



**Farm
Carbon
Toolkit**

Annual Review

2023



Foreword

This is my second year as CEO at the Farm Carbon Toolkit (FCT).

Reflecting on the past year, it is clear to me that we are now a key organisation supporting the UK agriculture sector to understand how best to play their part in the necessary decarbonisation, whilst maintaining food production within nature-friendly businesses. No small task!

“Alongside our advisory work, 2023 saw us deliver on the planned development of our Farm Carbon Calculator.”

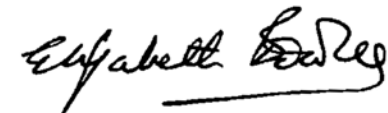
2023 has seen FCT continue on its growth trajectory, bringing in new advisors and Calculator staff in line with the continuing increase in demand for our services. Our customers become our partners as we work together to innovate in this space to support farmers, growers and supply chains to respond positively to the climate crisis we are in.

We are currently involved in two of the long-term Defra Innovate projects to support UK agriculture to decarbonise, working on the greater uptake of leguminous crops in the UK and high carbon capture cropping.

Alongside our advisory work, 2023 saw us deliver on the planned development of our Farm Carbon Calculator, a leading tool in the UK for estimating farm business carbon emissions and removals. We are now able to integrate

with other data platforms to reduce the requirement for double entry of farm data. This, together with work to develop International versions of our Calculator has resulted in the Farm Carbon Calculator being used across four continents!

This review celebrates the work and the impact we have had in 2023, I hope you enjoy reading it.



Liz Bowles
Chief Executive

February 2024



Introduction

The Farm Carbon Toolkit was created by farmers for farmers and remains so today.

In 2009, farmers Adam Twine and Jonathan Smith recognised the need for their peers to understand where to focus efforts to reduce greenhouse gas emissions. To support this, they created one of the first Farm Carbon Calculators in the world. Today, over a decade later we are proud of our Calculator, a leader in its field in the UK and beyond.

We understood that farmers and growers would need to be able to develop a new vocabulary and learn new skills in the world that we are moving into, where reducing emissions and maximising carbon removals will be key alongside reversing the decline in nature. To respond to this, we have an advisory team who work alongside farmers and growers to inspire change at grassroots.

We are a Community Interest Company and are very proud to provide the Farm Carbon Calculator for free to farmers and growers wishing to calculate their footprint. We run two industry competitions

- Soil Farmer of the Year - now in its ninth year and the Carbon Farmer of the Year - now in its second year, to showcase those businesses going above and beyond to improve soil health, reduce emissions and remove carbon from the atmosphere.

As a leading organisation supporting a just, fair and nature-based decarbonisation of our food system, we provide the Farm Carbon Calculator to other advisors to help them in their consultancy work with farmers, bespoke “white label” Calculators to businesses wishing to be able to manage the data from their suppliers/ members/ clients and a range of integrations with other supply chain businesses including the Land App, Livetrace, Yagro etc. We have also developed an Equine Carbon Calculator for the UK equine industry.

Our 2023 Annual Report celebrates all the great work we have been doing and I hope it inspires you too.



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Our Approach

Our Purpose

- Committed to reducing agriculture’s carbon footprint
- Supporting resource efficient thriving farm businesses
- Providing independent thought leadership
- Serving as a bridge between science and practice

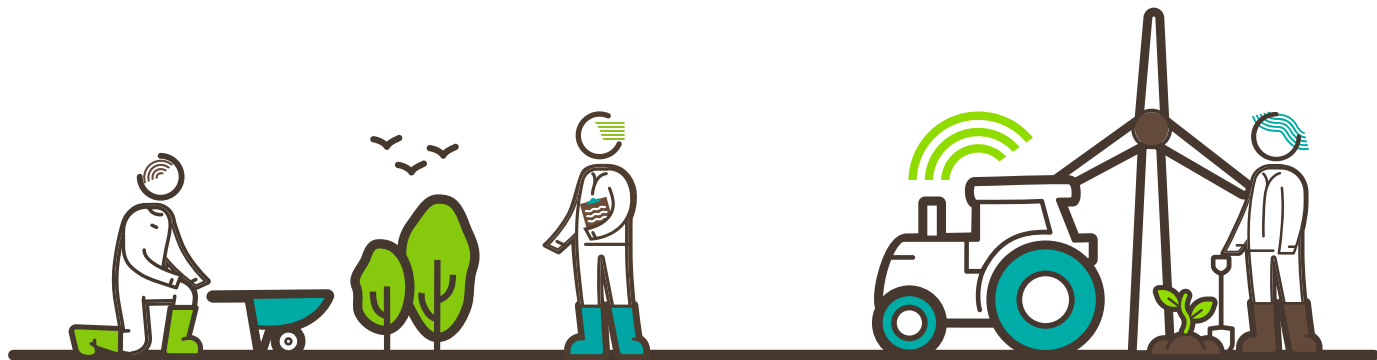


Our Principles

- For farmers, by farmers
- Empowering the farming and food sectors to take action
- Practical and impact led
- Not for profit

How We Work

- We advocate for best practice climate friendly farming systems
- We build resilient communities
- We measure change
- We provide practical help and resources for farmers



What We Stand For

Our Vision

A farming sector which minimises GHG emissions and improves sequestration and natural capital through implementing practices that enhance soil health, safeguard resource use, support nature, improve energy resilience and produce nutrient dense food.

Farmers feel empowered to share knowledge on the positive changes that have been achieved and are involved in setting the agenda for research, technology and innovation which will allow them to evolve and thrive.

Our Mission

FCT is a trusted, independent advisor to the farming industry and beyond for carbon and nature friendly farming. Our Farm Carbon Calculator is recognised as a leading industry calculator, trusted and used by farmers and professionals across the UK Supply Chain and beyond.

We provide the industry with clear and practical advice on emissions reductions and carbon removal strategies whilst empowering a thriving food and farming industry.

Supporting the UN Sustainable Development Goals



Highlights of 2023

January
FCT Partnership with Wilder Carbon announced to support farm businesses wishing to deliver nature based solutions alongside food production.

February
Launch of the Carbon Farmer of the Year Competition.

March
Complete sampling project with farmers in Durham, providing baseline carbon and soil health data alongside action plans to 35 farms.

April
Started phase two of the Duchy of Cornwall project, providing information and advice to Duchy tenants.

May
Launch of the Carbon Clarity publication in partnership with The Prince's Countryside Fund and Morrisons.

June
Soil Farmer of the Year winners announced at Groundswell
Launch of the Nitrogen Climate Smart project – farmers working with scientists to achieve the best from pulse crops and to reduce their carbon emissions.

July
Product footprinting and scenario planning functionality added to the Farm Carbon Calculator.

August
FCT started its 100th project – working with Naturalmat to understand the carbon footprint of organic wool production and how to allocate the footprint between lamb and wool.

September
The winner of our first Carbon Farmer of the Year Competition was announced at our Annual Field Day.
Launch of new supply chain features in the Farm Carbon Calculator.

October
Soil farmer of the year winning farm walk with Stuart Johnson.
Completion of Tesco / Branston work delivering LCA footprint.

November
FCT trains its first cohort through the BASIS certificate in GHGs and Net Zero.

December
We launched a new way for software to connect with Calculator.

2254
HOLES DUG:
To help farmers manage their soil health and quantify the carbon content

SPEAKING ENGAGEMENTS:
88

Carbon footprints supported or carried out by our Advisory and Calculator teams:
363

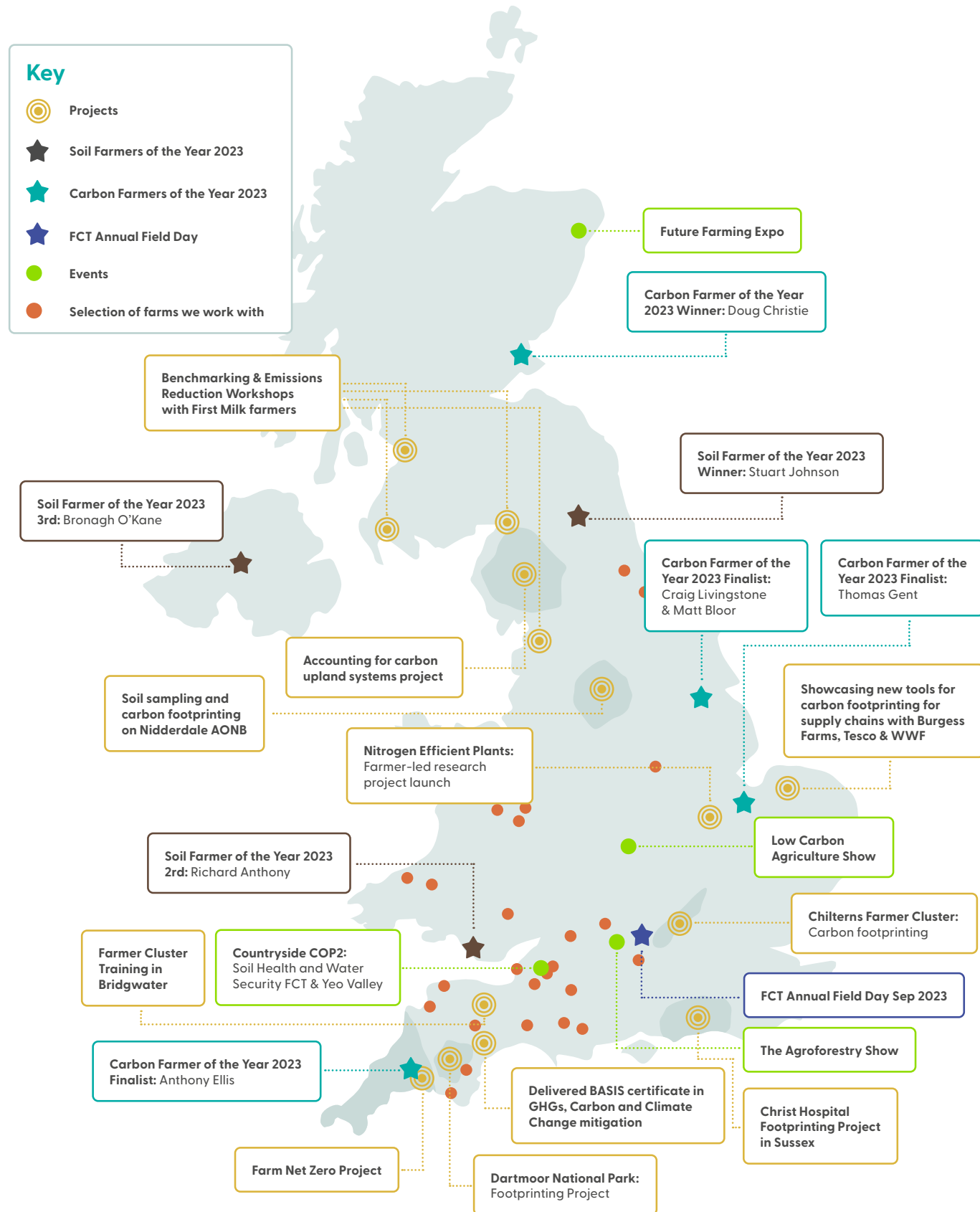
SOIL SAMPLING:
718
FIELDS SAMPLED

TRAINING EVENTS:
48

Number of farm carbon calculator users rose during 2023 by:
22%

16,000
unique visitors to the Farm Carbon Calculator website

Outreach in 2023



It all Starts with the Soil

Soil underpins the entire farm system. Healthy, well managed soils support productive and healthy crops and pasture, which in turn supports a profitable and resilient farming system.

A soil that accumulates organic matter will sequester carbon, improve fertility and water holding capacity and increase productivity.

At FCT we spend a huge amount of time providing analysis, advice and action plans to support farmers manage this most precious resource.

Throughout the last 12 months, we have continued to work across the industry providing baseline analysis for soil carbon and soil health. In addition we have developed new analytical offers for farmers to allow them to align with SFI options, assess micronutrient balances and dive deeper into soil biological function.

“As new technologies develop to enable the scale up of soil carbon monitoring, it’s important that we don’t lose the connection to our soils.”



With the increased interest in the ability of soils to provide a climate solution, our soil carbon project continues to collect data and evidence on the potential of soils to capture carbon under a range of management options. However we are also passionate about empowering farmers to understand the importance of soil health, connecting carbon values with information on soil structure, infiltration rates, aggregate stability and biological activity. As new technologies develop to enable the scale up of soil carbon monitoring, it's important that we don't lose the connection to our soils.

Soil Farmer of the Year 2023

This year we ran the eighth annual Soil Farmer of the Year competition in partnership with Innovation for Agriculture, with generous sponsorship from Hutchinsons and Cotswold Seeds.

As ever, the competition aimed to find farmers and growers who are engaged with, and passionate about, managing their soils in a way which supports productive agriculture, reduces greenhouse gas emissions and builds soil health, organic matter and carbon.

The winners of the 2023 competition were announced at Groundswell. The competition is going from strength to strength, with farms continuing to demonstrate the progress made in UK agriculture. The sheer variety of entries highlights the fact that, despite the many differences in

farming systems and locations, the soil connects us all. We're very grateful to everyone who took the time and effort to enter, to attend the results announcement and attend the farm walks.

The winning farmers hosted open farm walks to unite farmers from across the industry and to share their practices and innovations in soil management. The write-up of these walks are available across the FCT network to share learnings beyond the event.

The 2023 Soil Farmer of the Year Winners:

1st Place **Stuart Johnson,**
West Wharmley Farm, Hexham

"Stepping outside of our comfort zone to let others judge us was challenging. Getting acknowledgement from people in the know for something I'm passionate about was a pleasant pat on the back. It's been a super platform for accessing opportunities going forward to talk, discuss, meet and network with people from all sorts of backgrounds and farm types which has in turn furthered my own knowledge and education"

2nd Place **Richard Anthony,**
R&L Anthony Ltd, Bridgend

"Participating in the Soil Farmer of the Year competition was an inspirational experience. It served as a platform to share our inventive sustainable practices with a network of like-minded people, fostering a culture of collaboration and growth. It reinforced our commitment to regenerative agriculture and left us energised to continue our journey of stewardship and innovation."

3rd Place **Bronagh O'Kane,**
Drumard Farm, Cookstown

"I was thrilled to be selected as third place with Farm Carbon Toolkit Soil Farmer of the Year 2023. I'm just a little farmer trying to do my best in my little corner of the ag world, to be a part of this was just fantastic. The people I have met and linked with since have been incredible. I would encourage anyone to put themselves forward, champion what you do and inspire others"



The 2023 Soil Farmer of the Year Finalists:

Debbie Wilkins
Norton Court Farm,
Gloucestershire

Ed Horton
Poulton Fields Farm,
Gloucestershire

Andrew Jackson
Holme Hall Farm,
Lincolnshire

Carbon Farmer of the Year 2023

We set up the Carbon Farmer of the Year Competition to recognise and champion farmers who are leading the way in adopting farming practices and developing new technologies to reduce farm GHG emissions whilst optimising output.

We wanted to enable discussions on greenhouse gas emissions and sinks on farms to be framed in a very practical way to help everyone to increase their understanding and provide ideas for change.

Our judges visited all our selected finalists to see the businesses for themselves, the ethos of the entrants and the impact on emissions and sequestration. It was clear that all our finalists were committed to making rapid and significant changes to their businesses to reduce greenhouse gas

emissions. This made the final decision to choose our first winner difficult.

Ultimately, we agreed that Doug Christie of Durie Farms, Fife should be our 2023 winner. Doug has a mixed farm with beef cattle and arable cropping and is organic for the grassland and livestock. He has been incorporating conservation agriculture practices increasingly since 1999 and was very much a pioneer of climate friendly farming before it was fashionable.

Doug's list of key practices to reduce emissions and remove carbon was extensive including direct drilling of arable crops; multi species cover crops preceding spring crops; more diverse crop rotation including the production of pulses and legumes; introduction of companion and intercropping years ago; keeping soil

"Our judges visited all our selected finalists to see the businesses for themselves."



The 2023 Carbon Farmer of the Year Finalists:

Anthony Ellis
Pensipple Farm
Cornwall

Craig Livingstone
Lockerley Estate
Hampshire

Thomas Gent
Oakley Farm
Cambridgeshire

covered at all times, maximising use of living roots throughout the year and avoiding any activity on fields when ground conditions are adverse.

On the livestock side Doug practises adaptive multi paddock grazing with diverse leys which underpins soil fertility; this, in turn, has led to reducing the winter housing period for cattle and minimising use of supplementary feeding. A welcome impact of changing housing management has been a significant reduction in both costs and emissions from a reduced need to move feed and bedding around in the winter and reduced emissions associated with producing winter forages and constantly reseeding.

Supporting Transition at the Grass Roots

The foundation of our work is built on engagement with farmers and growers as we know that this achieves the greatest impact!

Through working with our partners and the fantastic farmers who are truly leading the way across the UK and beyond, we are both educating and being educated. We then disseminate our findings to ensure maximum uptake amongst the wider farming community. As pressure to decarbonise increases, farmers can feel overwhelmed about the challenges ahead. However, we specialise in working with organisations to deliver strategies that are scientifically robust but practically relevant and that are based on sound farming practices.

We are also experts in working with farmers to empower them to see how they can be part of the solution. We provide insight and guidance as to their potential to reduce GHG emissions and to improve sequestration, whilst ensuring they remain profitable and resilient.



“First Milk have been working closely with Farm Carbon Toolkit since 2021. As a farmer owned co-operative it is very important to us to work with organisations which have farmer’s best interest at the heart of what they do. FCT have a proven track record of helping farmers become more regenerative and importantly their culture is very aligned with First Milk’s. We have been greatly impressed by both the knowledge and practical approach of the FCT team and are always confident that the advice they provide is considered, holistic and is independent of industry commercial interests.”

Lee Truelove
First Milk

“We specialise in working with organisations to deliver strategies that are scientifically robust.”



Advanced Carbon Footprint Software

Advanced carbon footprint software for horticultural growers

We developed a software system that allows users to produce product footprints for horticultural products from whole farm carbon footprints.

An Italian version of the Farm Carbon Calculator was developed as a pilot for further international versions.

The workflow was tested for passing product footprints along supply chains with the example of RB Organic carrots supplied to Tesco.

Basic target setting and enhanced comparison features were developed for gaining insight into supply chain carbon footprints.



“Our ongoing collaboration with FCT has enabled the pivotal development of an end-to-end supply chain footprint to provide a greater insight into our emissions from our farms through to our customers. This significant addition will not only deliver substantial benefits to our business but for our environment too in addressing climate challenges. FCT’s continued support has been fundamental to our achievements in our net zero journey to date.”

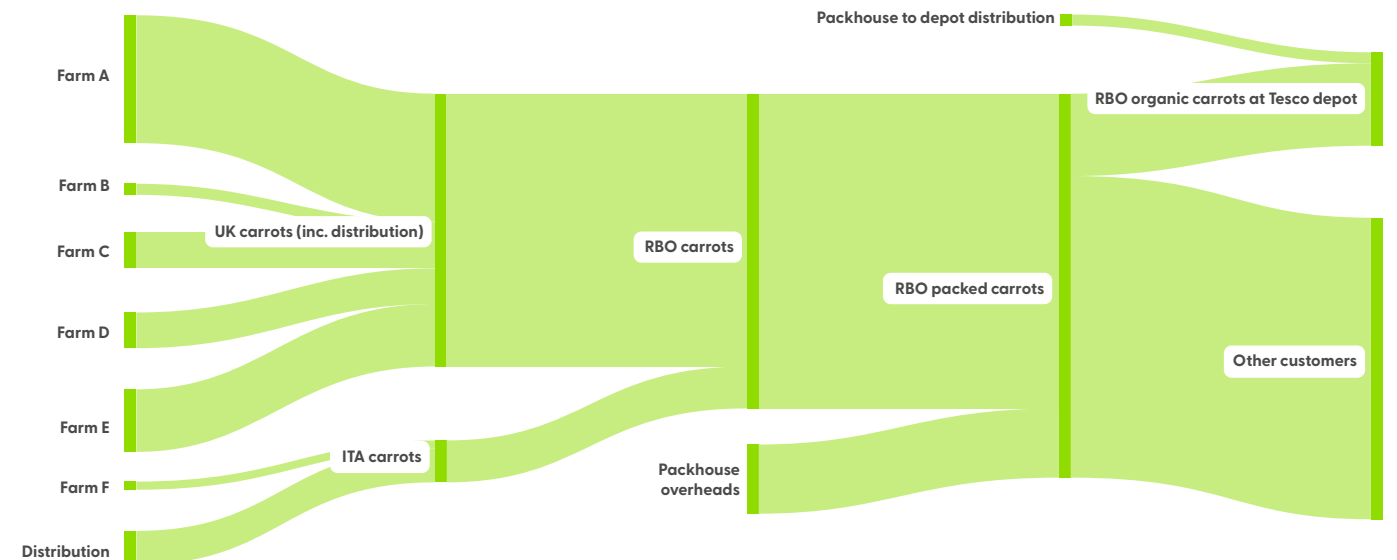
Melissa Goodman,
Head of Group Compliance
Burgess Farms



“As the largest supplier of crisping potatoes in the UK ..the input we received from Farm Carbon Toolkit has been both professional and very much inspirational for us. This has led to a joint approach that is building our understanding of the carbon intensity within the crisping potato supply chain. We are truly hoping that technology such as this will help the UK potato industry play its part in the positive changes which are taking place across agriculture.”

Jon Kemp
Mercian Livetrace

Working together



Applied Research

Measuring change in Upland Environments

Our uplands are unique environments, with specific opportunities and challenges when considering managing carbon. At FCT we have had a major focus on upland environments throughout 2023 via a number of different projects that include:

Delivery of an upland specific version of the Calculator: through our work footprinting farms on Dartmoor, Bodmin Moor and Exmoor we recognised the challenges of footprinting upland farms. Thanks to support from Our Upland Commons we have developed an upland-specific version of the Calculator in collaboration with the commoners of Kinniside in Cumbria. This is the first calculator of its kind to be able to assign carbon from commons across multiple graziers, and develop new emissions factors and performance indicators that are upland-specific.

Measurement of carbon across landscapes: We worked with Dartmoor National Park to pioneer a landscape scale approach to soil sampling to be able to understand the variation in carbon stocks across Dartmoor, depending on habitat and soil type. The sampling provided insight into the variations that exist, and allowed the National Park Authority to develop a robust baseline to feed into their net zero strategy and future landscape management.

Development of training materials for upland farmers: In association with the University of Cumbria, we developed a course focussing on the opportunities and challenges associated with Net Zero in the Uplands.



“Since June 2023, I have been working with the Farm Carbon Toolkit on the Foundation for Common Land Carbon Calculator project. Becky and Emma Adams were very proactive and supportive as we worked together to manage key relationships.

Now that the Calculator has been made available to use, I am starting to see the benefits and opportunities it provides. This is not only the first farm carbon calculator to allow commons to be apportioned to a farm report, but it also has the benefit of scenario planning which allows the farmers to see the impact of any changes they want to make at the touch of a button, i.e. livestock numbers, size of hedgerows, type of fuel used. Along every step of the way I have found the team from the Farm Carbon Toolkit to be prompt and efficient at replying to emails and arranging meetings. I worked mostly with Becky who has always been helpful in providing me with information or answering a host of questions, technical or otherwise.”

Keira Booth Lake District Project Officer & Project Support Coordinator, **Foundation for Common Land**

Our Impact

It takes a community to be net zero

Now in its third year, the Farm Net Zero project demonstrates what can be achieved when a farming community comes together to share knowledge, collaborate and take action.

Progress is being measured across a 40+ farmer strong community of monitor farms and shows rising levels of soil carbon alongside reducing

emissions. Particularly evident, are the emission reductions related to fertilisers, as well as from the switch to UK-grown protein sources instead of soya.

On-farm meetings have been popular, serving as platforms for knowledge exchange and innovation. Driven by the farmers, these meetings span a wide range of subjects, such as silage quality, maize establishment, and trees for livestock welfare and productivity. The impact of these meetings has supported on-farm innovation such as reduced tillage, rejuvenating older herbal leys with low soil disturbance, and a focus on where and why some fields are compacted.

In January, the project was showcased at the Oxford Real Farming Conference, with a session led by the project’s three demonstration farmers who shared their net zero journey.



“Most farmers who won’t go to any events are taking time to turn up to the events to see what is going on, and listen. They realise they have to look at things differently. It is a credit that we have got this opportunity in Cornwall.”

Martin Howlett, **Deer Park Farm**

Films screened at the event underscored the community’s role in knowledge dissemination, collaboration with local stakeholders, youth education, and consumer engagement.

The **Farm Net Zero web pages** serve as a hub for updates, resources, and Farmer Field Labs, facilitating continuous learning and collaboration. Media coverage has also been extensive, in the Farming press, radio and television.

Besides the farming community, this multi-partner project involves the Duchy College Rural Business School, Farm Carbon Toolkit, Innovative Farmers, Innovation for Agriculture and the Westcountry Rivers Trust. It is managed by Cornwall College and funded by the National Lottery Community Action Fund. To find out more, visit farmcarbontoolkit.org.uk/farm-net-zero

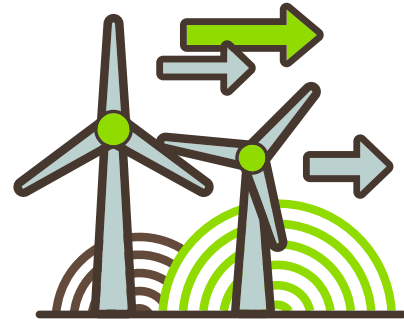
In 2023, we published five short films that showcase some of the farms involved in the Farm Net Zero project as they work to produce nutritious food while improving the environment.

Our Carbon Footprint

Since we started measuring our carbon footprint last year, it has given us focus as an organisation on what we need to do to start reducing the impact we have whilst doing our essential work with farmers, growers and the food chain.

We are committed to being carbon neutral by 2030, and we have started making steps towards that goal. As an organisation without a conventional office, we know that the large majority of our emissions (75%) come from travel and this proportion hasn't changed much from last year.

As the carbon footprint follows our financial year (1st April to 31st March), it won't yet show the impacts of the rollout of electric vehicles to our staff. This started in September 2023 and



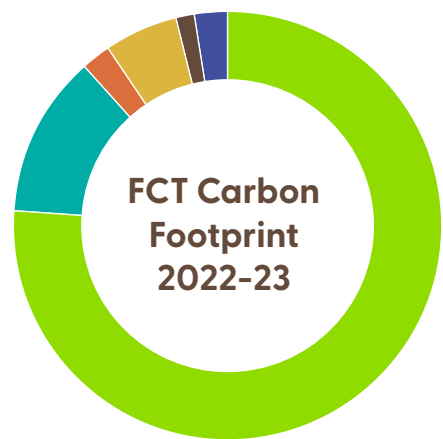
we are learning lessons from the pilot ahead of expanding our fleet.

One interesting thing we have learnt is that as our turnover has increased substantially (more than doubled from one year to the next), the carbon intensity of our operations per £1,000 of turnover has decreased by 58% - as the table here shows. We believe this increase in efficiency is also very helpful and is positive as we continually increase in size as an organisation.

Every service sector has an interesting challenge in how it measures impact, by Key Performance Indicators. A key piece of work over the next few months will help us to understand what the impacts of our work are more clearly, and how this relates to key measures such as carbon, turnover and staff. These learnings will feed in to next year's carbon footprint.

Overall we are happy with progress towards our target.

“We are committed to being carbon neutral by 2030, and we have started making steps towards that goal.”



- Car use 76%
- Home working 12%
- Accommodation 3%
- Capital items 6%
- Web hosting 1%
- Public transport 2%

Year	Total carbon footprint (kg CO2e)	Carbon footprint per £1,000 of turnover (kg CO2e/ £1k)	Change over one year
2021-22	27,125	93.5	
2022-23	34,448	54.4	58%

What Next?

Strengthening our advisory services for farmers and growers

We are developing new services and partnerships to improve how we support farmers and growers, including the provision of clearer resources and new offers for farmers. These include helping them to deal with our changing climate and supporting through applied research.

Linking across the industry

2024 will involve greater collaboration with other organisations to harmonise farm carbon footprinting methods in line with new guidance and regulatory requirements, as well as software integrations with other platforms to streamline data collection for farmers and growers.

Talking to the next generation of farmers, growers and advisors

We will be working with colleges and agricultural training organisations such as TIAH (The Institute for Agriculture and Horticulture) to support farmers and advisors to increase their understanding of farm GHG emissions and how to reduce them effectively.

Growing our farming competitions

We see spotlighting best practices on soil and carbon farming as key ways to share farmers' knowledge and will be building on our great group of alumni from the past eight years to support acceleration in the adoption of best practices.

Going global

Our Farm Carbon Calculator is already used on four continents and we are working with partners to explore how best to develop and deploy new versions of the Calculator for different regions.

Thank You

We are incredibly grateful to all our project partners, clients and all who inspire us and support us through funding. These are just some of the organisations we work with:



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