Managing carbon and enhancing natural capital

Beeswax Dyson Farming

Introduction

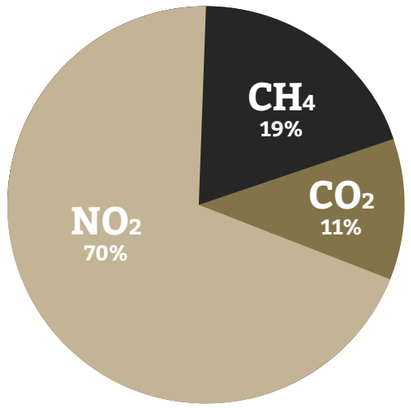
Farming has a crucial role to play in addressing climate change. It has the potential to shift from being a major emitter of carbon dioxide to becoming an important sequester and store; a contribution agriculture makes to climate change mitigation that is often underestimated. Realising this potential is only achievable with positive action.

At Beeswax Dyson Farming, we have developed and implemented our own approach to carbon management which is now an integral part of our every-day farming activities and fundamental to how we monitor and measure performance. Crucially, this has taught us that by challenging ourselves to become better farmers, we can continue to have a positive impact on our carbon footprint.

In getting to this point we have learnt many lessons, one being the importance of getting out of the starting blocks. We understand that the complexities of climate change and wanting to get it right can often delay positive action. To avoid this and to prioritise what we considered important for the business, we made the decision early to establish our baseline carbon footprint and then use this to monitor and measure how what we do impacts on our net carbon emissions.

This has given us the clarity and focus needed to challenge existing practices, search for different solutions, and get on with the job of farming for a sustainable and profitable future.

Beeswax Dyson Farming
Greenhouse Gas Net Emissions



UK industry produces

544 million

Tonnes of CO_2 eq

Agriculture contributes

49 million tonnes

(9% total UK emissions)

Taking positive action

Good carbon accounting and natural capital principles have been at the core of our business strategy from day one. It is an intrinsic element of our long-term farming vision and is rooted in the original values of the business: To be good farmers, innovate, and future-proof our bottom line. We constantly challenge ourselves to continuously improve our business and reducing our carbon footprint is a key component of that.

To achieve this, we needed an assessment framework that was able to quantify both our carbon emissions and ability to capture and store, or sequester, carbon from the atmosphere.

> *"There are many ways to do this, and we didn't want paralysis of choice that prolongs a period of measuring nothing. Undertaking a robust internal assessment was important for BDFL as it ensured that whatever we decided would be fully embedded and become part of what we do. This process and due diligence check resulted in us deciding to use the Cool Farm Tool and do the carbon accounting work internally."*
>
> **Richard Williamson, Managing Director**

Using the robust science of the tool, we created the mechanics of our carbon accounting model to define what we measure and how we measure. We now have a framework in place which records the key features of the business that contribute to emissions as well as those that capture and store carbon. The data collected validates the environmental impact and tracks Key Performance Indicators for the business.

Carbon Footprint 2019

-278t

CO_2 eq

Net emissions

Using a carbon calculator tool we have worked out our carbon footprint, for our agricultural enterprise.

2018 378t CO2 eq Net emissions

Measuring what we do

Our commitment to a long term, regenerative farming model means innovating and doing things right and better. One of the ways we implement this is through our use of technology and digital systems that track and collate data across our farming operations. From an advanced system that records diesel usage for every vehicle, to weighing every grain, pea and potato to calculate yields, technological innovation has made this possible. Using the Cool Farm Tool, we can input this data and calculate our carbon footprint.

Our carbon foot printing stops at the farm gate, meaning everything up to point of sale across our farming operation. We capture and analyse data to give us an accumulative number for the carbon we emit and absorb; but it goes much further than that. It tells us the impact on soil structure from ploughing, cover cropping and cultivation practices which contribute towards our efforts to improve soil health.

Having this data freely available in "real time" is key. The information is embedded in our core recording systems which provides actual checks and balances in our accounting systems.

We now know in a lot of detail the impact our farming practices have on carbon. Nitrogen fertiliser, livestock production and fuel consumption contribute most to our emissions, which total just over 13.3million kg of CO2 a year. That is the rough equivalent of driving around the world 1,915 times, launching 40 rockets into space, or producing 18 million pints of lager. But our rate of sequestration, at just over 13.5million kg of CO2 a year (or an extra 1.2 million pints of lager), is higher.

> *"The insight we are capturing about our farming practices is invaluable and will certainly help to inform the future. It's a very exciting time to be in agriculture."*
>
> **Ed Ford,**
> **Technical Agronomist**

Sequestration is the process of capturing and storing atmospheric CO2

CO_2

BDFL sequesters

13,587t

of CO_2 eq/yr

The same as driving around the world

1,915 times

or producing

19.2 million

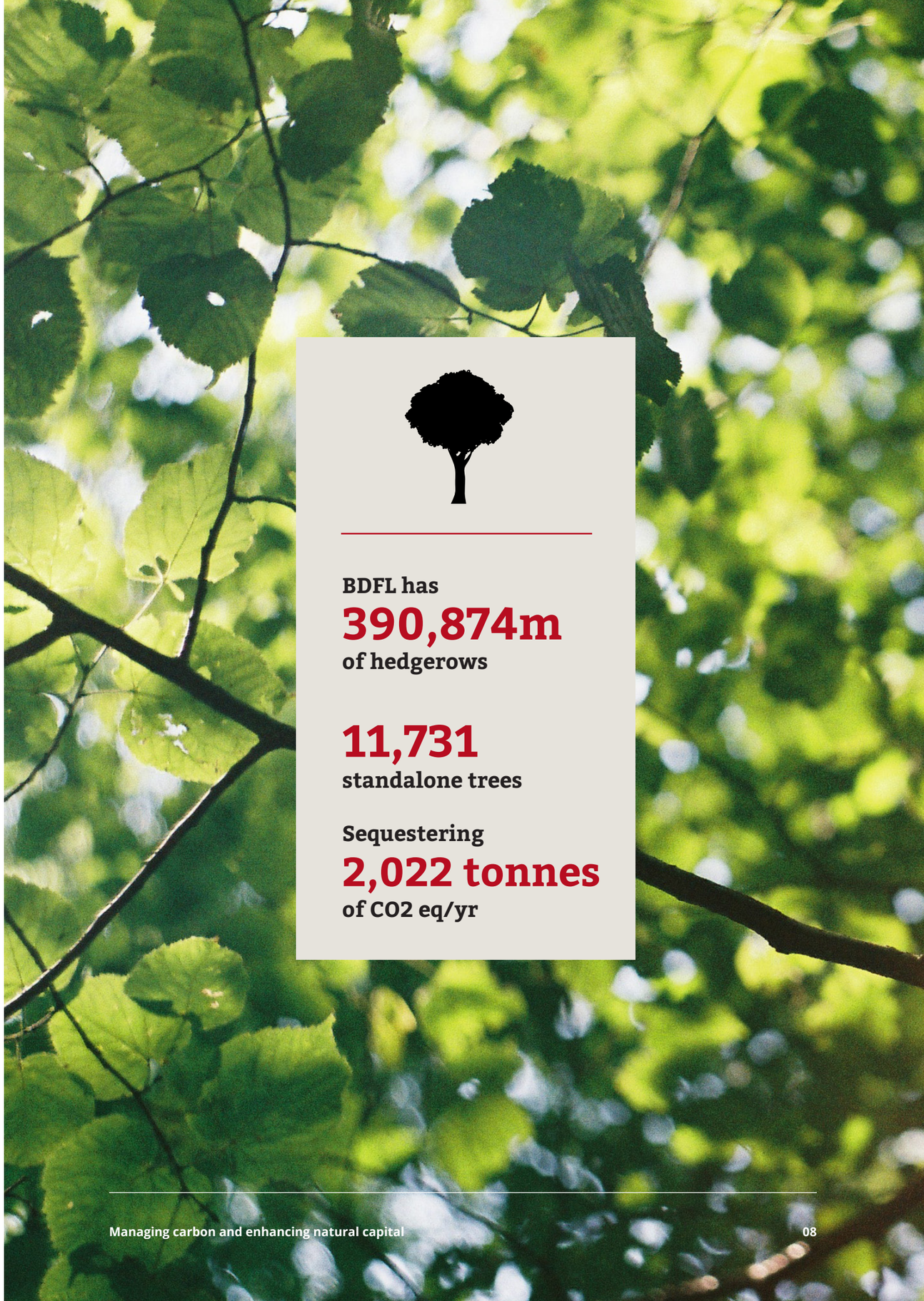
pints of lager

Managing natural capital

Our ability to sequester carbon is largely the result of careful management of natural capital. Natural capital is everything we do as a business to protect and enhance land, soil, ecosystems, air and water. We now have a better understanding of the contribution that good land management has on the farm's performance, from habitat enhancement, biodiversity and pollination to water filtration as well as carbon storage. From this we have developed a natural capital account that calculates the positive impact year on year of managing woodlands, hedgerows, trees and countryside stewardship which we can offset against our carbon emissions.

> *"We completely underestimated the sequestration ability of hedgerows and stand-alone trees; that was a very pleasant surprise. What we've also experienced is a positive mindset change – measuring natural capital is challenging, but that has not stopped us from trying things, learning in context and adapting our approach...rather than being driven solely by a predicted end outcome."*
>
> **Jo Knight, Estate Surveyor**

Our anaerobic digestion plants have also made a positive contribution to our natural capital account. They not only produce renewable energy to help power the farm and residential houses, but through digestate application, reduce nitrogen fertiliser use on the fields. We also know that our move towards more precision farming technology, such as the careful application of fertilisers, which helps us protect water quality and reduce our overall environmental impact.



Building on the past to plan for the future

From the positive action taken, the ability to measure our carbon footprint and focus on managing our natural capital we are now well positioned to plan for the future. We remain committed to measuring future performance against past achievements to drive continuous improvement and advancement year on year.

We will not stand still. With a clear direction of travel for carbon management, and a solid set of data, our next challenge will be implementing initiatives that reduce our carbon emissions and increase sequestration further in a commercially sound way. This will deliver benefits not just for future profit but also for people and planet, our triple bottom line performance accounting framework.

Exciting ventures demonstrate this, such as compressing gas to power our tractors and lorries and cut diesel consumption; dewatering and enriching our production of liquid digestate to reduce reliance on bought in inorganic nitrogen fertiliser; and our new glasshouse facility being constructed that will use captured CO2. The opportunities ahead are exciting, but if you distil it down into its component parts, it is just good farming, with an innovative mindset and the ability to use data to inform business decisions.

> *"We are demonstrating how innovative farming balanced with respect for the environment can also be profitable. Having embarked on a journey of continuous improvement, we are challenging ourselves to better our 'triple bottom line' performance year on year. We are determined to be a good business, that operates for the long term and carbon management is fundamental to these ambitions."*

Richard Williamson, Managing Director

Anaerobic digestion plants for

Biomethane production

to replace diesel

De-watering and enrichment of liquid digestate

to create a more concentrated organic fertiliser

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