in line with Government legislation. The measures set out within this Statement form the foundations of a broader strategy to achieve net-zero carbon across the entire business, including operations associated with the Ryburgh site.

- It is suggested that a suitably-worded condition is applied to any planning consent to secure the submission and agreement of a Net-Zero Carbon Strategy Plan, to provide the local authority with comfort that the proposed expansion is being positively prepared to achieve net-zero carbon by 2050.