

TESCO FIXED INCOME ENGAGEMENT REPORT

MARKET LEADING ON CLIMATE CHANGE

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TESCO – MARKET LEADING ON CLIMATE CHANGE

We have been fortunate to have had two meetings this year with the Tesco’s Head of ESG to take us through what they are working on in their reporting suite and the projects that they are implementing to reduce their carbon footprint.

Tesco is an early adopter to the benefits and challenges thrown up by the changing climate and we feel that they take climate change very seriously. As the supermarket with the largest market share in the UK, coupled with the fact that the food industry is the second largest greenhouse gas (GHG) emitter, responsible for over 30% of global emissions and 60 – 70% of global biodiversity loss, they are aware of their responsibility to the global fight against climate change.

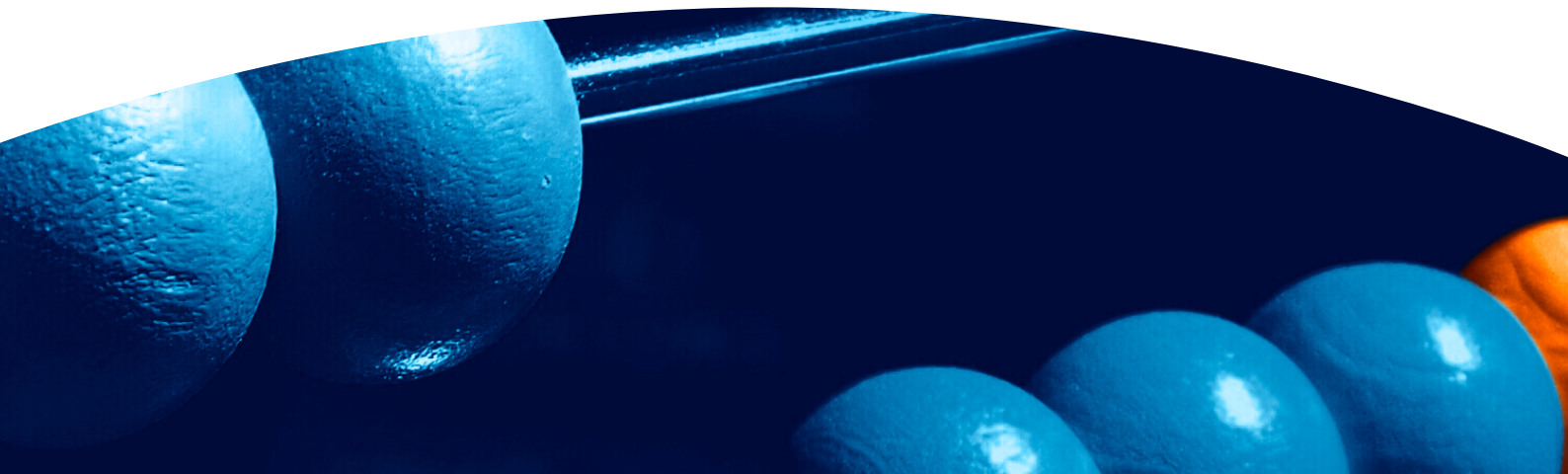
In September 2021 Tesco committed to: [Climate change - Tesco PLC](#)

CARBON NEUTRALITY

Across our group operations by 2035
(brought forward from 2050)

NET ZERO

Across our total emissions footprint by 2050,
including our supply chain and products

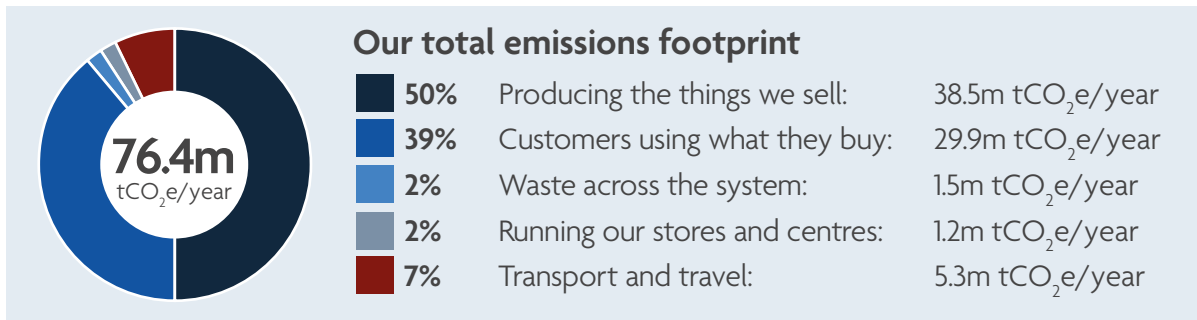


Given recent heat waves in Europe and ensuing drought conditions the food industry is extremely vulnerable to climate change and planetary degradation. For us, the Task Force on Climate-related Financial Disclosures (TCFD) analysis on any company's annual report is crucial when examining how a company will detail scenario analysis under differing severities of temperature changes. This is some of the loss analysis done by Tesco as part of their [TCFD reporting](#):

Category	2°C scenario 'transition risks' over short, medium & long-term time horizons
<p>Animal protein</p>	<p>The primary risks relate to the potential cost of any carbon tax on livestock emissions, calculated based on an externally sourced estimated carbon price and historical sourcing volumes, with the largest impacts from beef, milk and chicken.</p> <p>Potential operating profit impact of c.£(150)m – £(200)m annually by 2030 (before mitigating actions).</p>
<p>Property</p>	<p>Higher compliance costs due to more stringent carbon pricing policies, calculated based on an externally sourced estimated carbon price applied our Scope 1 emissions.</p> <p>Potential operating profit impact of c.£(50)m – £(100)m annually by 2030 (before mitigating actions).</p>

MEASURING TESCO'S CARBON FOOTPRINT

We show below how Tesco reports its scope 1, 2 and 3 emissions in its [annual report](#):



As you can see here scope 3 really matters for Tesco. Upstream activities account for 50% of their total carbon footprint, of which 30% is driven by emissions generated by the rearing, growing and transportation of agricultural products, mainly within the animal protein categories. The remaining 20% is linked to the manufacture of their product ranges, including packaging, and production of the fuel that they sell. Downstream activities, on the other hand, represent around 40% of their footprint, primarily emissions resulting from customers using their products: cooking at home, preparational processes including washing and drying products, and the emissions associated with the fuel that customers buy from their petrol filling stations.

Carbon footprint for the UK and England to 2019 – GOV.UK (www.gov.uk)
76.4 million tonnes of carbon dioxide equivalent is a lot. In 2019 the UK official statistics listed the Carbon footprint for the UK and England to 2019 as 774 million tonnes CO₂e.

Tesco are aware of the difficulties in reducing scope 3 emissions, as highlighted in their [annual report](#): The rest of the paper goes into detail on the initiatives Tesco have been trialling in agriculture.

“Given that we do not control our Scope 3 emissions, due to their indirect nature, achieving net zero across our value chain will entail Government intervention, substantive coordination and collaboration with suppliers, as well as strategic communication with our customers. As such, our ability to influence carbon reduction presents both a risk and an opportunity to our decarbonisation strategy and net zero commitment – the success of our relationships both upstream and downstream will prove critical. We already actively engage with our key suppliers to press for change, and currently over 300 suppliers are reporting emissions data on a yearly basis.”

COMPETITION AND FUNDING

Tesco sees significant value in how they can use their scale to link innovators with farmers and suppliers, supporting them to scale up in the supply chain.

In 2018, Tesco established an annual competition called the Agri T-Jam, for agricultural start-ups to trial new technology.

In this competition Tesco are looking for technologies that address one or more of the following priority areas:

- Reducing Environmental Footprint & GHG Emissions
- Predictive Farming
- Crop Specific Solutions, Shelf Life & Storage
- Improving Soil Health & Resilience
- Water Quality Analysis & Irrigation
- Robotics, Automation & Sensor Technology
- Monitoring & Supporting Biodiversity
- Livestock: Animal Health & Welfare
- Supply Chain Efficiency & Waste Reduction
- Indoor & Vertical Farming
- Remote Operations – Automation, Farm Management, Worker Safety.

In 2020, the winner was Roboscientific, who had developed automated real-time monitoring technology for early disease detection in livestock and stored crops.

What do Roboscientific do? [RoboScientific | Poultry](#)

Broiler chickens can be affected by a variety of diseases, which can be treated with appropriate supplements or antibiotics to improve yields and quality, reduce waste and maintain the health and wellbeing of the birds.

RoboScientific's technology can detect a range of diseases including Campylobacter, Clostridium perfringens, E-coli, Salmonella and Coccidiosis as soon as it starts to occur in the flock, enabling the farmer to provide the appropriate intervention in time to stop any deterioration in the condition of the flock.

All the finalists benefit from the networking and exposure opportunities with Tesco supplier partners. The winner is supported with introductions to suppliers and other external contacts. For example, Roboscientific published a [blog describing some of their opportunities](#), ‘Courtesy of Tesco, we have attended the World AgriTech summit in London, looking at the latest trends and issues affecting agriculture, held site visits on farms and met with key suppliers to plan how we are going to work together.’

In 2021, the winner was CROP INTELLECT who own R-Leaf® - a disruptive technology, simply applied to plant foliage by spraying, enabling the capture of the atmospheric pollutant NOx and its conversion into plant feed in the form of nitrate, resulting in enhanced yield, reduction of climate change and air and soil pollution.

A second programme created by Tesco and WWF is Innovation Connections is a new accelerator programme which pairs pioneering start-ups with Tesco suppliers to fast-track innovation in the supply chain.

The five *Innovation Connections* winners in 2022 were

- AgriSound & AM Fresh (Tesco fruit supplier) – technology that uses bioacoustics to monitor pollinators and pest levels on farm to help farmers protect biodiversity and increase produce yields.
- ai & Hilton (Tesco meat and fish supplier) – a monitoring system that uses birdsong as a science-based biodiversity indicator in grassland farming.
- CCm, Andermatt, Farm Carbon Toolkit & Branston (Tesco potato supplier) – a demonstration of low carbon fertilisers to reduce the carbon footprint of potato production.
- Farm Carbon Toolkit & Produce World (Tesco produce supplier) – advanced carbon footprint software for horticultural growers to analyse and reduce their emissions and increase carbon sequestration on farm, whilst also identifying cost savings and efficiencies.
- Future by Insects & Hilton (Tesco meat and fish supplier)– creation of circular fish feed using food waste to grow microalgae to feed fish.

Subject to a detailed project proposal and funding agreement being finalised, the winning projects will now see their innovations trialled in the Tesco supply chain. Tesco and WWF hope these pilots will help to scale up innovative ideas and technology and help them to become more widely adopted in food supply chains. Each project will be awarded funding of up to £150,000 though not all will need this amount.



FURTHER CASE STUDIES

Herbal leys

- In 2021, as part of the Tesco WWF partnership, Tesco launched an innovative trial to support farmers to grow feed more sustainably
- Fifteen dairy farmers were given an 80% subsidy to plant herbal leys, a soil enriching grass mix of plants, legumes and herbs, used as feed for dairy cows
- This has a number of environmental and other benefits over conventional grass fields, including sequestering more carbon in the soil and improved soil health
- Following the success of the trial last year, this year Tesco have rolled this out to 31 farms over 1,100 acres and covering lamb and beef as well as dairy.

The herbal leys trial is part of a wider set of measures being introduced by Tesco, designed to emphasise the importance of cutting carbon emissions and improving biodiversity on farms.

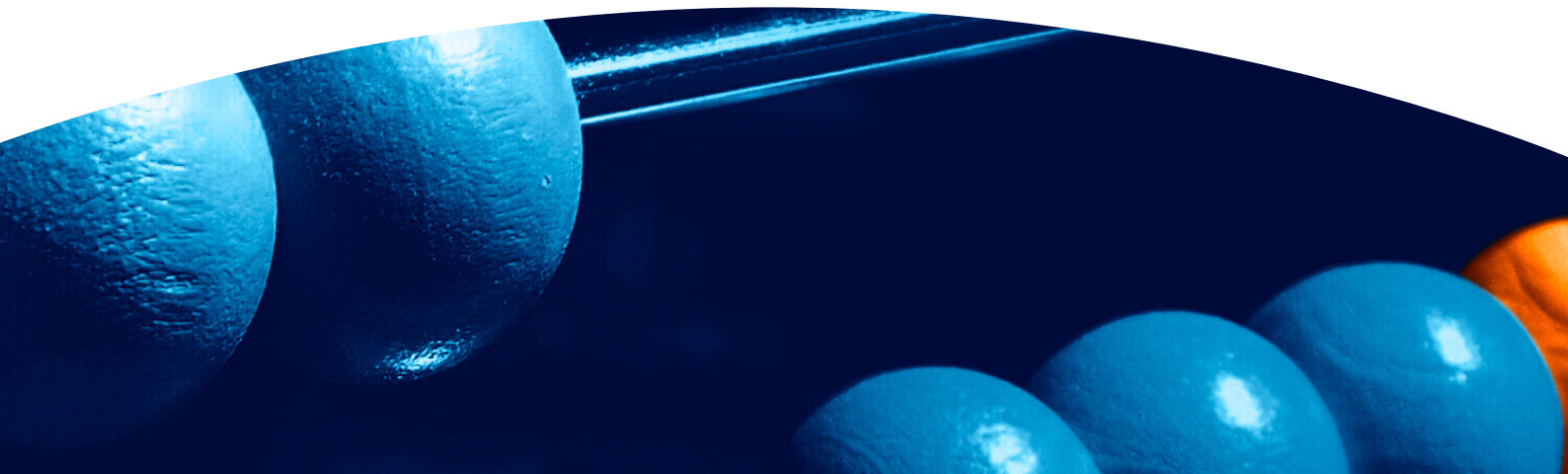
Tesco dairy farmers have reduced their carbon emissions by 6.5% since 2016. Tesco has now introduced a new emissions reduction target with the aim of helping Tesco's Sustainable Dairy Group (TSDG) farmers reduce their emissions by a further 10% by 2025. Plans to improve soil quality, water usage and biodiversity will also be implemented on each TSDG farm.

Vertical farming

- Tesco has started to sell the first commercial volumes of vertically grown strawberries (nearly 1m kg), working with Direct Produce Supplies Limited (DPS), who have been supplying Tesco with fresh produce for 40 years
- The strawberries are grown through a hydroponic farming system, with the West Sussex location maximising sunlight and heat, and resulting in a longer UK growing season
- The approach brings several benefits –
 - Environmental benefits, needing 50 per cent less water and cutting carbon by 90 per cent.
 - Customer benefits, with consistent product quality.
 - Benefits for the farmer, with significantly higher yields (5x more fruit per sq. m than existing farming methods) and availability for up to 9 months of the year

Black soldier fly

- Tesco has been supporting a number of start-ups in the UK over the last few years to explore how insect protein could be produced at scale and introduced into our supply chain. This has dual benefits:
 - Feeding food waste to grubs reduces the methane emissions otherwise produced from food waste
 - The insect protein meal can be tailored to provide the right nutrition to displace soy used for animal feed (noting that there are currently regulatory challenges in the UK to being able to use insect protein as a soy alternative in animal feed, although it is permitted in aquaculture)
- For some examples –
 - They have been working in partnership with AgriGrub since 2016 – a British start-up, feeding waste fruit and vegetables to black soldier fly insect grubs. AgriGrub work with the citrus supplier AMT, and soft fruit supplier DPS; and use the resulting insect meal as a replacement for meat-based protein in pet food.
 - Similarly, Tesco work with a start-up called Entocycle, who are focused on aquaculture, trialling the use of insect meal as a replacement for soy in farmed fish.



REGULATORY ISSUES

Existing legislation is placing a stranglehold on insect farming, restricting what materials insects can be reared from and preventing insect meal from being used in pig and poultry feed.

Currently, processed insect protein cannot be fed to any farmed livestock intended for human consumption. The EU is expected to amend legislation to permit its use in pig and poultry feed, and the UK could follow suit. Even though the use of insect meal is permitted within aquaculture, the volumes are currently too low and so prices are high, preventing significant uptake.

WWF and Tesco have called on the UK government to mandate the Food Standards Agency, with input from Food Standards Scotland, to research the potential and regulatory requirements for using additional substrates for insect farming, which could allow a broader range of feedstocks to be used to farm insects.

Tesco is also urging the government to develop financial incentives to support innovative farming methods, such as insect farming, which will support the scale up of these new industries.

Finally, trials which did not show the expected results

Tesco trialled the use of additives in two experiments seeking to reduce methane either directly (inhibit methane) or indirectly (increasing efficiency, therefore fewer cows to produce same quantity of meat / dairy)

Trial 1: Efficiency gains vs. Methane reductions

- Quantified the effect of Rumitechon production, SCC (indicator of milk quality), metabolic disease, fertility and cost of production
- The results showed a far smaller correlation than expected between efficiency increase and methane reduction

Trial 2: Measuring potential of feed additives

- Methane-inhibiting feed additive company: 38% of methane reduction potential
- Experiment hosted by University of Nottingham 2021: potential -a non-significant 3% was found.

Tesco have since been working with WWF to complete further analysis in this area and have commissioned a report assessing the viability and scalability of the various products on the market, due to be published later this year.

IMPORTANT INFORMATION

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