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Regenerative agriculture: building supply chain resilience

6 August 2026

Webinar for Food & Drink Federation

06/08/2026

www.adas.co.uk








Introduction

Emma Piercy, Head of Climate Change & Energy Policy

fdf | AMBITION 2030

PILLAR 1:

Net Zero

Ambition:
Contribute to a 50% reduction in emissions across the agrifood supply chain by 2030

PILLAR 2:

Nature Restoration

Ambition:
Build a 'Nature Positive' industry to halt and reverse nature loss by 2030

PILLAR 3:

Sustainable Commodities

Ambition:
Contribute to halting commodity-driven deforestation and conversion by 2030

PILLAR 4:

Food Waste

Ambition:
Halve per capita food waste by 2030, contributing to UN SDG 12.3 and the Courtauld 2030 commitment

PILLAR 5:

Packaging

Ambition:
Contribute to implementing a world-class packaging recycling system in the UK, reducing the environmental impact of packaging

https://www.fdf.org.uk/fdf/our-work/our-campaigns/ambition-2030/

Food system resiliency: the imperative

- Nicholas Stern – 2006 ‘Economics of Climate change’ – costs of inaction are greater than the costs of action
- Covid and war in Ukraine have brought social vulnerabilities to the fore (food and fuel poverty)
- DEFRA’s food security report – CC, biodiversity loss and water insecurity are pressing risks
- CCC Well-adapted report – May 2026

Physical and nature risks: the need for new agricultural practices …

And a fifth agri-revolution

Strategic risks

Operational

Erratic weather → **Sourcing restrictions and supply disruptions**

Financial

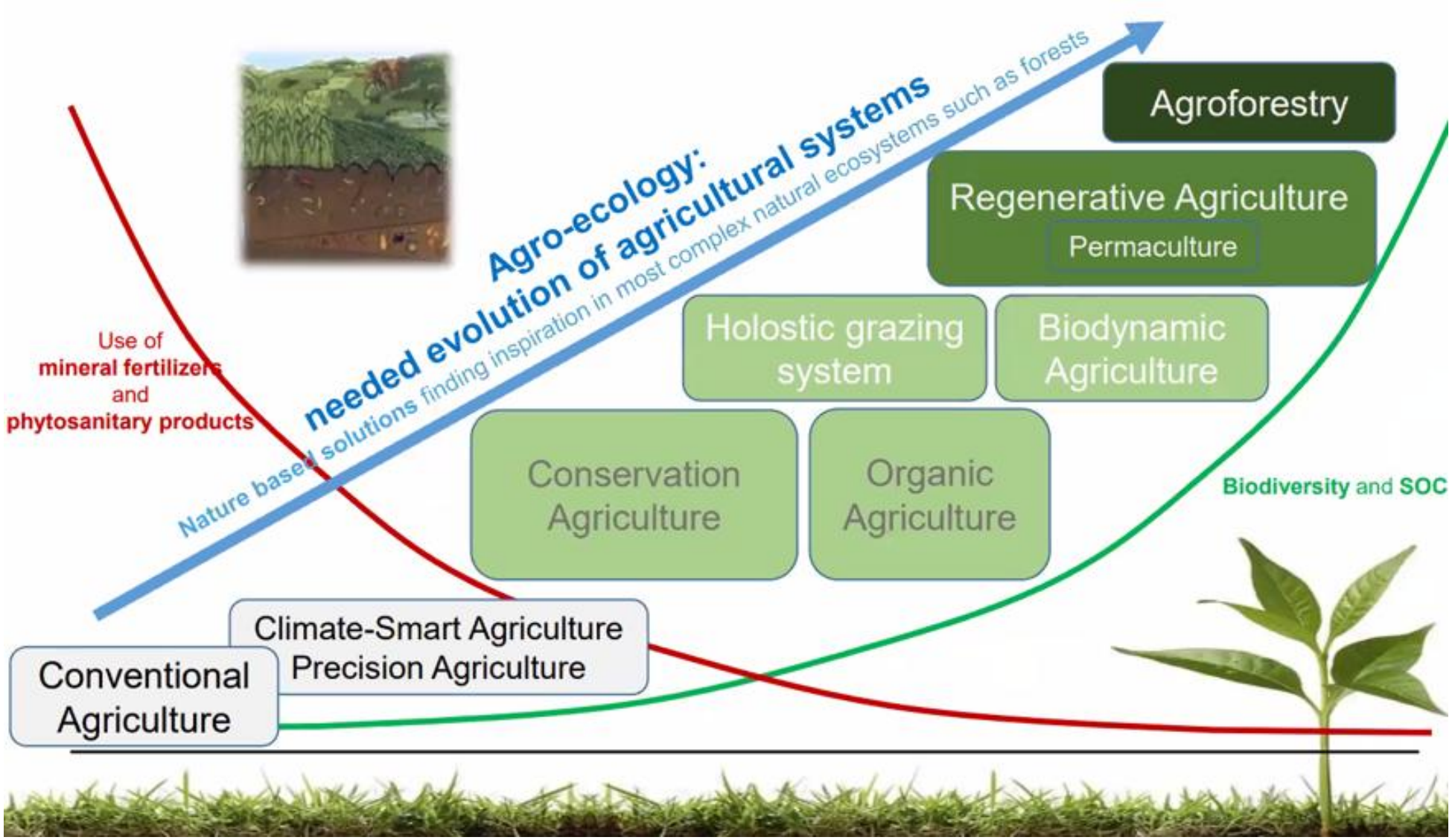
Supply challenges → **Rising costs / greater volatility**

Regulatory

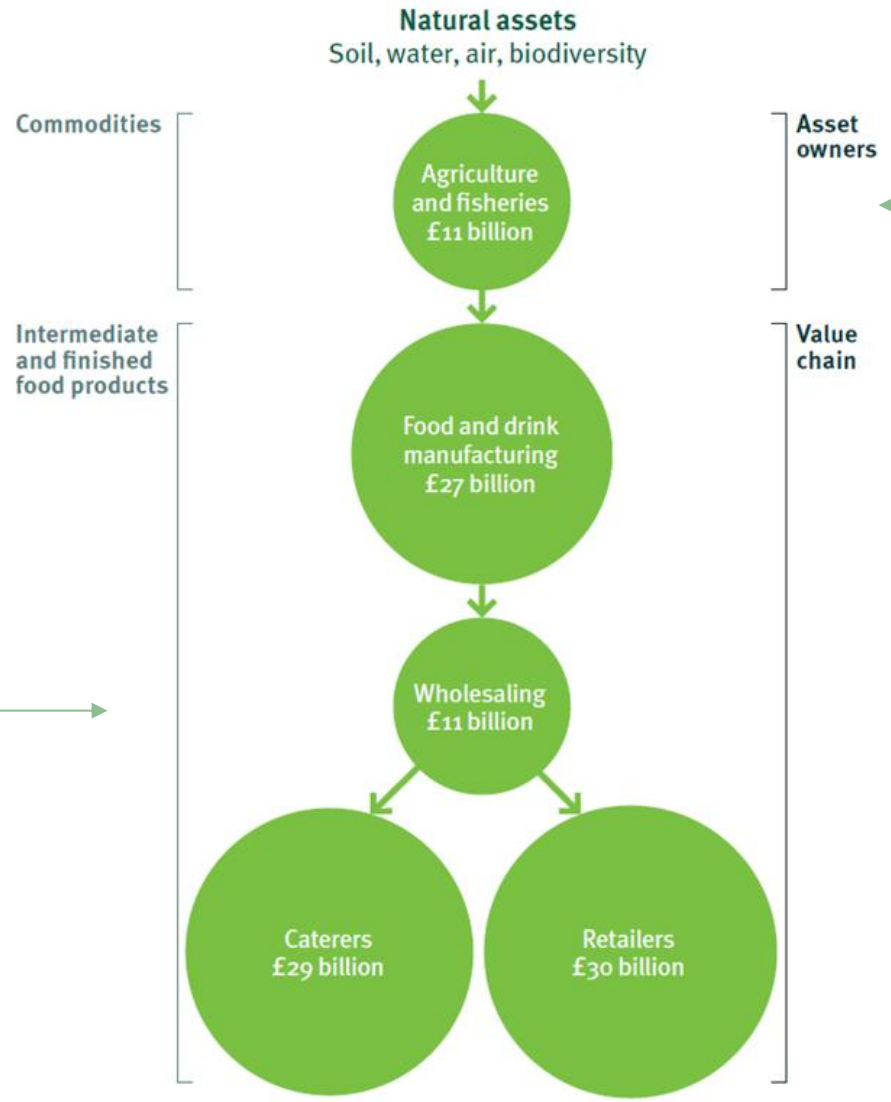
Carbon reduction targets → **Esp. on Scope 3 emissions**

+ wider transition risks

Future trends …. Not to scale!



Supply chain structure



Farmers and landowners manage 70% of the land

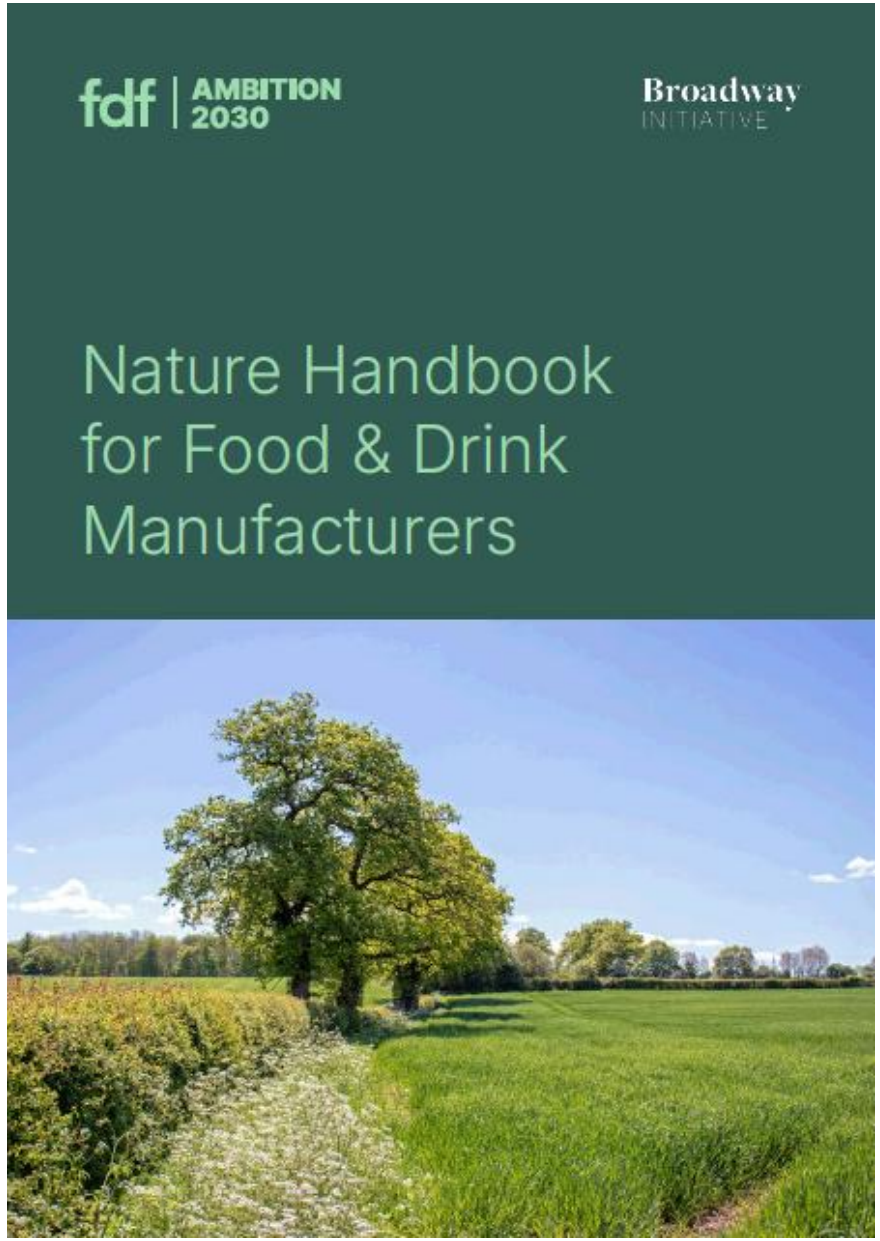
Whilst the supply chain makes 90% of the GVA

Top 10 challenges for investing in RegenAg

Category	Barrier	Interviewees	%
Other	Skills & Knowledge	9	6%
Financial	Short termism	8	5%
Legal	CO2 measurement	7	4%
Financial	Market volatility	7	4%
Legal	CO2 ownership	6	4%
Financial	ROI comparisons	6	4%
Marketing	Greenwashing fears	6	4%
Marketing	Premium viability	5	3%
Operational	Transition period	5	3%
Operational	Farmer relationships	5	3%
	Sub total responses in top 10	64	40%
	Total number of responses	160	100%

Lack of skills & knowledge **is the most cited challenge!**

Source: Piercy, E (2026) FDM investment into RegenAg



Understanding the business case for action

How to engage the Board and process to follow

What a risk assessment entails

How procurement practices are the first line response

Working with farmers directly

Collaborating with others in collective action projects

Engaging with credits and offsets

How to set targets and report

Understanding the various financing routes

https://www.fdf.org.uk/fdf/our-work/our-campaigns/ambition-2030/pillar-2-nature-restoration/

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Regenerative agriculture: building supply chain resilience

Dr Kate Smith

6 August 2026

Webinar for Food & Drink Federation








What is ‘regenerative’ agriculture?

Perspective

Outlook on Agriculture
1–13
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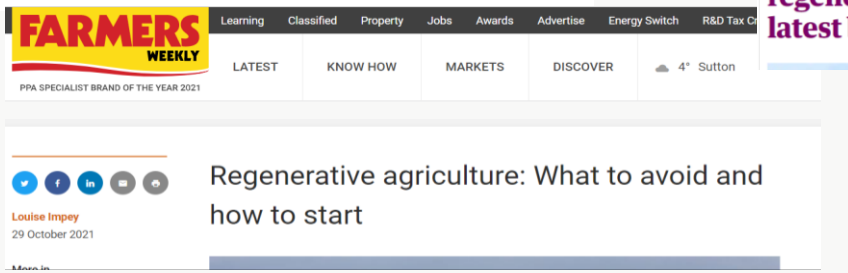
Regenerative Agriculture: An agronomic perspective

Ken E Giller[1], Renske Hijbeek[1], Jens A Andersson[1] and James Sumberg[2]



FARMERS WEEKLY

Learning Classified Property Jobs Awards Advertise Energy Switch R&D Tax C

LATEST KNOW HOW MARKETS DISCOVER 4° Sutton

PPA SPECIALIST BRAND OF THE YEAR 2021

Louise Impey
29 October 2021

Regenerative agriculture: What to avoid and how to start

The Guardian
News website of the year

Sport Culture Lifestyle More

Health & fitness Women Men Love & sex Beauty Home & garden Money Cars

‘Sustainable isn’t a thing’: why regenerative agriculture is food’s latest buzzword

Article | Open access | Published: 05 November 2025

Beyond the buzz: analyzing actors promoting regenerative agriculture in Europe

Loekie Schreefel, Emile Steenman, Fabian Adler, Ricardo Buffara, Stephan Freundt, Fabrice DeClerck, Jessica Duncan, Ken E. Giller, Howard Koster & Hannah H. E. van Zanten

npj Sustainable Agriculture **3**, Article number: 59 (2025) | Cite this article

Save article

18k Accesses | **8** Citations | **77** Altmetric | Metrics

Abstract

actor websites and interviewed 131 regenerative farmers across five European countries. We mapped actor types, locations, sizes, and promoted themes (e.g. biodiversity) and practices

Regenerate: ‘to renew or restore something which has been lost or degraded’

Regenerative agriculture: Improving soil health (and farmland biodiversity) through sustainable soil management practices

Threats to agricultural soils

- **Compaction:**
- Livestock & machinery
- *40-60% soils in moderate condition*
- *0-30% severely degraded* (Bhogal et al. 2018; IFS)

- **Erosion:**
- Bare ground & compaction

	Soil loss (t/ha/yr)
Background	0.1-0.5
Cultivated land	0.1-10
Bare soil	10-200

Boardman, 1990; Morgan, 2004; Evans, 2005.

- **Loss of organic matter:**
- Soil disturbance and lack of inputs to cultivated systems

Together these threats have been estimated to cost £1.2 billion /yr in England and Wales (Graves et al., 2015)

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What is Regenerative Agriculture?

Regenerative agriculture is the application of sustainable farming practices that more closely mimic natural processes.

The main principles are:

- Don’t disturb the soil
- Keep the soil surface covered
- Keep living roots in the soil
- Grow diverse crops
- Integrate livestock
- Farm context*

“Regenerative agriculture has at its core the intention to improve the health of soil or to restore highly degraded soil, which symbiotically enhances the quality of water, vegetation and land-productivity.” (Rhodes, 2017)

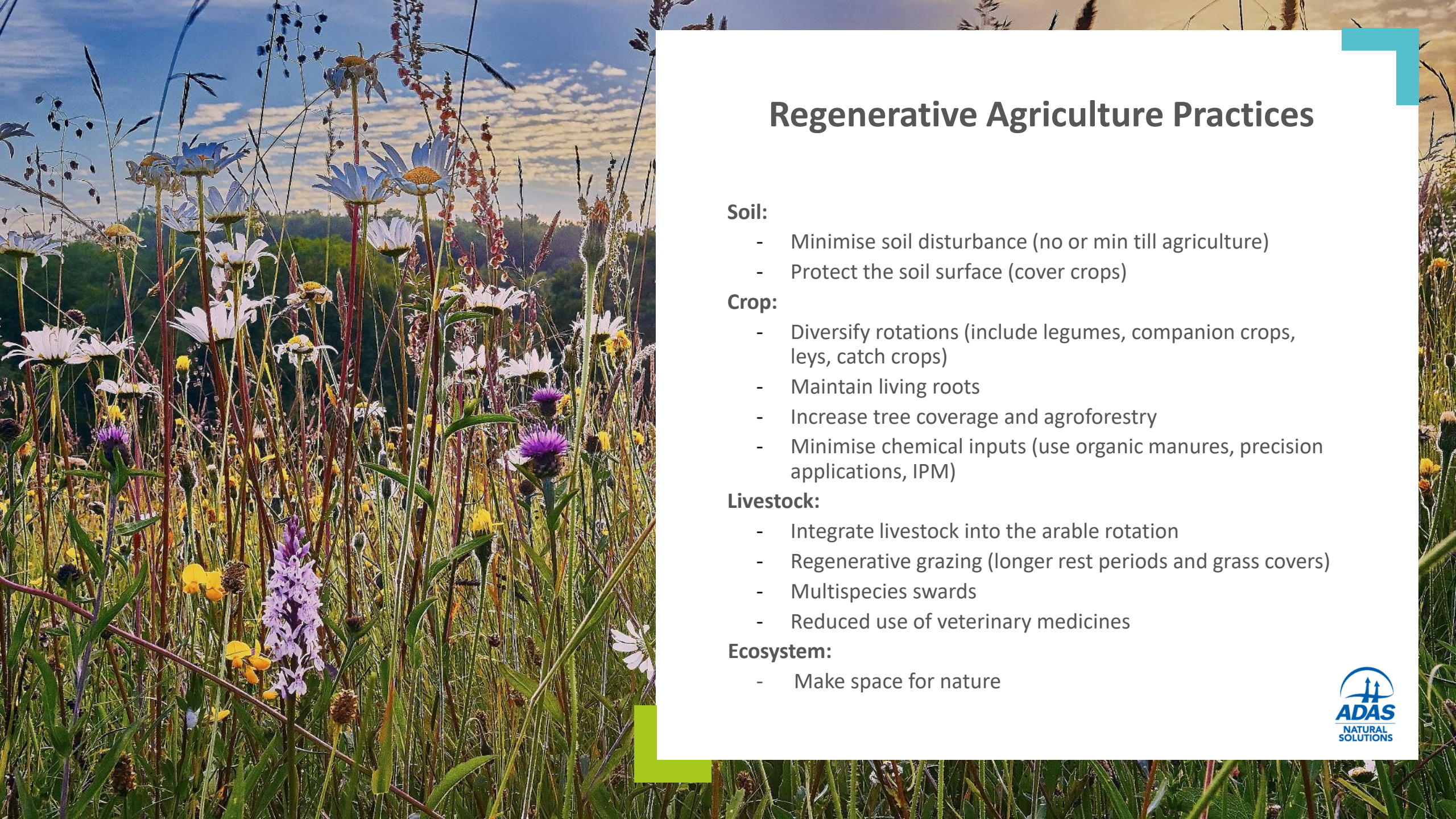
“The Regenerative Agriculture agenda coalesces around three main issues:

- Enhancing soil health
- Reducing carbon footprints
- Safeguarding and enhancing biodiversity””

(Giller *et al.*, 2023)

Rhodes, C.J. (2017) The imperative for regenerative agriculture. *Science Progress,* 100 (1), 80-129

* With Regenerative Agriculture, Context is Everything – Noble Research Institute



Regenerative Agriculture Practices

Soil:

- Minimise soil disturbance (no or min till agriculture)
- Protect the soil surface (cover crops)

Crop:

- Diversify rotations (include legumes, companion crops, leys, catch crops)
- Maintain living roots
- Increase tree coverage and agroforestry
- Minimise chemical inputs (use organic manures, precision applications, IPM)

Livestock:

- Integrate livestock into the arable rotation
- Regenerative grazing (longer rest periods and grass covers)
- Multispecies swards
- Reduced use of veterinary medicines

Ecosystem:

- Make space for nature

ADAS NATURAL SOLUTIONS

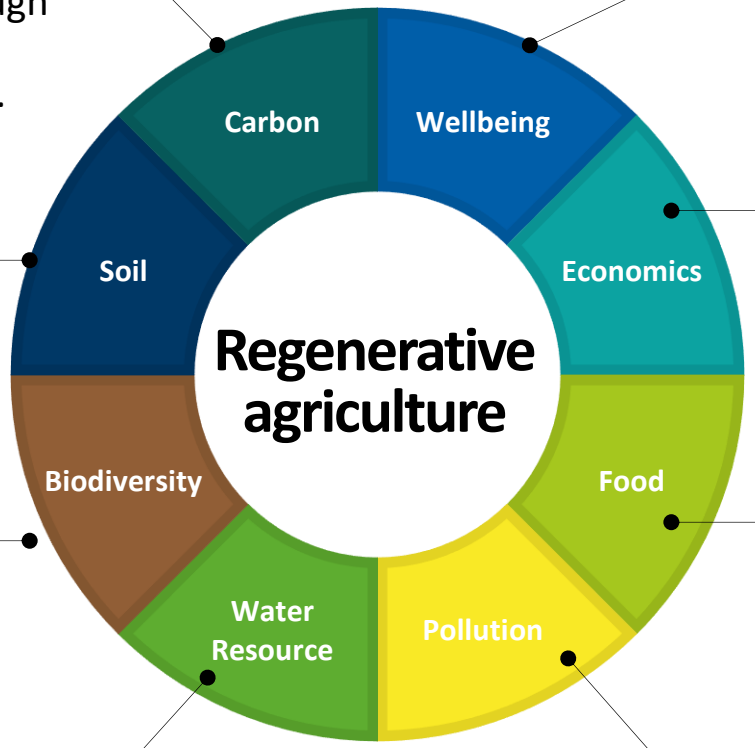
The Potential Benefits of Regenerative Agriculture

+ **Climate change mitigation** through emission reduction and carbon storage and sequestration. Reduce C loss by minimising soil disturbance.

+ **Reduce soil loss** and maintain a healthy structure, soil mycorrhiza and living roots through maintenance of continuous vegetative cover and minimum tillage.

+ **Increase biodiversity** through diverse rotations, habitat-rich farming landscapes and protected refuges.

+ **Increase resilience to droughts & floods** by increasing the amount and variety of organic residue returned to the soil, enhancing soil water holding capacity.



+ **Happier communities** through the provision of multifunctional landscapes for enjoyment and education.

+ **Better margins and additional income sources for farmers** through lower inputs, premium outputs and opportunities for payments for ecosystem services.

+ **Reliable food sources** through low input and resilient grass-based and mixed arable-livestock systems, including legumes for protein production.

+ **Reduce pollution to water and air** by lower manufactured fertiliser and chemical inputs, and efficient recycling and accessibility of nutrients and water through better soil structure and rooting depths.

Indicators to quantify benefits of Regenerative Agriculture

Soil health measurements - increased SOM/SOC, improved soil structure (using AHDB soil health guide), improved earthworm population

Financial and production measurements – reduced input costs, increased margins, premiums, reduced carbon footprint

Biodiversity measurements – increased plant and animal (e.g. farmland birds) biodiversity, improved earthworm population, habitat diversity

Water measurements – reduced nutrient, sediment and chemical loads (water company data), improved soil water retention and release (signs of waterlogging and drought)

Product measurements – improved nutrient use efficiency (proportion of nutrients applied that remain in crop), improved or maintained crop yield, increased livestock weights, reduced pests and diseases in crops and livestock

Other ecosystem service measurements – increased carbon capture, enhanced wellbeing and educational value

Newcastle University

LIZ GENEVER

PRIFYSGOL BANGOR UNIVERSITY

afbi AGRI-FOOD & BIOSCIENCES INSTITUTE

LLM FarmVets *First* in the field

ADAS





Mob grazing: UK Farm trials to assess the impacts & benefits of mob compared to conventional grazing systems

Department for Environment Food & Rural Affairs

How is mob grazing different?

- Tends to be characterised by:
  - High density intensity
  - Grazing smaller areas for short period of time
  - Longer grass ‘recovery’ period
  - Grazing higher grass covers

Mob grazing – what's the big deal?

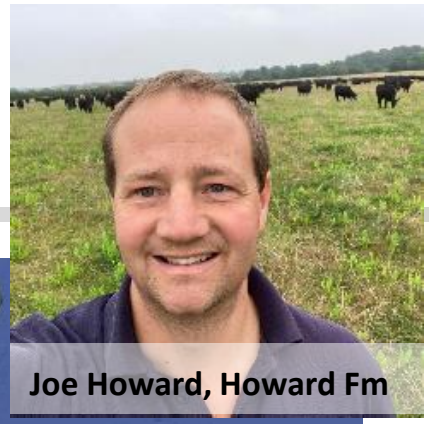
- Soil quality benefits?
  - Increase soil carbon content
    - Trampling biomass into the soil
    - Encouraging deeper rooting
- Biodiversity benefits?
- Improved productivity/profitability?
- Extend grazing season?
- Compared to what? Continuous or rotational grazing

Farm trials

- Commercial farm sites
- Each site will compare two grazing systems:
  i. Conventional ‘control’ set-stocked/semi rotational system
  ii. Mob-grazing system
- Split field design
  - Fields split between control & mob grazing system
  - Cattle allocated to control and & mob grazing treatments at start of season

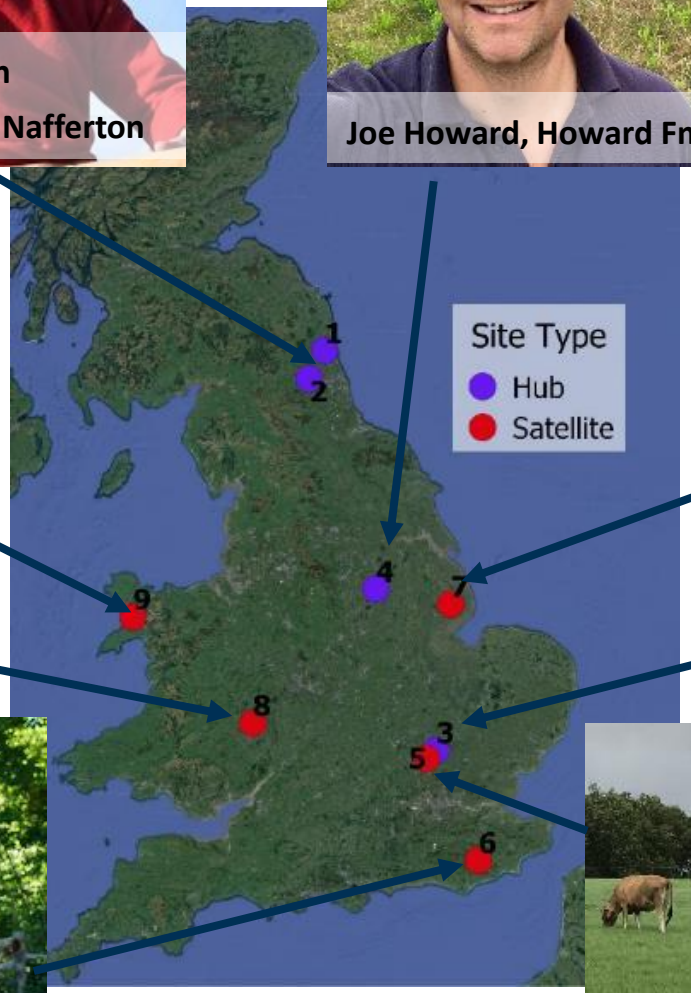
Farm sites


James Standen
Cockle Park & Nafferton

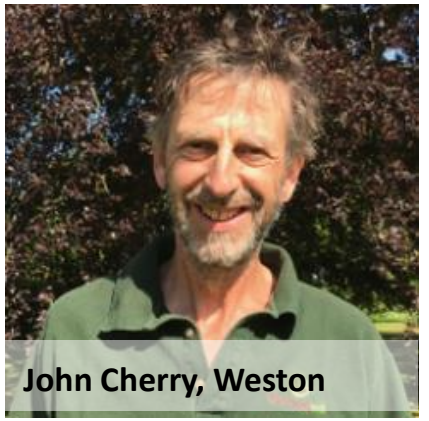

Joe Howard, Howard Fm


Rhodri Owen, Glynllifon


Tom Cractchley




Rich Thomas, Risbury Fm


John Cherry, Weston


Sam Newington,
Burgham Fm


Tom Chapman, Easthall

Initial findings

- **Grass growth & forage quality**
  - Mob treatments have longer pre and post graze covers
  - Longer grass cover linked to higher ADF and lower ME & CP
- **Livestock performance**
  - LWG per head generally similar, but lower in mob than control on some farms
  - BUT, LWG per hectare higher due to increased stocking density
- **Soil quality & sward diversity**
  - Assessments at beginning and end of project

Context is important… understanding impacts of cover cropping on peat soils

- Regenerative agricultural practices that have been shown to improve soil quality on mineral soils may not have the same benefits on peat soils and may have negative consequences
- ***Does reductions in peat soil moisture from cover cropping – results in increased soil organic matter (SOM) loss and increased carbon dioxide (CO_2) emissions?***
- Defra project – Regenerative Practices on Peat Soils investigated the impact of cover cropping on peat soils
  - Field experiment, autumn/ winter 2025/ 2026
  - Lowland peat soil, Norfolk England
- **Treatments:** 4 different cover crop mixes (contrasting rooting and biomass traits) and stubble control
- **Measurements:** soil moisture, soil surface condition and cover crop biomass

Key findings – cover crops on peat soils

Cover crops provided protected the soil over-winter

Good
Deep rooting mix, low rate

Moderate
Shallow rooting mix, commercial rate

Poor
Control weedy stubble

Cover crops reduced soil moisture in the autumn;

with differences between different cover crop mixes:

↓ **5 %**
(all cover crops)

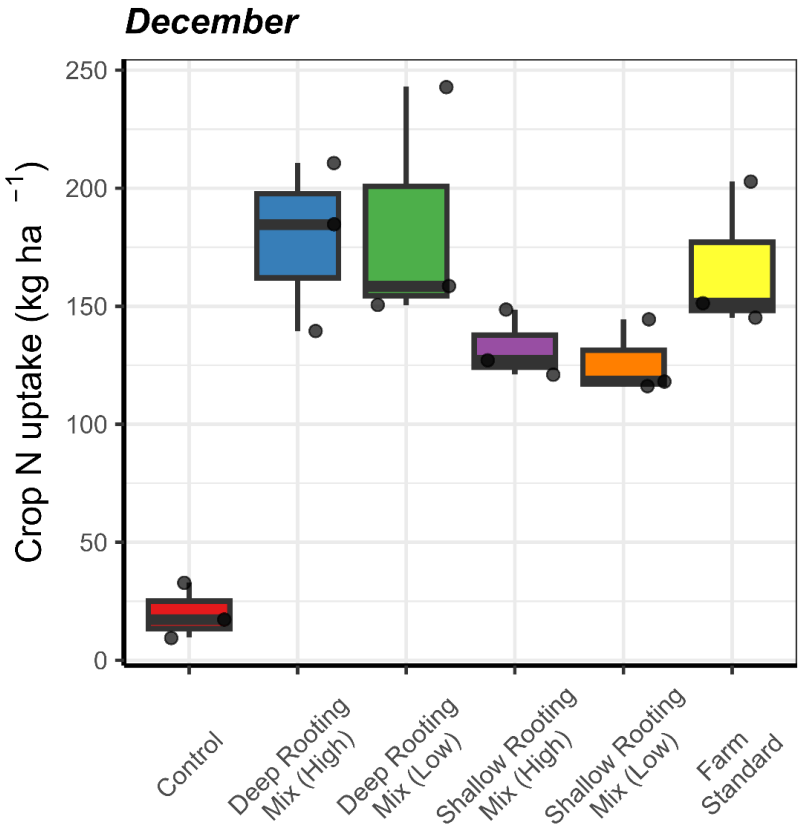
↓ **10 %**
(deep rooting, high biomass)

Cover crops they had no impact on soil moisture in the winter

↓ **1.4 %**
(all cover crops)

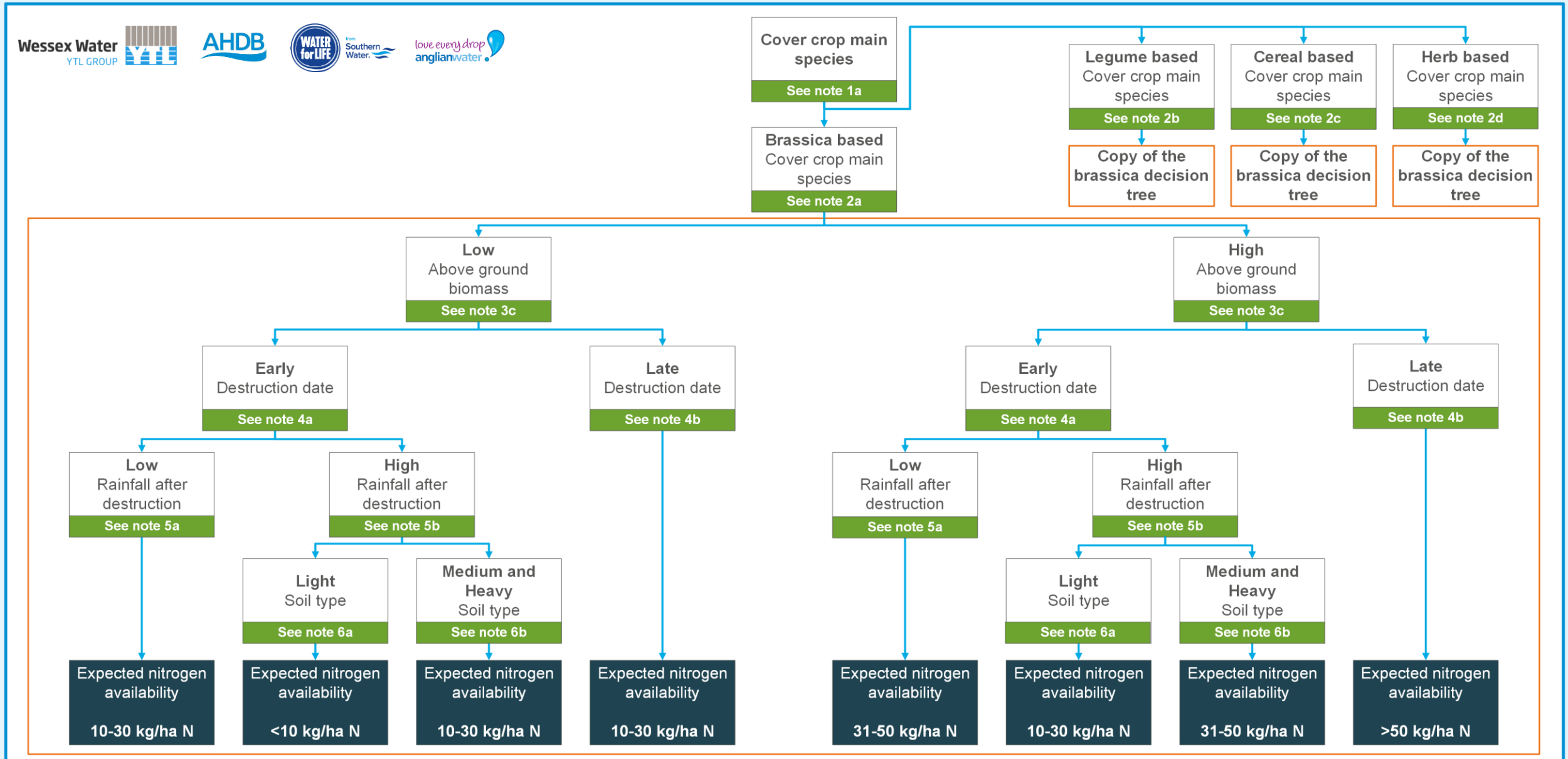
Further research needed to understand impact of changes in soil moisture as the cover crop is growing on CO_2 emissions

Cover Crops nitrogen supply to the following crop



- Defra cover crop on peat soils show that cover crops can return a significant amount of nitrogen 150 kg N/ha.
- This is similar or more than recommendations for the amount of manufactured fertiliser to apply to cash crops on peat soils!
- If some of this nitrogen was available to the following crop then it would allow farmers to cut back on the amount of nitrogen fertiliser they apply

Nitrogen Management following Winter Cover Crops
A Decision Support Tree



Soil health assessments

Chemical

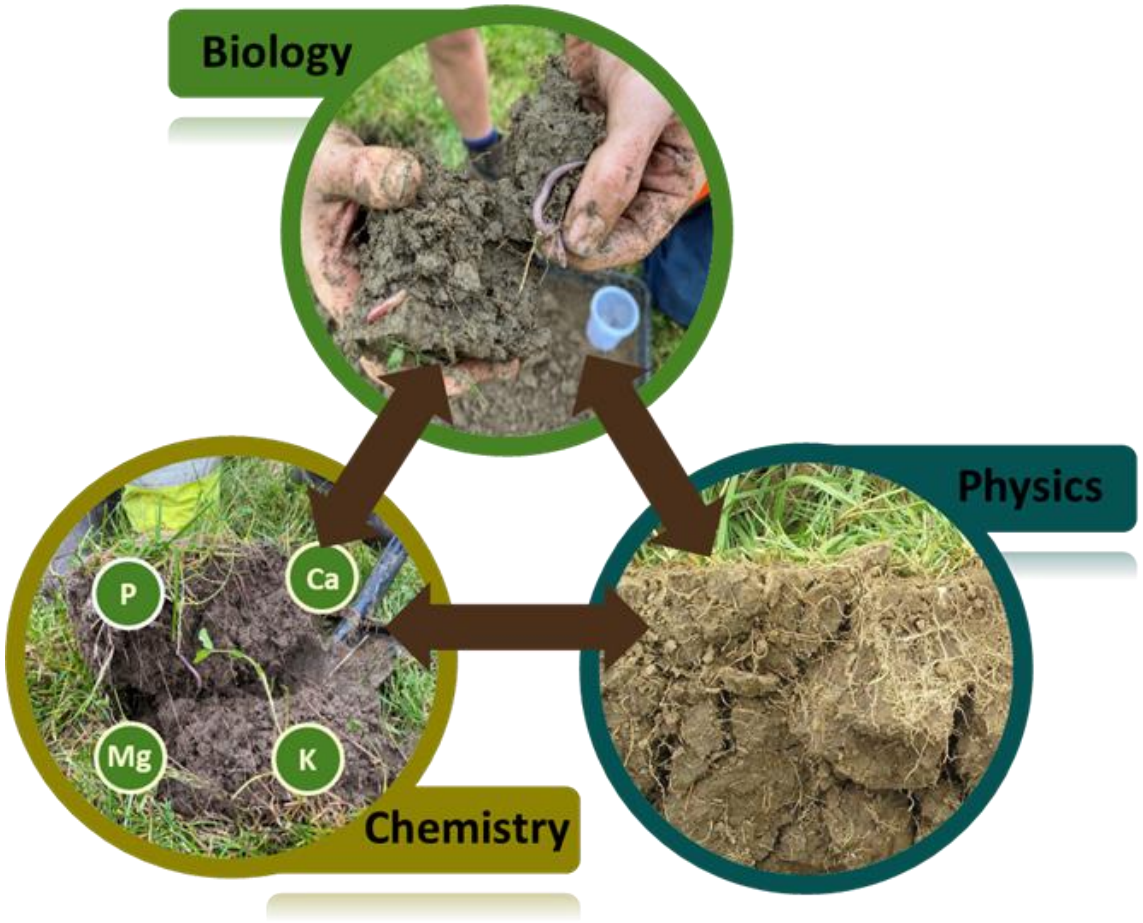
- pH
- Extractable P, K, Mg, Ca & Na
- Soil organic matter

Biological

- Earthworms
- Soil respiration (CO_2-C respiration burst)
- Potentially Mineralizable Nitrogen (PMN)

Physical

- Soil texture (% sand, silt, clay)
- Bulk density
- Visual Evaluation of Soil Structure (VESS)



Fielden Regenerative Agriculture – baselining

- Fielden Whisky are supporting their growers to adopt regenerative agricultural practices to promote biodiversity and improve soil health.
- Fielden Whisky are carrying out field trials growing heritage wheat/rye/barley using a permanent understory of clover, in unrotated fields.
- 3 Paired fields: a) clover understory (1 to 4 years) compared to b) conventional
- ADAS carried out soil health, soil carbon and biodiversity baseline assessments.
- The assessments provide baseline measurements to enable Fielden and the host farmers **to monitor change over time and to quantify the impact of adopting these regenerative practices** on soil and biodiversity

Biodiversity assessments - methods

- Vegetation survey
- Pitfall trapping (ground active invertebrates)
- Pollinator assessments
    - Pan trapping (flowering visiting insects)
    - FIT counts (flower insect times)
    - Trap nests (for cavity nesting bee activity
- Pest and natural enemy survey

Key Findings

- Soils in all fields were in good overall condition.
- In general, the soil assessments were similar between fields under regenerative and conventional management on each farm
- Changes in soil health are slow. Suggest returning to fields sites in 4 years, to monitor changes in soil health under contrasting regenerative and conventional management systems.
- Biodiversity – showed differences between fields rather than by management practice; data provides good baseline information but a larger sample size would be required to pick out any impacts of management practices

Southern Water – Soil management scheme

Project start May 2025 – July 2026

Overall objective: to develop a collaborative soil conservation management project for delivery in two catchments, to facilitate the adoption of management practices that improve soil health and water quality.

As part of the project ADAS have produced:

1. A **soil health benchmarking tool** – based on AHDB/ BBRO soil health project thresholds
2. A **soil carbon benchmarking** tool
3. **Soil management practices 'look-up table'** – to help farmers identify appropriate soil management practices & funding schemes (e.g. SFI) to improve soil health

Southern Water Soil Health Report Autumn 2025

Farm Name:
Date of sampling: October - November 2025
Region: South England
Sample: Topsoil sampled to 15 cm depth. VESS and earthworms assesed in a 20cm^3 block of soil

Overall results

	Field Name	Land Use	Earth-worms (no.)	VESS	SOM (%)	pH	Avail. P (mg/l)	Avail. K (mg/l)	Avail. Mg (mg/l)	CO_2-C Burst (mg/kg)
Your Fields	3 Corner Piece	Arable	10	2	3.7	5.8	51	102	67	103
	Bakerfield	Arable	4	2	3.7	6.9	21	91	74	106
	Beech Barn	Arable	9	3	2.6	6.1	49	184	68	101
	Broad Meadow	Arable	6	2	4.4	7	41	105	68	147
	Conybury	Arable	11	2	4.8	8.3	27	148	28	123
	Fielders	Arable	3	3	4.0	6.7	35	89	53	96
	Haylands	Arable	18	2	5.5	7.9	34	304	58	105
	Hoyle	Arable	17	2	3.3	6.9	36	65	58	121
	Julias	Arable	20	2	4.0	8.3	31	319	53	107
	New Barn	Arable	18	2	4.7	8.2	47	319	46	124
	Paddock	Arable	23	2	4.2	8.1	38	342	57	149
	Peak	Arable	19	2	4.0	8.2	42	230	47	125
	Pond Field	Arable	16	2	4.0	8.2	33	316	50	121
	Post Office	Arable	7	2	4.4	7	35	66	40	119
	Pulley	Arable	15	2	4.1	8.3	30	201	41	90
	Red Hill	Arable	12	2	3.4	6.6	30	76	51	139

Soil health report

Average results for the fields (weighted means according to the size of the sampling zone)

Comparison with the range of values (field means) measured across all fields sampled within the catchment

Southern Water Soil Health Report Autumn 2025

Farm Name:
Date of sampling: December 2025 - January 2026
Region: South England
Sample: Topsoil sampled to 15 cm depth. VESS and earthworms assessed in a 20cm^3 block of soil

Overall results

	Field Name	Land Use	Earth-worms (no.)	VESS	SOM (%)	pH	Ext. P (mg/l)	Ext. K (mg/l)	Ext. Mg (mg/l)	CO_2-C Burst (mg/kg)
Your Fields	Alma Cottage	Arable	1	3	1.7	6.3	29	225	59	52
	Big Meade	Arable	2	3	2.6	6.6	29	206	45	75
	Birds Den 1	Arable	1	2	2.0	7.2	30	136	47	94
	Birds Den 2	Arable	0	2	2.6	5.9	43	215	39	44
	Broomhills	Arable	7	2	2.1	7	34	193	55	91
	Emmetts Butt	Arable	4	2	4.0	6.4	39	216	57	54
	Hanging Hill	Arable	2	3	2.5	6.2	25	191	48	49
	Hayes	Arable	2	2	2.5	6.1	38	178	62	56
	Heath	Arable	0	2	3.1	5.9	44	305	63	72
	High House	Arable	3	2	3.2	6.5	31	133	46	81
	Hoblins	Arable	3	2	2.8	6.5	41	213	38	99
	Homefield	Arable	3	2	2.0	6.6	34	195	49	91
	Kennerly	Arable	1	2	2.1	6.6	22	143	47	83
	Larklease	Arable	1	2	3.1	5.8	42	160	33	47
	Limekiln	Arable	4	2	3.0	6.7	42	268	49	77
	Little Kennerly	Arable	0	2	1.7	6.4	27	171	44	46
	Pond Field	Arable	2	1	2.0	6.7	41	169	37	82
	Ten Acres	Arable	2	1	2.8	6.6	31	172	53	134
	Top Bungalow	Arable	1	2	5.1	6	49	221	33	54
	Upper Smythes	Arable	7	3	2.9	6.4	35	160	38	90
Catchment fields		Arable	Min	0	1	1.6	5.8	10.6	133	33	37
		Arable	Max	10	4	5.7	8	59.5	397	91	134
Catchment fields		Grass	Min								
		Grass	Max								

Soil management practices ‘look-up table’

- Soil organic matter and soil carbon was identified as being below average across most of the 113 fields sampled.
- The example below shows a screenshot of the ‘look-up table’
- The impact of soil management practices on soil health was compiled by ADAS following an evidence review
- We then mapped practices to the available funding schemes

Southern Water are using this to help support changes in practices to improve soil health and identify where they are gaps in funding

Soil health conservation management practices	Soil aggregate stability	Soil erosion and runoff	SOC and SOM content	Soil compaction	Nutrient/GHG losses to air	Nutrient losses to water	Soil biology	Impacts on crop production	Scheme (SFI/CSHT/CAP/VOL)	Action or Scheme	Land type (as shown on gov.uk website)	Payment (£/ha)
Application of organic materials	↑↑	↓↓	↑↑↑	↓↓	↑	↑	↑↑↓	↑↑	SFI	CNUM1: Assess nutrient management and produce a review report	Arable and Grassland	652/yr
	↑↑	↓↓	↑↑↑	↓↓	↑	↑	↑↑↓	↑↑	VOL	Soil Association, Certified Regenerative, Regenagri, Pasture for Life, Biodynamic Certification.		
Return straw/crop residues or apply mulch	↑↑	↓↓	↑↑	ND	↑	↓	↑	↑	SFI	CNUM1: Assess nutrient management and produce a review report	Arable and Grassland	652/yr
	↑↑	↓↓	↑↑	ND	↑	↓	↑	↑	VOL	Regenagri, Certificatied Regenerative.		
Cover crops	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	SFI	SOH4: Winter cover following maize crops	Arable	203
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	SFI	SOH3: Multi-species summer-sown cover crop	Arable	163
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	SFI	SOH2: Multi-species spring-sown cover crop	Arable	163
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	SFI	CSAM2: Multi-species winter cover crop	Arable	129
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	CSHT	CHS9: Restrict crop establishment depth on historic and archaeological features	Arable	257
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	CSHT	CAB2: Basic overwintered stubble	Arable	58
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	CSHT	CAB6: Enhanced overwintered stubble	Arable	589
	↑	↓↓	↑↑	↓	↓	↓↓↓	↑	↑↓ –	VOL	Soil Association, Regenagri, Fair to Nature, Biodynamic Certification.		
Vegetated fallow	↑↑	↓↓	↑	↓	↑	↑	↑↑	↑	SFI	CNUM3: Legume fallow	Arable	593
	↑↑	↓↓	↑	↓	↑	↑	↑↑	↑	VOL	Certified Regenerative		

Strategies for Rapid, Long-term Structural Remediation of Compacted Agricultural Soils – ReCAS project

Aim: To develop evidence-based guidance on what combination of remediation interventions, over time, is likely to deliver the most rapid & resilient restoration of soil structure across arable soils that have become structurally degraded through repeated, high intensity arable management.

Experimental design:

- Field experiments - 5 commercial arable farms across England
- Treatments will be applied to plots in combination and isolation:
    1. Incorporated straw-based cattle farmyard manure (Years 1 and 2).
    2. Low disturbance sub-soil (Year 1).
    3. Cover crops for approximately 6, 12 or 18 months.
    4. Control: Farm's 'business as usual'

Duration: 3 harvests
Measurements: soil health indicators & crop assessments

Outputs:

- Farmer specific guidance on the best practice to restore soils for long term resilience.
- Stakeholder events and scientific publications.

Project Webpage: farmpep.net/project/remediation-compacted-agricultural-soils

Supporting the Regenerative journey

- Remote assessment to identify areas with high benefit potential
- Landowner engagement and on-boarding in target areas
- On-farm baseline assessment & benchmarking to identify best opportunities
- Economic valuation of benefits to support access to environmental credits market
- Construction of package of options for practices, funding, investment
- Advice and practical help with implementation
- Monitoring and reporting of benefit indicators
- Use evidence of what works where to incentivize and empower others

ADAS NATURAL SOLUTIONS

Thank you for listening; questions

Dr Kate Smith
Principal Soil Scientist
Email: Kate.smith@adas.co.uk

Christophe Lavialle
Retail, Food & Drink Business
Development Director – RSK
Mobile: +44 7774 196697
Email: Christophe.Lavialle@adas.co.uk