



*Healthy
Protein for
People and
Planet*

SUSTAINABLE DEVELOPMENT REPORT 2019

WELCOME TO

Quorn Foods' 2019 Sustainability Report



INSIDE, YOU'LL FIND OUT ABOUT HOW WE'RE USING THE THREE PILLARS OF LIFESTYLES, PLANET AND PEOPLE TO CREATE A POSITIVE IMPACT FOR SOCIETY AND OUR SHARED ENVIRONMENT.

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IN THE MORE THAN THREE YEARS SINCE MONDE NISSIN ACQUIRED QUORN, WE'RE SEEING ENCOURAGING DEVELOPMENTS AROUND HEALTH AND SUSTAINABILITY. MONDE NISSIN HAS RENEWED OUR COMMITMENT TO CONTINUALLY IMPROVING THE WELLBEING OF PEOPLE AND PLANET AND TO HELP CONTRIBUTE TO SUSTAINABLE FOOD SECURITY. WORKING WITH OUR STAKEHOLDERS, WE WILL STRIVE TO OPERATE AS A BUSINESS THAT SUPPORTS SOCIAL PROGRESS."

HENRY SOESANTO, CEO, MONDE NISSIN





“WE HAVE BEEN DELIVERING SUSTAINABLE NUTRITION FOR OVER 30 YEARS.”

A Message from Kevin, Our CEO

THE WORLD TODAY FACES TWO INTERCONNECTED CHALLENGES: THE HEALTH OF HUMAN BEINGS AND THE HEALTH OF THE PLANET THAT SUSTAINS US.

From a health perspective, we know that poor diets are creating major issues around heart disease, cancer and diabetes, to name a few, which affects the quality of millions of lives and also puts incredible stress on public health systems. The sustainability crisis, on the other hand, has had a growing place in the spotlight, with the need for action only becoming more urgent. In early 2019, we saw an incredible upsurge in activism and awareness, from the Extinction Rebellion demonstrations and Greta Thunberg's historic global schools strikes to David Attenborough's powerful warnings on both the BBC and Netflix. This display of passion and concern is a positive sign that hearts and minds are changing and that people are willing to act for a sustainable future now.

A CLEAR SOLUTION

So how exactly are our two great challenges interconnected? The answer is simple: by what we eat. A staggering 14.5% of global greenhouse gas (GHG) emissions are coming from the livestock supply chain, leading the United Nations (UN) to identify cutting down on meat as the biggest single change individuals can make to address climate change. It's not surprising to see both these issues embedded in the UN Sustainable Development Goals (SDGs), to which Quorn believes we can make a significant contribution.

We can make that contribution because we have, for over 30 years, been proudly delivering Sustainable Nutrition. Quorn is proven to provide profound health benefits compared to meat

but, crucially, the GHG impact of the mycoprotein used in all Quorn products is an incredible 90% lower than beef. In other words, we are already offering climate positive benefits by enabling our customers to avoid more emissions than produced by our direct operations.

GROWING OUR AMBITION

We want to be the leading alternative protein in this area and maximise the gap between our carbon footprint and the savings from avoiding meat to help consumers make a major contribution to climate change. At the same time, we want those same dietary choices to significantly lower risks from a spectrum of illnesses and help consumers take control of their health.

That's a great start but we think we can do even more. That's why we're taking a bold new step in creating a [roadmap](#) that will help us to set science-based targets to increase the positive impact we have on the planet - while also aiming to achieve our \$1 billion commercial ambition. This is about more than being carbon neutral because we're focusing on making positive contributions to both our environmental challenges as well as our public health challenges - all through creating demand for the products we make, and by improving the way that we make them.

In this report, you'll see the ongoing initiatives we undertake daily to lead our industry and maximise the impacts of our products and our business. We're working hard to improve our sustainability and are investing in exciting and cutting-edge research to better understand how our products can help address an array of health issues.

It's a journey and we're excited to be taking the next step. We hope you'll join us.

Kevin Brennan
Quorn CEO



MADE IN ENGLAND

Loved Everywhere

IT ALL STARTED IN THE 1960S, WHEN FORWARD-THINKING SCIENTISTS SAW THE NEED TO CHANGE THE WAY THE WORLD FEEDS ITSELF. OUR VISIONARY FOUNDER, LORD RANK, ROSE TO THE CHALLENGE AND SET UP A PROJECT TO FIND A NEW SOURCE OF PROTEIN - AND OUT OF THE CAREFUL AND RIGOROUS RESEARCH THAT STILL DEFINES US TODAY, QUORN WAS BORN.

QUORN IS ENJOYED ALL OVER THE WORLD





100%

OF QUORN PRODUCTS START OUT IN NORTH EAST ENGLAND

#1

QUORN REMAINS THE #1 MEAT-FREE BRAND IN THE UK

40%

OF MEAT-EATING UK HOUSEHOLDS NOW ACTIVELY REDUCING ITS MEAT CONSUMPTION

52%

OF THE UK POPULATION IS NOW REDUCING THEIR MEAT CONSUMPTION

16%

BRAND GROWTH IN THE USA IN 2018 - TWICE AS FAST AS THE REST OF THE CATEGORY

HOW DO YOU CONVERT EASY-TO-FIND CARBOHYDRATES INTO HARD-TO-GET PROTEIN WITHOUT USING ANIMALS?

Answer: Many years of research and development (R&D) and hundreds of millions of pounds in investment – and a little help from a rather remarkable and protein-rich member of the fungi family.

We produce Quorn just north of the rolling hills of North Yorkshire – in fact, our Billingham site is the only manufacturer of our unique protein type in the world. Every pack of Quorn in every country we sell in started life in North East England.

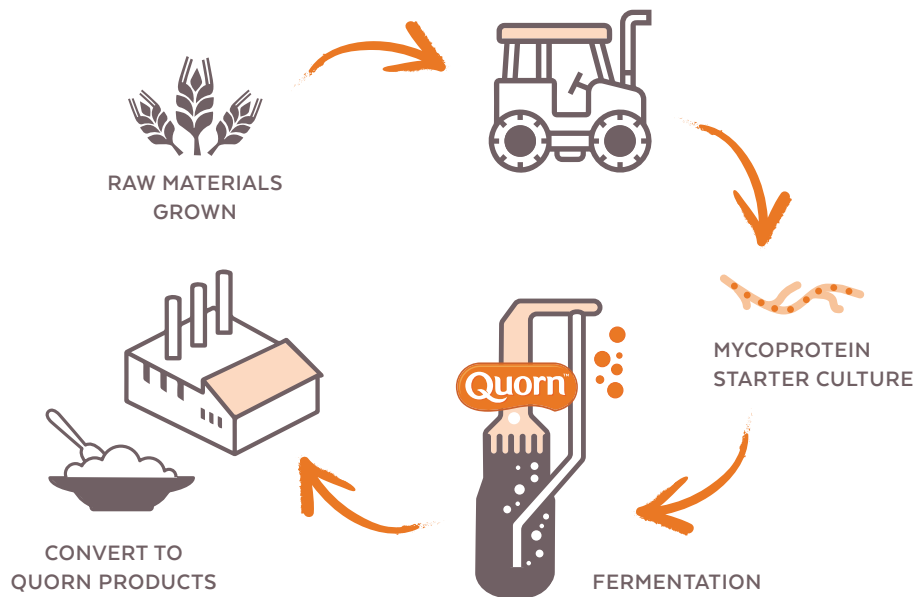
We use fermentation, rather like the way bread-makers do, to create the conditions that convert the glucose from wheat – which is our carbohydrate – into protein.

The result is mycoprotein. Not only can this rather extraordinary ingredient provide incredible health benefits, it actually replicates the taste and texture of meat. It easily takes on any flavour a cook can dream up – meaning it offers all of the benefits without diners feeling like they're missing out on meat.



HOW QUORN IS MADE

Want to know more? Watch our Chief Scientific Advisor Tim Finnigan demonstrate exactly how Quorn is made at www.youtube.com/watch?v=HsmRT4x2848



The Food Revolution

The *Lancet* has called the obesity, undernutrition and climate change emergencies a 'global syndemic'¹² – when two or more challenges interact to affect a large number of people.

Today, we're faced with a few stark realities: the impacts of climate change are growing and industrial farming is a big part of why. At the same time, there will very soon be around 10 billion of us to feed and the growing appetite for and access to cheap meat-heavy diets is not just choking our climate, it's impacting our health and lowering the quality of life for animals globally.

But, as big as these challenges might seem, there are already many effective solutions that can help to turn the tide. They are simple, accessible and already here.

WHAT GOES IN

Food is big news right now and will be a defining issue of our time. Over the past few years, a growing interest in healthy lifestyles combined with a more global understanding of nutrition¹ has meant that more of us are thinking about what goes into our bodies. Much of this is spurred by concerns around the quality of the food we eat now. From meat loaded with salts and fats to hyper-refined foods high in sugars and lacking in nutrients, we may be producing more food than ever but it's increasingly bad for our health². We have reached production levels that could potentially feed the planet; instead, while some still struggle for steady access to food, many people are overfed on nutrient-poor food.

The truth is, in a time of increasing obesity, 800 million people are still without enough food each day to provide adequate nutrition or are eating foods that contribute to overnutrition. The result is a growth of both stunting and obesity rates³. *The Lancet's* 2017 Global Burden of Disease⁴ study concluded that poor diet is responsible for approximately 11 million deaths around the world – the greatest risk factor in almost one-fifth of deaths and more than smoking tobacco. The World Health Organization (WHO)

has labelled the threefold global increase⁵ in obesity an epidemic⁶ – a public health crisis that has led to a spike in awareness campaigns about the role of diet and exercise.

The good news is that the message seems to be getting through. In the UK, there are more gyms open than ever before and the fitness industry is worth over £5 billion⁷. More than two-thirds of UK shoppers⁸ are now buying foods with less salt, sugar and fat with fewer calories.

THE BIGGER PICTURE

But care for our own health is only part of the story. Over the past few years, the signing up of many countries to the Paris Agreement, along with several extreme weather events, has brought the reality of climate change home to millions more people. As the public conversation has grown, more people have learned about the link between large-scale agriculture – specifically intensive meat production – climate change and emissions. According to the Consultative Group for International Agricultural Research (CGIAR)⁹, agriculture is responsible for up to one-third of our global emissions, and drastic action is needed by 2050 to cut them. A 2017 study¹⁰ found that the world's top three meat producers collectively emit more GHGs than all of France; however, the Intergovernmental Panel on Climate Change's (IPCC) most recent report found that simply making agricultural production more efficient is not enough and that significant steps must be taken to reduce meat consumption¹¹.

TIME FOR CHANGE

The health benefits of new diets are being explored all the time but, along with 'flexitarianism', it's the stalwarts of vegetarianism and veganism that are winning followers. According to research firm Information Resources

Incorporated (IRI), there has been a 26% increase in shoppers choosing vegetarian food options.

The 2018 annual Food & Drink Report¹³ from Waitrose found that one in eight people in the UK now identifies as vegetarian or vegan, and a further 21% are flexitarians, only occasionally eating meat and following a largely plant-based diet.

For many people, this is a transition still in motion. But for those whose diet is newly changed or who have reduced or avoided meat consumption for years, the Quorn product range provides easy, low-fat and fibre-rich protein alternatives to meat products while reducing health and environmental risks. In fact, there are unique properties of the fibre and protein in Quorn that have health benefits of their own.

SUSTAINABLE AT HEART

Of course, Quorn products aren't just good for us – they're good for the planet too. For example, Quorn Mince has over 90% lower GHG emissions than beef mince and uses less than one-eighth of the amount of land. Some of our products also have a carbon footprint 70% lower than chicken.

Given the environmental impact of animal rearing, it stands to reason that just eating Quorn instead of meat can help fight climate change – but for us that's not enough. Any efforts to fight climate change and protect our shared planet simply must include production- and consumption-based solutions.

+250,000

CONSUMERS PARTICIPATED
IN VEGANUARY IN 2019



70%

LOWER CARBON FOOTPRINT* THAN CHICKEN

*Compared to Quorn Pieces

So, while producing the mycoprotein used in Quorn products uses less land and the water footprint of a meal with Quorn is 10 times lower than eating beef, we're driving our sustainability further by looking beyond farming and into the heart of our factories.

We're implementing significant investments and changes in our operations to shrink the footprint of our manufacturing at the same time as we grow the positive impact of our products.

This includes moving more of our [operations](#) to renewable energy, cutting our water use and energy (and associated emissions), exploring innovative by-product opportunities for our waste, and eliminating non-recyclable and single-use plastics.

SETTING GOALS FOR THE GLOBE

We're developing ambitious science-based targets for our emissions and meaningful goals for our water use, renewable energy and packaging. We've been mapping these targets to the UN SDGs to ensure that we're creating a measurable impact that supports a better future.

This work is all part of how we're inspiring more people with delicious products packed with flavour and versatility. Most importantly, we want to make it easy for people to choose healthy food for a healthier planet.



THE MAGIC OF MYCOPROTEIN



COMPLETE SOURCE OF PROTEIN



NO CHOLESTEROL



HIGH IN FIBRE



LOW IN FAT



GOOD SOURCE OF ZINC, COPPER, SELENIUM AND RIBOFLAVIN

1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3257829/>
2. https://eatforum.org/content/uploads/2019/04/EAT-Lancet_Commission_Summary_Report.pdf
3. <https://www1.wfp.org/zero-hunger>
4. [https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(18\)32858-7.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(18)32858-7.pdf)
5. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
6. <https://www.who.int/nutrition/topics/obesity/en/>
7. <http://www.leisuredb.com/blog/2018/5/16/2018-state-of-the-uk-fitness-industry-report-out-now>
8. <https://www.iriworldwide.com/en-GB/Insights/Publications/Shopper-Insights-Geocentric-Purchases-and-Millenni>
9. <https://ccaafs.cgjar.org/flagships/priorities-and-policies-for-CSA>
10. <https://www.grain.org/article/entries/5825-big-meat-and-dairy-supersized-climate-footprint>
11. <https://www.ipcc.ch/sr15/>
12. [https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(18\)32822-8.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(18)32822-8.pdf)
13. https://www.waitrose.com/home/about_waitrose/the-waitrose-fooddrinkreport.html

Highlights Since 2017

STRONGER EVIDENCE BASE

Published five new peer-reviewed journal articles and filed two new patents. Our journal articles are part of the work we're doing to provide evidence for the benefits of Quorn on human health versus animal-derived proteins. During 2019, we successfully recertified our range of product carbon footprints with the Carbon Trust. This analysis showed that we have lowered the carbon impact of mycoprotein by 32%, with 4% of improvements coming from our own efforts and those of our supply chain and the remainder coming from a decarbonisation of the grid.

VEGAN INNOVATION

Launched 12 new vegan products, including the custom vegan Quorn filling for the #1 Veganuary 2019 product, the Greggs sausage roll. We also launched brand new Quorn fishless fillets and Ultimate Burger, which mimic taste and texture even better. We are currently exploring the best ingredients to create vegan binding agents to replace the egg in our non-vegan range.

INTERNAL PODCAST

Developed an internal four-part series to help our employees learn more about what Quorn is and why we need healthy new proteins with a low environmental impact. The podcast mini-series featured expert guests, exciting recipes and interviews with stakeholders and colleagues from around the business.



Good Food Does Great Things

Our Mission

This generation faces challenges unlike any we have ever known. Climate change, plastic pollution, dwindling resources and a growing population with rising obesity rates have become some of the defining issues of our age – and to solve them, we have to act now. But to leave a better world for future generations, we have to start putting more in than we take out. At Quorn, our impact is already climate positive. Even though the emissions avoided as a result of people enjoying our products rather than meat equivalents is eight-and-a-half times more than that of our direct operations, we're still on a journey to lead our industry and maximise our influence. Up next we'll be setting new goals and defining our roadmap to 2030 and beyond. There's a lot to learn and it won't always be easy. But this isn't about doing the easy thing – it's about doing the right thing to shape a future fit for everyone. And this is our first giant step in the right direction.

WHAT SUCCESS TASTES LIKE...

SOCIETIES WHERE
FLEXITARIANISM,
VEGETARIANISM
AND VEGANISM
ARE MAINSTREAM
LIFESTYLE CHOICES



GLOBAL WARMING
LIMITED TO LESS
THAN 2°C AND A
STABLE CLIMATE

PEOPLE LIVING
LONGER, HAPPIER
LIVES THROUGH
DIETS THAT
PROMOTE HEALTH
AND WELLBEING



GOOD FOOD THAT
IS VALUED, NOT
WASTED AND IS
PRODUCED FAIRLY
USING FEWER
RESOURCES

PROVIDING BETTER PROTEIN FOR PEOPLE AND PLANET

LAYING THE TABLE FOR CHANGE...

OUR COMMITMENTS



Sustainable nutrition: Support the growth of diets rich in healthy protein alternatives with a low environmental impact.



Help consumers to avoid emissions and lead healthier lives with food they enjoy, through a range of delicious, quality foods for all.



Set science-based targets that support the innate sustainability of our products and help define our roadmap to becoming a climate positive business.

KEY INGREDIENTS...

DEVELOP SPECIFIC, RELEVANT TARGETS AND WORK AGAINST OUR PLAN TO DELIVER THEM

OPTIMISE ENERGY AND WATER USE

MINIMISE WASTE AND HELP CONSUMERS REDUCE FOOD WASTE

RESPONSIBLE USE OF PACKAGING MATERIALS

SUSTAINABLY SOURCE KEY INGREDIENTS

DRIVING PROGRESS ON THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

Good food can do great things to drive progress on all of the UN SDGs, but we know there are some goals our roadmap can really help to achieve. We have comprehensively mapped our entire value chain, including the impact of our corporate partnerships, R&D agenda, as well as our operations and business sustainability strategy. This has helped us identify the six key SDGs most relevant to what we do and will ensure that we can scale up our work to become a climate positive business for maximum impact.

WHERE WE WORK



CREATE PRODUCTS THAT ARE ACCESSIBLE, DESIRABLE, NUTRITIOUS AND SUSTAINABLE



OPERATE AS A BUSINESS THAT SUPPORTS PRODUCTIVITY, EQUALITY, SAFETY AND HUMAN RIGHTS



MANUFACTURE IN WAYS THAT WASTE LESS, RESPECT NATURAL RESOURCES AND PROMOTE TRANSPARENCY

WHAT WE IMPACT



SUPPORTING OPTIMAL NUTRITION ACROSS THE LIFESPAN AND TAKING CARE OF OUR PEOPLE



EMPOWERING OUR CUSTOMERS AND EMPLOYEES TO TAKE DECISIVE ACTION TO PROTECT THE PLANET

HOW WE GET THERE



COLLABORATING ACROSS OUR VALUE CHAIN TO SCALE UP OUR SDG IMPACTS

The Future of Food

TIM FINNIGAN, OUR CHIEF SCIENTIFIC ADVISOR, OUTLINES THE CHALLENGES WE FACE IN DELIVERING OUR APPROACH TO CREATING BETTER PROTEIN FOR PEOPLE AND PLANET, AND THE TRENDS THAT WILL SHAPE THE FUTURE OF FOOD.

“

BY 2050, WE WILL HAVE TO FEED AROUND 10 BILLION PEOPLE.”

Q

HOW MIGHT FOOD PRODUCTION NEED TO CHANGE IN THE FUTURE?

Answer: By 2050, we will have to feed around 10 billion people. On average, they will be wealthier than we are today and many of them will aspire to the type of food choices that are only available in high-income countries at the moment.

The current path we're on won't allow us to meet this goal. To assure our food future is sustainable, food production systems must increasingly consider the impacts made by our food choices on our physical health and the health of the planet.

And simply explaining the benefits of changing our diets is not enough. We need a wider set of interventions to accelerate uptake.

Q

SO HOW IS QUORN HELPING TO TURN THE TIDE?

Answer: Today, it is increasingly acknowledged that our meat addiction is literally 'costing the Earth'. In the short term, the biggest lever we have to improve the health of our bodies and the environment is to eat less meat, and particularly from intensively reared livestock.

That's why we believe that healthy new proteins with a much lower environmental impact are vital if we are going to assure a sustainable food future for us all.

This is really the next green revolution, and something that Quorn Foods has been quietly pioneering since our inception in 1964.





“ THIS IS REALLY THE NEXT GREEN REVOLUTION, AND SOMETHING THAT QUORN FOODS HAS BEEN QUIETLY PIONEERING SINCE OUR INCEPTION IN 1964.”

Q

WHAT ARE THE CHOICES WE WILL FACE IN FEEDING AN EVER-GROWING POPULATION?

Answer: In the short term, if we continue to ‘eat like there’s no tomorrow’, we will face some stark, unenviable choices.

- An acceleration of both over- and undernutrition within global populations, where current estimates place nearly 1 million starving people on the planet, and twice that number who are obese. Recent estimates suggest that 20% of all global disease is diet-related and therefore wholly preventable.
- We can choose which to feed: people, animals or cars. Our food production capabilities are finite and we cannot keep trying to produce more food, feed and fuel crops without devastating consequences.
- And without intervention, we can continue to waste around a third of the food we produce, meaning that approximately 10% of the GHG emissions in developed economies comes from food that was grown but never eaten! That is nothing short of shocking.

Q

WILL QUORN’S MYCOPROTEIN FERMENTER TECHNOLOGY PROVE TO BE A GAME-CHANGER?

Answer: One of the key benefits of this fermentation process is that, unlike any other system, it actually enables us to end up with more protein than we started with. Better still, there is a growing body of research, discussed in this report, that is demonstrating the ability for the fibre and protein combination found in mycoprotein to address major public health concerns – all in a versatile product that makes a transition away from meat much easier for consumers. We’re also interested in some of the unique opportunities the process presents for creating a fermentable carbohydrate from lignocellulose – which is the component in many plants that helps their structure but which often ends up as agricultural waste such as rice straw – and use it to ferment our mycoprotein. Protein from waste – how amazing would that be?

Q

WHAT’S NEXT FOR QUORN?

Answer: In some ways, we’re really just carrying on something our ancestors did when they first domesticated plants thousands of years ago. After all, it was 10,000 years ago that *Triticum sp* was discovered, and it is now grown globally as wheat. We’ve found a naturally occurring member of the fungi family and domesticated it – albeit just 50 years ago. And we are now wondering about a whole world of other nutritious fungi out there that has the potential to support a sustainable food future. Quorn is leading the way here with ‘bioprospecting’ – our future-facing research that includes exploring nature, seeking other nutritious and delicious fungi that might be even more amazing than mycoprotein. We think it’s something that our founder Lord Rank would have thoroughly endorsed.



Fusarium spores have the capability to produce up to 45,000 tonnes of mycoprotein.

To find out more about our leading and innovative research, please see [Healthy Lifestyles](#).



HEALTHY LIFESTYLES

Better Food – Better Futures

THE WAY WE EAT TODAY ISN'T JUST CHANGING – THERE'S A TOTAL REVOLUTION IN HOW WE THINK ABOUT FOOD. FROM RECORD NUMBERS OF PEOPLE SIGNING UP TO VEGANUARY¹⁴ TO THE GROWING MOVEMENT OF 'FLEXITARIANISM', THIS IS AN EXCITING MOMENT IN THE GLOBAL CONVERSATION ABOUT NUTRITION.

Ground-breaking research combined with the creativity of thousands of people sharing tips online is helping others find a variety of inventive and delicious new meat alternatives. More importantly, there's also a growing movement of campaigners fighting for fairer access to affordable nutrition.

Quorn has been supporting this change from the beginning. We start by providing tasty and easy to prepare meat-free meals that are healthier for people and the planet, but we have also always been passionate about educating and engaging with the next generation to build a future where sustainable food choices are the norm.

THE SCIENCE OF HEALTHY

Quorn's chief ingredient mycoprotein¹⁵ is high in protein and fibre, low in saturated fat and contains no cholesterol, making it an obviously healthier alternative to the highly refined foods that make up a large portion of diets globally.

To fully understand the incredible benefits of mycoprotein as part of a lifelong diet, Quorn Foods partners with several leading universities on cutting-edge research.

We are the only food manufacturer in the world using this remarkable ingredient and we are committed to ensuring protein quality, not just quantity. We constantly work to fully understand how our bodies digest and assimilate mycoprotein and support the growth of research that benefits everyone. After all, we aren't the only ones who understand the exciting potential of mycoprotein to create a healthier world. The World Economic Forum, for example, recently published an analysis¹⁶ of the potential health benefits of switching from beef to alternative proteins, concluding that mycoprotein has some of the most significant net health benefits when making the switch from beef by reducing diet-related mortality by 6%.

GOOD FOOD IS FOR EVERYONE

We also foster a wide range of community partnerships that make healthy eating easy to understand and simple to follow. From going into schools to give presentations and cookery demonstrations to collaborating for behaviour change, we're continuing to expand the way people think about food.

We believe in the importance of whole systems behaviour change – from evidence to actions. We work across three major areas to promote healthy living:

- Investing in high-quality research to further knowledge and support policy change.
- Applying that knowledge to improving our products and communicating their benefits.
- Helping community groups learn new skills and adopt healthy habits for life.

14. <https://veganuary.com/>

15. <https://www.mycoprotein.org/>

16. http://www3.weforum.org/docs/WEF_White_Paper_Alternative_Proteins.pdf



“OUR BUSINESS IS TO IMPROVE THE WELLBEING OF LIFE, THE ENVIRONMENT AND OUR PLANET, AND CREATE SUSTAINABLE SOLUTIONS FOR FOOD SECURITY.”

HENRY SOESANTO,
CEO, MONDE NISSIN



Healthy Made Simple



TOO MUCH RED AND PROCESSED MEAT INCREASES CANCER RISK; QUORN IS A HEALTHY SUBSTITUTE THAT CAN BE EASILY INCLUDED IN FAMILY FAVOURITE MEALS, IT IS THEREFORE CERTAINLY A WELCOME ADDITION TO OUR DIET."

DANIEL COMMANE, SENIOR LECTURER, NUTRITIONAL SCIENCES, FACULTY OF HEALTH AND LIFE SCIENCES, NORTHUMBRIA UNIVERSITY

With the world in the grip of a childhood obesity epidemic, and Public Health England reporting [record levels](#) of severe obesity in children in England, Quorn is on a mission to reverse the trend and inspire sustainable change. But with all the dietary advice out there – not to mention easier access to more food, healthy and unhealthy, than ever before – it can be hard for people to make better choices.

At Quorn, we believe it's our responsibility to help educate people about what constitutes a healthy diet. It's a responsibility we take seriously because we believe this is a crucial time to help set positive trends for years to come.

We work with cooks, caterers, nutritionists and others to provide delicious nutrient-rich dishes to children and young adults in schools and colleges across the UK.

We do this through our direct relationships and our school meals recipe books that are distributed to inspire menu planning for seasonal menus.

38%

OF YOUNG PEOPLE ARE ALREADY REDUCING THEIR MEAT INTAKE IN SOME WAY

MEET THE QUORN SUPERHEROES

Any parent or teacher knows that getting children excited about healthier eating can be more than a little challenging. Enter the Quorn Superheroes campaign, a scalable initiative designed to reach as many children as possible.

With the help of the Quorn Superheroes Max and Hope, the campaign helps children:

- learn about food groups and their purpose
- understand the benefits of reducing meat intake for ourselves and the planet
- explore cooking by demonstrating new and exciting meat-free dishes.

So far, more than 140 UK schools and over 10,000 children have taken part in Quorn's interactive cookery and food education sessions since the Quorn Superheroes campaign launched in Spring 2018. We will visit another 50 schools to reach more than 4,000 children during Spring 2019.



"CHILDREN AND STAFF ENJOYED THE SESSION AND IT FITS WELL WITH THE NATIONAL AND SCHOOL CURRICULUM. VERY ENGAGING. A VERY GOOD EXPERIENCE FOR THE CHILDREN TO HAVE, THANK YOU!"

D. PARRIS, TEACHER, GOAT LEES SCHOOL

"ENGAGING, INFORMATIVE AND TASTY WITH THE EATWELL PLATE INFORMATION DELIVERED IN AN AGE-APPROPRIATE MANNER. WELL PACED, AND THE PUPILS ENJOYED PARTICIPATING IN THE COOKING. WILL RECOMMEND TO OTHER TEACHERS AND SCHOOLS. THANK YOU."

JOANNE HANLEY, TEACHER, MONTAGU ACADEMY



+16%

IN CHILDREN IDENTIFYING PROTEIN AS ONE OF THE MAIN THREE FOOD GROUPS*
(70% before vs 86% after)



+24%

IN CHILDREN IDENTIFYING CARBOHYDRATES AS ONE OF THE MAIN THREE FOOD GROUPS*
(61% before vs 85% after)



+24%

IN CHILDREN UNDERSTANDING THAT CARBOHYDRATES PROVIDE ENERGY*
(54% before vs 78% after)

+34% IN CHILDREN UNDERSTANDING THAT QUORN IS A GOOD SOURCE OF PROTEIN* (32% BEFORE vs 66% AFTER)

*Based on five questions pre and post survey of 1,608 children in Key Stage 1 and 2, carried out in 2018 across more than 140 schools nationally.



Giving Health a Hand

TRAINING TOMORROW'S HEALTHY EATERS

Quorn partners with the Royal Society of Culinary Arts on its Adopt a School programme. As part of the initiative, we go to schools and deliver three sessions to pupils on skills such as cutting fresh food with a knife, preparing a healthy salad and even making bread. The aim is also to educate pupils on taste and sensory appreciation.

During the lessons, we don't talk about Quorn. Instead, we focus more broadly on what a balanced diet looks like, including choosing healthy snacks and eating less salt and sugar. We also explore other aspects of a sustainable diet, such as packaging and plastics, choosing local, seasonal food to reduce air miles, preventing waste and eating less meat.

By the end of the sessions, the children have a greater understanding of their taste buds, the main flavours and what a balanced diet consists of. Each child will have made a salad, chopping up their own ingredients and mixing them together. They all will have learned about the history of bread before taking home a bread roll they will have baked themselves.

In 2018, we visited approximately 60 schools and ran sessions with an average of 60 pupils. This has helped the Adopt a School programme reach over 16,000 children across the country. During 2019, we plan to revisit our adopted schools and host the session with Year 3 students.



THANKS SO MUCH FOR THE COOKERY SESSIONS YOU HAVE DONE WITH YEAR 5. THEY HAVE ENJOYED EACH AND EVERY ONE OF THEM, BUT THE BREAD-MAKING WAS A REAL HIT."

ST JOHN'S PRIMARY AT PRINCES RISBOROUGH

UNDERSTANDING CHOICES

Today, one quick trip to the supermarket offers up more food choices than previous generations would have dreamed possible. Despite this, socioeconomic and demographic inequalities are still impacting access to healthy food and influence how people choose to eat. This means vulnerable communities often have poorer diets.

As advocates for inclusivity in healthy eating, we've been working closely with Choice Support to find out how we can help to drive the uptake of diets with better health outcomes in these communities. As part of the project, we will work with multi-site focus groups of adults with intellectual and developmental disabilities (IDD) and get data from interviews with vegetarian or vegan adults with IDD.

Research has shown that people with IDD often eat diets high in processed meat and a lack of vegetables and we want to explore what could be done to help people with IDD and those who support them to make healthier dietary choices. We're trying to understand social attitudes to



MYCOPROTEIN IS A FASCINATING PRODUCT. NOT ONLY IS IT A SUSTAINABLE AND ENVIRONMENTALLY FRIENDLY PROTEIN SOURCE, BUT WE ARE BEGINNING TO UNDERSTAND HOW ITS UNIQUE STRUCTURE AND COMPOSITION UNDERPIN THE MANY HEALTH BENEFITS ASSOCIATED WITH ITS CONSUMPTION. THIS IS A CLEAR EXAMPLE OF HOW INNOVATIVE, KNOWLEDGE-BASED FOOD PROCESSING CAN BE USED TO PRODUCE FOODS THAT ARE BOTH HEALTHY AND SUSTAINABLE."

PROFESSOR PETE WILDE, RESEARCH LEADER, FOOD AND HEALTH PROGRAMME, QUADRAM INSTITUTE BIOSCIENCE

meat eating and alternative proteins, and we hope to create resources to encourage protein diversity in supported eating occasions. We are looking to use the findings to improve our products to better support families and carers.

GROWING THE CONVERSATION

We are proud to:

- partner with the EAT Forum 2019 in Stockholm in collaboration with the Chef's Manifesto to contribute to conversations aimed at transforming the global food system
- be a part of the Fit and Healthy Childhood All Party Parliamentary Group (APPG)
- be members of the All Party Parliamentary Food and Health Forum
- support The Creative Kitchen in Dorset - an educational community kitchen facility for children
- sponsor Hip Hop is Green's first European events in 2019 to bring healthy vegan food and music to disadvantaged urban youth in London
- be a headline sponsor for Compass Group UK & Ireland's Women in Food Ambassador Programme
- support national campaigns such as World Meat Free Week and National Vegetarian Week as well as customer-specific campaigns around health, wellbeing and sustainability
- be a supplier of Soil Association's Food for Life programme
- collaborate with Netmums on forums to inspire parents with meat-free recipes, articles and videos
- partner with the Lawn Tennis Association to run the Quorn Family Tennis Cup to get families exercising together.



Building a Body of Knowledge



THE QUORN FUNGUS IS EXCEPTIONAL IN PROVIDING A NOVEL FOOD SOURCE HIGH IN PROTEIN AND FIBRE CONTENT, YET LOW IN FAT AND WITH A RELATIVELY LOW ENVIRONMENTAL IMPACT FOR PRODUCTION.”

DR PAUL S. DYER, PROFESSOR OF FUNGAL BIOLOGY, SCHOOL OF LIFE SCIENCES, UNIVERSITY OF NOTTINGHAM

Currently, there's simply not enough research on the benefits not only of mycoprotein, but also of vegan diets under different conditions. Our mission is to help move the world to more meat-free meals and we believe that not only should there be no health downsides to cutting down meat consumption, there are real benefits too. That's why we're supporting novel research that will help people confidently make the switch.

MUSCLE WITHOUT MEAT

Through our research with the University of Exeter, we have already [shown](#) that the protein in mycoprotein can help to build muscle as effectively as milk protein. Our focus now is on mycoprotein's unique combination of high-quality protein along with its rich source of dietary fibre and the benefits for appetite, glucose and gut health. We currently have 13 PhD researchers working on this across four leading UK universities. Part of this work will include isolating protein from mycoprotein and using it in clinical trials to compare its muscle-building properties with whole mycoprotein. For more information about our work with Exeter University and other research visit mycoprotein.org.

We have also started a three-month clinical research programme on muscle growth in response to exercise. Our

study participants will be separated into groups, some eating animal protein and others following a diet rich in mycoprotein. They will be trained by qualified sports professionals and we will measure how muscle tissue grows after exercise. All these research projects will help us more clearly define the benefits of Quorn for athletes and consumers with active lifestyles, supporting the promotion of healthy ageing.

BREAKING NEW GROUND

Beyond muscle building, we've made some important observations at Exeter University on the effects of high mycoprotein diets on more general markers of health, such as glucose and insulin levels. An eight-day study showed that replacing meat with mycoprotein made no difference between two test groups, with the exception of blood lipids where reductions were observed for diets rich in mycoprotein that may have important implications for heart health.

We have also agreed on a studentship at Northumbria University to explore the role that mycoprotein may play in gut health and especially the removal of risk factors for colo-rectal cancer. Colo-rectal cancer is now the third most common Western cancer heavily associated with excess consumption of red and processed meat, and finding ways to help people reduce their risk is essential for global health.

GUT HEALTH - THE BIGGER PICTURE

There's a need in nutritional science to develop a more complete understanding of how combined elements of whole foods behave in the gut and affect the release of nutrients as well as actively promoting the health of the microbiome. Quorn is proudly leading in this area for vegan protein. We're seeing that our protein research at Exeter University aligns with what we're seeing in our other gut health programmes at the Quadram Institute, and we will be accelerating the pace of our research in this area through additional work at Kings College London scheduled to start in the autumn of 2019.





OUR TEAM EXPLORES FUNDAMENTAL PSYCHOBIOLOGICAL CONTROLS OF FOOD CHOICE AND DIETARY ADAPTATION. OVER THE LAST FEW YEARS THIS WORK HAS TAKEN ON AN ENTIRELY NEW RELEVANCE, AND WE NOW SEE EXCITING OPPORTUNITIES TO THINK ABOUT WAYS TO PROMOTE THE CONSUMPTION OF HEALTHY AND MORE SUSTAINABLE SOURCES OF PROTEIN. QUORN PLAYS A CRITICAL ROLE BECAUSE IT PROVIDES A NATURAL ‘GATEWAY’ FOR CONSUMERS TO BEGIN THIS ESSENTIAL DIETARY TRANSITION.”

JEFF BRUNSTROM, PROFESSOR OF EXPERIMENTAL PSYCHOLOGY, NUTRITION AND BEHAVIOUR UNIT, UNIVERSITY OF BRISTOL

Helping People See Food Differently

Our relationship with food isn't always simple. The way we eat is tied up with memories, culture and identity as much as taste or health. But as hard as it may be to break some habits, our bodies and our planet need us to move away from eating so much meat. Quorn works with leading researchers to understand more about this relationship and how we shift the balance in favour of plant-based foods.

Progress depends on being realistic, which is why Quorn supports a ‘flexitarian’ approach to change, where people eat meat-free meals for around half the week, in line with the Intergovernmental Panel on Climate Change’s (IPCC) recommendations to keep the global temperature rise below 1.5°C¹⁷.

To help smooth the path to change, we empower consumers in several ways. Our [website](#) offers users a wealth of inspiration, showing a huge range of recipe choices to suit a variety of different tastes. Besides offering exciting healthy recipes, we share meal inspiration through our social media. We host clear, simple nutritional labelling on our products, including traffic lights, as well as key health claims relevant to our customers, such as high in fibre and high in protein.



CHANGING MINDS - ONE PRODUCT AT A TIME

We have collaborated closely with the Netmums online forum to inspire parents to mix up their mealtime routine with our Quorn products. Not only have we been inspiring parents with everyday meat-free recipes kids love, meal planners, articles and videos, but throughout 2018 we also ran several product trials, including one with our tasty cocktail sausages.

During the trial, 100 mums were given the Quorn Cocktail Sausages to review and were then asked to answer a few questions in a poll. The results showed that 98% would recommend Quorn Cocktail Sausages to a friend or family.

- “THE CHILDREN SAID THEY WERE DELICIOUS!”
- “MY PERCEPTION HAS DEFINITELY CHANGED.”
- “HEALTHIER OPTION AND GOOD FOR THE PLANET.”

WHAT'S MOST IMPORTANT TO MUMS WHEN MEAL PLANNING?



SUPPORTING TRUE HEALTH

[True Health Initiative](#) (THI) is a coalition of experts committed to creating a future free of preventable diseases by driving policy changes and promoting behaviour change by giving people the scientific knowledge they need to improve their lives.

THI has [published a paper](#) proposing a new definition metric for measuring protein quality that can be applied to national food regulatory and labelling systems. The new definition includes assessing the health outcomes and the environmental impacts of foods.

THI partners with Quorn and recognises us as a producer of uniquely healthy, high-quality protein with a low environmental impact. We are proud to support the changing perception of food and play a role in sharing THI's positive message of healthy lives through healthy diets.



17. <https://www.ipcc.ch/sr15/>

HEALTHY PLANET

A Smaller Footprint for Every Plate

THE QUESTION OF HOW TO PROVIDE A GROWING GLOBAL POPULATION WITH HEALTHY DIETS FROM SUSTAINABLE FOOD SYSTEMS IS ONE OF THE BIGGEST OF OUR GENERATION.

Today around one-quarter of the world's annual greenhouse gas (GHG) emissions¹⁸ comes from the global food system, making it a major driver of land use change, loss of freshwater resources and ecosystem pollution¹⁹. Livestock production alone contributes 14.5%²⁰ of global human-caused GHG emissions (more than all forms of global transport), with intensive meat production being the most significant source of methane emissions. And while animal farming takes up 83% of the world's agricultural land, it delivers only 18% of our calories²¹. It goes to show that when it comes to the planet, what we eat matters.

“WE CAN NO LONGER SEPARATE THE HEALTH OF OUR BODIES FROM THE HEALTH OF THE PLANET.”

TIM FINNIGAN,
CHIEF SCIENTIFIC
ADVISOR

A FIELD OF SOLUTIONS

Despite these obvious drawbacks, meat consumption is on the rise globally, especially in middle-income countries experiencing population growth and increasing incomes. But agriculture is also where we can make a real impact on climate change if we act now.

Research shows that simple changes in agricultural practices and a shift away from meat and dairy products could help us reduce the sector's emissions by up to 50% by 2050²².

That's where Quorn comes in. Not only are we providing a nutritious, accessible and delicious way to help more people cut down on meat, the way we produce Quorn products has big benefits for our shared climate. The key is in the sheer efficiency of the way we grow a fungus source by feeding it with a carbohydrate (a by-product of the wheat milling industry) and use fermentation to turn it into mycoprotein – providing both protein and fibre in a much more sustainable way.

A LEADING APPROACH

Using a science-led approach to environmental research and continuous analysis of our entire supply chain, we're growing our commitment with ambitious targets and look forward to tracking our continuous improvement.

We're also proud to be the first global meat-alternative business to achieve third-party certification of our carbon footprint figures. This allows us to display the Carbon Reduction Label on specific products and support the 67% of consumers²³ who say that a recognisable carbon label matters to them. It's part of the work we're doing to match the built-in sustainability of our products with concrete progress in how we make them.

We want this move to inspire other food brands. In fact, along with our new Climate Positive ambitions and our work to set ever more effective targets, it's in line with our ongoing determination to lead our industry and maximise our product and business impact. Together, we can all contribute to more sustainable diets for consumers.

TARGETS TO GET TO CLIMATE POSITIVE

IN 2020

- Measure our full value chain emissions.
- Set science-based targets for our operations and full value chain.

BY 2022

- Achieve a 50% reduction in Scope 1 and 2 emissions against a 2012 baseline.
- Achieve a 25% reduction in water use per tonne of output/production against a 2012 baseline.

NEXT STEPS

- Define a roadmap to 2030 and beyond.
- Develop specific, relevant targets and work against our plan to deliver them.

AS PART OF THE UK PLASTICS PACT BY 2025

- **0%** – Eliminating problematic or unnecessary single-use packaging through redesign, innovation or alternative delivery models.
- **100%** of plastic packaging to be reusable, recyclable or compostable.
- **70%** of plastic packaging effectively recycled or composted.
- **30%** average recycled content across all plastic packaging.
- **100%** of UK packaging to display the OPRL (On-Pack Recycling Label) by 2020.
- **100%** of our manufacturing sites to be single-use plastic free by end 2019.

18. <https://science.sciencemag.org/content/360/6392/987>
19. <https://www.nature.com/articles/s41586-018-0594-0>
20. <http://www.fao.org/3/a-13437e.pdf>
21. <https://science.sciencemag.org/content/360/6392/987>

22. <https://www.nature.com/articles/s41558-018-0358-8>
23. <https://www.carbontrust.com/news/2019/04/footprint-labelling/>

Using Less & Growing More

LOWERING OUR OPERATIONAL IMPACT

ESTABLISHING CLIMATE POSITIVE

Quorn Foods' journey to becoming a [climate positive](#) business started in 2012, when we began to model the carbon footprints of our best-selling products and independently certifying them with the [Carbon Trust](#). By the end of 2018, approximately 50% of our products had been analysed. We remain the only meat-free brand to achieve independent and globally recognised certification for the way we analyse the carbon footprint of our products.

160,000

TONNES OF AVOIDED EMISSIONS FROM GLOBAL QUORN MINCE SALES IN 2018 ALONE

We were the first food manufacturer to act as pathfinders for the Climate Leadership Framework, launching in 2019. This is a new initiative from the Carbon Trust that aims to align companies with a low-carbon economy. As one of only five companies to participate to date, the Climate Leadership Framework has helped our business develop our roadmap to becoming a climate positive business.

Through 2019, we will be undertaking a group-wide energy assessment to determine further efficiency and renewable investment opportunities.

8.5x

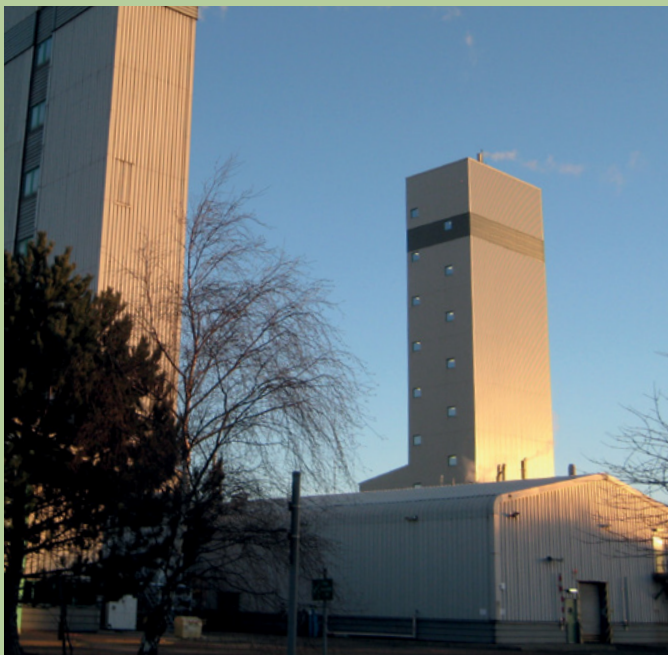
EMISSIONS FROM QUORN SITE OPERATIONS AVOIDED THROUGH 2018 CORE PRODUCT SALES AGAINST MEAT EQUIVALENTS

200,000

TONNES OF EMISSIONS WERE AVOIDED BY SALES OF CORE PRODUCTS IN 2018 COMPARED TO MEAT EQUIVALENTS



QUORN FOODS IS PROUD TO BE THE FIRST GLOBAL MEAT ALTERNATIVE BRAND TO ACHIEVE THIRD-PARTY CERTIFICATION OF ITS CARBON FOOTPRINT FIGURES



“

QUORN FOODS BECAME THE FIRST FOOD MANUFACTURER TO PARTICIPATE IN THE CLIMATE LEADERSHIP FRAMEWORK. THIS HELPS COMPANIES IDENTIFY ACTIONS WITHIN THEIR OWN OPERATIONS AND VALUE CHAINS TO FULLY ALIGN WITH THE PARIS AGREEMENT AND CONTRIBUTE TO A LOW-CARBON ECONOMY. AS ONE OF THE FIRST FIVE COMPANIES TO PARTICIPATE, QUORN HAS DEVELOPED A LONG-TERM ROADMAP TO ENGAGE STAFF AND EXTERNAL STAKEHOLDERS TO DEVELOP A GENUINELY CLIMATE POSITIVE BUSINESS.”

TOM CUMBERLEGE, ASSOCIATE DIRECTOR, CARBON TRUST



33%

REDUCTION IN EMISSIONS PER TONNE ACHIEVED IN 2018 AGAINST A 2012 BASELINE

STAYING ACCOUNTABLE

In recent years, we have achieved impressive emissions reductions alongside significant business growth. In 2018, we set our first short-term target to reduce our Scope 1 and 2 emissions by 50% by 2022 against a 2012 baseline. By the end of 2018, we recorded a 33% reduction per tonne and we're confident we'll meet our 2022 target.

Some of this progress has been through sustained efforts at specific sites. For example, our Belasis facility continues to lead with great performance year on year, showing a further 3% reduction since 2017, despite huge changes to the site's infrastructure and development.

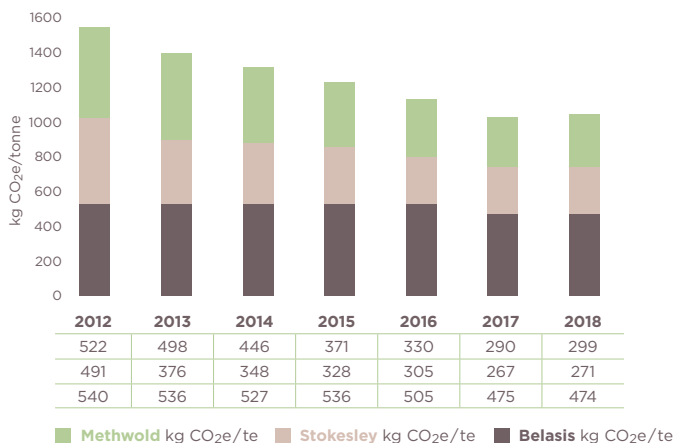
However, 2018 was also the first time we recorded a slight increase - of 1% since 2017 - for our total group GHG emissions performance. The reasons for this include the commissioning of our new Billingham production lines. While the commissioning and development work caused a spike, the completed project will drive further improvement and efficiency over the course of its operations.

We're also exploring renewable energy opportunities. In 2017, 93% of our total electricity and 51% of our overall energy came from purchased renewables. Unfortunately, in 2018 this dropped to 71% of total electricity and 32% of overall energy, due in part to one of our major suppliers moving away from renewables. We are now working on a new approach for energy purchases to respond swiftly to any potential similar changes in the future. However, our Methwold site procured 49% of its energy from renewable sources in 2018, setting the standard for the rest of our operations.

To ensure we align with leading standards and frameworks, we are working to attain ISO 14001 certification for all our operations. In 2017, our Billingham site was certified and our Stokesley facility earned its certification in 2018. We expect our Methwold site to be certified in 2020.



Relative GHG Emissions (per tonne of production by site)



Production Volume and Absolute Carbon Emissions



Caring for Every Drop

In both our agricultural and production operations, we share water with the communities where we work. In some cases, such as our site in East Anglia, we're operating in areas that are threatened by water scarcity. Responsible water stewardship is incredibly important to us. Our approach starts with using as little as possible and to return what we do use in the same – or better – condition than we receive it.

We have set a target of a 25% reduction in water use per tonne of production by 2022 against our 2012 baseline. In 2018, our group sites and our company collectively achieved a 16% reduction. We did, however, report a 6% increase in our relative water performance versus 2017. The main driver for this was a 41.2% increase in water at our Methwold site, owing primarily to bringing chickpea processing in-house. This previously outsourced process uses a lot of water and has increased our overall use, without changing how efficiently we use the water that we need.

We know that achieving and sustaining meaningful further water reductions is not something we can do alone.

That's why, in 2017, we partnered with [WRAP](#) and [WWF](#) on water risk mapping and 'hot spot' identification.

Another key challenge is managing the quality of our wastewater, particularly since operations at our Billingham site rely heavily on a fermentation process that naturally creates liquid containing nutrients that need treatment. This means that processing our wastewater is energy intensive. We recently invested £7 million in leading new effluent treatment facilities. This infrastructure upgrade will be game-changing for our water treatment performance and will allow – for the very first time – three fermenters to run simultaneously to produce record volumes to meet the growing demand for healthy protein. This investment is using Best Available Technology (BAT) and allows for a tenfold improvement in water quality.

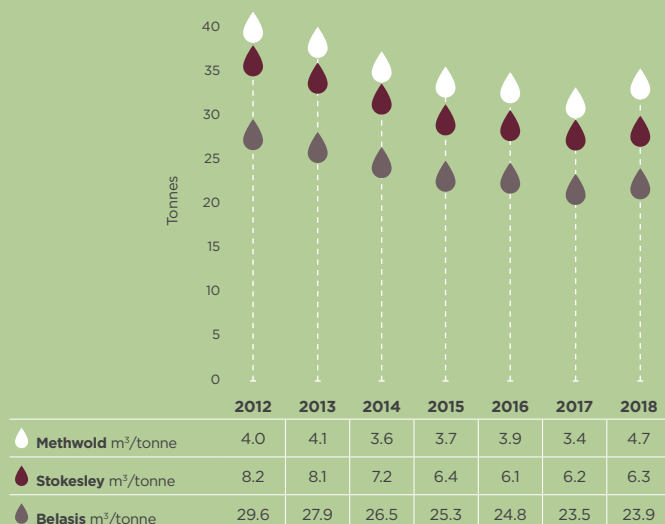
In addition, as part of our efforts to support continuous [innovation](#) across our business, we are actively partnering with leading UK universities to find meaningful efficiency opportunities in our waste stream that would allow us to amplify production of our waste into valuable by-products for other businesses.

We are also a signatory to WRAP's ambitious Courtauld Commitment 2025, a voluntary agreement that brings together organisations across the food system – from producer to consumer – to make food and drink production and consumption more sustainable. As part of our commitment, we share utility data including water consumption with our key retail customers to help their efforts to collaborate with their supply chain.

16%

REDUCTION IN WATER USE PER TONNE OF PRODUCTION

Water Use (per tonne of production by site)



GETTING TASTE FROM WASTE

We produce a large volume of waste liquid as part of the mycoprotein production process, which is packed full of interesting nutrients and flavour-enhancing compounds, including nucleotides and glutamates (NAGs).

Part funded by Innovate UK, our NAGs project has enabled two UK universities (Aberystwyth and Harper Adams universities) to partner with Quorn, Waitrose, Membranology and Create Flavours to isolate these flavour compounds and use them to trial reducing salt by up to 30% in a range of products – such as ready meals – with no loss of quality or flavour. As an added bonus, the water can then be recycled. We have seen the proof of concept on this exciting project and are considering ways to expand this into products in the future.

Innovate UK



A Fresh Take – Packaging Reimagined

OVER THE LAST FEW YEARS, WE'VE WITNESSED AN INCREDIBLE SURGE IN AWARENESS OVER THE IMPACT OF PLASTIC PACKAGING.

80%

OF OUR PACKAGING WAS RECYCLABLE IN 2018

100%

OF OUR CARDBOARD IS FROM APPROVED SUSTAINABLE SOURCES

100%

OF OUTER CASES USE RECYCLED CARDBOARD

Quorn has been working with organisations such as WRAP for several years to optimise our packaging, including reducing the amount of resources we use and the recyclability of the materials we choose. Food safety and quality is our primary concern, but important advances in plastics technology mean that we don't have to sacrifice sustainability.

We are determined to lead our industry in providing easy-to-use quality packaging that does not contribute to plastic pollution. We are a signatory to the UK Plastics Pact, which has committed us to:

- cutting out all problematic and unnecessary single-use packaging
- making 100% of our plastic packaging reusable, recyclable or compostable
- ensuring 70% of our plastic packaging is effectively recycled or composted
- including an average of 30% recycled content across all our plastic packaging
- displaying the OPRL (On-Pack Recycling Label) on 100% of UK packaging by 2020
- eliminating all single-use plastic from our manufacturing sites by the end of 2019.

In 2018, 80% of our packaging was recyclable, putting us on track to reach our commitment. In the same year, 95% of our UK packs featured OPRL labels. In 2018, we achieved a 25% average of recycled content in our rPET (recycled polyethylene terephthalate) trays and are trialling a move to 100%, which will add 300 tonnes of recycled material into our end packaging category. Our new deli packaging project completes our black plastic removal and incorporates innovative built-in reclose technology to deliver a single polymer pack format that ultimately removes 13 tonnes of polymer from the supply chain. We've also added a 'peel and reseal' function to our deli packaging, which not only improves convenience for customers, but cuts food waste and the extra packaging waste that goes with it.

WE'RE PROUD TO CO-SIGN THE [WRAP UK PLASTICS PACT](#)



NOT EVERYTHING LOOKS GOOD IN BLACK

Consumers may not know that recycling black plastic in the UK is simply not possible, due to current capabilities among recyclers. For Quorn, this meant that around 300 tonnes of our packaging could not be recycled and we knew we had to do something about it.

In April 2017, before the current debates about plastics took centre stage, we had already decided to move away from black plastic packaging through a project that explored alternatives with guidance from the waste industry and input from consumers.

The team involved colleagues from across the business, including Sustainability, Marketing, Packaging, Procurement, Technical and Commercial. By June 2018, thanks to the hard work of our colleagues and support from packaging suppliers, third-party manufacturers and waste management company, we had moved most of our products into new packaging. We recently switched our remaining black packaging in our chilled deli slices to clear packaging formats and are now black plastic free.





SUPPORTING A SECOND LIFE FOR OCEAN WASTE

Quorn Foods participate in WRAP’s Recycle Week and in 2018 celebrated a week of events to support the theme of ‘Recycling. We do. Because it matters’.

The Sustainability team led a host of activities in celebration of recycling, including a Q&A panel discussion hosted by Enva (Quorn’s recycling and resource recovery partner), a craftwork session supported by local artist Kathryn Guy of ArtisOn and a seminar on plastic pollution.

We also commissioned a bespoke sculpture from Ocean Sole, a social enterprise that pays coastal communities to collect discarded flip-flops from the beaches of Kenya and turn them into

sculptures. In 2018, this project recycled more than 750,000 flip-flops, with over 15% of the profit given to coastal community programmes that provide financial support to 1,200 Kenyans. In total, Quorn raised over £1,500 to support Ocean Sole’s work, alongside commissioning custom artwork.

£1,500

RAISED BY QUORN TO SUPPORT OCEAN SOLE’S WORK

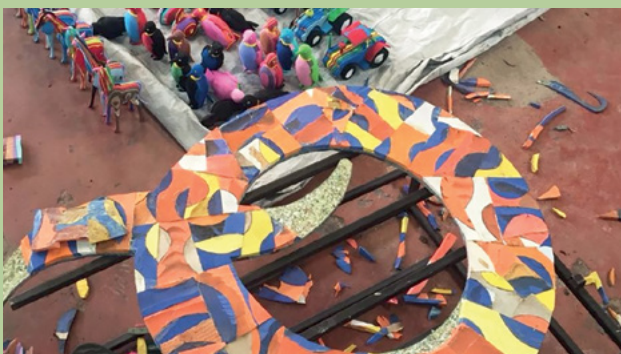
COURTAULD COMMITMENT 2025

As a signatory to the Courtauld Commitment 2025, we are working with WRAP to cut the resources needed to provide food and drink by one-fifth over 10 years.



WE ARE SO GRATEFUL TO QUORN FOR THE SUPPORT THEY HAVE SHOWN OCEAN SOLE IN PURCHASING SCULPTURES AND PROVIDING THOUSANDS OF POUNDS FOR OUR SOCIAL ENTERPRISE. THIS HAS A VERY REAL EFFECT ON MARINE PLASTIC REDUCTION AND EMPOWERMENT OF THOSE IN CHALLENGING FINANCIAL CIRCUMSTANCES.”

MARK DOUGAL, FOUNDER, OCEAN SOLE UK



Quorn employees Louise Needham and Tess Kelly receiving goods made by Ocean Sole accompanied by Clare Osborn – founder of ClareTalksRubbish.com and representative of Incredible Oceans.





99%

OF THE PALM OIL WE USE IS CERTIFIED AS PER THE SEGREGATED RSPO SUPPLY CHAIN SYSTEM

KEEPING FOOD WASTE DOWN

Reducing food loss in our operations and eliminating waste is another way we want our products to benefit consumers. In 2017, we began our partnership with FareShare, which works to tackle hunger and food waste by redistributing good food that would otherwise be wasted to frontline charities and community groups. In 2018, we donated 5 tonnes of food – equivalent to 12,200 meals. This helped families struggling on low or no income, homeless and rough sleepers, and schoolchildren.

We have also signed up to WRAP's ground-breaking new Target Measure Act²⁴. We are joining the UK's major retailers and large food businesses to help drive down the UK's annual £20 billion food waste bill. The Act uses a WRAP-developed Food Waste Reduction Roadmap²⁵ that will help participating organisations measure and report food waste performance indicators and act to reach the goal to halve the country's food waste by 2030, in line with SDG target 12.3. We are currently standardising our measurement techniques and will report on our progress in 2020.



AFTER THE FANTASTIC SUCCESS OF THE VEGAN SAUSAGE ROLL LAUNCH THIS YEAR, WE ARE THRILLED TO WELCOME OUR NEW PARTNERS QUORN TO THE GREGGS FOUNDATION. QUORN BRING A WEALTH OF EXPERIENCE IN EDUCATING YOUNG PEOPLE TO HEALTHIER LIFESTYLES AND THEIR TEAM WILL BE AN INVALUABLE RESOURCE TO US.”

LYNNE HINDMARCH, BREAKFAST CLUB MANAGER, GREGGS



A POSITIVE IMPACT THROUGH OUR SUPPLY CHAIN

In 2017, we launched our Supply Chain Sustainability Strategy. Since then, we have been tracking progress to achieve and maintain responsible sourcing practices. While we cultivate Quorn's chief ingredient in the UK, we do source other components from markets and industries that require more monitoring – and we will do whatever it takes to be part of a fairer, more sustainable and more ethical food chain for consumers.

SUSTAINABLE PALM OIL

While we're not a big user of palm oil, we know that consumers – not just of Quorn – are concerned about its impacts, including deforestation and the destruction of wildlife habitats. The huge demand for this labour-intensive crop also opens workers up to frequent exploitation.

Several global networks are fighting back against illegal, unsustainable and unfair practices in the palm oil industry, including the [Roundtable for Responsible Palm Oil](#) (RSPO). In 2018, 99% of the palm oil we use was certified as per the segregated RSPO supply chain system.

This means that the palm oil we use is kept separate from any uncertified palm oil all the way from the mill where it is pressed right through to us. While it can be harder to source, it offers much greater assurance, which is why we aim to convert all our palm oil to the segregated scheme by June 2019. In addition, since 2014, we have been using 100% Certified Sustainable Palm Oil (CSPO).



RESPONSIBLE WITH EVERY INGREDIENT

In 2018, Quorn became a member of the [Roundtable on Responsible Soy \(RTRS\)](#), a civil organisation prompting and supporting the responsible production, processing and trading of soya beans on a global level. Since then, our Cauldron brand has invested in RTRS credits to support sustainable soya bean supply chains in Brazil.



24. <http://www.wrap.org.uk/content/world-first-uk-food-industry-commits-landmark-roadmap-halve-food-waste>
25. <http://www.wrap.org.uk/food-waste-reduction-roadmap>

HEALTHY PEOPLE

People Make Quorn Possible

THERE'S A LOT ABOUT QUORN THAT'S UNIQUE. AFTER ALL, WE DISCOVERED MYCOPROTEIN AND ARE THE ONLY COMPANY TO BRING THE PROTEIN-BASED BENEFITS OF FUNGI TO MEALTIMES EVERYWHERE. WE'RE ALSO NOT JUST SUSTAINABLY MAKING DELICIOUS PRODUCTS - WE'RE MAKING PRODUCTS THAT HELP PEOPLE TACKLE SOME OF THE WORLD'S BIGGEST ENVIRONMENTAL AND SOCIAL ISSUES JUST BY HAVING DINNER. WE THINK THAT'S PRETTY SPECIAL.

But there's one more thing about Quorn that really sets us apart - our people. We're proud to be a British company making a market-leading product for people around the world. Even though we're expanding and adding new capabilities and offices, all Quorn products - enjoyed everywhere from Stockton-on-Tees to Stockholm to Sydney - start their journey in North East England. We're proud that the global headquarters of our business remains in North Yorkshire, but have also expanded our operations to Methwold in Norfolk, providing more jobs for a wider range of skill sets for the people and places we call home.

We're committed to maintaining a talent pipeline where we live, which is why we partner with schools and universities to support science, technology, engineering

and maths (STEM) education opportunities and to provide internships for students from local colleges and institutions.

And from engineers and researchers to the men and women on the factory floor, we are proud to support a talented and engaged team with resources that support their wellbeing.

Of course, for Quorn, caring about people goes beyond our payroll. We also find ways to create positive impacts for communities. We actively raise funds and donate products to support causes that matter to our employees and that are relevant to our business so that we empower healthy communities in countless ways every day.



“ THE FIRST TIME
I SAW QUORN WAS IN
A CURRY IN A CANTEEN
WHERE I WAS WORKING IN
1984 - THE REST IS HISTORY!”

TONY DAVISON,
BRAND AMBASSADOR, KEY FIGURE
BEHIND THE GREGGS VEGAN
SAUSAGE ROLL, 37 YEARS IN
SERVICE, 2019

Growing Our Family

49%

OF EMPLOYEES HAVE MORE THAN 10 YEARS OF SERVICE WITH US

As interest in moderating meat consumption rises, our family has been getting larger. In fact, since 2017 we've expanded our team by 200 people. Today, 900 people are making Quorn products possible in different ways – from studying its health benefits or creating its eye-catching packaging to running the fermentation process and checking quality. And we're only getting bigger. Throughout 2019, our expansion at our core Billingham site will create around 50 additional roles. This is the start of our ambition to become a \$1 billion business by 2027. To get there, we will be reviewing the capabilities and capacity of our current sites and building a three to five-year strategy to grow a bigger Quorn.

We're committed to using our expertise to support our regional economy in as many ways as possible. For example, our HR professionals lend their experience and expertise to those just starting out in work. We support local schools and colleges such as Stokesley School and Stockton Riverside College by participating in workshops aimed at developing young people's employability skills, including preparing job applications and taking part in mock interviews. Additionally, when we know of business closures in our community, we hold recruitment days to connect with newly unemployed workers and to invite them to explore careers with us.

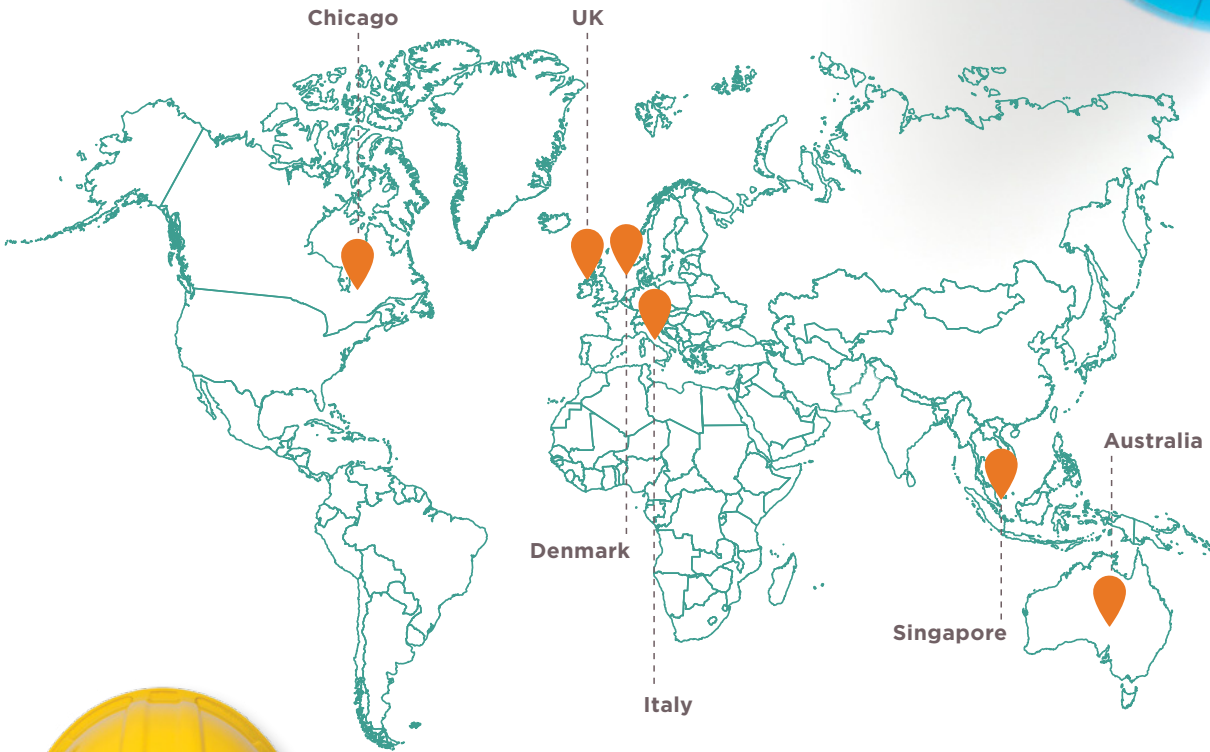
When people are part of Quorn, we support them beyond career development. Our employees have access to a range of services, including occupational health provision and an Employee Assistance Programme that provides confidential counselling and advice on a wide range of work and personal issues. We also offer access to a specialist service for substance misuse and mental health issues and a Cycle 2 Work scheme to promote health and wellbeing.

We're proud of the fact that when people join us, they tend to stick around. The proof is in our impressive retention rates: 49% of employees have more than 10 years of service with us. Of those 49%, 21% have between 10 and 20 years and 28% have between 20 and 30 years of service.





Global map of office locations



“**QUORN HAS ALWAYS BEEN PROACTIVE IN SUPPORTING THEIR EMPLOYEES TO FURTHER THEIR EDUCATION AND ALLOW PROGRESSION WITHIN THE COMPANY. AS JOE’S MANAGER, IT HAS BEEN A PLEASURE TO WATCH HIM DEVELOP INTO A FULL-TIME EMPLOYEE WITHIN OUR BUSINESS.”**

GARY WALKER, TRAINING AND DEVELOPMENT MANAGER, QUORN BELASIS SITE

APPRENTICE SPOTLIGHT

We maintain a close partnership with the TTE Technical Training Group, which is the UK’s leading provider of technical training to the oil and gas, process, manufacturing and engineering sectors. This association is one of the ways we connect with apprentices like Joe Cairns, who served as a technician apprentice from 2015–2018.

Joe was a City & Guilds Process Technology Apprentice on a TTE (Teesside Technical Education) Programme. He completed his National Vocational Qualification (NVQ) course seven months earlier than required after demonstrating exceptional performance. After showing a high level of commitment both at work and in his studies, we have sponsored him for his degree in chemical engineering at Teesside University. Joe became a full-time technician at Quorn in August 2018 and continues to work towards his degree.

Joe was also nominated for apprentice of the year at the NEPIC Annual Awards, which celebrates the outstanding achievements of companies and individuals in North East England and recognises and celebrates the region’s brightest young apprentice talent.



QUORN FOODS HAS FULLY SUPPORTED ME THROUGHOUT MY TIME WITH THE COMPANY AND ALLOWED ME TO PROGRESS TO THE BEST OF MY CAPABILITY. I ASPIRE TO CONTINUE WORKING IN THE SECTOR AND EXPAND MY KNOWLEDGE FURTHER. I HOPE ONE DAY TO BECOME A CHARTERED CHEMICAL ENGINEER OR PLANT MANAGER.”

JOE CAIRNS, TECHNICIAN



Piping in Fresh Talent

Being a sustainable business means many things, including ensuring we have talented, skilled and passionate people who want to work with us so that we can keep developing and creating exciting products for years to come.

That's why it's important that we continue to create opportunities for young people and to nurture tomorrow's talent early on.

To do this, we've embedded a culture of apprenticeships and we offer up to 12 opportunities at any one time. While these mostly relate to students and graduates with STEM backgrounds, we also employed our first IT apprentice in 2018.

Our Billingham site in particular has set the standard for investing in young talent and frequently offers permanent positions when students have successfully completed their studies. In 2019, the facility will have eight apprentices on site – our highest number yet.

In 2018 and into 2019, Quorn partnered with the University of Nottingham, Imperial College London, the University of Exeter and Northumbria University to sponsor 13 PhD studentships from biology, chemical engineering and clinical nutrition disciplines.

We also invest in graduate employment, offering on average three graduate opportunities each year.

75%

OF OUR UK EMPLOYEES LIVE WITHIN 30 MILES OF OUR FOUR UK SITES

“

UNDER THE STRONG SUPPORT OF QUORN, MY TEAM HAS BEEN WORKING ACTIVELY AT SCIENCE-ENGINEERING INTERFACE TO DESIGN RESOURCE-CIRCULAR TECHNOLOGY TO CO-PRODUCE ENERGY-PROTEIN FROM WASTE. PERFORMING LABORATORY EXPERIMENTS AND MATHEMATICAL MODELLING, MY TEAM OPTIMISED THE FEED PROTEIN AND BIO-METHANE RECOVERY FROM QUORN EFFLUENT USING MEMBRANE AND BIOREACTOR DESIGN; WORKING WITH EXPERTS FROM TSINGHUA UNIVERSITY AND INTERNATIONAL RICE RESEARCH INSTITUTE, WE ARE EXPLORING LIGNOCELLULOSIC SOURCED MYCOPROTEIN POTENTIAL.”

DR MIAO GUO, RESEARCH FELLOW, IMPERIAL COLLEGE LONDON





10 tonnes

OF SURPLUS FOOD PRODUCTS DONATED IN 2018

13

PHD STUDENTSHIPS SPONSORED IN PARTNERSHIP WITH QUORN

SOURCING THE BEST PEOPLE

Quorn has been a long-time investor in the Knowledge Transfer Partnership²⁶ (KTP) scheme. This UK-wide programme has been helping businesses improve their competitiveness and productivity for the past 40 years through the better use of knowledge, technology and skills within the UK's world-leading knowledge base.

Two key employees on Quorn's sustainability team began their careers with Quorn as KTP Associates through Innovate UK-sponsored programmes involving academic partners Sheffield Hallam University and Leeds Beckett University. These colleagues are now developing their careers within Quorn and helping drive our sustainability approach into exciting new directions, supporting our growth and leadership.

Thanks to the success of this partnership, we're now planning to apply for a third KTP Associate opportunity via Innovate UK.

“

THE JOURNEY FROM GRADUATE TO KTP ASSOCIATE TO BECOMING A LEADER WITHIN A SUCCESSFUL AND AMBITIOUS COMPANY HAS BEEN INCREDIBLE. I'M NOW SUPPORTING A TEAM WHO ARE DEFINING A LEADING UK FOOD MANUFACTURER'S SUSTAINABILITY VISION AND STRATEGY - ALL WHILST BALANCING WORK WITH LIFE AS A BUSY MUM!”

LOUISE NEEDHAM, SUSTAINABILITY MANAGER

“

THE QUORN BURGERS WERE TRULY LOVED BY RECIPIENTS OF ALL AGES, AND QUORN FOODS WAS DEFINITELY THE PERFECT FOOD PROVISION FOR THIS PRESTIGIOUS AND MOST WORTHWHILE TOURNAMENT WHERE PARTICIPANTS OF ALL AGES AND ETHNICITIES CAME TOGETHER FOR A FANTASTIC FESTIVAL OF FOOTBALL!!”

RICHARD HUMPHREY, SENIOR COORDINATOR, HIS CHURCH



26. <https://ktn-uk.co.uk/programmes/knowledge-transfer-partnerships>

Making an Impact in Our Communities

71 kg

OF RUBBISH
COLLECTED DURING
THE GREAT BRITISH
SPRING CLEAN IN 2019

A HELPING HAND

In 2018, we donated 5 tonnes of surplus food products to the Lincolnshire-based His Church charity. It provides full transport and logistics solutions for food, clothes and supplies, which are redistributed to help vulnerable people in the community. The food donations – mainly Quorn Burgers – were trial products from our test kitchens. They didn't have packaging and so would otherwise have become waste. Instead, they were served at football tournaments and other sports club events as part of the His Church Holiday Champions Project. The project aims to tackle food insecurity and inactivity during the school holidays.

Throughout 2018, colleagues raised over £7,000 as part of the Dress-Down Friday initiative. This monthly employee-led event raised funds for 13 charities close to people's hearts, including the Neonatal Unit at James Cook Hospital Middlesbrough, Macmillan Cancer Research and the British Legion.

SPREADING SUSTAINABILITY WHERE WE LIVE

As part of our Recycle Week campaign, employees took part in a voluntary corporate beach clean. On the day, 14 colleagues and their families spent the morning on Majuba Beach in Redcar, Teesside, collecting 20 bags of litter. The estimated weight of the collected litter was 10 kg and included thousands of small pieces of plastic that were on the shore. The final day of Recycle Week saw Quorn hosting a litter pick at the Manchester Food and Drink Festival.

20 bags

OF LITTER COLLECTED
ON MAJUBA BEACH

£7,000

RAISED THROUGHOUT 2018
AS PART OF THE DRESS-DOWN
FRIDAY INITIATIVE

WASTE-LESS CHARITY LUNCHES

Our sensory team are 'expert tasters' who provide quality assurance of our food and guide new product development. Sometimes products that need testing arrive into our kitchens in larger quantities than the team needs, resulting in surplus food.

The team decided to tackle food waste in their own way by regularly stockpiling the surplus and cooking it up to serve to colleagues at our Head Office for lunch. This not only helps our colleagues trial some products they may not have tasted before, it also gives teams an informal chance to meet and connect – all while raising money for charity too. So far, three waste-less lunches have been held, feeding 700 portions to hundreds of our hungry colleagues.

“

BEING ABLE TO HOST A 'RECYCLED LUNCH' SHOWS THAT WE CAN MAKE TIME TO ACT MORE SUSTAINABLY. IT'S GREAT TO SEE FOOD THAT WOULD HAVE GONE TO WASTE BEING ENJOYED – ESPECIALLY WHEN IT RAISES MONEY FOR A GOOD CAUSE!”

TONI & JOHN, SENSORY COOKS





HEALTH AND SAFETY

'Healthy and Safe People' is at the heart of our commitment to preventing ill health and injury to our employees, contractors and anyone else affected by our operations. For 2018, the whole UK food and drink industry showed an injury rate of 980 per 100,000 employees, while Quorn was much lower at 582.

However, we maintain a zero harm ambition, so we have refreshed our strategy to focus on three key areas:

- Ensuring continued compliance with legal requirements and industry best practice. This includes maintaining our OHSAS 18001:2007 accreditation while strengthening our health and safety culture as we move to the new ISO 45001 standard.
- Raising the bar through continuous improvement, including the implementation of a comprehensive 'leading indicators' process that focuses on seven safety areas, such as 'Seeing accidents before they happen'. These indicators are reviewed weekly in operations meetings to drive improvements. We will also be expanding our strategy to more actively involve our office and commercial staff.
- Involving our people. Our Quorn Executive Board take an active role in performance and improvement opportunities and health and safety is the first agenda item at monthly Executive meetings.



2018 Winners of the Teesside Company of the Year at the North East Business Awards and shortlisted for the North East finals.

About Quorn Foods' Sustainability Report 2019

This report covers our environmental, social and governance (ESG) performance and priorities for the 2018 calendar year (unless otherwise stated) and beyond. The reporting scope covers our direct operations and includes our manufacturing sites in Billingham, Stokesley and Methwold (all in the UK) as well as our sales and administrative operations and, where relevant, our product impacts.

We've also featured the launch of our Climate Positive Roadmap. The Roadmap has been designed to guide Quorn Foods as we transform our business into a \$1 billion enterprise that is also climate positive and creates measurable positive social impact through our products and our production methods. The report also serves as a publication of our environmental goals, with progress

reports where available, alongside a selection of key stories and relevant highlights on our most material areas.

We have aligned our reporting to our commitment to help drive progress on the United Nations Sustainable Development Goals (UN SDGs).



Discover Cauldron Inspiration Every Day

ANOTHER WORLD OF FLAVOUR

We're on a mission to deliver sensational, great-tasting vegetarian and vegan food everyone can enjoy. The Cauldron brand expands Quorn Foods' delicious product offerings beyond mycoprotein to include even more choice.

From Persian Falafels and Organic Smoked Tofu to Lincolnshire and Mediterranean Sausages, we've infused our exciting products with flavours from around the globe to enable more people to discover Cauldron inspiration every day.

Thanks to our uncompromising approach to quality ingredients and great taste, Cauldron is the UK's #1 plant-based brand and vegan brand in the chilled meat-free category, offering great taste for those looking for an overtly vegetable-based alternative to meat.

SOURCING MORE SUSTAINABLE SOY

The organic soya beans in Cauldron's Organic Tofu and Organic Marinated Tofu are specially selected from farms in China or from Italy when China has low yields. The harvest is audited from field to factory by the IBD EcoSocial Fairtrade organisation. All the soy protein used in Cauldron products is GMO free and, since 2018, all the soy protein used to make Cauldron sausages is certified via soy credit schemes from the RTRS. We aim to transition to 100% physical supply of sustainable soy during 2019.

#1

CAULDRON IS THE UK'S #1 PLANT-BASED BRAND AND VEGAN BRAND IN THE CHILLED MEAT-FREE CATEGORY

ALWAYS AIMING FOR POSITIVE IMPACT

We're always trying to lower the carbon footprint of the whole Cauldron product range. One of the ways we do this is by making our packaging use as sustainable as possible. Currently, there is only the small amount of plastic from the sealing film on our chilled range that cannot yet be recycled, but all our cardboard sleeves and our plastic trays are fully recyclable.







For questions, contact us at
sustainability@quornfoods.com

Please also visit the sustainability section
of our website for more information:
www.quorn.co.uk/sustainable-nutrition

SUSTAINABLE DEVELOPMENT REPORT 2019

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