Farm Carbon Toolkit

Getting to grips with carbon

Opportunities to improve resource use efficiency, cut costs and improve resilience

Becky Willson

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Farm Carbon Toolkit

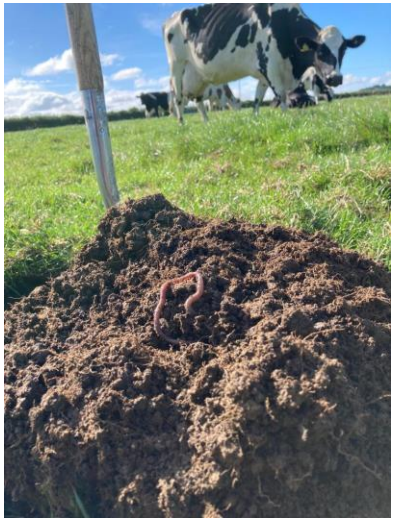
About us

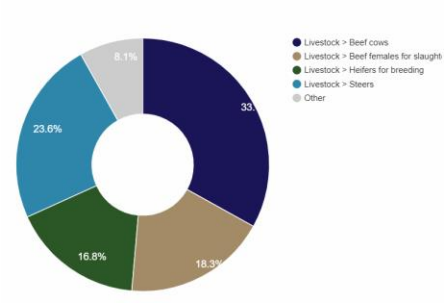
The Farm Carbon Toolkit was created by farmers for farmers. For over a decade, we've worked to further the understanding of greenhouse gas emissions in agriculture. We provide tools and services to measure impact and projects that inspire real action on the ground.

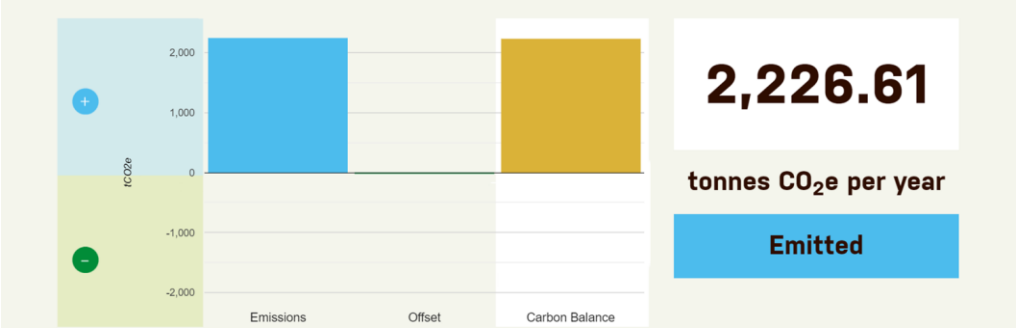
Our vision is a farming sector that minimises its carbon emissions and maximises its carbon sequestration, whilst producing quality food and a wide range of public goods, all produced by resilient and profitable farm businesses.

We work with farmers ….

To measure







We work with farmers ….

To make changes that reduce GHG emissions and improve soil health

We work with farmers ….

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To communicate and challenge

Greenhouse gas emissions, carbon and my farm

Managing carbon on the farm: Why bother?

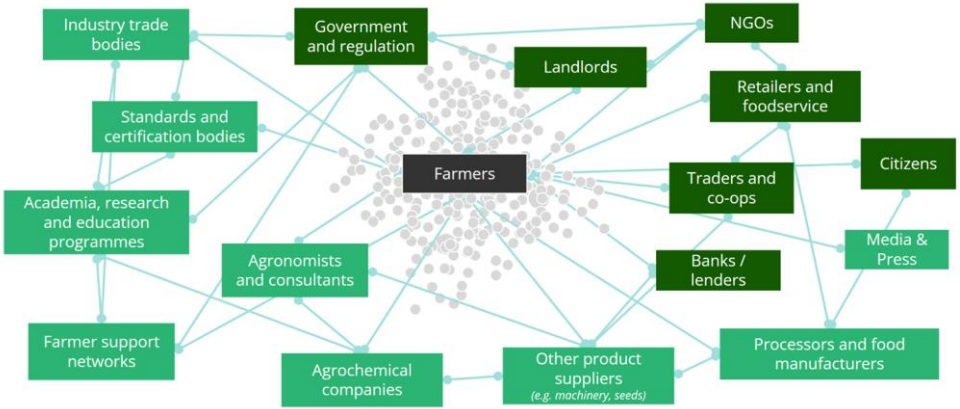
National Targets - net zero legislation

International targets

Pressure to decarbonise coming from many angles

Potential income generation with the evolution of carbon markets

Farming is in a unique position to help



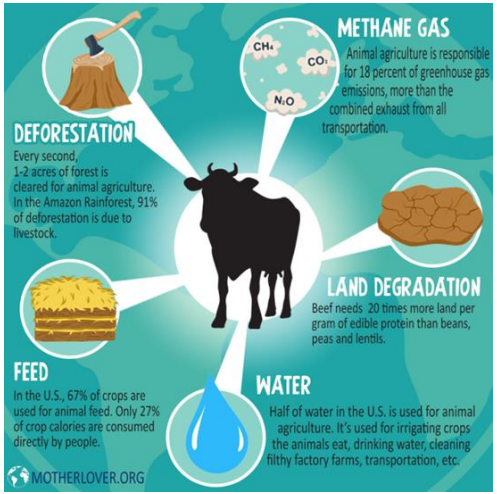
Managing carbon on-farm

We know there is a lot of pressure coming from policy and supply chains but what are the benefits at farm level?

It allows us to be more informed and make decisions

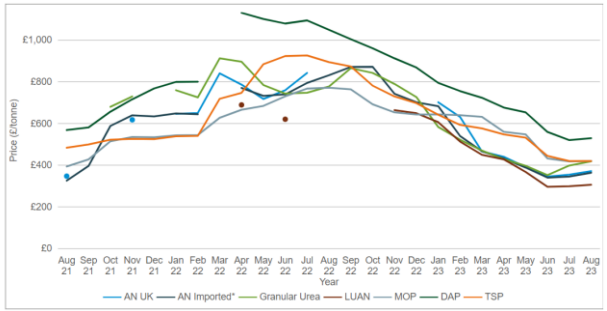
It enables a positive narrative

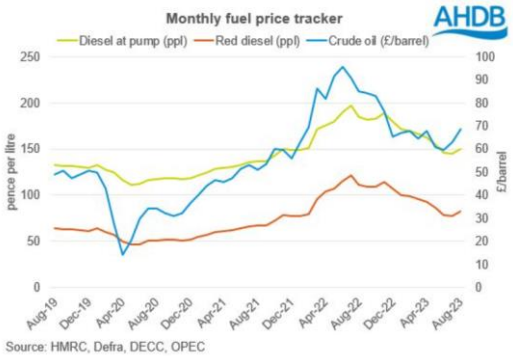
Future proofing



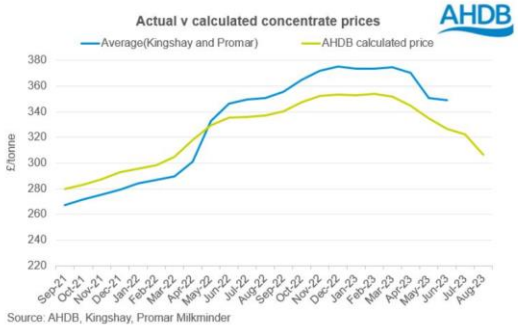
Managing carbon on-farm: Economic benefits

Things that come onto the farm with a high cost tend to also have a high carbon cost





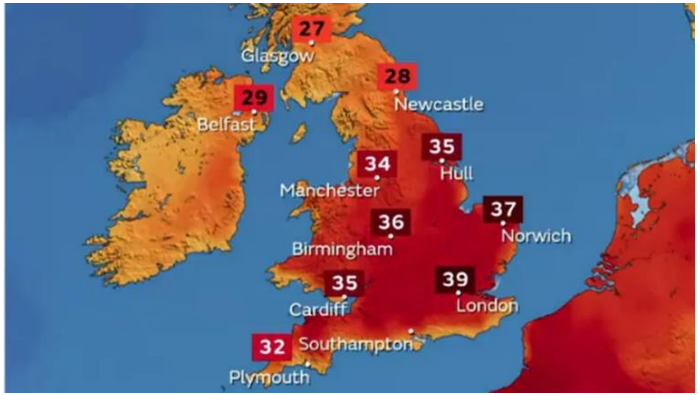
Source: HMRC, Defra, DECC, OPEC



Source: AHDB, Kingshay, Promar Milkminder

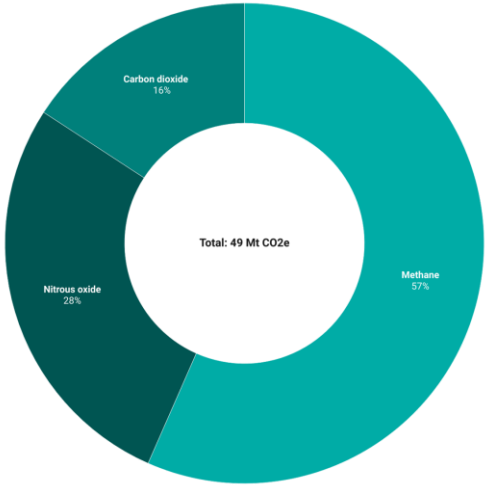
Managing carbon on-farm: Resilience benefits

Agriculture is an industry most at risk from climate change as well as the opportunities to deliver solutions



Greenhouse gas emissions from agriculture

- Methane (CH4)
- Nitrous oxide (N2O)
- Carbon dioxide (CO2)
- Ag 12% of total UK emissions



Carbon and business efficiency are closely linked

No one size fits all - a complicated and biological industry

Linked to food production, difficult to measure and dependent on the weather

GHG emissions from agriculture

Nitrous oxide

Methane

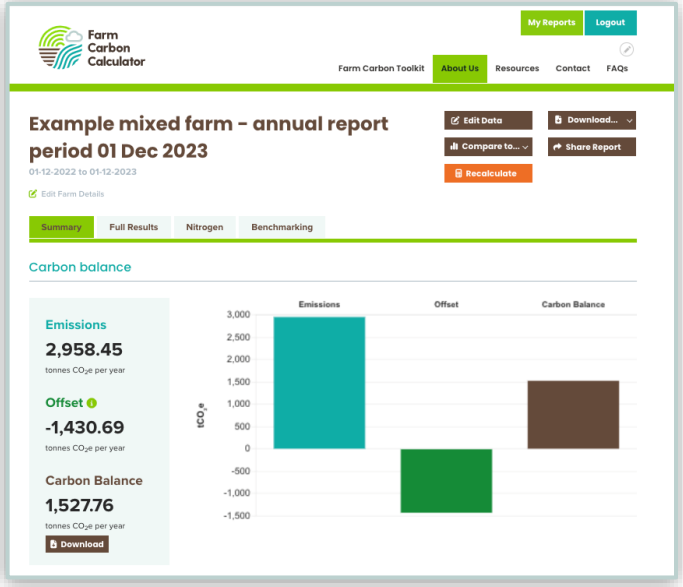
Measuring GHG emissions on-farms

Carbon footprinting provides a mechanism to measure the GHG emissions arising from agriculture and on-farm activities.

Quantifies the amount of GHGs emitting from activities

Various options available which are driven through supply chains / farmers

Include / exclude sequestration and report on a per tonne basis (challenges).



Reducing emissions on-farm

Key areas for reducing emissions

Livestock management

Energy efficiency

Nutrient management

Grassland management

Soil management

Storing more carbon

One of the largest organic carbon stocks on the planet with about 1500 billion metric tonnes to a depth of 1m and 2400 billion metric tonnes to a depth of 2m (Batjes 1996).

If we lose SOC it's therefore a big deal

Loss of SOC – also loss of topsoil, reduced aggregate structure and increase compaction

Improving SOC levels – improve soil physical quality, reduce erosion, and improve yield stability (esp through drought stress)

Management practices can increase carbon sequestration levels in soils and provide a carbon sink.

Need a good baseline and ongoing measurement to demonstrate impact

The importance of management

Reducing soil disturbance and cultivation depth

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Horsch Sumo cultivator

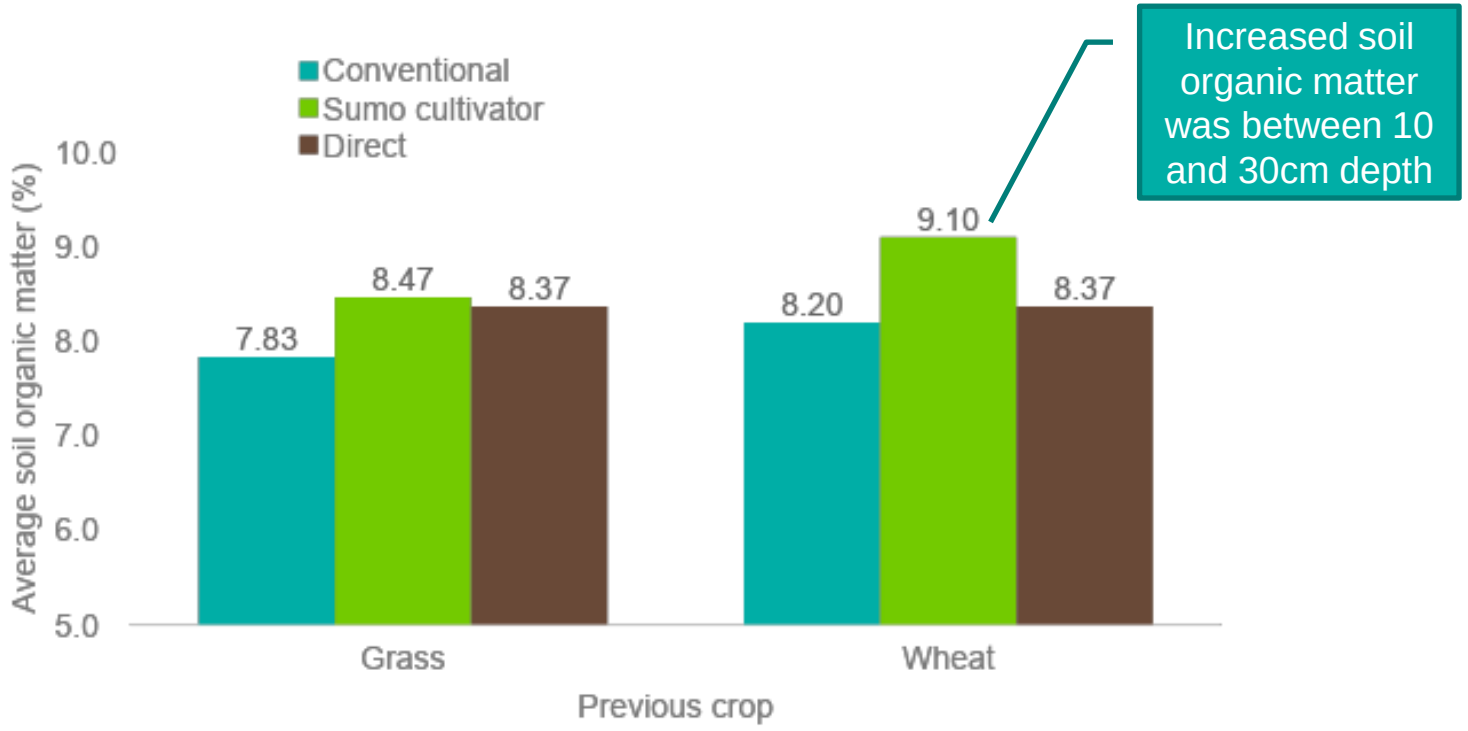
One option for transitioning from a plough based to a minimum cultivation system

	Operations	Fuel usage (l/acre)	Fuel cost (£/ha)*
Conventional	Plough, Power harrow, Drill	22.5	60
Sumo cultivator	Sumo cultivator, Drill	12.5	33
Direct sown	Direct drill	5	13

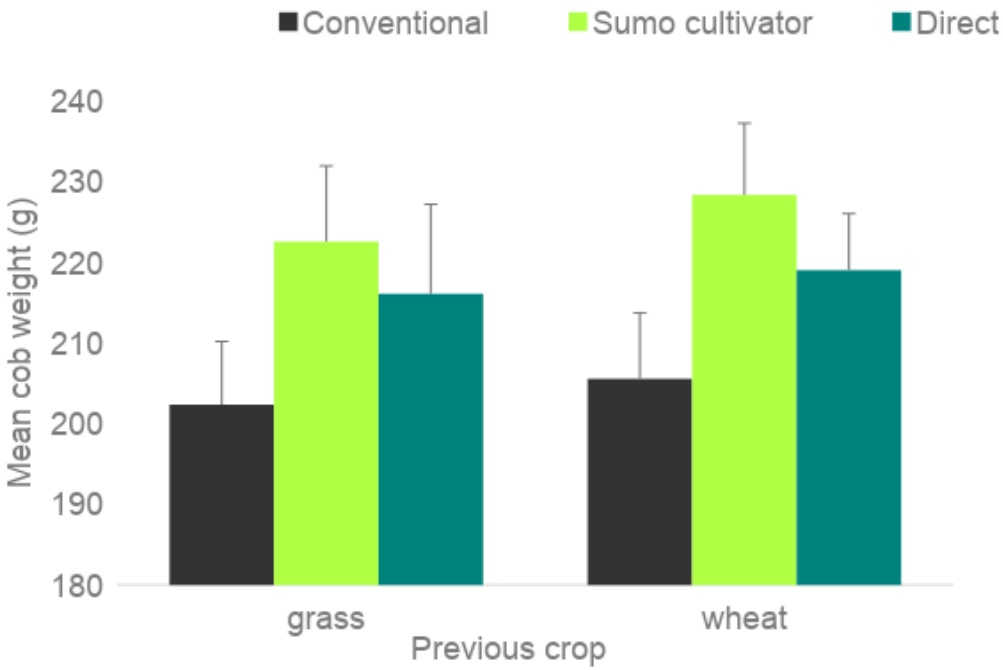
Opportunities to:

- Reduce fuel use
- Increase work rate
- Support improved soil health
- Work more closely with soil biology

Change in soil organic matter



Cob weights


Conventional
Sumo cultivator
Direct
240
230
220
210
200
190
180
Mean cob weight (g)
grass
wheat
Previous crop

Maize quality after grass

	Conventional	Sumo cultivator	Direct
D Value (%)	63	70	69
ME (MJ/kg)	10.3	11.5	11.2
NDF (g/kg)	423	397	380
Starch (g/kg)	353	351	330
Bypass Starch (g/kg)	125	124	109
Dry Matter (%)	27.1	27.2	30.7
pH	3.9	3.8	3.8
Crude protein (g/kg)	64	76	78

To conclude

Our businesses are at the forefront of the impact of climate change, but we are also the ones that offer solutions.

Understand where your emissions are coming from and what you can do about it will future proof your business.

Getting to grips with carbon - terminology, metrics, acronyms will help you to understand where the scope is on your farm.

Get to know your soil - its the farm's most important asset

Baselining and data empowers you to have a starting point and identify future options.

Farm Carbon Toolkit

Thank you for listening!

www.farmcarbontoolkit.org.uk

becky.willson@farmcarbontoolkit.org.uk